

P L A N O F M A N A G E M E N T



NEWINGTON NATURE RESERVE
NEWINGTON NATURE RESERVE
SYDNEY OLYMPIC PARK



Sydney Olympic Park





Plan of Management

For

Newington Nature Reserve

Acknowledgements

This Reserve Plan was prepared jointly by staff of Sydney Region of the NSW National Parks & Wildlife Service and the Parklands Division of the Sydney Olympic Park Authority in accordance with the provisions of the NPW Act (1974) and where applicable the SOPA Act (2001).

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Section Photographs – Bob Peters

The Plan of Management for the Newington Nature Reserve, incorporated into the Plan of Management for the Parklands at Sydney Olympic Park, was for the purposes of the Plan adopted by the Hon Bob Debus MP, as Minister for the Environment on 28th January 2003.

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Foreword by the Minister for State Development and Minister for the Environment

This is the first Plan of Management that has been prepared for the Parklands at Sydney Olympic Park.

The rich Aboriginal, colonial, naval, industrial, Olympic and post-Olympic history of the Parklands has brought us this point where we now look forward. For the first time, many diverse landscapes such as the Brickpit, a former naval armament depot, internationally significant wetlands, the Newington Nature Reserve, the Paramatta River foreshore, distinctive Millennium Markers, remediated landfill areas, informal recreation spaces and active sporting areas have been brought together as one of Sydney's largest urban parklands. These areas together form a public open space setting that is unique in the world.

The vision, as stated in *Parklands 2020*, is that the Parklands will be a "landscape of hope", a globally significant model of environmental and cultural renewal. Through such renewal, the Parklands will become Sydney's premier recreation, cultural and learning centre.

On behalf of the NSW Government and the people of NSW we have a responsibility to protect these Parklands and to enhance their significance and potential. Under the *Sydney Olympic Park Authority Act 2001*, the Authority is obliged to protect, maintain and improve the Parklands as a means of promoting their recreational, historical, scientific, educational and cultural value. The legislation requires that these objectives are translated into a practical plan of operations, which has been achieved in this Plan of Management.

The Plan of Management for the Parklands at Sydney Olympic Park reflects and supports the vision. The Plan was prepared with extensive community consultation through which substantial offers of ideas and support for the Parklands and this Plan were received.

The Plan reflects the commitments of the Sydney Olympic Park Authority and the NSW National Parks and Wildlife Service to co-operatively and holistically manage adjoining public lands to ensure the best use and protection of the Parklands by improving them for diverse community use including educational, arts, cultural and scientific programs; and protecting the environmentally significant areas and endangered species.

We are confident that these plans will, over the next five years or so, make the Parklands an increasingly valuable place for the people of Sydney to experience and enjoy in the future.

On behalf of the NSW Government, we endorse this Plan of Management for the Parklands at Sydney Olympic Park, and commend it to you.

The Hon Michael Egan MLC
Treasurer
Minister for State Development

The Hon Bob Debus MP
Attorney General
Minister for the Environment
Minister for Emergency Services and
Minister for Assisting the Premier on the Arts



PROJECT NO: SPPA-LAND-007-012-000-001

**SYDNEY OLYMPIC PARK AUTHORITY
REGIONAL PLAN**



DRG. NO.: HS-P-P-1785 REV. A
DATE: 28TH SEPTEMBER, 2002
SCALE: AS PER SCALE BAR

Preamble

The Newington Nature Reserve Plan of Management (the Reserve Plan) is incorporated into the Plan of Management for the Parklands at Sydney Olympic Park as the Local Scheme of Operations for **Wanngal Wetland** (Parklands Management Precinct MP16) and the Local Scheme of Operations for **Wanngal Woodland** (Parklands Management Precinct MP17)

The Newington Nature Reserve Plan of Management incorporates the Wetland area (for the purposes of this Plan known as Wanngal Wetland), and the Woodland area (for the purposes of this Plan known as Wanngal Woodland). These working names (and the proposal that Newington Nature Reserve should be renamed Wanngal Nature Reserve) are subject to review in the future according to the place naming procedures applied by the National Parks and Wildlife Service – which includes consultation with the indigenous community - and as such any changes will be confirmed or amended in due course.

The Newington Nature Reserve Plan of Management was adopted, in accordance with Section 75 of the NSW *National Parks and Wildlife Act (1974)*, by the Hon Bob Debus MP, NSW Minister for the Environment on 28th January 2003.

The adopted Plan of Management (the Reserve Plan) establishes the Scheme of Operations for Newington Nature Reserve

The Reserve Plan is part of a system of management policy and planning developed by the NSW National Parks and Wildlife Service and the Sydney Olympic Park Authority. The system includes the NPW Act, SOPA Act, the corporate plans of the Service and the Authority, and associated strategies and management policies. It also includes regional NPWS planning.

The policies and actions established in the Reserve Plan provide the framework for future management of the Newington Nature Reserve consistent with resources anticipated to be available to NPWS and the Authority over the next five to ten years. Where not specifically provided for in the Reserve Plan, management of the reserve will be in accordance with the NPW Act, the SOPA Act, and general NPWS and Authority policies (as appropriate).

The orderly implementation of the Reserve Plan will be undertaken within the annual programs of the NPWS Sydney Region, and of the Authority. Priorities will be determined during the development of these programs and will be subject to regional priorities, the availability of funding and staff and to any specific requirements of the Director General of NPWS, the Chief Executive Officer of the Sydney Olympic Park Authority or the respective Ministers. The respective roles of NPWS and the Authority in implementing this Plan will be detailed in a Memorandum of Understanding between the two organisations.

In accordance with Section 81 of the NPW Act and Section 37 of the SOPA Act, the Reserve Plan shall be carried out and given effect to and no operations shall be undertaken in relation to Newington Nature Reserve unless those operations are in accordance with this Reserve Plan. If, after adequate investigation, operations not included in the Reserve Plan are found to be justified, the Reserve Plan may be amended in accordance with Section 75 of the NPW Act and section 36 of the SOPA Act.

SYNOPSIS

Newington Nature Reserve

Newington Nature Reserve is gazetted as a Nature Reserve under the *National Parks and Wildlife Act (1974)* (NPW Act), and is defined as part of the Parklands of Sydney Olympic Park by the *Sydney Olympic Park Authority Act (2001)* (SOPA Act). The reserve is managed by the Sydney Olympic Park Authority (the Authority) under the terms of a Memorandum of Understanding with the NSW National Parks and Wildlife Service (NPWS).

Prior to its gazettal, the reserve was part of a larger area of the Newington Royal Australian Navy Armament Depot, and managed by the Commonwealth Department of Defence. As a result, public access to the reserve has been restricted for over a hundred years. The 47 hectare reserve is in two disparate parts – a 13 hectare remnant woodland of Sydney Turpentine-Ironbark Forest, and a 34 hectare highly engineered estuarine wetland system. These two parts form an estuarine zonal succession of Cumberland Plain Woodland, *Allocasuarina*, Saltmarsh and Mangroves. The reserve provides habitat for many flora and fauna species, including migratory birds protected under international agreements, a regionally important breeding site for many native parrot species, saltmarsh communities containing large areas of *Wilsonia backhousei*, classified as vulnerable, and Sydney Turpentine-Ironbark Forest, classified as endangered. Tidal flushing was restored to the wetland in 2000, and sediment, vegetation and fauna are changing in response to the new hydrological regime.

Because of the complex ecological, infrastructure and managerial interrelationships between the Newington Nature Reserve and the Parklands, the Newington Nature Reserve Plan of Management has been prepared to meet the requirements of both the NPW Act and the SOPA Act. It is comprised of two ‘Local Schemes of Operation’ from the Parklands Plan of Management, which together form a self-contained document that meets the requirements of the NPW Act.

The Plan intends that Newington Nature Reserve will be managed to retain and enhance the high ecological values of the woodland and wetland. Public access will be restricted to guided educational Programs to defined and limited parts of the reserve to protect their values.

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(Attachments 1A and 1B are Part 1 and Part 2 of the Plan of Management for the Parklands of Sydney Olympic Park)

1 Introduction

Newington Nature Reserve is unique in that as well as being gazetted as a Nature Reserve under the *National Parks and Wildlife Act 1974* (NPW Act), it is defined as part of the Parklands of Sydney Olympic Park by the *Sydney Olympic Park Authority Act 2001* (SOPA Act). The Parklands are managed by the Sydney Olympic Park Authority (the Authority). Newington Nature Reserve is managed by the Authority under the terms of a Memorandum of Understanding with the NSW National Parks and Wildlife Service (NPWS).

2 Nature Reserves in New South Wales

Under the NPW Act, nature reserves are areas of special scientific interest containing wildlife or natural environments or natural phenomena.

The purposes of nature reserves are defined in the NPW Act as:

- the care, propagation, preservation and conservation of wildlife;
- the care, preservation and conservation of natural environments and natural phenomena;
- the study of wildlife, natural environments and natural phenomena; and
- the promotion of the appreciation and enjoyment of wildlife, natural environments and natural phenomena.

Nature reserves are valuable refuge areas, where natural processes, phenomena and wildlife can be studied. They differ from national parks that include as a major objective the provision of appropriate recreation opportunities.

The SOPA Act establishes the following objective concerning Newington Nature Reserve:

*“The objects of the Authority in relation to the Millennium Parklands are as follows:
... (e) in relation to the Newington Nature Reserve, to ensure the achievement of the purposes for which the nature reserve is deemed to be dedicated under section 49 (3) of the National Parks and Wildlife Act 1974”.* (SOPA Act s28).

The SOPA Act also provides that:

“(4) Nothing in this Act affects the continuing application of the National Parks and Wildlife Act 1974, and the regulations under that Act, to the Newington Nature Reserve.

(5) In order to assist the making of future additions of land to the Newington Nature Reserve, the Authority must manage the lands adjoining the Reserve in sympathy with the Reserve.” (SOPA Act s30)

3 Newington Nature Reserve

Newington Nature Reserve is located on the southern side of the Parramatta River approximately twelve kilometres west of Sydney, between Homebush Bay and Silverwater, and is part of and is surrounded by The Parklands.

The Reserve was gazetted on 15 September 2000 as Silverwater Nature Reserve. The name of the reserve was changed to Newington Nature Reserve with the gazettal of the *Sydney Olympic Park Authority Act 2001* (SOPA Act).

The Reserve is Lot 1 of Deposited Plan 883215. It is in two disparate parts, a woodland of 13 hectares (Wanngal Woodland), and a wetland of 34.7 hectares (Wanngal Wetland), together providing the Newington Nature Reserve of 47.7 hectares. The two parts of the Nature Reserve are separated by a narrow band of grassland that contains scattered trees, a railway line, buildings associated with the former Newington Royal Australian Navy Armament Depot, and a sealed service road. Ownership of this separating land is vested in the Sydney Olympic Park Authority and it is part of the Parklands.

The Reserve is a part of and fully surrounded by the 425 hectare Parklands, which are a part of Sydney Olympic Park. The vegetation communities of the Parklands include remnant and constructed freshwater and saltwater wetlands, grasslands, recently planted woodlands, turfed parklands and playing fields. Urban parklands and playing fields fringe much of the upper Parramatta River. The Reserve is within the Auburn Local Government Area.

The Reserve is located close to the geographical centre of Sydney, and hence the regional setting is highly urbanised. The site was previously under the management of the Department of Defence, with highly restricted access. As a result, Newington Nature Reserve has survived as a native vegetation community in the midst of an area that has largely been cleared of its native vegetation, and is highly isolated from other areas of remnant native vegetation communities.

The Olympic Coordination Authority, and subsequently the Sydney Olympic Park Authority have managed the Reserve from 1996 to 2002, including funding of all restoration, operational, and scientific study and monitoring activities.

4 Development of the Plan of Management

The NPW Act and the SOPA Act require that a Plan of Management be prepared for the Nature Reserve and the Parklands respectively. These plans of management are legal documents that outline how lands will be managed in the years ahead. Both sets of legislation prohibit the conduct of operations and activities that are not in accordance with the Reserve Plan.

Because of the complex ecological, infrastructure and managerial interrelationships between the Nature Reserve and the Parklands, the Reserve Plan has been prepared to meet the requirements of both the NPW Act and the SOPA Act. As such, it contains some additional content to other nature reserve plans of management. In particular, the SOPA Act incorporates various sections of the *Local Government Act (1993)*. This additional content increases the level of protection that the Plan provides to the reserve.

The Parklands Plan of Management is the means for realising the conceptual plan for the Parklands contained in Parklands 2020¹. It comprises a *General Scheme of Operations* for the whole Parklands and seventeen *Local Schemes of Operation* (one for each Management Precinct of the Parklands) and satisfies the statutory and operational requirements for a Plan for the Parklands

¹ The Parklands 2020 draws from the Millennium Parklands Concept Plan (Hassell 1997) then elaborates the concept thereby fully replacing the Concept Plan.

The *General Scheme of Operations* refers to the whole Parklands. It reflects the conceptual and operational design for the Parklands set out in Parklands 2020. It identifies a set of general objectives for the Parklands, establishes the statutory and regulatory management framework, highlights key elements and systems of significance, identifies the different physical parts of the Parklands, categorises management precincts, establishes general objectives, and names the different places. The various *Local Schemes of Operations* refers to each individual Management Precinct and detail the intent of Parklands 2020; define the location; establish categories and local objectives; identify applicable community values, the local functions and policies; authorise uses and developments; overview the site assessment; raise key management issues; set management strategies; and establish performance targets.

The two disparate parts of Newington Nature Reserve are classified by the Parklands Plan of Management as two individual Management Precincts – the Wanngal Wetland and the Wanngal Woodland. Management requirements for these two precincts are detailed in two of the *Local Schemes of Operations* (i.e. MP16 and MP17 respectively) in the Parklands Plan of Management. The Reserve Plan is comprised of these two *Local Schemes of Operations*, which, with the addition of an introduction in Part 4 and certain extracts for the Plan as appendices, form a self-contained document that meets the requirements of the NPW Act.

5 Management of the Nature Reserve

The NSW National Parks and Wildlife Service is the responsible authority under the NPW Act for the management of Newington Nature Reserve. The Sydney Olympic Park Authority has obligations under the SOPA Act to assist in the management of Newington Nature Reserve.

The relationship between NPWS and SOPA with regards to management of Newington Nature Reserve will be determined by agreement between the two organisations from time to time and evidenced in writing by way of a Memorandum of Understanding (NNRMOU). Such a Memorandum of Understanding will be prepared within 6 months from the adoption of this Reserve Plan.

The contents of the Memorandum of Understanding will include but not be limited to:

- NPWS and SOPA communication protocols.
- Authorisation of nominated SOPA staff to operate under the NPW Act.
- Management activities to be undertaken by NPWS.
- Management activities to be undertaken by SOPA.
- Management and visitation activities that can be approved by SOPA.
- Management and visitation activities that need NPWS approval.
- Funding arrangements for management activities.

Pending the preparation of the Memorandum of Understanding the management arrangements for Newington Nature Reserve will be according to the status quo as at December 2002.

Nothing in the Memorandum of Understanding will be inconsistent with the Reserve Plan or the NPW Act as it relates to Nature Reserves.

Section 6

Newington Nature Reserve Plan of Management (2002)

(Incorporated into the Parklands Plan of Management (2002) as Part 4: Section 16)

MP 16: Local Scheme of Operations for

Wanngal Wetland (Management Precinct MP16)

For the purposes of this Plan, the wetland part of Newington Nature Reserve is known as Wanngal Wetland. Wanngal Wetland is a working name only and is subject to review in the future according to the naming procedures applied by the National Parks and Wildlife Service and as such it will be confirmed or amended in due course. The name 'Wann', refers to the south side of the Parramatta River east of Parramatta, including the area of Sydney Olympic Park. This area belonged to the Wanngal clan, who were the traditional Aboriginal owners of the area. The name is appropriate for this area as an acknowledgement of the Wanngal Clan and their linkage to the remnant stand of Cumberland Woodland adjacent to the Wetland in the Newington Nature Reserve.

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Wanngal Wetland



Selected Photos associated with Wanngal Wetland



1. Conceptual Position of Wanngal Wetland

1.1 Wanngal Wetland as a Nature Reserve

The Wanngal Wetland is a highly modified estuarine wetland system. With Wanngal Woodland, it was gazetted as a nature reserve on 15 September 2000. The Wetland consists of a series of five sections separated by low mounds marking old vehicular routes or fence lines associated with past use by the Department of Defence. The hydrology of the Wetland is managed by constructed flushing channels, adjustable weirs, bunding, stormwater pipes and drains. An acid sulphate containment mound is situated within the Wetland, and the Wetland contains a nursery established to provide propagative material of three rare saltmarsh species. Flora and fauna of the Wetland have developed in response to past manipulations to the natural hydrology and landform, and are only now beginning to respond to recent tidal restoration works. Despite its highly modified nature, Wanngal Wetland has high ecological value.

Wanngal Wetland is a very significant element of the fabric of The Parklands, incorporating natural and cultural elements and providing a unique feature within the Parklands, with high interpretive, educational and aesthetic values.

In the 1990s the areas now comprising the Parklands became part of an enhanced focus for conservation due to interest in Sydney's "Green" Olympic Games. The history of management and modification to the Wanngal Wetland demonstrates the evolution of attitudes of the Australian community to river and wetland management. The reintroduction of tidal flushing to the Wetland demonstrates more recent approaches to restoring and reinstating environmental values through unprecedented programs of environmental repair.

The significance of the Wanngal Wetland has been recognised through its gazettal as a nature reserve, and listing on the Register of the National Estate by the Australian Heritage Commission.

1.2 Important Values Associated with Wanngal Wetland

The ecological features and physical characteristics of Wanngal Wetland reveal a number of important values (including natural, landscape, cultural, knowledge and educational values) associated with this isolated saltwater wetland remnant that are reference points for use and place management.

The Wetland provides:

- An intact and diverse estuarine wetland system containing significant areas of remnant saltmarsh and mangroves in excellent condition, that is representative of pre-European vegetation otherwise no longer retained in this locality.
- An important component in the suite of estuarine wetlands remaining within the upper Parramatta River region of the Sydney basin.
- Part of a complete estuarine zonation of Cumberland Plain Woodland, *Allocasuarina*, Saltmarsh, and Mangroves.
- A large stand of *Allocasuarina* in good condition.

- Habitat for 70 species of local and migratory waterbirds and shorebirds, of which 20 are listed in the Japan Australia Migratory Birds Agreement, and nineteen are listed in the China Australia Migratory Birds Agreement.
- Habitat for Sydney's largest population of the White-fronted Chat (*Epthianura albifrons*), and for populations of several bat species.
- Natural and planted areas of the saltmarsh plant *Wilsonia backhousei*, listed as vulnerable under the NSW *Threatened Species Conservation Act (1995)*.
- Two locally significant saltmarsh species - *Lampranthus tegens* and *Halosarcia pergranulata*.
- Receiving waters for the local catchment.
- A part of the cultural heritage of the wider Royal Australian Navy Armament Depot area.
- A distinctive landscape feature viewed from northern suburbs of Sydney and many points within Sydney Olympic Park, such as the summits of Woo-la-ra and the Millennium Markers, and from the viewing deck of the Novotel Hotel.
- An opportunity for scientific research, monitoring and educational programs about wetlands flora and fauna, and management of saltwater wetlands.

1.3 Categorisation of Wanngal Wetland

Newington Nature Reserve, of which Wanngal Wetland is one part, is a dedicated nature reserve under the provisions of Section 49(c) of the NPW Act. The Plan has, for management purposes, categorised¹ Wanngal Wetland as **Nature Reserve** under the Sydney Olympic Park Authority approach to classification of Management Precincts.

1.4 The General Scheme of Operations

The provisions of the General Scheme of Operations detailed in Part 2 of the Parklands Plan apply to the management of Wanngal Wetland in addition to the provisions in this Local Scheme of Operations. However, in the event that any inconsistency or conflict arises between the General Scheme of Operations and this Local Scheme of Operations, the Local Scheme of Operations will prevail.

1.5 Management Zones

Wanngal Wetland has not for the purposes of the Plan been sub-categorised into distinct Management Zones. This is so because the intended uses, functions and features of Wanngal Wetland are consistent across the site and no particular area requires special management consideration.

A plan of this Management Precinct is attached as Drawing HS-P-P-1500 REV.C in Appendix 1.

¹ Consistent with the requirements of Section 36 (3) (a) of the LGA Act (1993) imported by Section 34 (4) of the SOPA Act (2001) although this process does not strictly apply to the Nature Reserve.

1.6 General Objectives for a Nature Reserve

All objectives are to be used as key management reference points in assessing, considering or testing any proposals for developments to undertake works, change levels or extent or types of use, and/or modify any infrastructure, ecosystem or landscape.

The following general objectives relate to the management of nature reserves in New South Wales, and will apply across the whole of Wanngal Wetland.

- The protection and preservation of scenic and natural features, including significant natural and geomorphological features.
- The conservation of wildlife, including maintenance of biodiversity and populations of threatened species.
- The maintenance of natural processes.
- The preservation of catchment values.
- The preservation of Aboriginal sites in consultation with the Aboriginal community.
- The conservation of non-Aboriginal historic features.
- The provision of opportunities for appropriate use.
- The encouragement of scientific and educational enquiry into environmental features and processes.

1.7 Local Objectives for Wanngal Wetland

The following Local Objectives apply to Wanngal Wetland:

- To manage the Wetland as a naturalistic system by reinstating, restoring and maintaining ecosystem processes.
- To recognise the highly modified and engineered nature of the Wetland and the need for ongoing adaptive management to conserve and promote desired species and communities and retain the significance of the Wetland.
- To establish and manage a tidal regime that achieves objectives and minimises intervention.
- To manage the Wetland to favour saltmarsh, rather than mangroves, and to retain the habitat values of the Main Lagoon for migratory waders.
- To minimise flooding within the catchment, particularly flooding of the heritage buildings, railway, services and other improvements within Newington Armory precinct of the Parklands.
- To minimise pest populations of mosquitoes.
- To manage contaminants in a manner that promotes human safety and environmental protection.
- To manage the Wetland and Newington Armory precincts in a complementary manner;
- To apply scientific study and monitoring to guide the management regime and interpretive Program of the Wetland.
- To seek to work cooperatively with managers of other estuarine wetlands on the Upper Parramatta River to promote the combined values of these small wetlands.
- To promote community appreciation of the value of the Wetland as a sample of remnant vegetation with high flora and fauna habitat values.
- To assist in and facilitate the implementation of any statutory provisions affecting the use and management of the land.

- To facilitate community education in relation to the land, without compromising the ecological values of the land.

2. Physical Characteristics of Wanngal Wetland

2.1 Land Elements

The Wanngal Wetland is completely surrounded by the Newington Armory area of the Parklands. Access to the Wetland is strictly controlled to protect flora and fauna from disturbance and cultural heritage items from vandalism. Newington Armory also has restricted public access and thus gives the Wetland an even greater level of protection.

The gazetted boundary of the Wetland doesn't entirely coincide with the boundary of the natural system. A 1.8 metre chainwire fence surrounding the Wetland follows natural boundaries and thus some small areas within the fence are part of Newington Armory and some small parts outside the fence are part of Wanngal Wetland precinct (see Appendix 1).

The Wanngal Wetland forms part of a vegetation corridor contiguous with the Woo-la-ra native grasslands, the grasslands of Newington Armory and the mixed native wetland and terrestrial plantings of the Narawang Wetland. The Wanngal Woodland and the Wanngal Wetland form a complete estuarine zonation, from Cumberland Plain Woodland through to *Allocasuarina* Closed forest, and then saltmarsh to mangroves in the intertidal zone.

The Wetlands receive directed stormwater runoff and overland flow from neighbouring precincts of the Parklands, and drains to the Parramatta River. They are part of a system of small estuarine wetlands on the upper Parramatta River that includes Badu Mangroves, Haslams Creek, Ermington Bay and Hen and Chicken Bay.

Areas of wetland and planted and remnant native vegetation in Newington Armory are managed in a complementary way to the Wanngal Wetland, effectively enlarging the size of the wetland management unit.

The *Sydney Olympic Park Authority Act (2001)* includes specific requirements for managing areas adjacent to the Wanngal Wetland:

“The Authority must ensure that the plan of management includes, after consultation with the Director-General of National Parks and Wildlife, a proposal that land adjoining the Newington Nature Reserve is to be managed as a buffer to that reserve.” (SOPA Act S.34(6))

“In order to assist the making of future additions of land to the Newington Nature Reserve, the Authority must manage the lands adjoining the Reserve in sympathy with the Reserve.” (SOPA Act S.30(5))

2.2 Wetland Elements

2.2.1 Tidal flushing

The Wetland is now a highly engineered and altered system that has undergone significant hydrological change over the past 120 years.

A seawall was constructed along the boundary with the Parramatta River in the late 1800's, restricting tidal exchange within the wetland from the River to inundation by infrequent high tides that breached the seawall.

Extensive reclamation works resulted in the infilling of Homebush Bay on the eastern side of the wetlands between the 1950s and 1970s. The Wetland originally received saltwater inflow from Homebush Bay via the outlet of Haslams Creek, whereas since infilling of the Bay, it was only fed from the Parramatta River. The perched nature of the mangroves is an indicator of flow changes (NEC 1996). Since this infilling, drainage of the Wetland after rain had been prevented by the seawall.

A single small-diameter pipe mid-way along the Parramatta River frontage of the wetlands and situated well above mean low water levels provided limited tidal flow and drainage to the Wetland from the time links with Homebush Bay were removed until recent tidal flushing works were undertaken. This pipe progressively became blocked with silt, further reducing water exchange. Three low partly raised bunds were constructed across the wetlands during their use by the Department of Defence, to provide pedestrian and vehicle access between buildings. This divided the Wetland into four segments with different hydrological regimes.

Between 1996 and 2000, waste that was historically used to "reclaim" marshy areas of Homebush Bay was excavated, and consolidated in the waste containment mound Woo-la-ra, a twenty-eight metre high vegetated mound on the eastern side of the Wetland. In April 1997, tidal flushing was restored to the Corner Marsh of the Wetland, by removing part of the seawall and replacing it with a rock filter, and a rectangular tidal flushing channel.

Commencing in 1999 and ending in May 2000, tidal flushing was restored to the remainder of the Wetland. Part of the seawall between the Parramatta River and the Main Lagoon was removed and replaced with seven culverts, placed below low tide level. A flushing channel was built to carry water from the culverts into the Main Lagoon. A low bund was built around Wharf Pond to protect it from inundation by tidal (salt) water resulting from increased tidal flows.

Potential acid sulphate soil excavated from the tidal channel was contained in cells constructed on a scald within 33 Marsh, and landformed to create a low vegetated containment mound. A secondary channel was constructed on the eastern side of the wetlands. This breached the bunds between the Corner Marsh and 33 Marsh, enabling water flow between them and around the containment mound. The original pipe opening to the Parramatta River was cleaned out, and its functioning restored.

All of the Wetland except the Wharf Pond now receives regular tidal exchange, and the Wetland is changing in response to current hydrological conditions. Weirs in tidal flushing channel 2 and the secondary flushing channel enable manipulation of water flow.

2.2.2 Unexploded Ordnance

The Wetland is believed to contain the following unexploded ordnance (UXO):

- Pyrotechnic material containing phosphorus discarded after burning and buried at approximately 1 metre depth, most likely in areas closest to the former "proof yard" and furnaces and to the existing transects.

- Surface contamination with 20mm rounds, most probably ejected from burn-pits during the disposal process, and thus most likely to be within a 300 metre exclusion radius of each former burn pit.
- Surface contamination of pyrotechnics litter containing phosphorus, which has either been discarded within the Wetland without being buried or may be surfacing due to water table movement.
- Incorrect methods of disposal of stores. The possibility of this having occurred at some stage in the long life of the Depot cannot be ruled out.

Parts of the Wetland have been identified as “clear” of UXO, and are delineated with a single-strand signed wire fence, enclosed within the 1.8m chainwire fence. There may be movement of UXO material in the sediment of the Wetland due to tidal flushing and resultant changes to the water table, with consequential implications for changes to the extent of surface contamination over time.

Clearance of all UXO material from the Wetland would result in significant disturbance to the environmental values of the Wetland. Access to UXO areas for any purpose can only be permitted under escort of a trained armament technician. This severely restricts management, maintenance, research programs and visitation within the Wetland.

The Department of Defence has continuing responsibility for management and monitoring of the UXO contamination of the wetlands. This role did not cease with the transfer of the land to NSW Government control and is an existing use under section 39 of the NPW Act.

2.3 Soil and Sediment Elements

The Wetland is situated on poorly drained estuarine sediment, with a high organic content (Clarke and Benson 1988). It is the collection basin for stormwater runoff from much of Newington Armory, and receives both directed and undirected flows.

Topography is variable at the micro-level, as a result of past use. Some small ponds do not drain with tidal flushing and so provide a reservoir for mosquito larvae. Planning for the tidal flushing works recognised this likelihood. Such ponds were to be evaluated following completion of tidal flushing works, with future localised tunneling works being a possible way of draining these ponds.

The restoration of tidal flushing is altering patterns of sedimentation and sediment distribution, as the Wetland adapts to the new hydrological regime. Changes to sediment distribution will in turn affect the vegetation community, and could also lead to siltation of flushing channels. Monitoring of sedimentation patterns is necessary to understand these changes and their effects.

Groundwater level, movement and chemistry is integral to function and management of the Wetland and neighbouring areas. Several piezometers are situated within the Wetland as part of the SOPA landfill monitoring strategy.

2.3.1 Contaminated Soils

Prior to the remediation of Sydney Olympic Park, the major source of contamination of the Wetland was the release of contaminants from adjacent uncontrolled landfills in surface

drainage, seeps, and groundwater discharges. An organophosphate compound previously used for mosquito control also caused contamination (Sydney Olympic Park Authority 2001).

Areas on the eastern side of the wetland contained tarry hydrocarbon contaminated sediments. As part of the Stage 2 North Newington Remediation Works, contaminated sediments from this area were removed and consolidated into the adjacent North Newington Remediation Mound (now called Woo-la-ra). This mound is capped with a minimum 1 metre of clay and a leachate perimeter drain has been installed to prevent re-contamination of the wetland.

In 2001, a small pocket of contaminated soil was uncovered adjacent to the Wetland during the installation of the Louise Sauvage Pathway, which is located along the eastern boundary of the Wetland. Chemical tests revealed that the contaminated soil contained cyanide and polyaromatic hydrocarbons (PAH). An earthen clay bund along the internal perimeter of the Wetland acts as a containment barrier to this material.

Much of the Wetlands could be expected to contain naturally-occurring potential acid sulphate soil (PASS). PASS frequently occurs naturally in estuarine areas. When these soils are exposed to air, acid is produced. There are noticeable scald areas in the wetlands that confirm the high probability of additional areas of acid sulphate soil occurring in the wetlands (Coffey Partners International Pty Ltd 1998).

Acid sulphate soils (ASS) were excavated during the construction of the tidal flushing channels during 1999/2000. The ASS were buried below the water table in a containment cell located within 33 Marsh, to prevent the generation of sulphuric acid. This material was not permitted to be taken out of the Wetland because it also potentially contained unexploded ordnance. The area was formed into a low terrestrial containment mound, topped with soil made from crushed sandstone, and planted with grasses, Casuarinas and Acacias. Irrigation is provided to this area to aid plant establishment.

2.4 Cultural Elements

The Wetland is likely to have provided a food resource for the original Aboriginal inhabitants of this area, however the fragile traces of this use have been removed or substantially disturbed by the impact of later development. The environment may illustrate Aboriginal stories that originally related to other places that no longer retain the relevant natural features.

The wetlands are part of an area that has been well documented in the history of the development of Sydney. The place was subject to some of the earliest colonial land grants, and became part of the Newington Estate owned by the Blaxland family. In the late 1800s, a seawall was constructed along the front of the Wetland to protect the river as a transport corridor. The Newington Estate was subsequently purchased by government and in the 1890s became the site of the Royal Australian Navy Armament Depot (RANAD) and was used for armament storage and transfer from 1890 to 1999. During this time, the Wetland was used for burning and disposal of ordnance, because of its isolation and perceived low value for other uses.

The former RANAD site included land that is now within the Parklands precincts of Newington Armory, Wanngal Woodland, Wanngal Wetland, Narawang Wetland, Woo-la-ra, and Haslams Creek Flats, as well as the suburb of Newington. Of these, only Newington

Armory, Wanngal Woodland and Wanngal Wetland remain relatively unchanged. These three precincts as a whole illustrate the sequence of design philosophies for explosives handling throughout the twentieth century.

The significance of the former RANAD site (including the Wetland) as a historic example of explosives handling is recognised by its listing on the Register of the National Estate as part of the Newington Armament Depot Conservation Area.

Graham Brooks and Associates (2001) define the Wetland area as part of the “Early Naval Occupancy” precinct of the Newington Armament Depot, which provides historic evidence of the period of expansion of the Armaments Depot during the decades prior to World War II. The shape of the wetlands, with the remains of an 1890 facine dyke, indicates a period of early reclamation prior to the construction of the magazine (Graham Brooks and Associates 2001 p93). Building 16 (former Explosives Storehouse c.1928, for storage of bombs) is located inside the perimeter fence of the Wetland but is within Newington Armory precinct and is not part of the gazetted nature reserve.

In 1996 the RANAD area was handed from the Commonwealth to the State of New South Wales and then leased back to the Commonwealth until 1999, when it ceased use as an armament depot and the State took up occupancy. The Olympic Coordination Authority and Sydney Olympic Park Authority have implemented a number of restoration, management and scientific study programs within the Wetland since 1996.

2.5 Natural Elements

2.5.1 Native vegetation, habitat and introduced plants

The Wetland is dominated by Grey Mangroves and saltmarsh. It also contains a large area of shallow open water and is partly edged by a five hectare *Allocasuarina* closed forest.

The Wetland forms part of the only remaining example in the Sydney region of a complete estuarine zonation, from Cumberland Plain Woodland through to *Allocasuarina* Closed Forest, and then saltmarsh to mangroves in the intertidal zone (P. Adam *pers. comm.* 2001; Fox and Associates 1986).

The saltmarsh habitat in the Wanngal Wetland is an important component of the remaining saltmarsh community in New South Wales (Adam 1993). Since European settlement, over eighty percent of the saltmarsh habitat in the Sydney region has been lost, and much of the pre-existing saltmarsh and wetlands of Homebush Bay has been progressively reclaimed (Burchett and Pulkownik 1995). The composition of the saltmarsh flora is unusual for the Sydney region, and is of biogeographical interest (Clarke and Benson 1988). The saltmarsh supports three species of particular note:

- The largest remaining stands of *Wilsonia backhousei* in the Sydney region (P. Adam *pers. comm.* 2001); this species is listed under the NSW *Threatened Species Conservation Act (1995)* as vulnerable.
- The only known population of *Halosarcia pergranulata* occurring on the New South Wales Coast (Clarke and Benson, 1988). This species was not recorded in an extensive 1919 vegetation survey, and it is improbable that it could have been overlooked. It may

have been subsequently introduced by cattle through the abattoirs, or by birds (Adam 1993). This species is regarded as part of the cultural heritage of the site.

- Dense patches of *Lampranthus tegans*. The origin of this species is unclear. It is described as a native, though it may have been introduced from South Africa by overseas shipping (Venning 1984). It is now only known from the Sydney region and Victorian coast. This species is regarded as part of the cultural heritage of the site.

The mangroves of the Parramatta River area represent a significant proportion of the mangroves remaining in the Sydney region. A five-hectare Swamp Oak (*Allocasuarina glauca*) forest has developed within the Wetland since 1955 and is in excellent condition with little weed invasion, and forms part of the continuous canopy link between Wanngal Woodland and the Parramatta River.

The presence of UXO greatly restricts weed management throughout much of the Wetland. Weed management using bush regeneration techniques has been regularly undertaken in accessible areas in recent years. Terrestrial weeds are present in elevated parts of the Wetland, and *Juncus acutus* is present in some areas. Mangrove seedlings are establishing in areas that are currently saltmarsh and mudflat.

2.5.2 Native and introduced animals

The wetland is composed of a high diversity of habitats, which support a great abundance and diversity of bird species (Taws and Ekert 2001). Almost all other wetland areas on the Parramatta River are subject to extreme disturbance pressure, particularly during the weekends, and the Wanngal Wetland provides an important refuge from this disturbance for many waterbirds (NPWS 1998). Seventy bird species have been recorded in the Wetland in 2001-2002 (Parsons 2002).

The Wetland is one of several small estuarine wetlands in the Upper Parramatta River that together are an important regional habitat for migratory waders. Twenty bird species recorded for the wetlands are listed in the Japan Australia Migratory Birds Agreement (JAMBA), and nineteen species in China Australia Migratory Birds Agreement (CAMBA), including Latham's Snipe (*Gallinago hardwickii*) and Curlew Sandpiper (*Calidris ferruginea*) (Straw 1999, Taws and Ekert 2001).

The Wetland supports a number of bird species that are relatively uncommon elsewhere in the Sydney region, and are at the extreme range of their distribution. The saltmarsh supports Sydney's largest population of the White-fronted Chat (*Epthianura albifrons*) (Straw 1998). Other species of note are the Brown Honeyeater, and the Mangrove Gerygone, for which the Wetland provides the only known Sydney habitat.

The *Allocasuarina* forest is an important foraging area for bat species including the Large Bentwing Bat (listed as vulnerable in NSW). Gould's Wattled Bat and Gould's Long-eared Bat have also been identified here (Hoye *pers. comm.* 2001).

The Green and Golden Bell Frog (listed as threatened in NSW and vulnerable nationally) has been recorded within the Wharf Pond. Wharf Pond is classified as supplementary habitat for the Green and Golden Bell Frog in SOPA's Frog Management Plan.

The remainder of the Wetland is classified as a non-habitat area.

The Wetland provides a regionally significant mosquito-breeding habitat, including for the pest species *Ochlerotatus vigilax*. Mosquito monitoring and control is conducted in accordance with SOPA's Mosquito Control Operational Plan. Strategic control using aerial application of a bacterial larvicide is guided by an intensive monitoring program.

The Wetland contains native and introduced fish, including *Gambusia holbrookii*. Predation by *Gambusia* is listed as a threatening process in NSW. The Wharf Pond contains Eastern Long-necked Turtles. The epifauna of the Wetland is not abundant, although it is similar to those found in other mangrove forests subject to variable salinity. Since the reintroduction of tidal flushing, an influx of mullet and crabs has been observed (Pym 2001).

A number of waterbirds, including White-bellied Sea Eagles, regularly use handrails on the adjacent Foreshore Walk (within Newington Armory) for perching and for feeding on fish caught in the Wetland. The introduction of public access to this area is likely to deter birds from this behaviour.

2.6 Fire Management

Under the NSW *Rural Fires Act (1997)*, NPWS is a fire authority and is responsible for controlling fires within nature reserves. The Wetland has a low fire risk. Increased public access to the perimeter of the Wetland will increase the risk of arson and accidental fire to terrestrial vegetation fringing the Wetland.

2.7 Constructed Elements

Constructed elements and infrastructure within the Wetland include:

- Constructed tidal flushing channels, weirs, box drains, and culverts.
- A 1.8 metre chainwire fence at the approximate boundary of Newington Armory and the Wetland.
- A single strand fence marking the boundary of UXO areas within the Wetland.
- A service track to flushing channel two.
- Bunding around the Wharf Pond.
- An acid sulphate containment mound.
- Artificial roost sites.
- Water level gauges.
- A saltmarsh nursery area containing constructed "saltmarsh mounds".

Because the Wetland was until recently a part of the greater RANAD site, it contains some constructed elements and minor infrastructure that are reliant upon or essential to the operation of facilities and services located outside the boundaries of the Wetland, but within Newington Armory precinct of the Parklands. This includes:

- Parts of tidal flushing channels 1 and 2, situated within Newington Armory.
- Stormwater pipes and drains that discharge from Newington Armory to the Wetland.
- Underground stormwater discharge pipes passing under Newington Armory and discharging from the Wetland into the Parramatta River.
- A septic tank located in the Wetland and servicing Building 30 in Newington Armory.
- An irrigation system to the acid sulphate containment mound, connected to a water supply in Newington Armory.

- Building 16, a part of Newington Armory but fenced within the Wetland.
- Piezometers within the Wetland that are part of the Sydney Olympic Park groundwater monitoring system.

Maintenance of infrastructure both within and outside the Wetland will be required so that existing services to land under different ownership continue to be available.

2.8 General Condition of Wanngal Wetland

The condition of the land and improvements in 2002 is as follows:

- The condition of the land and vegetation can be described as variable and undergoing change. The sediment contains various types of contamination including unexploded ordnance; vegetation condition is good.
- The wetland vegetation and the substrate is undergoing change in response to the new hydrological regime, with high occurrence of mangrove seedlings in areas of saltmarsh and on mudflats.
- A large proportion of the area is classified as containing unexploded ordnance (UXO). The tidal flushing infrastructure is operational.
- The perimeter fencing is in excellent condition.
- The service track to tidal flushing channel 2 is in good condition.
- The single-strand wire fence indicating the boundary of UXO areas needs repair.
- Ponding occurs in parts of the Wetland and creates mosquito breeding habitat.

2.9 Base Use & Occupation of Wanngal Wetland

The use of the land and improvements in 2002 is as follows:

- The base use of the land and improvements was for nature conservation.
- The service track to Tidal Flushing Channel 2 is identified as having potential but was not available for use in controlled visitation to the Wetland.
- Access is limited to controlled activities approved by NPWS and associated with monitoring and management activities.
- The wetlands were treated as part of the Parklands mosquito control program.

3 Use & Function of Wanngal Wetland

3.1 Outcomes Sought for Wanngal Wetland

The Plan recognises that the Wanngal Wetland is a natural wetland system that has been affected by extensive disturbance and modification over the past 150 years. Allowing “natural processes” to continue with little or no management intervention would mean that many values would be lost and the natural significance would be diminished. Management of this system must be aimed at actively targeting specific outcomes.

The Plan intends that Wanngal Wetland will achieve the following outcomes on an ongoing basis:

- The Wetland will function as a naturalistic, managed estuarine ecosystem that favours saltmarsh rather than mangroves, and retains the habitat values of the wetland as a whole, and particularly the Main Lagoon, for migratory waders.
- Adaptive management of the Wetland is guided by scientific research and monitoring.
- NPWS and the Authority will cooperate to ensure the Wetland and surrounding areas of the Parklands are managed in a complementary manner.
- Public use will be limited to controlled educational visits along the service track to Tidal Flushing Channel 2.
- Opportunities for public appreciation of the Wetland and its inhabitants will be increased by provision of services and infrastructure outside of the Wetland, such as observation points and interpretive signage on the Wetland perimeter and use of webcam.
- Wanngal Wetland will be operated and managed to recognise the importance of the Reserve as a natural habitat area of State and National significance.

3.2 The Function of Wanngal Wetland

The Plan recognises that the primary function of Wanngal Wetland is as a nature reserve containing an estuarine wetland ecosystem, in accordance with it being of high conservation value and a gazetted nature reserve.

Wanngal Wetland has secondary functions as an element of the former Royal Australian Navy Armament Depot heritage landscape, as a controlled scientific monitoring and research site, and as a controlled educational point of interest.

3.3 Visitation & Activity

Wanngal Wetland will be managed so that use by the general public, special interest groups, students, and Reserve managers or other authorities is appropriate and conforms with the NPW Act, the SOPA Act, and the management objectives and policies of this Plan.

The Wanngal Wetland is a very small and significant area of remnant vegetation, with a high wildlife habitat value. Ecologists consider that the low level of human disturbance throughout occupation by the Department of Defence, particularly over the past 20 years as defence activities were reduced, has been a key factor in preservation of its values. There has been no public access to the Wetland for the past 100 years. The primary purposes of nature reserves are conservation of wildlife, natural environments and significant cultural features and to provide opportunities for education and scientific research into these resources.

The small size of the Wetland means that visitation to a relatively small area will disturb a relatively large proportion of the total Wetland area. Human presence can degrade the habitat value for fauna species and requires careful and adaptive management. In this context, the most sensitive areas for birds are the Main Lagoon and the Wharf Pond. Access to the entire perimeter of the Wetland is available via the Newington Armory precinct of the Parklands, and is likely to cause a level of disturbance to birds nesting, roosting and feeding within the Wetland.

3.3.1 Public Access

Public access to the Wetland will continue to be restricted, however highly controlled public access will be introduced. Public access will be limited to controlled educational visits in daylight hours to a defined and limited part of the Wetland. The service track to flushing

channel two will be the only area available for visitation. This will be screened, and a hide constructed, to minimise disturbance to wildlife. Visitation to gazetted areas of the Wetland that are outside the perimeter chainwire fence will be managed according to access protocols for Newington Armory.

The Wetland is highly visible from adjoining parts of the Parklands. The Foreshore Walk between the Wetland and the Parramatta River, parts of the Louise Sauvage Pathway, and the summit of Woo-la-ra provide views to most of the Wetland.

There is currently no locational signage or interpretive material at the Wetland. There are opportunities for public appreciation of the Wetland and its inhabitants to be increased by provision of services and infrastructure outside of the Wetland area such as observation towers and interpretive signage on the wetland perimeter, use of 'webcam' technology, and the incorporation of the significance of the Wetland in school excursion programs run jointly within the Parklands by the Authority and the NSW Department of Education.

3.3.2 Research and monitoring

The purpose of scientific study and monitoring in nature reserves is to improve understanding of natural and cultural features and the processes that affect them. Research also establishes the requirements for particular species and communities.

A number of ecological studies have been commissioned in the Wetland in recent years, directed at providing basic flora, fauna and hydrology information upon which to base management of the area. There is a need for new or expanded specialist studies or reports to inform future management decisions about the site. The Wetland has the capability to be managed to achieve specific tidal regimes that suit selected environmental outcomes. There are few wetlands that can be manipulated in this way, and it provides one of the best possible opportunities to understand these systems. A system of adaptive management in response to monitoring programs will be necessary to conserve Wetland values because of the complexity of the Wetland and its highly modified and changing nature.

Due to the small size of the Wetland and its close proximity to high numbers of researchers, there is potential for it to be over-used for research. Research and monitoring are encouraged within Wanngal Wetland, but will be limited to issues of direct benefit to management of the local area. Research of a general nature that can be achieved in other locations will generally be discouraged.

All scientific research is required to be authorised in accordance with the NSW *National Parks and Wildlife Act (1974)*.

3.4 General Uses

The Plan authorises the land and built structures in Wanngal Wetland to be used for a range of activities, functions and purposes.

General Uses in Wanngal Wetland include Parkland related activities, functions and purposes associated with undertaking, promoting or facilitating the following: Reserve Management, Conservation, Ecology, Science, Education, History, and Interpretation.

This authorisation does not in itself allow any activity or use to take place. The range of Approved General Uses is only a reference point in determining the appropriateness of the existing list of Particular Activities in Section 3.4.1. Any use or occupation must be undertaken in a way that is both consistent with the General Objectives, Local Objectives and Local Policies for Wanngal Wetland and with the requirements of the NPW Act and Regulations.

3.4.1 Particular Activities

Without limiting the generality of the above provisions, the Plan establishes that the following Particular Activities are appropriate for the Wanngal Wetland and may be implemented as part of the reserve's management program:

- Cultural heritage maintenance.
- Fire management.
- Hydrology management.
- Infrastructure operation and maintenance.
- Legal compliance activities.
- Management of the acid sulphate containment mound.
- Monitoring effects of management actions and visitation Programs.
- Mosquito control.
- Security patrols.
- Track maintenance.
- Vegetation management.

All other activities require specific NPWS approval, and are described further in Section 5 of this Plan.

Particular Activities may also be Restricted Activities under Section 5.4.1 of this Local Scheme of Operations. Reference to restrictions, terms and conditions in Section 5.4.1 should always be made when considering undertaking Particular Building Uses in this precinct, as any provisions in Section 5.4.1 take precedence over any authorisation in this Section.

3.4.2 Particular Building Uses

There are no buildings within the gazetted boundaries of the Wanngal Wetland.

3.5 Leases and Licences

3.5.1 Leases and Licences issued by NPWS

NPWS is authorised to enter into leases and licences for Wanngal Wetland, provided the particular activity is consistent with this Plan and the NPW Act and Regulations.

3.5.2 Short Term Service Agreements issued by the Authority

The Authority is authorised to enter into a service agreement with any person, organisation or entity for part or the whole of Wanngal Wetland, with the approval of NPWS.

Such agreement may be on a casual or periodic basis for any period up to five (5) years for any approved use or occupation identified in this Section, provided the particular activity is consistent with this Plan and the NPW Act and Regulations.

The Plan has established that the issue of short term service agreements relating to use or occupation in Wanngal Wetland is limited to Programmed activities including:

- Maintenance of the Reserve.
- Legal compliance activities.
- Educational and interpretive programs.
- Photography (other than for trade or business).
- Parkland tours and interpretation.
- Environmental monitoring and research.

3.5.3 Long term Service Agreements issued by The Authority

The Authority is authorised to enter into a service agreement with any person, organisation or entity for part or the whole of Wanngal Wetland, with the approval of NPWS. Such a service agreement may be on a casual or periodic basis for any period up to twenty-five (25) years for any approved activity or occupation defined in this Section. This authorisation is conditional upon the particular use or activity clearly being compatible with the substance and intent of the Values, Objectives and Policies of the Plan, and the NPW Act and Regulations.

The Plan has established that the issue of long term service agreements relating to use or occupation in the Wanngal Wetland is limited to Programmed activities including:

- Education.
- Interpretation.
- Legislative compliance activities.
- Research.
- Reserve maintenance.

4. Management Issues

Given the features in Section 2 and approved uses in Section 3, the Reserve Plan has identified the following key operational risks and constraints or obligations as being of particular significance for Wanngal Wetland and recognizes they will have a primary influence on its management.

4.1 Risks Associated with Wanngal Wetland

The following risks must be taken into account when interpreting and/ or implementing any part of the General Scheme of Operations or this Local Scheme of Operations. Other risks might emerge in the future and should then be added to this list for management purposes, and incorporated into future reviews of the Reserve Plan.

- The small size and isolation of the Wetland, making it vulnerable to disturbance, edge effects and local extinctions, and affecting the numbers and abundance of species it can support.
- The difficulty in understanding the hydrological regime of the wetlands.

- The balancing of competing ecological processes in a highly altered ecological system.
- Introducing public access to an area that has been isolated for over a hundred years.
- Determining a sustainable level of usage consistent with the legislated objectives of nature reserves in New South Wales.
- The disturbance to wildlife from increased levels of activity on adjoining lands.
- The extent of restrictions on access for maintenance and management activities and public access due to unexploded ordnance (UXO).
- The complexity in management of education Programs and the place.
- The sensitivity of the reserve to activities in adjacent areas from fire risk, noise, lightspill and disturbance.
- The extensive mosquito-breeding habitat within the Wetland.
- The presence of acid sulphate sediments, and an acid sulphate containment mound.
- The potential impact of pest animals and plants on the environment.
- The cultural significance of reserve and the protection of the historic fabric.
- The likelihood that the reserve will increasingly become in demand as an environmental attraction.
- The Authority's ability to continue to manage the reserve on behalf of NPWS.

4.2 Constraints & Obligations Associated with Wanngal Wetland

The following constraints and obligations must be taken into account when interpreting and/or implementing any part of the General Scheme of Operations or this Local Scheme of Operations. Others might emerge in the future.

- The Department of Defence has continuing management responsibility for management and monitoring of the unexploded ordnance contamination of the Wetland
- The legislative assignment of the area as a nature reserve gazetted under the NSW *National Parks and Wildlife Act (1974)*.
- NPWS is the landholder and statutory management authority for Newington Nature Reserve (comprising Wanngal Woodland and Wanngal Wetland).
- The Sydney Olympic Park Authority may only undertake activities and use or allow the Wanngal Wetland to be used for purposes approved by a Memorandum of Understanding between the Authority and NPWS and consistent with this Reserve Plan.
- The Sydney Olympic Park Authority is obliged by its legislation to ensure the achievement of the purposes for which the nature reserve (including Wanngal Wetland) is deemed to be dedicated under Section 49 (3) of the NPW Act.
- Two development consents have previously been issued for the land. Development Consent S38/8/96 was granted on 2 November 1996 and Development Consent S38/10/96 was granted on 3 February 1997. These Consents approved works to restore tidal flushing to the wetland. Ongoing management of these works involves maintenance of flushing and drainage infrastructure, active management of hydrology to achieve ecological objectives, and management of the containment mound of potential acid sulphate soil (PASS) located within the Wetland. These are existing uses under Section 39 of the NPW Act.
- These wetlands have been identified as potential Ramsar wetlands in conjunction with the other wetlands in the Parklands. A joint nomination for Ramsar status by the Authority and NPWS may proceed in the future.
- Any future development or use must be consistent with any future Conservation Master Plan or Conservation Management Plans.

5. Management Regime for Wanngal Wetland

5.1 Management Arrangements

The Sydney Olympic Park Authority manages the reserve on behalf of and in close consultation with NPWS according to a Memorandum of Understanding between both organisations, and the provisions of this Reserve Plan.

5.2 Strategic Approach

The following strategies may be applied and will be taken into account when managing Wanngal Wetland.

1. Actively manage the natural and cultural values of this very small, highly engineered, and isolated wetland.
2. Give emphasis to identification and containment of public risks and hazards.
3. Implement special security precautions to protect natural elements, heritage and public safety.
4. Develop and implement appropriate operational plans and procedures to manage the extent and intensity of visitation.
5. Restrict access to management, scientific or educational purposes only.
6. Meet the statutory requirement to manage the land as a Nature Reserve.
7. NPWS and SOPA will cooperate in the maintenance of existing infrastructure that crosses the boundary of the Wetland and Newington Armory, so that existing services (such as electricity, water, sewerage, stormwater infrastructure) continue to be available to both areas.
8. Management of unexploded ordnance and access to the Wetland will be in accordance with the advice of the Department of Defence.
9. Develop an appropriate education and interpretive program.
10. Preclude access to certain types of uses in particular areas.
11. Restrict or closely manage activities where visitor numbers would stress the natural areas.
12. Ensure that scientific and social research identifies necessary changes to Programs and management regimes.
13. Ensure that the Parklands workforce is adequately trained and receives up to date information to manage appropriately.
14. Ensure that appropriate delegations of authority are provided to manage the reserve properly.
15. Ensure an adequate level and timing of resources.
16. Ensure the establishment of service standards and agreements with SOPA and other Authorities.
17. Recognise the importance of the different types of aquatic habitat within the precinct as fish and invertebrate habitat and especially as fish nurseries.
18. Require careful understanding, interpretation and exercise of delegations associated with provisions of statutory plans and regulations.
19. Require particular attention to the adequacy and timeliness of information gathering, processing, reporting, and compliance.

5.3 Local Policies

The following Local Policies have been developed to guide the way local issues and particular activities associated with Wanngal Wetland are to be managed. These Local

Policies will take precedence in the management of Wanngal Wetland to the extent of any inconsistencies with the General Scheme of Operations in Part 2 of the Parklands Plan.

5.3.1 General

1. Management of the Wetland and its hydrology will be guided by results of monitoring and research.
2. Research and monitoring are encouraged within Wanngal Wetland, but will be limited to issues of direct benefit to management of the local area. Research of a general nature that can be achieved in other locations will generally be discouraged.
3. An effective boundary fence will be maintained around the Reserve to ensure no unauthorised access, to protect heritage and natural assets, and control access to the reserve.
4. Best practices for erosion and pollution prevention will be applied to any approved works.
5. Project and site specific Acid Sulphate Soil Management Plans will be developed for any works undertaken within the wetland that have the potential to generate acid sulphate soils. These plans will be consistent with the *Acid Sulphate Soil Manual: NSW Acid Sulphate Soil Management Advisory Committee, August 1998*.
6. The integrity of the acid sulphate containment mound will be maintained.
7. To comply with the requirements of Section 81 of the NPW Act and Section 34 of the SOPA Act, a SOPA Work Permit is required for all new or different operations involving works, uses, events and activities that may physically impact on the place; in addition to any other authorisation provided or approvals required by the Reserve Plan.

5.3.2 Vegetation

1. The high habitat value of the Wetland will be conserved through active management, and enhancement if needed.
2. Management of the Wetland will aim to retain at least the current net area of saltmarsh and to prevent an increase in the area of mangroves. Strategic removal of mangroves may be used as part of the vegetation management regime subject to NPWS approval.
3. Vegetation within the Main Lagoon will be managed to retain the value of the Lagoon as a shorebird feeding site.
4. Management will aim to conserve the saltmarsh species *Wilsonia backhousei*, *Halosarcia pergranulata* and *Lampranthus tegens*.
5. Introduced plant species will be controlled and if possible eradicated. Priority for treatment will be given to those which have been declared noxious in the Auburn Local Government Area, threaten native communities, or may affect adjoining lands.
6. Removal of any weed infestations must take place incrementally, in tandem with replacement planting of native species, to ensure that structural habitats are maintained.
7. Native vegetation within the Parklands close to the Wetland will be managed in a way that complements management of the Wetland.
8. Vegetation management within Wharf Pond will be in accordance with the SOPA Frog Management Plan.
9. The Service Track to Tidal Flushing Channel 2 will be revegetated with suitable native species, to the extent consistent with operation of the flushing system and any visitor facilities constructed on the track.
10. Cuttings of *Wilsonia backhousei*, *Halosarcia pergranulata* and *Lampranthus tegens* may be taken from the Saltmarsh Nursery, subject to NPWS guidelines and approval, for propagation and planting within the Parklands.

11. Vegetation of gazetted areas that are outside the surrounding chainwire fence will be managed to provide a buffer to the nature reserve.

5.3.3 Fauna

1. The Wetland will be managed to retain and enhance its habitat value for waterbirds, particularly migratory shorebirds.
2. Weir management will consider two-way movement of fish between the Wetland and the Parramatta River.
3. Introduced animals will be controlled through programs designed to avoid impact on non-target species and with consideration of animal welfare aspects of pest animal control.
4. Mosquitoes and their habitat will be managed to control pest populations.
5. Reference will be made to NSW Fisheries *Policies and Guidelines* to ensure management best practice for the protection of fish and fish habitat in the precinct.

5.3.4 Fire

1. Fire and fire risk will be managed to ensure protection of human life and property within and adjacent to the Wetland, and to ensure maintenance and regeneration of plant and animal species and communities.
2. Records of fire within the Wetland will be maintained to assist with fire management planning.

5.3.5 Cultural heritage

1. The cultural places of the Wetland will be conserved in accordance with the Burra Charter of Australia ICOMOS.
2. Sites and places will be protected and managed in consultation with the Metropolitan Local Aboriginal Land Council (MLALC) and with representatives of the local Darug people.
3. Involvement of Aboriginal people in interpretation of the Wetland's Aboriginal heritage will be encouraged.
4. Additional Aboriginal heritage surveys will be conducted as gaps are identified. Newly located Aboriginal sites will be properly recorded and added to the NPWS site register.

5.3.6 Access

1. Access protocols will account for risk due to the presence of UXO.
2. Access for management and education purposes will be restricted to Programmed activities and account for different seasonal sensitivities, particularly during spring and summer, when migratory birds use the wetland.
3. Access for management operations will be by foot wherever practical.
4. Access and visitation to gazetted areas of the Wetland that are outside the perimeter chainwire fence will be generally unrestricted (though subject to access protocols for Newington Armory), but the purpose and importance of maintaining a buffer to the wetland will be interpreted.
5. Typically visitation to Wanngal Wetland will be in the form of low impact or off-site programs which encourage appreciation and understanding of the Wetland without causing harm to its values.

6. Public visitation to the Wetland will be limited to controlled and guided educational visits in daylight hours by foot to defined and limited parts of the Wetland. Availability of access may vary seasonally with fauna needs and management operations such as mosquito control.
7. Visitor numbers and impacts will be monitored, and access modified accordingly.
8. The service track to Tidal Flushing Channel Two will be the only area available for visitation. Screening may be erected on this track, and minor visitor facilities such as signage and seating may be provided.
9. Interpretation and appreciation opportunities not requiring entry to the Wetland will be developed.

5.4 Regulations and Restricted Activities

There are Regulations² that authorise NPWS and SOPA (as appropriate) to determine the appropriateness of visitor conduct or activity and take action accordingly to minimise nuisance, disturbance, damage, or obstruction within the Parklands. The Regulations also establish the penalties attached to any related offences, and both NPWS and the Authority implement the Regulations according to current NPWS and Authority guidelines.

In order to provide for the safety, care and experience of visitors and/ or the preservation and function of assets and/ or ecosystems, some uses and activities in the Parklands have been identified as Restricted Activities. Restricted Activities include some Particular Activities detailed in Section 3.4.1 and Particular Building Uses detailed in Section 3.4.2 and/ or actions, tasks or uses associated with Particular Activities detailed in Section 3.4.1 and Particular Building Uses detailed in Section 3.4.2.

Restricted Activities are not allowed to take place without first being Approved by the Parklands Director or an Authorised Delegate in consultation with NPWS as required. The Parklands Director or Authorised Delegate must comply with the authorisation requirements of Section 5.3.2 when determining whether or not to approve Restricted Activities identified in Section 5.3.1. Any Approval issued must include appropriate conditions including those identified in this Section (if any) or elsewhere in the Reserve Plan and be consistent with the General Objectives, Local Objectives, and the Local Policies of this precinct.

The provisions of this Section do not limit the generality of the powers conferred by the Regulations, or the ability of the Authority to implement the Regulations more strictly than provided herein.

5.4.1 Restricted Activities

The following Particular Activities, Particular Building Uses and/ or actions, tasks or uses associated with Particular Activities or Particular Building Uses have been identified as Restricted Activities within Wanngal Wetland.

- Construction of screening, a bird hide, and minor visitor infrastructure such as seating and signage to Flushing Channel Two.
- Education Programs (may only be low impact, small groups and well supervised).
- Entry of non-government motorised vehicles into the reserve.

² As applicable both the NPW Regulations associated with the National Parks and Wildlife Act (1974) and the Regulations associated with the Sydney Olympic Park Authority Act (2001).

- Filming and photography for promotion of the values of the Wetland and NPWS and SOPA activities.
- Habitat enhancement.
- Lighting of fires for reserve management purposes.
- Low-flying helicopters associated with Parkland programs or commercial arrangements (other than for mosquito control) flying over the Reserve.
- Pest animal control.
- Propagation of plants from the saltmarsh nursery.
- Removal of established mangrove plants and seedlings.
- Removal or interference with UXO.
- Undertaking scientific research.

5.4.2 Authorising a Restricted Activity

Before a Restricted Activity can be Approved by the Parklands Director or Authorised Delegate they must obtain appropriate approvals from the NPWS and be satisfied that the impact of allowing and undertaking such Restricted Activity is:

- Temporary, reversible, minor, and safe.
- Not significantly detrimental to either the remediation or conservation of the area or other areas in the Parklands.
- Not unreasonably imposing on the peace, safety or wellbeing of neighbours or visitors to the Parklands.
- Consistent with legislative obligations.

5.5 Public Access Arrangements

Restricted access to Wanngal Wetland is necessary in order to protect the values of the area and the safety of visitors. The following access arrangements apply to the Wanngal Wetland:

- Wanngal Wetland will only be open to public access through participation in Programmed activities. All Programmed activities will be approved by NPWS.
- Visitor access to Wanngal Wetland is limited to foot traffic to the service track of Tidal Flushing Channel Two. Screening may be erected to minimise disturbance to wildlife prior to the introduction of visitation Programs. Minor visitor facilities such as interpretive information and seating may considered for installation in this area.
- Participants in Program activities may only enter Wanngal Wetland in the company of an approved Guide.
- Approved Guides may only be those persons familiar with the Wetland and (for other than NPWS staff) approved jointly by the NPWS Sydney Regional Manager and the Authority's Parklands Director, or other senior delegate.
- Entry to Wanngal Wetland is conditional upon completing any induction and complying with all conditions of entry established jointly by the NPWS Sydney Regional Manager and the Authority's Parklands Director or other Authorised Delegate.
- Public access to Wanngal Wetland other than in daylight hours is not permitted.
- Visitation to the service track of flushing channel two is restricted to groups of no more than 15 persons (including staff and supervisors), with a maximum of four groups per day, for half an hour per group (i.e. maximum of 60 per day).

- Availability of access to Wanngal Wetland for Program activities may vary seasonally with fauna needs and management operations such as mosquito control.
- Fees and charges for activities within Wanngal Wetland will be as determined jointly by NPWS and the Authority from time to time.
- Whether or not facilities are developed on Flushing Channel 2, total visitation to Wanngal Wetland must not exceed 600 persons per month.

5.6 Prohibited Activities

Some activities that may seem possible in Wanngal Wetland are not allowed for some or all of the time in order to protect the values of the area and the safety of visitors. The following activities are prohibited in Wanngal Wetland and will not be allowed under any circumstances.

- Any activity prohibited by provisions of NPW Act and Regulations of that Act.
- Construction of buildings.
- Construction of new service tracks.
- Entry of motor vehicles other than those from or approved by NPWS or the Authority.
- Flying motorised or non-motorised model aircraft.
- Installation of lighting.
- Lighting of fires (other than for reserve management purposes as authorised by NPWS).
- Overnight camping whether associated or not with Parkland Programs.
- Picking or damaging vegetation or interference with native fauna without NPWS authorisation.
- Public access for recreational purposes.
- Public access outside of daylight hours.
- Public access to areas other than Program access to the service track to Flushing Channel Two.
- Taking of dogs or other animals into the Reserve.
- Unauthorised access to areas containing unexploded ordnance.

5.7 Authorised Buildings and Structures

The Reserve Plan authorises the construction, renovation, repair and refurbishment of approved types of built structures identified in this Section within Wanngal Wetland. This authorisation is also subject to any statutory development assessment and consent requirements, heritage requirements, and the activities associated with the built structures not being contrary to the substance or intent of the Wanngal Wetland values, objectives, or local policies.

Notwithstanding the above provisions, no formal construction of buildings or structures is permitted in this precinct unless required for public safety or environmental protection purposes.

The Reserve Plan has established that the types of built structures approved to be constructed, renovated, repaired or refurbished in Wanngal Wetland are limited to the following: Tidal Flushing and Water Management infrastructure, Existing Service Tracks, Existing Utility Services, Screening and bird hide at Flushing Channel 2, Park furniture, Signs, and Fences.

5.8 Standards for Works and Services

The standards set for works and services associated with Wanngal Wetland must recognise the strategic importance of the place, relate to the physical characteristics of the place, and facilitate the uses and functions intended for the place.

The detailed standards and methods of implementation will be defined in the Parklands Asset Management Plan³ and associated Operational Maintenance Plans.

In detailing, reviewing and implementing standards for works and services from the Parklands Asset Management Plan, the following requirements must be taken into account:

- The quality of works and services must reflect the nature of intended uses and activities for the place.
- The frequency of works and services must endeavour to maintain consistency in site presentation.
- The timing of works and services must account for seasonal constraints and cycles.
- The priority for works and services must take into account local objectives and other requirements for the place and assist in managing identified risks.
- The scope and volume of works and services provided must maintain the safety and serviceability expected for the place.
- The evolving use and understanding of the place will progressively require increased total works and service activity and / or shift works and service demands between locations and tasks.
- The significant modification of works and services standards that may impact on the ability of the Authority to implement the Reserve Plan must only take place in the context of reviewing the provisions of the Reserve Plan.

5.9 Works and Services Priorities

An Operational Maintenance Plan will be prepared for Wanngal Wetland and will incorporate the Works and Services Guidelines provided in the General Scheme of Operations and in addition give priority attention to the following:

- Avoidance of trampling or damage to native flora.
- Avoidance of disruption to breeding fauna.
- Compliance with local site access protocols.
- Compliance with SOPA's Work Permit process requirements.
- Compliance with Local Objectives, Local Policies, Constraints and Obligations.
- Control of pest plant and pest animal species.
- Maintenance of functionality of program support structures.
- Maintenance of safe access and activity for visitors.
- Maintenance of site security.
- Protection of ecological values.
- Protection of fauna habitat.
- Protection of heritage building integrity.
- Retention of cultural landscape integrity.

³ As amended from time to time by the Authority.

5.10 Capacity and Resilience

In addition to the requirements of Part 2 Section 5.5 involving visitation management the following approach to managing scale and intensity of use or development⁴ will apply in Wanngal Wetland:

- Visitor demand, compliance and impact on built and natural elements will be monitored.
- Public access to the reserve will be strictly limited to predetermined Program activities only.
- Program activity access (times, activities and places) will be managed and where necessary restricted in response to visitor conduct, movement and impact trends.
- Visitors will always be under some degree of direct supervision while within the reserve.
- Developments (new works) will only be considered when options for adaptive re-use of existing facilities and alternative off-site options are exhausted.
- New developments will be scaled and designed to blend in with the natural and cultural landscape of the reserve.

5.11 Strategic Actions

Strategic Actions for the Wanngal Wetland are those activities or strategies that need to be applied at a Management Precinct level in order to change or conserve the current situation to achieve an alternative or similar outcome in the future. Attached as Table 1 in Appendix 2 are details of Strategic Actions currently identified for Wanngal Wetland.

It is recognised that Strategic Actions may need to change in priority, focus and relevance over time in order to respond to changing community needs and Parkland conditions or circumstances. Where any changes to Strategic Actions are required they will be approved by the NPWS.

5.12 Management Performance Targets

The Performance Targets⁵ for Wanngal Wetland relate primarily to the General Objectives assigned to the Management Precinct as a result of categorisation. The following Performance Targets associated with a Nature Reserve apply to Wanngal Wetland:

- To demonstrate the protection and preservation of scenic and natural features including significant natural and geomorphological features.
- To demonstrate the conservation of wildlife including maintenance of biodiversity and populations of threatened species.
- To demonstrate the maintenance of natural processes.
- To demonstrate the preservation of catchment values.
- To demonstrate the preservation of Aboriginal sites in consultation with the Aboriginal community.
- To demonstrate the conservation of non-Aboriginal historic features.
- To demonstrate the provision of opportunities for appropriate use.
- To demonstrate the encouragement of scientific and educational inquiry into environmental features and processes.

⁴ As required by SOPA Act (2001) importation of Clause 36 (3A) (b) (iii) of the LGA (1993)
⁵ As required by Section 36 (3) (b) of the LGA (1993) imported by Section 34 (4) of the SOPA Act (2001)

- To demonstrate support for and compliance with the Local Objectives assigned to Newington Nature Reserve.

5.13 Management Precinct Performance

The assessment⁶ of the Authority's performance in relation to the Reserve Plan will focus primarily on the Category of land level in the Parklands, with appropriate reference to the Performance Targets in Section 5.12 as they relate to Wanngal Wetland. The assessment will be based on a qualitative and / or quantitative assessment of the extent to which implementation of the Strategic Actions referred to in Section 5.11 have assisted the Authority in meeting the General Objectives and Local Objectives for Wanngal Wetland.

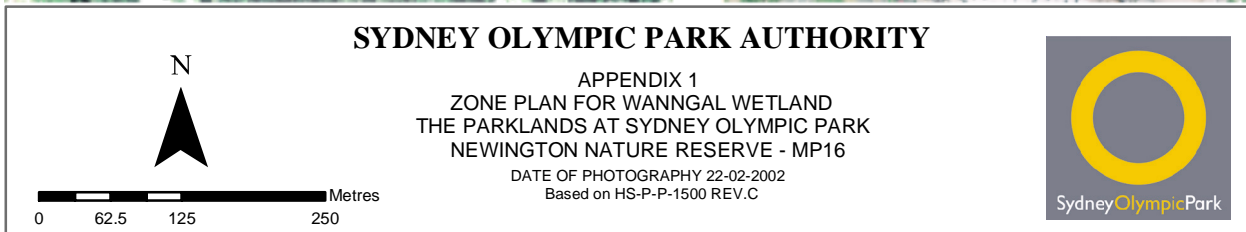
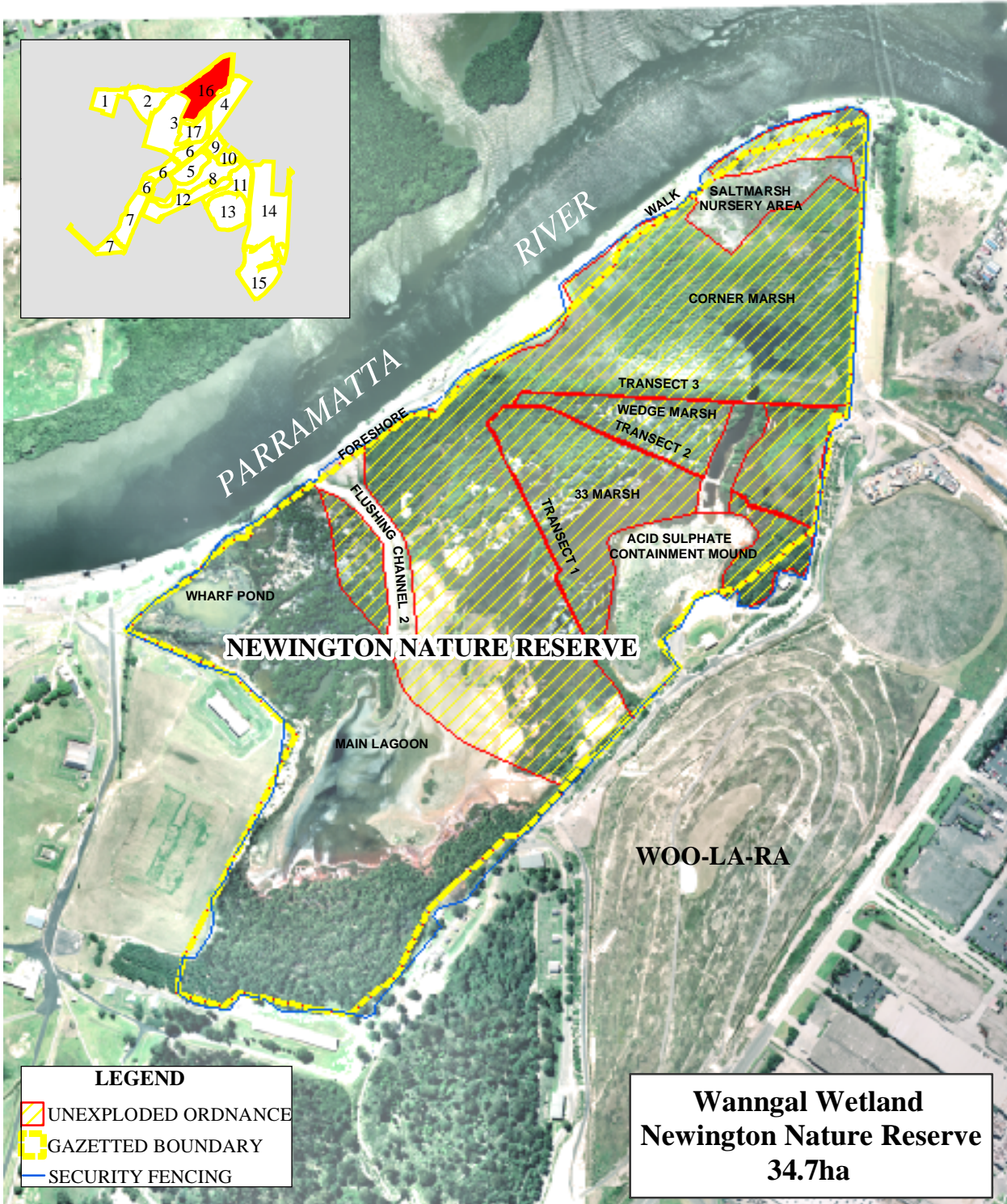
The Reserve Plan recognises that the Authority's performance may depend significantly on the extent to which the Authority and NPWS adequately secures, allocates and assigns resources to achieve the strategic actions identified in the Reserve Plan, and the extent to which Strategic Actions are able to be implemented.

The assessment response will be presented in the annual Parklands Management Plan Report.

⁶ In accordance with the general requirements of Section 36 (3)(d) of the LGA Act (1993) imported by Section 34 (4) of the SOPA Act (2001)

6 Appendices

6.1 Appendix 1 – Zone Plan for Wanngal Wetland



6.2 Appendix 2 – Strategic Action Plan for Wanngal Wetland

The following list of potential Strategic Actions is indicative of those actions that are or may be required to manage Wanngal Wetland in accordance with the statutory requirements of the NPW Act in relation to nature reserves, statutory objectives for the Parklands, the concept of Parklands 2020 and the various Local Objectives for Wanngal Wetland. These actions are not listed in any priority order and may be amended from time to time.

- Develop and implement access and security procedures based on the requirements of this Reserve Plan.
- Continue to actively manage the Reserve by managing hydrology, controlling weeds and pest fauna, and maintaining service tracks, infrastructure, utilities and heritage items.
- Develop and implement a strategy to address spread of mangroves throughout the Wetland. Control of mangroves may be undertaken where mangroves are replacing saltmarsh communities.
- Repair the single strand fencing that demarcates the UXO area.
- Monitor performance and maintain the integrity of the acid sulphate containment mound.
- Develop education, interpretation and appreciation opportunities not requiring entry to the Wetland.
- Develop and implement a monitoring and research program to guide management of the Reserve. Current monitoring and research priorities are short and long-term hydrological monitoring, studies of changes in saltmarsh/mangrove balance and changing sedimentation patterns, benthic fauna monitoring, continued long-term bird monitoring, vegetation dieback in the Main Lagoon, the impacts of visitation and the impacts of public access to adjoining lands on the Wetland perimeter, continued water quality monitoring of Wharf Pond, continued mosquito monitoring, ongoing monitoring of vegetation condition, periodic survey of bat species and abundance and identification of mosquito habitat areas.
- Investigate and provide up to two hides/ platforms for viewing the wetland birds / saltmarsh vegetation. These facilities are to be on the perimeter of the nature reserve or on Flushing Channel 2 near the bend in the service track about halfway along the channel. The remainder of the service track to Flushing Channel Two is to be revegetated. This may require the removal of some fill to make the area more suitable for revegetation.
- Develop education, interpretation and appreciation opportunities based at Flushing Channel Two. Interpretation will include the history of the water management process and an explanation of the current wetland management program.
- Establish and implement a visitation monitoring and evaluation regime, considering concentrations and frequencies of visitor access and impacts of use.
- Develop and implement plans to reduce excessive localised ponding in the wetlands to reduce mosquito breeding habitat.
- Upgrade the tidal flushing mechanism at Flushing Channel Two.
- Prepare a heritage Conservation Management Plan to conserve the heritage values of the wetland in the context of conservation of the heritage values of the former RANAD site as a whole.
- Monitor and manage *Wilsonia backhousei* to promote its continued viability within the Wetland.

- Install alternative roost sites near Flushing Channel Two.
- Prepare and implement a fire management plan that aims to: protect the reserve; minimise the risk of an uncontrolled fire starting and if a fire were to start the likelihood of it spreading or the risk associated with it spreading would be minimal.
- Interpret the purpose and importance of maintaining a buffer to the wetland.

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Section 7

Newington Nature Reserve Plan of Management (2002)

(Incorporated into the Parklands Plan of Management (2002) as Part 4: Section 17)

MP 17: Local Scheme of Operations for

Wanngal Woodland (Management Precinct MP17)

For the purposes of this Plan, the woodland part of Newington Nature Reserve is known as Wanngal Woodland. Wanngal Woodland is a working name only and is subject to review in the future according to the naming procedures applied by the National Parks and Wildlife Service and as such it will be confirmed or amended in due course. The name 'Wann', refers to the south side of the Parramatta River east of Parramatta, including the area of Sydney Olympic Park. This area belonged to the Wanngal clan, who were the traditional Aboriginal owners of the area. The name is appropriate for this area as an acknowledgement of the Wanngal Clan and their linkage to the remnant stand of Cumberland Woodland in the Newington Nature Reserve.

This Local Schemes of Operations are part of the Plan of Management for the Parklands at Sydney Olympic Park, and should be read in conjunction with the Preliminaries which sets out the legislative overview and the Concept Plan, and the General Scheme of Operations which defines the management framework for the Parklands as a whole.

In accordance with Section 81 of the NPW Act and Section 37 of the SOPA Act, this Reserve Plan shall be carried out and given effect to and no operations shall be undertaken in relation to Newington Nature Reserve unless those operations are in accordance with this plan of management. If after adequate investigation, operations not included in the Reserve Plan are found to be justified, the Reserve Plan may be amended in accordance with section 75 of the NPW Act and section 36 of the SOPA Act.

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Wanngal Woodland



1 Conceptual Position of Wanngal Woodland

1.1 Wanngal Woodland as a Nature Reserve

The Woodland is part of the gazetted Newington Nature Reserve. It contains the Sydney Turpentine Ironbark Forest, listed as an endangered ecological community. Forty-one bird species have been recorded on the site, including the CAMBA-listed White-Bellied Sea Eagle. Its mature Eucalypts provide optimum breeding conditions for such species as the Red-Rumped Parrot, uncommon elsewhere in Sydney. The Woodland supports seven species of bat, including the Large Bent-Wing Bat, listed as vulnerable in Sydney, and a small breeding population of the Lesser Long-eared Bat. The Woodland provides the only seed source and guide to endemic species for landscaping and replanting the Parklands. The Woodland is one of the few areas within the Parklands where the original dry-land soil profile is still evident. These features make this area significant for conservation, research and education. The Woodland has significantly constrained conditions of access to protect flora and fauna and prevent vandalism.

An archaeological survey of this area reported likely signs of original indigenous occupation, such as silcrete artefacts and scarred trees. These have been recognised by the local indigenous communities. Dating from the Department of Defence occupation of the area, the Woodland contains a small explosives store and connecting railway track near its centre. As a result, these elements are also listed on the Register of the National Estate.

Wanngal Woodland is a very significant element of the fabric of Sydney Olympic Parklands, incorporating natural and cultural elements and providing a unique feature within the Parklands, with high interpretive, educational and aesthetic values.

1.2 Important Values Associated with Wanngal Woodland

The ecological features and physical characteristics of Wanngal Woodland reveal a number of important values (including natural, landscape, cultural, knowledge and educational values) associated with this isolated native vegetation remnant that are reference points for the Program and place management.

Wanngal Woodland provides:

- A reserved area of Sydney Turpentine Ironbark Forest, which is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act 1995* and is listed as vulnerable nationally under the provisions of the *Environment Protection and Biodiversity Conservation Act (1999)*.
- Mature woodland habitat for a large number of flora and fauna species.
- A high density of hollow-bearing trees, not found elsewhere in the region.
- A “base” for fauna that rely upon the woodland for shelter and breeding, but utilise habitats in surrounding Parklands and suburban areas for feeding and movement.
- A stepping stone for native species, particularly birds and bats, moving between remnants within Sydney.
- An important local and regional stronghold for woodland bird and bat species

- A nesting site for the White-bellied sea eagle, a species protected under international treaty between the governments of Australia and China.
- Part of a complete estuarine zonation of Cumberland Plain Woodland, Allocasuarina, Saltmarsh, and Mangroves.
- A distinctive landscape feature viewed from northern suburbs of Sydney and many points within Sydney Olympic Park, such as the summits of Woo-la-ra and the Millennium Markers, and from the viewing deck of the Novotel Hotel.
- An area of relatively undisturbed Aboriginal occupation up to European settlement, containing scarred trees.
- A building and railway line that are of heritage value and which form part of the heritage of the former RANAD site as a whole.
- An opportunity for scientific research, monitoring and educational programs about forest flora and fauna and management of remnant vegetation.

In the 1990s the areas now comprising the Parklands became part of an enhanced focus for conservation as a consequence of interest in Sydney's "Green" Olympic Games. The history of land use that has led to conservation of Wanngal Woodland and the clearing of the surrounding area demonstrates the evolution of land management attitudes of the Australian community. The extensive replanting effort elsewhere in the Parklands demonstrates more recent approaches to restoring and reinstating environmental values through unprecedented programs of environmental repair.

The significance of the Wanngal Woodland has been recognised through its gazettal as a nature reserve and listing on the Register of the National Estate by the Australian Heritage Commission.

1.3 Categorisation of Wanngal Woodland

Newington Nature Reserve, of which Wanngal Woodland is one part, is a dedicated nature reserve under the provisions of Section 49 (c) of the NPW Act. The Plan has, for management purposes, categorised¹ Wanngal Woodland as **Nature Reserve** under the Sydney Olympic Park Authority approach to classification of Management Precincts.

1.4 The General Scheme of Operations

The provisions of the General Scheme of Operations detailed in Part 2 of the Parklands Plan apply to the management of Wanngal Woodland in addition to the provisions in this Local Scheme of Operations. However, in the event that any inconsistency or conflict arises between the General Scheme of Operations and this Local Scheme of Operations, the Local Scheme of Operations will prevail.

¹ Consistent with the requirements of Section 36 (3) (a) of the LGA Act (1993) imported by Section 34 (4) of the SOPA Act (2001) although this process does not strictly apply to the Nature Reserve.

1.5 Management Zones

Wanngal Woodland has not for the purposes of the Plan been sub-categorised into distinct Management Zones. This is so because the intended uses, functions and features of Wanngal Woodland are consistent across the site and no particular area requires special management consideration.

A plan of this Management Precinct is attached as Drawing HS-P-P-1499 REV.C in Appendix 1.

1.6 General Objectives for a Nature Reserve

All objectives are to be used as key management reference points in assessing or considering or testing any proposals for developments to: undertake works, change levels or extent or types of use, and/or modify any infrastructure, ecosystem or landscape.

The following general objectives relate to the management of nature reserves in New South Wales, and will apply across the whole of Wanngal Woodland.

The Plan assigns the following General Objectives to Wanngal Woodland:

- The protection and preservation of scenic and natural features , including significant natural and geomorphological features.
- The conservation of wildlife , including maintenance of biodiversity and populations of threatened species.
- The maintenance of natural processes.
- The preservation of catchment values.
- The preservation of Aboriginal sites in consultation with the Aboriginal community;
- The conservation of non-aboriginal historic features.
- The provision of opportunities for appropriate use.
- The encouragement of scientific and educational inquiry into environmental features and process.

1.7 Local Objectives for Wanngal Woodland

The following Local Objectives apply to Wanngal Woodland:

- To conserve and enhance the biodiversity of the Woodland.
- To protect Wanngal Woodland as a significant sample of remnant vegetation that is Sydney Turpentine Ironbark Woodland.
- To protect the habitat value of the Woodland for native fauna species, in particular birds and bats.
- To protect the Aboriginal heritage of the area, including scarred trees.
- To protect the European cultural values of the Building 31 and surrounds, the railway line and carved tree.
- To manage the Woodland in a sympathetic manner to adjoining precincts of the Parklands.

- To apply scientific study and monitoring to guide the management regime and interpretive Program of the Woodland.
- To promote community appreciation of the value of the woodland as a sample of remnant vegetation with high flora and fauna habitat values, and its links to larger Cumberland Plain Woodland conservation areas.
- To assist in and facilitate the implementation of any statutory provisions affecting the use and management of the land.
- To facilitate community education in relation to the land, without compromising the ecological values of the land.

2 Physical Characteristics of Wanngal Woodland

2.1 Land Elements

The Woodland is situated in a slightly elevated position, and is visible from many vantage points throughout the Parklands and from local roads. As a landscape feature, it is locally significant as a contrast to the immature Parklands landscape plantings, and as a reference point for orientation within the Sydney Olympic Park area.

The forest grows on clay soils derived from Wianamatta Shale with some ironstone gravels evident on the highest points (Clarke and Benson 1988). The soil appears to be relatively undisturbed original soil. There are few undisturbed original soil profiles in this part of Sydney, and where they exist are important for reference, for understanding the original soils, and for devising strategies for soil remediation (Simon Leake, Sydney Environmental and Soil Laboratory *pers. comm.* 1998).

The woodland contains no watercourse, and does not receive runoff from surrounding lands because of its elevation. It forms part of the catchment of the Wanngal Wetland and the Narawang Wetland.

Wanngal Woodland is completely surrounded by other precincts of Sydney Olympic Parklands, but separated by a 1.8 metre chainwire fence. Access to the Woodland is strictly controlled to protect flora and fauna from disturbance and cultural heritage items from vandalism. Most of the perimeter of the Woodland borders Newington Armoury Precinct, which also has restricted public access and thus gives the Woodland an even greater level of protection. A small part of the perimeter adjoins the Narawang Wetland precinct, which has unrestricted public access.

The Wanngal Woodland forms part of a vegetation corridor contiguous with the Woo-la-ra native grasslands, the regeneration area of Newington Armoury (RANAD), and the mixed native wetland and terrestrial plantings of the Narawang Wetland. The Wanngal Woodland and the Wanngal Wetland form a complete estuarine zonation, from Cumberland Plain Woodland through to Allocasuarina Closed forest, and then saltmarsh to mangroves in the intertidal zone.

The railway line within the Wanngal Woodland links to the network of railway lines within the adjacent Armoury precinct.

Areas of remnant and planted native vegetation in adjacent precincts of the Parklands are managed in a complementary way to the Wanngal Woodland, effectively enlarging the size of the woodland management unit.

The *SOPA Act* includes specific requirements for managing areas adjacent to the Wanngal Woodland:

“The Authority must ensure that the plan of management includes, after consultation with the Director-General of National Parks and Wildlife, a proposal that land adjoining the Newington Nature Reserve is to be managed as a buffer to that reserve.” (SOPA Act S.34(6))

“In order to assist the making of future additions of land to the Newington Nature Reserve, the Authority must manage the lands adjoining the Reserve in sympathy with the Reserve.” (SOPA Act S.30(5))

2.2 Cultural Elements

An archaeological survey reported signs of former Aboriginal occupation in the Woodland and adjacent areas, being a silcrete flake beside the eastern edge of the Woodland and three scarred trees in the western portion of the woodland (Perram and Partners 1998). These have been recognised by the local Aboriginal community and the Metropolitan Local Aboriginal Land Council (Graham Brooks and Associates 2001 p.122). There is likely to have been extensive Aboriginal use of the Woodland in the past as it is close to the wetlands and river, both good food sources. The disturbed and dynamic nature of these environments generally means that little physical evidence would be expected to remain there.

A carved tree has been identified in the woodland (Brian Macdonald and Associates 1997): a face, assumed to be of European origin and of unknown age, is carved into an old Kurrajong tree (*Brachychiton populneus*). This tree is fenced, presumably for protection, many years ago but the date of fencing is unknown.

After the arrival of Europeans, the area was used for farming, and became part of the Newington estate owned by the Blaxland family. It is likely that the area became isolated from other woody vegetation during this period. The Newington Estate was subsequently purchased by government and in the 1890s became the site of the Royal Australian Navy Armament Depot (RANAD) and was used for armament storage and transfer from 1890 to 1999.

The former RANAD site included land that is now within the Parklands precincts of Newington Armoury, Wanngal Woodland, Wanngal Wetland, Narawang Wetland, Woo-la-ra, and Haslams Creek Flats, as well as the suburb of Newington. Of these, only Newington Armoury, Wanngal Woodland and Wanngal Wetland remain relatively unchanged. These three precincts as a whole illustrate the sequence of design philosophies for explosives handling throughout the twentieth century. The significance of the former RANAD site (including the Woodland) as a historic example of explosives handling is recognised by its listing on the Register of the National Estate as the Newington Arms Depot Conservation Area.

The woodland area was a later addition to RANAD infrastructure. During the Royal Australian Navy Wartime Expansion phase (during the years preceding and during WW2), a small explosives store (Building 31, c.1937) and connecting light railway track was constructed near the centre of the Wanngal Woodland (Urban Bushland Management Consultants 1997; Graham Brooks and Associates 2001). This building is typical of the armament stores of the former RANAD site in that it is electrically earthed with massive copper straps, constructed of materials with good antistatic properties; provided with facilities for discharging static electricity from people entering the store; fitted with lightning conductors; and contained within a high earth embankment, which will direct any accidental blast upwards (Fox and Associates 1986). Building 31 is listed as a Heritage Item in the “forest precinct” of Sydney Regional Environmental Plan (SREP) 24 Schedule 5.

The railway track connects the explosive store to the nearby munitions store, and is an example of former strategies for explosives handling. It was designed to provide a smooth and controlled platform for the transport of materials around the site and reduce the need for manual handling. Apart from the motive power, the tramway system is little changed from the system originally installed. Few similar narrow-gauge tramways exist in Australia except in large mining operations (Fox and Associates 1886).

A siren is situated on a pole within the Woodland. This was part of the emergency evacuation system used by the Department of Defence, and is no longer used.

In 1996 the RANAD area was handed from the Commonwealth to the State of New South Wales and then leased back to the Commonwealth until 1999, when it ceased use as an armament depot and the State took up occupancy. The Olympic Coordination Authority and Sydney Olympic Park Authority have implemented a number of restoration, management and scientific study programs within the Woodland since 1996.

2.3 Natural Elements

2.3.1 Native vegetation, habitat and introduced plants

The Woodland provides a representation of the *Sydney Turpentine Ironbark Forest*. This forest type is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act 1995* and is listed as vulnerable nationally under the *Environment Protection and Biodiversity Conservation Act 1999*. Sydney Turpentine Ironbark Forest is one of the seventeen ecological communities that have been mapped and classified on the Cumberland Plain (National Parks and Wildlife Service, 2000). Only 6% of the original extent of the Cumberland Plain Woodland community remained in 1988 (Benson and Howell 1990). Sydney Turpentine Ironbark Forest has almost entirely been cleared and scattered remnants are located between the Sydney suburbs of Bankstown and Eastwood.

The Woodland contains species that are representative of both tall forest with moist understorey from higher rainfall areas, and grassy Woodland from the drier Cumberland Plain (Clarke and Benson 1988). Two types of forest can be distinguished, one which is dominated by Ironbark and the other by Scribbly Gum. There is greater tree cover within the Ironbark habitat compared

to the Scribbly Gum community, but the understorey of both types contains a diverse range of regenerated shrubs and herbs, and there is little invasion by weeds (Mt King Ecological Surveys 2001).

The woodland was subject to a range of disturbances in the past including timber removal, grazing, mowing to reduce risk of wildfire and armaments explosion until the 1980s, construction of roads and clearings within the woodland area, and possible open access for pets (dogs, cats) of workers and residents. Most of the existing canopy is secondary or later regrowth and the multi-layered sub-canopy of small trees and shrubs is likely to be the result of these past management practices (Urban Bushland Management Consultants, 1997). However, the woodland has recovered from this disturbance and supports many mature endemic trees with hollows and spouts, stags, dense middle and lower storey vegetation, dense litter cover, good burrowing soils and a relatively undisturbed environment (Mt. King Ecological Surveys 2001). The Woodland provides the only area of mature woodland vegetation containing large numbers of hollows in the Homebush Bay region.

In recent years, a number of the mature, hollow-bearing Scribbly Gums have fallen during storms. Signs of borers are evident in many trees, and it is likely that more will fall in future years. Although a relatively small number of trees have fallen so far, the small size of the Woodland (of which the Scribbly Gum component is approximately half), means that at some stage, loss of hollow-bearing trees may affect availability of nest sites.

About 100 indigenous plant species have been recorded, including a small Parrot-pea (*Dillwynia parvifolia*) which is essentially confined to the Bankstown-Fairfield-Liverpool area, Woollybutt (*Eucalyptus longifolia*) which is found sporadically on the Cumberland Plain, and Grey Gum (*Eucalyptus punctata*) originally found on Wianamatta Shale soils from Beecroft to Auburn but which has now largely disappeared (Clarke and Benson 1988). Common species recorded by Clarke and Benson (1988) included Turpentine (*Syncarpia glomulifera*), Grey Ironbark (*Eucalyptus paniculata*), Broad-leaved Ironbark (*Eucalyptus fibrosa*), Scribbly Gum (*Eucalyptus haemastoma*) and White Stringybark (*Eucalyptus globoidea*). The understorey contained grassy open areas of Kangaroo Grass (*Themeda australis*) and shrubs of Common Hopbush (*Dodonaea triquetra*), Tick Bush (*Kunzea ambigua*), *Zieria smithii* and Elderberry Panax (*Polyscias sambucifolia*). This record was made only four years after mowing of the area had ceased and the understorey vegetation has since become denser.

The Woodland forms part of the only remaining example in the Sydney region of a complete estuarine zonation, from Cumberland Plain Woodland through to Allocasuarina Closed Forest, and then saltmarsh to mangroves in the intertidal zone (Adam, *pers. comm.*; Fox 1986; Kachka 1993). Almost all similar vegetation sequences have been cleared in this part of the Sydney Basin. The only interruption to this area of native habitat is a corridor between the wetland edge and the start of the woodland where a narrow belt of grassland with Allocasuarina trees is the location of the railway line and sealed service road (Urban Bushland Management Consultants 1997), which is within the Parklands' Newington Armoury (former RANAD) precinct.

The Woodland provides the only seed source and guide to endemic species for landscaping and replanting of the original vegetation type within the Parklands; the Parklands landscape planting

design used the Woodland species in the species list (Hassell 1998). Seed has been regularly collected from the Woodland for propagation and local planting over recent years. A small area of the Woodland formerly used as a burning pit was remediated and replanted with local species in 1997.

Exotic weed control using bush regeneration techniques has been undertaken within the Wanngal Woodland in recent years, with the result that there is now a very low level of weed infestation. Weeds that occur in the Woodland include blackberry, boneseed, lantana, and exotic grasses. Pioneer native species such as *Pittosporum* and *Allocasuarina* colonise the Woodland from nearby areas. Because of the small size of the woodland, establishment of these species has the potential to significantly change the vegetation and habitat values of the woodland community. Seedlings of these species are removed during regular weed control operations.

2.3.2 Native and introduced animals

Birds have been regularly monitored within the Woodland since 1995, with forty-one species recorded to 2001. The Woodland provide the only sizable area of mature eucalypt forest in the Homebush Bay region and support a high density of hollows and nesting places as well as providing an important food source for many species of birds (Straw 1998).

Species known to nest in the mature scribbly gums within the Woodland include Rainbow Lorikeet, Crimson Rosella, Eastern Rosella, Scaly-breasted Lorikeet, Sulphur-crested Cockatoo, Galah, the locally uncommon Red-rumped Parrot, White-bellied Sea-Eagles, Brown Goshawks and White-plumed Honeyeaters. The close proximity of breeding habitat in the Woodland to feeding habitat in the grasslands of other precincts of the Parklands provides optimum habitat conditions for parrot species. The Woodland also attracts a variety of migratory and nomadic perching birds, including Double-barred Finch, Black-faced Monarch, Satin and Leaden Flycatcher, Rose Robin and Rufous Fantail. Both the Southern Boobook and Tawny Frogmouth have been recorded in the Woodland, although they have not been observed there for some time, and the Barn Owl is likely to use it (Mt King Ecological Surveys 2001).

A pair of White-bellied Sea-Eagles (*Haliaeetus leucogaster*) attended an existing nest in the Woodland in 2001 for the first time in several years, but did not appear to successfully raise young. They are again attending the nest in 2002. This species is listed on China Australia Migratory Birds Agreement (CAMBA).

The Woodland supports at least seven species of insectivorous bats including the Large (or Common) Bentwing Bat (*Miniopterus schreibersii*), listed under the *Threatened Species Conservation Act 1995* as vulnerable in NSW (Mount King Ecological Surveys 2001). Maternity roosts of several species of bats have been identified in the roof cavity of some buildings in the adjacent Armoury precinct. The Woodland supports a small breeding population of the Lesser Long-eared Bat (*Nyctophilus geophroyi*).

The Mt King Ecological Surveys study (2001) identified signs of the presence of arboreal marsupials, with confirmed evidence of the Common Ringtail Possum and Common Brushtail

Possum; eleven reptile species, including high numbers of Grass and Garden skinks. Three native frog species have been identified within the Woodland.

Tadpoles, believed to be those of the Green and Golden Bell Frog (*Litoria aurea*) have been found in a highly ephemeral rainwater puddle on the edge of the Woodland on one occasion. The Green and Golden Bell Frog is listed as endangered under the NSW *Threatened Species Conservation Act (1995)*, and is common in the constructed freshwater wetland habitat adjoining the Woodland. The Woodland is not considered to provide Green and Golden Bell Frog habitat because there are no waterbodies other than small highly ephemeral rainwater puddles, and a thick grassy understorey is generally absent. The woodland is not classified as frog habitat in the SOPA Frog Management Plan (SOPA July 2001).

The habitat values of the Woodland should support a higher diversity of woodland fauna than occurs. Past land management practices and isolation from other remnants has resulted in some common species being “missing” and unable to naturally recolonise the Woodland. Within this 13 hectare protected woodland, some quail and button-quail species, three additional dove species, five additional parrot species, more woodswallows and honeyeater species, nine additional reptile species, the Southern Bush Rat, Brown Antechinus; and Sugar Glider could be expected to be found (Mt King Ecological Surveys 2001). These species could be considered for re-introduction to the Woodland to enhance its biodiversity.

Introduced species in the Woodland include the brown hare, house mouse, black rat and red fox (Mt King Ecological Surveys 2001). Predation by the red fox is listed as a threatening process under the *Threatened Species Conservation Act (1995)*, and strategic control is undertaken.

2.3.3 Fire Elements

The Woodland was not deliberately burnt by fire during management of the area by the Department of Defence, and was protected from all risks of accidental fire to protect stored armaments. This lack of fire history makes the Woodland different to most other remnant woody vegetation in the Sydney region.

Fire is an element of Australian native plant communities and is an important consideration in future management of the Woodland. Fire frequency, intensity and season of occurrence are major factors influencing the distribution and composition of plant and animal communities. A variety of fire regimes is needed in order to conserve floristic diversity and provide diversity of habitat for animals. Inappropriate fire regimes such as frequent or regular fire can cause loss of particular plant and animal species and communities. Similarly, species which require fire for regeneration will decline if fire does not occur for long periods.

Under the *Rural Fires Act (1997)*, NPWS is a fire authority and is responsible for controlling fires within nature reserves. Increased public access to the perimeter of the Woodland has increased the risk of arson and accidental fire. The small size of the Woodland places it at high risk of significant ecological damage in the event of uncontrolled wildfire. High intensity ecological or hazard reduction burns would not be appropriate.

Hydrants were installed in several places within and adjoining the Woodland by the Department of Defence, and provide a water supply for firefighting.

2.4 Constructed Elements

Because the Woodland was until recently a part of the RANAD site, it contains some constructed elements and minor infrastructure that is reliant upon or essential to the operation of facilities and services located outside the boundaries of the Woodland, within Newington Armoury precinct of the Parklands. This includes:

- Underground water pipes servicing fire hydrants located both within and outside the Woodland.
- Underground electrical cables servicing buildings within and outside the Woodland, and an emergency siren within the woodland.
- An above-ground electricity junction box within the Woodland that provides electricity to buildings outside the Woodland and to the siren.
- A 1.8 metre chainwire fence erected at the boundary of the Woodland and Newington Armoury.

Maintenance of infrastructure both within and outside the Woodland will be required so that existing services to land under both ownerships continue to be available.

The Woodland contains a number of service tracks, established by the Department of Defence to enable vehicle access throughout the Woodland. Some paths are constructed of bare earth; others of imported gravels. Full and partial regeneration has occurred naturally on many of these tracks since vehicle access was restricted in the mid 1990s.

The presence and maintenance of service tracks causes ecological impacts such as fragmentation and edge effects. These impacts are of particular concern in the Woodland given its very small size, and therefore the small proportion of “core” relative to ”edge” habitat. Existing service tracks have been identified as detailed in Appendix 1.

2.5 General Condition of Wanngal Woodland

The condition of the land and improvements in 2002, is as follows:

- The Woodland supports many mature endemic trees with hollows and spouts, stags, dense middle and lower storey vegetation, dense litter cover, good burrowing soils, and a relatively undisturbed environment.
- Vegetation is relatively free of weeds.
- The Woodland has not been affected by fire for over a hundred years.
- The Woodland supports a relatively high fauna diversity relative to the constructed landscapes of the Parklands, but one which is lower than would be expected within a remnant of this size and condition.
- The railway line is operational.

- Perimeter fencing is in excellent condition.
- Building 31 is in good condition.
- Pre-existing service tracks are in fair condition.

2.6 Base Use & Occupation of Wanngal Woodland

The use of the land and improvements in 2002 is as follows:

- The base use of the land and improvements was for nature conservation.
- The railway line and Building 31 were identified as having potential and were available for use in controlled visitation to the Woodland.
- Access is limited to controlled activities approved by NPWS and associated with monitoring, management and educational activities.
- The whole site was available for park maintenance and operations and Parklands research purposes.

3 Use & Function of Wanngal Woodland

3.1 Outcomes Sought for Wanngal Woodland

The Plan intends that Wanngal Woodland will achieve the following outcomes on an ongoing basis:

- Wanngal Woodland will be managed and maintained to conserve and enhance its natural and cultural values.
- Ongoing management of Wanngal Woodland will be guided by scientific research and monitoring.
- The National Parks & Wildlife Service and Sydney Olympic Park Authority will cooperate to ensure Wanngal Woodland and surrounding precincts of the Parklands are managed in a complementary manner.
- Wanngal Woodland will provide for restricted public access with use being limited to controlled educational visits by foot and by rail to defined and limited parts of the woodland that may vary seasonally.
- There will be opportunities for increased public appreciation of the Wanngal Woodland and its inhabitants by provision of services and infrastructure outside of the woodland, such as observation towers and interpretive signage on the woodland perimeter and use of webcam technology.
- Wanngal Woodland will be operated and managed to recognise the importance of the Reserve as a natural habitat area of State and National significance.

3.2 The Function of Wanngal Woodland

The Plan recognises that the primary function of Wanngal Woodland is as a gazetted nature reserve containing an ecological woodland system, in accordance with its high conservation value.

Wanngal Woodland has secondary functions as an element of the former Royal Australian Navy Armament Depot heritage landscape, as a place that houses a heritage building and railway, as a controlled scientific monitoring and research site, and as a controlled educational point of interest.

3.3 Visitation & Activity

The primary purposes of nature reserves are conservation of wildlife, natural environments and significant cultural features and to provide opportunities for education and scientific research into these resources.

Wanngal Woodland will be managed so that use by the general public, special interest groups, students, and Reserve managers or other authorities is appropriate and conforms with the *NPW Act*, the *SOPA Act*, and the management objectives and policies of this Plan.

The Wanngal Woodland is a very small and significant area of remnant vegetation, with a high wildlife habitat value. Ecologists consider that the low level of human disturbance throughout occupation by the Department of Defence, particularly over the past 20 years as defence activities were reduced, has been a key factor in preservation of its values. There has been no public access to the Woodland for the past 100 years.

The small size of the Woodland means that visitation to a relatively small area will disturb a relatively large proportion of the total Woodland area. Human presence can degrade the habitat value for fauna species and requires careful and adaptive management. Birds nesting in the Scribbly Gum forest are particularly likely to be disturbed by visitation. The Scribbly Gums are an important regional nesting area for many species of parrots. Also, White-bellied Sea-Eagles (*Haliaeetus leucogaster*) nest in this area and disturbance by humans in the breeding season could affect future nesting success (P. Straw *pers. comm.* 2001).

3.3.1 Public Access

Public access to the Woodland will continue to be restricted, however highly controlled public access will be introduced. Public visitation will be limited to legitimate educational visits in daylight hours. Such visits will only be permitted in defined and limited parts of the woodland approved from time to time by NPWS. The railway line and Building 31 will be the primary areas available for curriculum based educational visitation. Visitation by foot using an approved route will be available to specialised educational groups on a closely controlled basis, and will not occur in sensitive areas during key bird breeding seasons, which may vary seasonally (typically June – December²).

There is currently no locational signage or interpretive material at the Woodland. There are opportunities for public appreciation of the Woodland and its inhabitants to be increased by provision of services and infrastructure outside of the woodland precinct, such as: observation towers and interpretive signage on the woodland perimeter; use of webcam technology; and

² The White-bellied sea-eagle begins to nest in June/July. Most parrot species within the Woodland breed in late winter/spring

inclusion of information in school visitation programs run within the Parklands by the Department of Education.

3.3.2 Research and monitoring

The purpose of scientific study and monitoring in nature reserves is to improve understanding of natural and cultural features and the processes that affect them. Research also establishes the requirements for particular species and communities.

A number of ecological studies have been commissioned in the Woodland in recent years, directed at providing basic flora and fauna information upon which to base management of the area. There is a need for new or expanded specialist studies or reports to inform future management decisions about the site. The Woodland also has a wider research value because its relatively unmodified habitats provide a reference for research and a benchmark with which to compare and understand the original vegetation and soils of Cumberland Plain Woodland.

Due to the small size of the Woodland and its close proximity to high numbers of researchers, there is potential for it to be over-used for research. Research and monitoring are encouraged within Wanngal Woodland, but will be limited to issues of direct benefit to management of the local area. Research of a general nature that can be achieved in other locations will generally be discouraged.

All scientific research is required to be authorised in accordance with requirements of the NPW Act and Regulations to that Act.

3.4 General Uses

The land, buildings and built structures in Wanngal Woodland may be used³ for a range of activities, functions and purposes associated with undertaking, promoting or facilitating appropriate use of the Parklands.

A number of Approved General Uses have been established for this precinct as a reference point when reviewing the appropriateness of works, change or programs associated with the existing list and/ or when considering adding or removing items to or from the list of approved Particular Activities and/ or Particular Building Uses in this Section.

The following Approved General Uses have been identified for this precinct: Reserve management, Conservation, Ecology, Science, Education, History, and Interpretation.

Any authorisation for Particular Activities or Particular Building Uses in sub-sections 3.3.1 and 3.3.2 hereof as being generally suitable for the whole or any part of this precinct is subject to the activity or use being developed, conducted and/ or implemented in ways clearly compatible with:

- The General Objectives in the General Scheme of Operations.
- Local Objectives or Local Policies assigned to Wanngal Woodland.

³ To comply with Clause 36 (3A) (b) (i) of the LGA (1993) imported by Clause 34 (4) of the SOPA Act (2001).

- Compliance with any relevant legislative provisions.
- Any requirement to obtain Development Consent.
- Any requirements of the NPW Act and Regulations.

3.4.1 Particular Activities

Without limiting the generality of the above provisions, the Plan establishes that the following Particular Activities are appropriate for the Wanngal Woodland and may be implemented as part of the reserve's management program:

- Control of wildfire.
- Cultural heritage maintenance.
- Infrastructure maintenance.
- Monitoring effects of management actions and visitation.
- Security patrols.
- Track maintenance.
- Undertaking legal compliance activities.
- Vegetation management.

All other activities require NPWS approval, and are described further in Section 5 of this Plan.

Particular Activities may also be Restricted Activities under Section 5.4.1 of this Local Scheme of Operations. Reference to restrictions, terms and conditions in Section 5.4.1 should always be made when considering undertaking Particular Building Uses in this precinct as any provisions in Section 5.4.1 take precedence over any authorisation in this Section.

3.4.2 Particular Building Uses

Subject to implementation details associated with the Particular Building Uses listed in this Section being clearly compatible with the substance or intent of the General Objectives and Local Objectives or Local Policies assigned to Wanngal Woodland the Plan authorises the following uses as being appropriate for existing buildings at Wanngal Woodland:

- Building 31 will be available and where required adapted and re-adapted for education and interpretive display purposes, subject to planning approvals.

Particular Building Uses may also be Restricted Activities under Section 5.4.1 of this Local Scheme of Operations. Reference to restrictions, terms and conditions in Section 5.4.1 should always be made when considering undertaking Particular Building Uses in this precinct as any provisions in Section 5.4.1 take precedence over any authorisation in this Section.

3.5 Leases and Licences

3.5.1 Leases and Licences issued by NPWS

NPWS is authorised to enter into leases and licences for Wanngal Woodland, provided the particular activity is consistent with this Plan and the NPW Act and Regulations.

3.5.2 Short Term Service Agreements issued by the Authority

The Authority is authorised to enter into a service agreement with any person or organisation or entity for part or the whole of Wanngal Woodland, with the approval of NPWS. Such agreement may be on a casual or periodic basis for any period up to five (5) years for any approved use or occupation identified in this sub-section, provided the particular activity is consistent with this plan and the NPW Act and Regulations.

The Plan has established that the issue of short term service agreements relating to use or occupation in Wanngal Woodland is limited to Program activities including: Maintenance of the Reserve, Undertaking legal compliance activities, Delivering educational programs, Photography (other than for trade or business), Providing parkland tours and interpretation, and Undertaking environmental monitoring and research.

3.5.3 Long term Service Agreements issued by The Authority

The Authority is authorised to enter into a service agreement with any person or organisation or entity for part or the whole of Wanngal Woodland, with the approval of NPWS. Such an agreement may be on a casual or periodic basis for any period up to twenty-five (25) years for any approved activity or occupation defined in this sub-section. This authorisation is conditional upon the particular use or activity clearly being compatible with the substance and intent of the Values, Objectives and Policies of the Plan, and the NPW Act and Regulations.

The Plan has established that the issue of long term service agreements relating to use or occupation in the Wanngal Woodland is limited to Program activities including: Reserve maintenance, Research, Education, Interpretation, and Legislative compliance activities.

4 Management Issues

Given the features in Section 2 and approved uses in Section 3, the Plan has identified the following key operational risks and constraints or obligations as being of particular significance for Newington Armoury and recognises they will have a primary influence on its management.

4.1 Risks Associated with Wanngal Woodland:

The following risks must be taken into account when interpreting and/ or implementing any part of the General Scheme of Operations or this Local Scheme of Operations. Other risks that might emerge with the progressive growth in visitation or maturity or evolution of the site.

- The small size and isolation of the Woodland, making it vulnerable to disturbance, edge effects and local extinctions, and affecting the numbers and abundance of species it can support.
- Loss of relatively small numbers of mature canopy trees due to fire, wind, pests or disease could greatly affect available habitat features.
- Introducing public access to an area that has been isolated for over a hundred years.
- Determining a sustainable level of usage consistent with the legislated purposes of nature reserves in New South Wales.
- Disturbance to wildlife from increased levels of activity on adjoining lands.
- The complexity in management of education Programs and the place.
- The sensitivity of the reserve to activities in adjacent areas from fire risk, noise, lightspill and disturbance.
- The vulnerability of the area to bushfires.
- The potential impact of pest animals and plants on the environment.
- The cultural significance of reserve and the protection of the historic fabric.
- The likelihood that the reserve will increasingly become in demand as an environmental attraction.
- The Authority's ability to continue to manage the reserve on behalf of NPWS.

4.2 Constraints & Obligations Associated with Wanngal Woodland:

The following constraints and obligations must be taken into account when interpreting and/ or implementing any part of the General Scheme of Operations or this Local Scheme of Operations. Others might emerge in the future.

- The legislative assignment of the area as a nature reserve gazetted under the NPW Act.
- NPWS is the landholder and statutory management authority for Newington Nature Reserve (comprising Wanngal Woodland and Wanngal Wetland).
- The Sydney Olympic Park Authority may only undertake activities and use or allow the Wanngal Woodland to be used for purposes approved by a Memorandum of Understanding between the Authority and NPWS – and consistent with this Plan.
- The Sydney Olympic Park Authority is obliged by its legislation to ensure the achievement of the purposes for which the nature reserve (including Wanngal Woodland) is deemed to be dedicated under section 49 (3) of the NPW Act.
- There are no existing development consents that apply to Wanngal Woodland.
- Any future development or uses must be consistent with any future Conservation Master Plan or Conservation Management Plans.

5 Management Regime for Wanngal Woodland

5.1 Management Arrangements

The Sydney Olympic Park Authority manages the Reserve on behalf of and in close consultation with NPWS according to a Memorandum of Understanding between both organisations, and the provisions of this Plan.

5.2 Strategic Approach

The following strategies may be applied and will be taken into account when managing Wanngal Woodland.

- Actively manage the natural and cultural values of this very small size and isolated woodland;
- Give emphasis to identification and containment of public risks and hazards;
- Implement special security precautions to protect heritage and natural elements;
- Develop and implement appropriate operational plans and procedures to manage the extent and intensity of visitation;
- Restrict access to management, educational or scientific purposes only;
- Meet the statutory requirement to manage the land as a Nature Reserve;
- NPWS and SOPA will cooperate in the maintenance of existing infrastructure that crosses the boundary of the Woodland and Newington Armoury, so that existing services (including water, electricity, rail) continue to be available to both areas.
- Develop an education and interpretive Program that enhances the spirit of place;
- Preclude access to certain types of uses in particular areas;
- Restrict or closely manage activities where visitor numbers would stress the natural areas;
- Ensure that scientific and social research identifies necessary changes to Programs and management regimes;
- Ensure that the Parklands workforce are adequately trained and receive up to date information to manage appropriately;
- Ensure that appropriate delegations of authority are provided to manage the reserve properly;
- Ensure an adequate level and timing of resources;
- Ensure the establishment of service standards and agreements with SOPA and other Authorities;
- Require careful understanding, interpretation and exercise of delegations associated with provisions of statutory plans and regulations;
- Require particular attention to the adequacy and timeliness of information gathering, processing, reporting, and compliance.

5.3 Local Policies

The following Local Policies have been developed to guide the way local issues and particular activities associated with Wanngal Woodland are to be managed. These Local Policies will take precedence in the management of Wanngal Woodland to the extent of any inconsistencies with the General Scheme of Operations in Part 2 of the Parklands Plan.

5.3.1 General

- Wanngal Woodland will be managed in accordance with a Memorandum of Understanding between NPWS and the Authority.
- Management of the Woodland will be guided by results of monitoring and research.
- Research and monitoring are encouraged within Wanngal Woodland, but will be limited to issues of direct benefit to management of the local area. Research of a general nature that can be achieved in other locations will generally be discouraged.
- An effective boundary fence will be maintained around the Reserve, to ensure no unauthorised access, to protect heritage and natural assets, and control access to the reserve.
- Best practices for erosion and pollution prevention will be applied to any approved works.
- To comply with the requirements of Section 34 of the SOPA Act, a SOPA Work Permit is required for all new or different operations (works, uses, events and activities) in this precinct.

5.3.2 Vegetation

- Vegetation management will aim to promote the Sydney Turpentine Ironbark Forest community.
- The high habitat value of the woodland will be conserved through active management, and enhancement if needed.
- Regeneration that has occurred following past disturbance will be allowed to continue.
- Ecological burning, direct seeding, and planting will be undertaken if needed.
- Introduced plant species will be controlled and if possible eradicated. Priority for treatment will be given to those that have been declared noxious in the Auburn Local Government Area, threaten native communities, or may affect adjoining lands.
- Removal of any weed infestations must take place incrementally, in tandem with replacment planting of native species, to ensure that structural habitats are maintained. Native vegetation within the Parklands close to the Woodland will be managed in a way that complements management of the Woodland.
- Weed control within the Woodland will be conducted in conjunction with weed control in adjacent areas of the Parklands.

Seed may be collected from the Woodland, subject to NPWS guidelines and approval, to propagate local provenance plants for planting within the Parklands. Vegetation of gazetted areas that are outside the surrounding chainwire fence will be managed to provide a buffer to the nature reserve.

5.3.3 Fauna

- Introduced animals will be controlled. Control programs will be designed to avoid impact on non-target species and with consideration of animal welfare aspects of pest animal control.
- Options to reintroduce “missing” local fauna species will be investigated, however, no reintroductions will be undertaken without appropriate amendment to the Reserve Plan.

5.3.4 Fire

- Fire, fire risk, and ecological burns will be managed to ensure protection of human life and property within and adjacent to the Woodland, and maintenance and regeneration of plant and animal species and communities.
- Fire planning of the Woodland will be conducted in conjunction with fire planning of surrounding precincts of the Parklands.
- The use of heavy machinery for fire suppression will be avoided.
- Existing service tracks along the internal perimeter of much of the Woodland will be maintained as firebreaks and to give vehicle access for firefighting. The service tracks throughout the woodland will be allowed to revegetate, although they will be allowed to be used for emergency access.
- Existing fire hydrants within and adjoining the Woodland will be maintained in working condition.
- Records of fire within the Woodland will be maintained to assist with fire management planning.

5.3.5 Cultural heritage

- The cultural places of the Woodland will be conserved in accordance with the Burra Charter of Australia ICOMOS.
- Adaptive reuse of Building 31 will be with the consultation and approval of NPWS
- Building 31, the railway line and surrounding embankment within the Woodland will be conserved and managed with regard to the principles, objectives and strategies of a Conservation Management Plan approved by the NSW Heritage Council and describing the whole of the remaining former RANAD site.
- Sites and places will be protected and managed in consultation with the Metropolitan Local Aboriginal Land Council (MLALC) and representatives of the local Darug people.
- Involvement of Aboriginal people in interpretation of the Woodland’s Aboriginal heritage will be encouraged.
- Additional Aboriginal heritage surveys will be conducted as gaps are identified; newly located Aboriginal sites will be properly recorded and added to the Service’s site register.
- To manage woody vegetation along the Railway Line to fully comply with accreditation and certification requirements of the NSW Department of Transport, including no less than 1 metre clearances from either side of the the edge of the track and no less than 2.1 metre clearances above the rail.

- To ensure no buildings or structures are placed inside the minimum building prohibition space beside the railway line, that is not within 355mm of the edge of a straight section of rail and not within 600mm of the edge of a curved section of rail.

5.3.6 Access

- Access for management, educational and scientific purposes will be restricted to Program activities and account for different seasonal sensitivities, particularly during winter and spring, when birds are breeding.
- Access for management operations will be by foot wherever practical.
- Typically visitation will be in the form of low impact or off-site programs which encourage appreciation and understanding of the Woodland without causing harm to its values.
- Public visitation into the Woodland is limited to legitimate educational activities only.
- Public visitation to the Woodland will be limited to highly controlled and guided educational visits during daylight hours to defined and limited parts of the Woodland approved from time to time by NPWS, that may vary seasonally.
- Visitor numbers and impacts will be monitored, and access modified accordingly.
- The railway line (including access by train) and Building 31 will be the primary points of visitation.
- No visitor facilities will be provided within the Woodland, with the exception of the area of Building 31 and the railway line.
- Facilities such as interpretive displays and seating may be considered for installation within Building 31.
- There will be no vehicle access to the Reserve, other than the electric train and approved service vehicles.
- Guided educational visitation to other parts of the Woodland, by foot using an approved route, will be available to approved specialised groups on a closely controlled basis, and will not occur in sensitive areas during key bird breeding seasons.
- Interpretation and appreciation opportunities not requiring entry to the Woodland will be developed.
- The purpose and importance of maintaining a buffer to the woodland will be interpreted.

5.4 Regulations and Restricted Activities

There are Regulations⁴ that authorise NPWS and SOPA (as appropriate) to determine the appropriateness of visitor conduct or activity and take action accordingly to minimise nuisance, disturbance, damage, or obstruction within the Parklands. The Regulations also establish the penalties attached to any related offences, and both NPWS and the Authority implement the Regulations according to current NPWS and Authority guidelines.

In order to provide for the safety, care and experience of visitors and/ or the preservation and function of assets and/ or ecosystems, some uses and activities in the Parklands have been identified as Restricted Activities. Restricted Activities include some Particular Activities

⁴ As applicable both the NPW Regulations associated with the National Parks & Wildlife Act (1974) the Regulations associated with the Sydney Olympic Park Authority Act (2001).

detailed in Section 3.4.1 and Particular Building Uses detailed in Section 3.4.2 and/ or actions, tasks or uses associated with Particular Activities detailed in Section 3.4.1 and Particular Building Uses detailed in Section 3.4.2.

Restricted Activities are not allowed to take place without first being Approved by the Parklands Director or an Authorised Delegate in consultation with NPWS as required. The Parklands Director or Authorised Delegate must comply with the authorisation requirements of Section 5.3.2 when determining whether or not to approve Restricted Activities identified in Section 5.3.1. Any Approval issued must include appropriate conditions including those identified in this Section (if any) or elsewhere in the Plan and be consistent with the General Objectives , Local Objectives, and the Local Policies of this precinct.

The provisions of this Section do not limit the generality of the powers conferred by the Regulations, or the ability of the Authority to implement the Regulations more harshly than provided herein.

5.4.1 Restricted Activities

The following Particular Activities, Particular Building Uses and/ or actions, tasks or uses associated with Particular Activities or Particular Building Uses have been identified as Restricted Activities within Wanngal Woodland.

- Adaptive re-use of building 31, including provision of visitor support services such as interpretive displays, seating and signage within the building.
- Education Programs involving low intensity controlled access to the reserve.
- Entry of non-government motorised vehicles into the reserve.
- Filming and photography for promotion of the values of the Woodland and NPWS and SOPA activities.
- Habitat enhancement.
- Lighting of fires for reserve management purposes.
- Low-flying helicopters associated with Parkland programs or commercial arrangements flying over the Reserve.
- Operation of an electric train on the railway line.
- Pest animal control.
- Reintroduction of “missing” species.
- Seed collection.
- Undertaking scientific research and monitoring.

5.4.2 Approval of Restricted Activities

5.4.3 Authorising a Restricted Activity

Before a Restricted Activity can be Approved by the Parklands Director or Authorised Delegate they must obtain appropriate approvals from the NPWS and be satisfied that the impact of allowing and undertaking such Restricted Activity is:

- Temporary, reversible, minor, and safe.
- Not significantly detrimental to either the remediation or conservation of the area or other areas in the Parklands.
- Not unreasonably imposing on the peace, safety or wellbeing of neighbors or visitors to the Parklands.
- Consistent with legislative obligations.

5.4.4 Public Access Arrangements

Restricted access to Wanngal Woodland is necessary in order to protect the values of the area and the safety of visitors. The following access arrangements apply to the Wanngal Woodland:

- The Wanngal Woodland will only be open to public access through participation in educational or scientific Program activities. All Program activities will be approved by NPWS.
- Visitor access is limited to foot traffic or by electric train on existing railway line.
- Program activities may only enter Wanngal Woodland in the company of an approved Guide.
- Approved Guides may only be those persons familiar with the Woodland and (for other than NPWS staff) approved jointly by the NPWS Sydney Regional Manager and the Authority's Parklands Director or Authorised Delegate of the Authority appointed from time to time.
- Entry to Wanngal Woodland is conditional upon completing any induction and complying with all conditions of entry established jointly by the NPWS Sydney Regional Manager and SOPA Director Parkland Management from time to time.
- Public access to Wanngal Woodland other than in daylight hours is not permitted.
- Availability of access to Wanngal Woodland for Program activities may vary seasonally with fauna needs and management operations.
- Guided visitation to Building 31 via the railway line and adjacent service track is restricted to groups of no more than 20 persons (including staff and supervisors), with a maximum of 2 groups per day and 8 groups per month, for up to one hour per group.
- Visitation by foot using existing service tracks will be available to 'specialist' groups of no more than 10 persons with a maximum of four groups per month and up to two hours per group, and will not occur in sensitive areas during key bird breeding seasons, which may vary seasonally (typically June – December⁵).
- Fees and charges for activities within Wanngal Woodland will be as determined jointly by NPWS and the Authority and monitored and reviewed.
- Total visitation to Wanngal Woodland must not exceed 280 persons per month (excluding management activities).

5.4.5 Prohibited Activities

The following activities are prohibited in Wanngal Woodland:

⁵ The White-bellied sea-eagle begins to nest in June/July. Most parrot species within the Woodland breed in late winter/spring

- The construction of new buildings.
- Overnight camping whether associated or not with parkland Programs.
- Flying motorised or non-motorised model aircraft.
- The construction of new service tracks.
- Entry of motor vehicles other than those from or approved by National Parks & Wildlife Service or the Authority.
- Unauthorised public access.
- Public access for recreational purposes.
- Taking of dogs into the Woodland.
- Public access outside of daylight hours.
- Installation of lighting other than internal lights to Building 31.
- Picking or damaging plants or interference with fauna, without authorisation from NPWS.
- Any activity prohibited by provisions of the NPW Act and Regulations to that Act.

5.5 Authorised Built Structures

The Plan authorises the construction, renovation, repair and refurbishment of approved types of built structures identified in this Section within Wanngal Woodland. This authorisation does not of itself approve such an activity. Works are also subject to any statutory development assessment and consent requirements, heritage requirements, and the activities associated with the built structures not being contrary to the substance or intent of the Wanngal Woodland Values or Objectives or Local Policies.

Notwithstanding the above provisions, no formal construction of buildings or structures is permitted in this precinct unless required for public safety or environmental protection purposes.

The Plan has established that the types of built structures approved to be constructed, renovated, repaired or refurbished in the Wanngal Woodland are limited to the following: Service tracks, Railways and Rail Support Systems, Utility Services, Heritage Protection Items, Interpretive Centre at Building 31, Viewing Platforms, Remote Monitoring Devices, Park furniture, Observation Towers, Interpretive and Regulatory Signs, and Fences.

5.6 Standards for Works and Services

The standards set for works and services associated with Wanngal Woodland must recognise the strategic importance of the place, relate to the physical characteristics of the place, and facilitate the uses and functions intended for the place.

The detailed standards and methods of implementation will be defined in the Sydney Olympic Parklands Asset Management Plan⁶ and associated Operational Maintenance Plans.

⁶ As amended from time to time by the Authority.

In detailing, reviewing and implementing standards for works and services from the Sydney Olympic Parklands Asset Management Plan, the following requirements must be taken into account:

- The quality of works and services must reflect the nature of intended uses and activities for the place.
- The frequency of works and services must endeavor to maintain consistency in site presentation.
- The timing of works and services must account for seasonal constraints and cycles.
- The priority for works and services must take into account local objectives and other requirements for the place and assist in managing identified risks.
- The scope and volume of works and services provided must maintain the safety and serviceability expected for the place.
- The evolving use and understanding of the place will progressively require increased total works and service activity and / or shift works and service demands between locations and tasks.
- The significant modification of works and services standards that may impact on the ability of the Authority to implement the Plan, must only take place in the context of reviewing the provisions of the Plan.

5.7 Works and Services Priorities

An Operational Maintenance Plan will be prepared for Wanngal Woodland and will incorporate the Works and Services Guidelines provided in the General Scheme of Operations and in addition give priority attention to the following:

- Avoidance of trampling or damage to native flora.
- Avoiding Avoidance of disruption to breeding fauna.
- Compliance with local site access protocols;
- Compliance with SOPA's Work Permit process requirements.
- Complying Compliance with Local Objectives, Local Policies and Constraints and Obligations.
- Control of pest plant and pest animal species.
- Maintaining Maintenance of functionality of programmeProgram support buildings.
- Maintaining Maintenance of safe access and activity for visitors.
- Maintaining Maintenance of site security.
- Protection of ecological values.
- Protection of fauna habitat.
- Protection of heritage building integrity.
- Retaining Retention of cultural landscape integrity.

5.8 Capacity and Resilience

In addition to the requirements of Part 2 Section 5.5 involving visitation management the following approach to managing scale and intensity of use or development⁷ will apply in Wanngal Woodland:

- Visitor demand, compliance and impact on built and natural elements will be monitored.
- Public access to the reserve will be strictly limited to predetermined Program activities only.
- Program activity access (times, activities and places) will be managed and where necessary restricted in response to visitor conduct, movement and impact trends.
- Visitors to the park will always be under some degree of direct supervision while within the reserve.
- Developments (new works) will only be considered when options for adaptive re-use of existing facilities and alternative off-site options are exhausted.
- New developments will be scaled and designed to blend in with the natural and cultural landscape of the reserve.

5.9 Strategic Actions

Strategic Actions for the Wanngal Woodland are those activities or strategies that need to be applied at a Management Precinct level in order to change or conserve the current situation to achieve an alternative or similar outcome in the future. Attached as Table 1 in Appendix 2 are details of strategic actions currently identified for Wanngal Woodland.

It is recognised that Strategic Actions may need to change in priority, focus and relevance over time in order to respond to changing community needs and Parkland conditions or circumstances. Where any changes to strategic actions are required they will be approved by the NPWS.

5.10 Management Performance Targets

The Performance Targets for Wanngal Woodland relate primarily to the General Objectives assigned to the Management Precinct as a result of categorisation. The following Performance Targets associated with a Nature Reserve apply to Wanngal Woodland:

- To demonstrate the protection and preservation of scenic and natural features including significant natural and geomorphological features.
- To demonstrate the conservation of wildlife including maintenance of biodiversity and populations of threatened species.
- To demonstrate the maintenance of natural processes.
- To demonstrate the preservation of catchment values.
- To demonstrate the preservation of Aboriginal sites in consultation with the Aboriginal community.

⁷ As required by SOPA Act (2001) importation of Clause 36 (3A) (b) (iii) of the LGA (1993)

- To demonstrate the conservation of non-aboriginal historic features.
- To demonstrate the provision of opportunities for appropriate use.
- To demonstrate the encouragement of scientific and educational inquiry into environmental features and process.
- To demonstrate support for and compliance with the Local Objectives assigned to Newington Nature Reserve.

5.11 Management Precinct Performance

The assessment⁸ of the Authority's performance in relation to the Plan will focus primarily on the different categories of land in the Parklands, with appropriate reference to the Performance Targets in Clause 5.10 as they relate to Wanngal Woodland. The assessment will be based on a qualitative and / or quantitative assessment of the extent to which implementation of the Strategic Actions referred to in Clause 5.9 have assisted the Authority in meeting the General Objectives and Local Objectives for Wanngal Woodland.

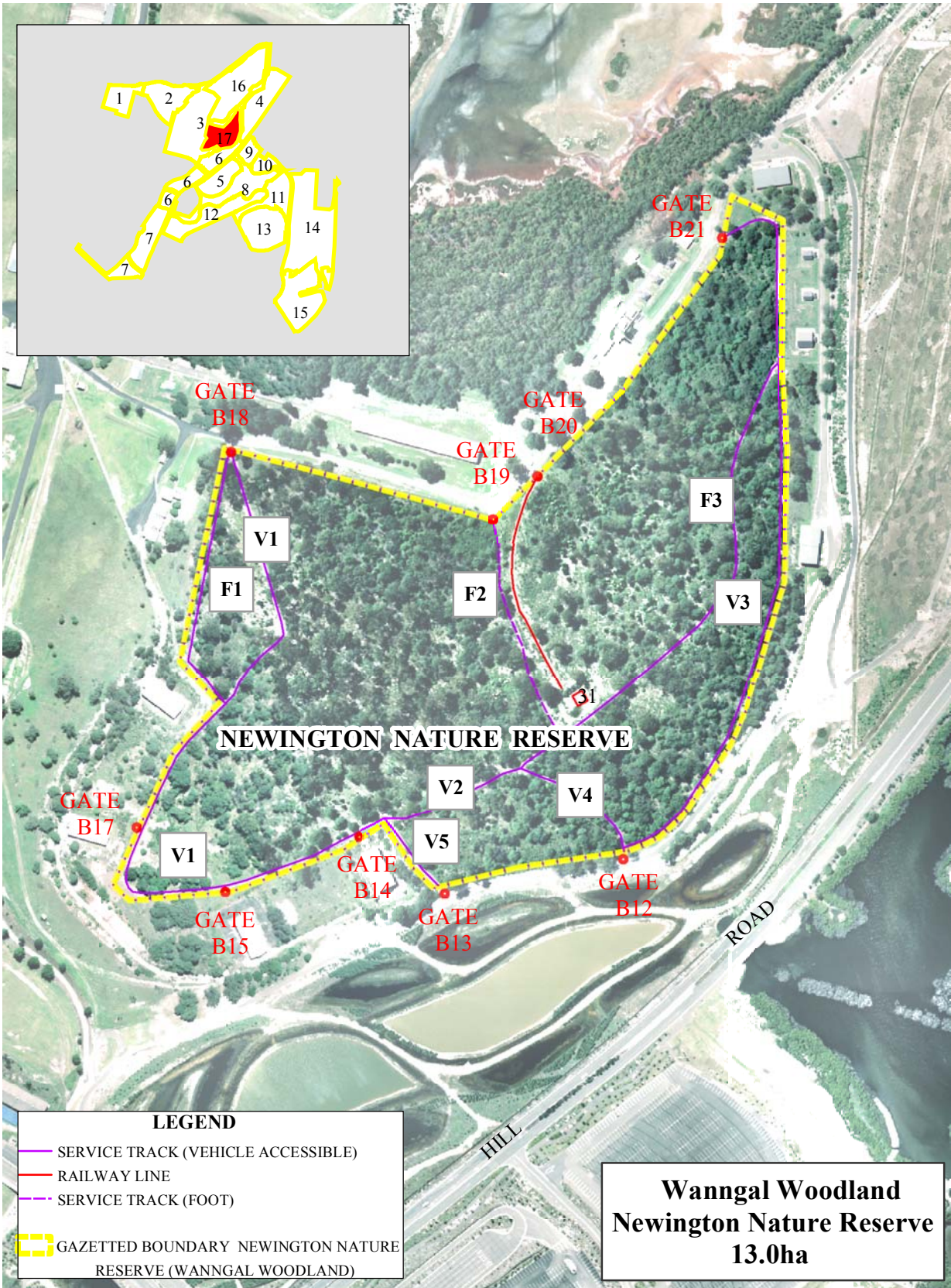
The Plan recognises that the Authority's performance may depend significantly on the extent to which the Authority and NPWS adequately secures, allocates and assigns resources to achieve the strategic actions identified in the Plan, the extent to which strategic actions are implemented, and whether or not they are undertaken according to the priority of the plan.

The assessment response will be presented in the annual Parklands Management Plan Report.

⁸ In accordance with the general requirements of Section 36 (3)(d) of the LGA Act (1993) imported by Section 34 (4) of the SOPA Act (2001)

6 Appendices

6.1 Appendix 1 – Zone Plan for Wanngal Woodland



6.2 Appendix 2 – Strategic Action Plan for Wanngal Woodland

The following list of potential strategic actions is indicative of those actions that are or may be required to manage Wanngal Woodland in accordance with the Statutory requirements of the NPW Act in relation to nature reserves, Statutory Objectives for the Parklands, the concept of Parklands 2020 and the various Local Objectives for Wanngal Woodland. These actions are not listed in any priority order and may be amended from time to time.

- Develop and implement access and security procedures based on the requirements of this Plan
- Continue to actively manage the Reserve by controlling weeds and pest fauna, and maintaining service tracks, infrastructure, utilities and heritage items
- Prepare and implement a fire management plan that aims to: ensure an appropriate ecological fire regime; protect both the building and habitat of the reserve; minimise the risk of an uncontrolled fire starting; and if a fire were to start the likelihood of it spreading or the risk associated with it spreading would be minimal. A draft fire management plan will be drafted and exhibited for the nature reserve by December 2003.
- Develop interpretation and appreciation opportunities not requiring entry to the Woodland
- Develop and implement a monitoring and research program to guide management of the Reserve. Current monitoring and research priorities are: updated vegetation survey; invertebrate biodiversity survey; continuance of existing long-term monitoring of bird populations; ongoing monitoring of vegetation condition, study of the ecological impacts of fire; study of nesting birds including interspecies competition for nesting sites and impacts of management and visitation activities; periodic survey of bat species and abundance, impacts of visitation.
- Prepare a heritage Conservation Management Plan to conserve the heritage values of Building 31 and the railway line in the context of conservation of the heritage values of the former RANAD site as a whole.
- Develop an educational interpretive Program that enhances the spirit of place
- Establish and implement a visitation monitoring and evaluation regime, considering concentrations and frequencies of visitor access and impacts of use.
- Commission the use of remnant Building 31 to support a series of education and interpretive Programs.
- Prepare a design and implementation Program to rehabilitate degraded areas
- Consider reintroduction of “missing” fauna species
- Identify opportunities and undertake works to increase habitat components to provide greater opportunities for an increase in bird and bat species.
- Establish and maintain local works Programs to ensure remaining buildings will be maintained and preserved where possible, and adaptively re-used to house Parklands Programs.
- Interpret the purpose and importance of maintaining a buffer to the woodland.

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**Attachment 1A
(Part 1 of SOPA Plan)**

Sydney Olympic Park Authority

**Plan of Management
for
The Parklands at Sydney Olympic Park**

The Plan of Management comprises:

Part 1 – Preliminaries

Part 2 – The General Scheme of Operations

Part 3 – The Local Schemes of Operations (Land vested in SOPA)

Part 4 – The Local Schemes of Operations (Land vested in NPWS)

Part 5 – Appendices.

PART 1 - PRELIMINARIES

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1 Overview of the Plan

1.1 Title of the Plan

The Plan of Management will be known as the *Plan of Management for the Parklands at Sydney Olympic Park (2002)* and may be referred to as the Plan or the Parklands Plan.

1.2 Millennium Parklands

For the purposes of the Plan the Millennium Parklands will be known as the Parklands at Sydney Olympic Park and may also be referred to as the Parklands. Where the Parklands is mentioned, it has the same meaning as the Millennium Parklands referred to in the *Sydney Olympic Park Authority Act (2001)* and associated Regulations.

1.3 Newington Nature Reserve

For the purposes of the Plan Newington Nature Reserve comprises of two separate Management Precincts referred to by the working names of ‘Wanngal Wetland’ and ‘Wanngal Woodland’. These working names are subject to review in the future according to the naming procedures applied by the National Parks and Wildlife Service and as such they will be confirmed or amended in due course.

1.4 The Power to Make this Plan

The power and obligation to make a Plan of Management for the Parklands at Sydney Olympic Park is contained in Section 34 of the *Sydney Olympic Park Authority Act (2001)*.

1.5 Plan Preparation Framework

The part of the Parklands excluding the Newington Nature Reserve is required to have a Plan of Management prepared in accordance with the provisions of Section 34 of the *Sydney Olympic Park Authority Act (2001)*. These provisions include an obligation to take into account prescribed parts of Section 36 to 36N of the NSW *Local Government Act (1993)* relating to preparation of community land plans of management.

The part of the Parklands that is Newington Nature Reserve is required to have a Plan of Management prepared in accordance with the provisions of Part 5 of the NSW *National Parks and Wildlife Act (1974)*.

1.6 Application of the Plan

The Plan establishes the Scheme of Operations for the Parklands which applies to the whole of the land identified as the Millennium Parklands shown on Plan 1 attached as Appendix 1. The General Scheme of Operations only applies to Newington Nature Reserve to the extent that any provision is also consistent with the relevant provisions of the NSW *National Parks and Wildlife Act (1974)*.

1.7 Precedence of the Plan

In the event that any inconsistency or conflict arises between the provisions of this Plan and any Commonwealth or NSW Acts of Parliament or associated Regulations, the Commonwealth or NSW Acts of Parliament or associated Regulations will take precedence.

In the event that any inconsistency or conflict arises between the provisions of this Plan and another Statutory Plan, Licence or Notice, then the relative status of the various provisions or requirements of the other Statutory Plan, Licence or Notice and the provisions of this Plan will be determined. Where a provision of another Statutory Plan, Licence or Notice is deemed to take precedence then the subject provision of this Plan will have no force or effect. Where a provision of the Plan is deemed to take precedence then the subject provision of the other Statutory Plan, Licence or Notice will have no force or effect.

In the event that any inconsistency or conflict arises between the provisions of this Plan and any non-statutory plan, policy or guideline then the provisions of this Plan will take precedence. The Plan will however in these circumstances be interpreted in a manner consistent with current Government Policy and Parklands 2020.

1.8 Ownership Status of the Parklands

The land comprising the Parklands is vested in the Sydney Olympic Park Authority for an estate in fee simple¹, with the exception that the Newington Nature Reserve is vested in the National Parks & Wildlife Service² and managed by Sydney Olympic Park Authority according to a Memorandum of Understanding.

1.9 Incorporation of other plans

The Plan incorporates the Plan of Management for Newington Nature Reserve (the Reserve Plan) required to be made under the provisions of Section 72 (1) (c) of the NSW *National Parks & Wildlife Act (1974)* and authorised for incorporation by Section 34 (3) of the *Sydney Olympic Park Authority Act (2001)*.

Despite any provision in this Plan to the contrary the incorporation of the Reserve Plan into this Plan does not in any way alter the requirement for Newington Nature Reserve to be managed entirely in accordance with the Reserve Plan and the NSW *National Parks & Wildlife Act (1974)*.

1.10 Principal Objective

The principal objective of this Plan is to provide a detailed scheme of operations proposed to be undertaken for the Parklands.

¹ By virtue of Part 3 Clause 7 of the SOPA Act (2001)

² By virtue of Clause 49 (3) of the National Parks & Wildlife Act (1974)

1.11 Commencement

The Plan comes into operation at the beginning of the day after which it is adopted by the Minister responsible for the Sydney Olympic Park Authority, the NSW Minister for State Development. The Plan was for the purposes of the Plan adopted by the NSW Minister for State Development on 28th January 2003. The Reserve Plan was for the purposes of the Plan and the Reserve Plan adopted by the NSW Minister for the Environment on 28th January 2003.

1.12 Revocation Date

This Plan may be amended at any time in accordance with the requirements of the SOPA Act. Because the Parklands are in the early stages of physical and program development, it is expected the Plan may be amended within 5 years.

Unless sooner cancelled and replaced by a new plan, or updated by amendment, this Plan ceases to operate 10 years after the day on which it is made.

1.13 Revocation of a Previous Plan

This Plan does not cancel any other Plan as this is the first such plan for the Parklands.

1.14 The Scheme of Operations

The scheme of operations required by the SOPA Act is presented in this Plan as:

- A General Scheme of Operations for providing linkages with the concept for the Parklands, establishing principles and guidelines, dealing with systemic matters relating to the whole Parklands and setting up a strategic Parkland management framework.
- A series of seventeen Local Schemes of Operations, one for each Management Precinct, for identifying local issues and characteristics, and dealing with visitation program and place management matters of a local nature. The Reserve Plan is comprised of two of the seventeen Local Schemes of Operations which are also linked to the Preliminaries and General Scheme of Operations of the Plan.

The General Scheme of Operations and the various Local Schemes of Operation that comprise this Plan are designed to put the Concept for the Parklands (referred to in Section 2 of the General Scheme of Operations and elaborated in Parklands 2020) into operation, in a manner consistent with SOPA's obligations relating to the Parklands under the SOPA Act and other legislative and statutory obligations.

1.15 Implementation of the Plan

In accordance with Section 37 of the SOPA Act, and Section 81 of the NPWS Act (as applicable) this Plan shall be carried out and given effect, and no operations shall be carried out in the Parklands unless those operations are in accordance with the provisions of this Plan of Management. If, after adequate investigation, operations not included in the Plan are found to be justified, the Plan may be amended in accordance with Section 36 of the SOPA Act, and Section 75 of the NPWS Act (as applicable).

1.16 Definitions

In this Plan, unless inconsistent with the context:

‘Act’ or **‘SOPA Act’** means the NSW *Sydney Olympic Park Authority Act (2001)*.

‘Authorised Delegate’ means a person employed by the Authority under the NSW *Public Sector Employment and Management Act (2002)* whom has been delegated relevant powers under an Instrument of Delegation issued by the Authority.

‘Authorised’ or **‘Approved’** or **‘Approval’** means approved in writing by the Parklands Director or an Authorised Delegate.

‘Authority’ means the Sydney Olympic Park Authority as defined in the SOPA Act.

‘Concept Plan’ means the provisions of Section 1 of the General Scheme of Operations and Section 1 of each Local Scheme of Operations (as applicable) and their more general expression in Parklands 2020.

‘ESD’ means Ecologically Sustainable Development as referred to in The Environmental Guidelines for the Summer Olympic Games (1993).

‘General Scheme of Operations’ means the provisions of Part 2 of the Plan.

‘Land Categorisation’ means establishing the ‘category’ of land for a Management Precinct in accordance with the requirements of Clause 34 of the SOPA Act importation of LGA Act Clauses 36 (3) (a).

‘Leachate’ means liquid waste material that may be produced in and flows from remediated waste containment areas.

‘Local Scheme of Operations’ means the provisions of Part 3 (and Part 4 in relation to Newington Nature reserve) of the Plan that detail the operational plan for each Management Precinct.

‘LGA Act’ means the NSW *Local Government Act (1993)*.

‘Memorandum of Understanding’ means an agreement between SOPA and NPWS that documents from time to time the shared arrangements for the care, control and management of the Newington Nature Reserve.

‘NPW Act’ means the NSW *National Parks & Wildlife Act (1974)*.

‘NPWS’ means the NSW National Parks & Wildlife Service.

‘Parklands Advisory Committee’ means the Millennium Parklands Advisory Committee appointed under the provisions of Part 5 Clause 62 of the SOPA Act.

‘Parklands Director’ or ‘Director’ means an Authorised Delegate appointed from time to time by the Authority’s CEO to operate and manage the place management function of the Parklands.

‘Parklands 2020’ is the document that sets out the conceptual and operational design for the Parklands replacing the Millennium Parklands Concept Plan (Hassell 1997).

‘Place’ means the physical environment of the Parklands including the various ecological systems, visitor facilities and management infrastructure.

‘Plan’ means the *Plan of Management for the Parklands at Sydney Olympic Park* made in accordance with the requirements of the SOPA Act.

‘Plan of Management Compliance Test’ means the Plan of Management Compliance Test also known as the *PMC Test* referred to in Section 13.5 of Chapter 1 of the Plan.

‘Program’ means the whole range of visitor related education, recreation, performance, tours, and cultural activities that may take place in the Parklands.

‘Remediation’ means the location, collection, treatment and containment of waste material in an environmentally sound manner.

‘Reserve Plan’ means the Plan of Management for the Newington Nature Reserve prepared under the NPW Act and represented in this Plan as Management Precincts MP16 and MP17.

‘SOPA’ means the Sydney Olympic Park Authority.

‘SOPA Frog Management Plan’ means the plan referred to in the current Section 95(2) Certificate issued by the NSW National Parks & Wildlife Service under the NSW *Threatened Species Conservation Act (1995)*.

‘Urban Core’ means the 191 hectares of Sydney Olympic Park that is not part of the Parklands. This area includes the sports venues, commercial areas and associated public domain in the southwest sector of Sydney Olympic Park.

‘Work Permit’ means the written approval required by the Authority according to SOPA Work Permit Procedures (as defined from time to time) in place to manage the commencement of new or different operations within Sydney Olympic Park.

‘WRAMS’ means the Water Reclamation and Management Scheme established by the former Olympic Coordination Authority to harvest, treat and recycle water within the site.

‘Zones’ means the Management Zones defined in Section 1.5 of each Local Scheme of Operations in Part 3 and Part 4 of the Plan.

2 Concept Plan for the Parklands.

2.1 Parklands 2020

Parklands 2020 is the current concept plan for the Parklands. As the concept plan, it is both the update and elaboration of the original Millennium Parklands Concept Plan (Hassell 1997) and SOPA's determination of its responsibilities for achieving the objects and functions of the Parklands described in Sections 28(b), 28(d), 29(b) and 34(4) of the SOPA Act.

The concept plan for the Parklands is briefly summarised in this Section and more specifically in Section 1 of each Local Scheme of Operations.

The Plan acknowledges Parklands 2020 as the conceptual basis upon which the Parklands have been created to date, and as the current plan that sets out the approved vision and direction for the Parklands future evolution and enhancement.

The Plan operationalises Parklands 2020, and in doing so provides the Scheme of Operations required to implement Parklands 2020, in the context of also complying with various regulatory, statutory and legislative obligations applicable to the Parklands.

Where any provision of this Plan requires improved understanding regarding its intent for the Parklands use, design, development or enhancement the provision should always be read in conjunction with the concept for the Parklands provided in Parklands 2020.

2.2 Spirit of Place

Parklands 2020 acknowledges the uniqueness of the Parklands by the concept of 'spirit of place'. This spirit is the sum of the various tangible and intangible layers of history that make the Parklands what they are today and what they will be tomorrow. This spirit includes the physical, intellectual, and intrinsic values, and the unique combination of these values in the Parklands. These values will change over time and will be different for each individual or group that experiences them.

The Plan intends to assist visitors to relate to the spirit of place through the Parkland Programs (such as environment, history, recreation and the arts), thus emphasising and enhancing the understanding of relationships between culture and nature.

The Plan intends to establish, protect and enhance this spirit of place.

2.3 Concept Vision & Values

The vision for the Parklands indicated in Parklands 2020 is for it to be a world model for urban parks of the new Millennium. The Parklands has emerged from environmental regeneration and enhancement of an area of land long neglected and mistreated.

The primary values associated with the Parklands indicated in Parklands 2020 include the commitment to:

- Protect the natural and cultural heritage.
- Enhance biodiversity.
- Promote ecologically sustainable development.
- Enrich life through education, recreation and research.

The General Scheme of Operations adopts the vision and values indicated in Parklands 2020. In consideration of the objectives and statutory obligations the Plan has elaborated the systemic issues to establish principles and guidelines and set out a broad parkland management regime that will promote the intent of the concept for the Parklands and support the appropriate programming, enhancement and management of the Parklands.

2.4 Concept Themes & Uses

Parklands 2020 sets out two key themes that are essential in realising the concept through balancing its history with the present and the future. These themes are:

2.4.1 Theme 1: Meeting Place

- That of a 'meeting place' which was common to both indigenous culture and the 2000 Olympic Games. The Parklands will be a special place and series of places where people from far and wide will come together to learn, experience, meditate, exercise and celebrate.

2.4.2 Theme 2: Storytelling

- That of 'story-telling' which is a constant and important function for all people. The Parklands have stories to tell from the past, there are stories developing at present and there will be many more stories to come.

2.5 Concept Uses

A diverse range of uses is envisaged for the Parklands. Some of these uses are contemporary and well defined, some are projected but need further elaboration and support, while others are not yet imagined and may be possible in the future as places and program evolve. The program of uses for the Parklands is intended to comprise structured and unstructured activities that should include:

- Scientific, historical and social research to increase understanding of the place.
- Formal education at primary, secondary and tertiary level.
- Tours interpreting the natural and cultural features of the place.
- Passive recreation activities including celebrations, socialising, exercise and meditation.
- A range of informative lectures, exhibitions, seminars, talks, screenings and performances.
- Active recreation activities including team based competitive and non-competitive sports.

Each Local Scheme of Operations adopts the themes and the types of use intended for the particular place indicated in Parklands 2020. In consideration of the various risks and constraints the Plan has established a detailed range of suitable uses and enhancements to support visitation, and establish some regulations and policies to assist management of the Parklands.

2.6 Physical Structure

The realisation of the Parkland's physical form will be assisted by the application of particular design principles set out in Parklands 2020. These are:

- The physical plan will be based on 'lowlands', 'walls' and 'rooms' and 'elevated landforms'.
- The natural elements of the landform will continue to be presented.
- Different places will be designed for varied and multiple use to respond to future needs.
- The program will require facilities that deliver multi-layered and evolving activities within the concept of an 'Institute'.
- The program will introduce a wide audience to cultural, natural, recreational, scientific, and educational elements.
- The Planting Strategy that promotes the philosophic stance of retaining, reinforcing and recreating the essence of an indigenous Australian landscape and one appropriate to the endemic qualities of the site.
- A transport network will deliver visitors to and through the Parklands.

2.7 Concept Evolution

There is a need for the Parklands to be subjected to substantial change and adjustment in the future. The change will be required in order to address developing or new environmental issues, respond to emerging requirements in support of evolving use of the place, and to facilitate the detailed implementation of the Parklands 2020 for which some works are not yet documented or fully imagined.

Any further enhancement or furnishing of the Parklands will only be done in response to or in anticipation of the whole range of desired visitor uses, activities and experiences contemplated in Parklands 2020, or where not yet imagined then consistent with the concept of Parklands 2020.

No new building or development may take place for its own sake, to avoid the situation where its presence effectively determines what visitation is suitable for an area, rather than the other way around. Visitation will however be constrained by the carrying capacity of the Parklands, where physical characteristics and community values of the Parklands indicate the nature and extent of appropriate uses and activities.

Where any new uses, developments or enhancements to the Parklands are being contemplated they must be consistent with the intent of Parklands 2020, and are subject to the provisions of this Plan. Where any new uses, developments or enhancements to the Parklands are not provided for in this Plan or are precluded by this Plan then such uses, developments or enhancements are not permitted without appropriate amendment to this Plan in accordance with the SOPA Act.

Attachment 1B
(Part 2 of SOPA Plan)

PART 2 – THE GENERAL SCHEME OF OPERATIONS

PART 2 - The General Scheme of Operations

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1 General Objectives for the Parklands

There are eight General Objectives for the Parklands. These objectives include and expand upon legislative obligations assigned to the Authority in the SOPA Act in its capacity as owner and manager of the Parklands.

The General Objectives are a key reference point when establishing, reviewing and interpreting the Scheme of Operations for the Parklands on both a whole of site basis and Management Precinct basis.

The General Objectives for the Parklands¹ are:

- To recognise and enhance the Parklands unique character, and setting and values
- To generate Programs which provide recreational, historical, scientific, educational, and cultural activities.
- To encourage public use and experience of Program activities.
- To provide places for unprogrammed public use and enjoyment.
- To conserve the natural and cultural heritage.
- To ensure the protection of the Parklands environment.
- To support the achievement of the purposes of the Newington Nature Reserve.
- To properly manage, maintain and improve the Parklands.

2 Parkland Values

In fulfilling the conceptual and operational design intentions of Parklands 2020, the Plan recognises seven broad Values of potential significance in management of the Parklands.

The Values relate to and are derived from the cultural and natural qualities of the Parklands that emphasise history, environment, recreation and the arts. These values are unlikely to change significantly over the short to medium term and therefore are used by the Plan as a key reference point when establishing, reviewing and interpreting the Scheme of Operations for the Parklands.

The long-term focus of management for the Parklands should retain and protect each of the values, but it recognises that the relative significance of different values may change over time as growing public awareness, perception and experience enhance the appreciation and understanding of the Parklands. Over time, new values will emerge as knowledge about the Parklands grows. The significance of the Parklands to the community will encompass the sum total of the values, albeit that different sections of the community are likely to consider specific values differently.

The Plan recognises the following Values of the Parklands:

¹ These are expanded by the Authority beyond those legislated, in accordance with Clause 28 (f) of the SOPA Act (2001)

2.1 Natural Values

The Parklands reflect the original topography, catchment and estuarine environment, contain diverse and ecologically significant habitats and are home to a large variety of unique flora and fauna species, including some that are rare and endangered. It is a place where conservation and enhancement of biodiversity has been incorporated into planning, design and construction of the landscapes, and (for an urban area) is a place of high biodiversity value. The Parklands provides habitat for over 160 species of birds and conserves a threatened ecological community that once covered much of Western Sydney. The place provides wetland habitats for frogs and for migratory bird species subject to international agreements and conventions. The Parklands provide examples of recovering or reconstructed ecosystems and provides unique opportunities for ecological surveys and monitoring.

2.2 Cultural Values

There is strong evidence of the sequence and themes of use of the Parklands area from the times of earliest Aboriginal occupation, through early European settlement, through the period of industrial development and degradation, through long term military occupation as an international and national defence facility and through the preparation for and as the setting of the Sydney 2000 Olympic & Paralympic Games. The Parklands is therefore in itself an historical record of the traditional and later uses by Aboriginal people, by those who arrived from Europe and settled and of Australian colonial/pastoral and industrial eras, and those who attended the 2000 Olympic & Paralympic Games. The Parklands is a meeting place and a place for significant cultural story telling. It is therefore a place suited to engaging a wide range of current and future cultures.

2.3 Knowledge Values

The Parklands is a site where planning and development has been based on ecologically sustainable development principles and it is a place where sustainable parkland maintenance can be showcased. There has been ongoing research into the social and physical scientific significance of the Parklands over an extended period. This knowledge culture has produced a deep understanding of the nature of the Parklands as a Place, important as both a source of information and data for its management and also as the foundation for the Program which is brought together as the Parklands Institute. This Program is the principal means by which the community will be invited to use and enjoy the features of this special place. There is a need to continue and extend this understanding. The Research Program is therefore fundamentally important to the long-term success and viability of the Parklands, for both its management and its Program.

2.4 Education Values

The Parklands can deliver to schools and higher educational and professional institutions the significant features needed to satisfy their syllabus-based requirements relating to the environment, to mathematics, to history, to science and other key learning areas. It is an excursion destination with potential to demonstrate best practice in environmental protection,

land management and other syllabus-related learning areas. It is a model for contaminated land remediation and site renewal. It is also an example of best practice in environmental management. It also a model for holistic water recycling and management systems.

2.5 Leisure Values

The Parklands provide a number of places where active team and individual sports and recreational activities can be pursued and it is a facility where group and individual passive leisure and recreational activities can be pursued. It is a venue where one can develop personal health and fitness, whereby it augments the Parramatta River recreational foreshore pathway system. The Parklands are a potential destination where local and international travelers can enjoy a world class Parklands experience. They provide an experience of many aspects of a unique Australian environment. They will always be associated with the Sydney 2000 Olympic & Paralympic Games. The Parklands are a place for leisure activities that promote celebration and social interaction in a variety of settings; they are a location that will provide diverse opportunities for respite from the pressures of urban living. They are also a central gathering place for groups and cultures from all parts of Sydney. The Parklands play an important role supporting social cohesion in the community by bringing people and families together in an urban environment where otherwise increasing housing density and diminishing backyard space limit these opportunities.

2.6 Visual Values

The Parklands provide a local and regional landscape of space, form and beauty. They are open space that enhances the City's green spaces network; they include vistas across Olympic, parkland, and urban areas; and they are an important section of the Parramatta River's riparian landscape corridor. The Parklands provide contrasting landforms and vegetation, local views from strategic markers and striking vistas to Sydney City and the Blue Mountains. There are substantial visual values associated with views into and across the Parklands from outside them, particularly from the Parramatta River and nearby residential areas.

2.7 Intrinsic Values

The Parklands contribute to one's sense of wellbeing through their close association with nature: they are a place where people can become part of, rather than separate from the natural environment. They are a place where biodiversity and the ongoing evolution of ecosystems of international, national and regional significance are being protected. The Parklands are a strategic open space with potential to be sustainable in perpetuity and are a public open space that bequeaths a wide range of opportunities for future generations.

3 Statutory Framework

The Plan recognises that the Parklands must be managed within a complex legislative and statutory framework. The following requirements having particularly important implications for the way in which the Parklands may be used, developed and maintained.

3.1 Sydney Olympic Park Authority Act (2001) (SOPA Act)

The *Sydney Olympic Park Authority Act (2001)* is the primary piece of legislation controlling the Parklands and the Authority. The SOPA Act requires the Authority to pursue a number of objectives and perform a number of functions² associated with the Parklands. Key requirements include, but are not limited to:

- Promoting and increasing the recreational, historical, scientific, educational and cultural value of the Parklands.
- Protecting the environment of the Parklands.
- Ensuring the achievement of the purposes for which the Newington Nature Reserve has been dedicated.
- Permitting the use of the whole or any part of the Parklands for activities of a recreational, historical, scientific, educational or cultural nature.
- Maintaining the Parklands.
- Exercising any other appropriate functions of the Authority necessary or convenient to give effect to the Plan for the Parklands.

The Sydney Olympic Park Authority is a statutory body representing the Government of the State of New South Wales³. The Authority reports to the NSW Minister responsible for the Sydney Olympic Park Authority via the Sydney Olympic Park Authority Board. A Parklands Advisory Committee⁴ has been established to advise the Sydney Olympic Park Authority Board on matters associated with the care, control, and management of the Parklands. In addition, the Parklands Advisory Committee has a particular role⁵ to play in relation to community representations associated with the preparation of the Plan and any other functions determined by the Sydney Olympic Park Authority Board⁶ from time to time.

3.2 Ecologically Sustainable Development

There are a number of environmental legislative and regulatory requirements that guide and constrain the management of the Parklands. The Parklands are required to be Programmed and managed in a way that takes into consideration (where relevant) the principles of ecologically sustainable development (ESD)⁷. The Environmental Guidelines for the Summer Olympic Games (1993) apply⁸ to developments within the Parklands. These Guidelines emphasise ESD in terms of water conservation, energy conservation, waste minimisation, protecting biological diversity and protecting significant natural and cultural environments.

² Prescribed in Clause 28(e) and 29 of the SOPA Act (2001)

³ Outlined in Clauses 5 and 6 of the SOPA Act (2001)

⁴ Appointed under the provisions of Part 5 Clause 62 of the SOPA Act (2001)

⁵ As provided for in Clause 35 (3) of the SOPA Act (2001)

⁶ As provided for in Clause 62 (3) of the SOPA Act (2001)

⁷ Required by provisions of Clause 15 of the SOPA Act (2001)

⁸ See various references in Clauses 18, 20, 22 and 49 of the SOPA Act (2001)

3.3 Sydney Regional Environmental Plan No. 24 - Homebush Bay Area (Amendment No. 2) and State Environmental Planning Policy No. 60 - Exempt and Complying Development.

The Sydney Regional Environmental Plan No. 24 – (Amendment No2) Homebush Bay Area (SREP 24), through identification of heritage items and heritage conservation areas, aims to ensure that the ecological and cultural significance of the Parklands are not reduced through inappropriate development or use.

SREP 24 is the principal statutory planning instrument regulating land development and use within the Parklands. The Minister for Planning is the consent authority⁹ for all land within the Parklands. SREP 24 provides for certain uses and activities in the Parklands to be exempt from the Minister’s approval provided certain conditions and prescribed criteria are met.

Developments and uses not approved under SREP 24 (where approval is required) are not permitted in the Parklands despite any provision in the Plan to the contrary. This means that for a development or use to take place in the Parklands, where approval is required under SREP 24, the development or use must be approved by both SREP 24 and the Plan.

State Environmental Planning Policy No. 60 – Exempt and Complying Development (SEPP 60) also applies to the Parklands and identifies developments which do not require development consent to be obtained from the Minister for Planning provided certain pre-conditions are satisfied.

3.4 Development Consents

Notwithstanding any statutory planning approval, a provision of this Plan takes precedence¹⁰ over any development consent, whether already issued or issued in the future. This means that an otherwise valid development consent relating to the Parklands cannot be acted upon in part or in whole if doing so would contravene a provision of this Plan.

Certain types of works and activities identified in Parklands 2020 have been formally authorised in the past through various development consents. These consents provide the statutory planning approval to guide some but not all further physical development works and activities in the Parklands.

The Development Consents¹¹ that are current for the Parklands include: Master Plan Consent (s38/3/95), Millennium Parklands Consent (s38/3/98), Archery Centre Consent (s38/2/97), Bicentennial Park Consent (80-11-98), Bunker 46 Solar Power (s38/1/99), Water Reclamation and Management Scheme (s38/3/99), Wilson Park (s38/8/99), Newington Remediation Consents – Stages 1 & 2 (s38/8/96 & s38/10/96), RAS Horse Trail & Exercise Area (s38/7/97), Roads & Infrastructure (s38/5/95), 2SM Wetland Enhancement Scheme (s38/9/98), and the Northern Water Feature (s38/12/97).

⁹As provided for in Clause 22 (1) of the SOPA Act (2001)

¹⁰Based on legal advice relating to case *Seaton v. Mosman Council (1996) 93 LGERA 1* in the Court of Appeal.

¹¹Issued under Clause 38 of the *NSW Environmental Planning & Assessment Act (1979)*

Where an activity or use approved under any current Development Consent has not been substantially commenced at the time this Plan is adopted, then it can only be undertaken if it is consistent with this Plan and Parklands 2020. Where required development consent will be sought for new works or enhancements and the introduction of any new uses authorised in this Plan.

3.5 Sydney Olympic Park Master Plan

The Sydney Olympic Park Master Plan (the Master Plan) is required¹² to be prepared and maintained, and may provide strategically for the future development of the whole of Sydney Olympic Park, including the Parklands.

The Master Plan is authorised¹³ in respect of the Parklands to make provision for the development and use of land and buildings; the provision of public transport services; the management of roads; and the protection, enhancement and use of waterfront areas, Parklands and areas of natural vegetation. The Master Plan must be consistent with this Plan¹⁴ and therefore in the event of any conflict or inconsistency the provisions of the Plan of Management will prevail.

The Master Plan aims to establish and maintain linkages between the built environment of Sydney Olympic Park and the Parkland areas of Sydney Olympic Park, integrate use and appreciation and visitation across the whole park, re-emphasise the principles of ESD and support the Plan in further implementing Parklands 2020.

3.6 Occupation or Disposal of the Land

No part of the Parklands can be sold, mortgaged or otherwise disposed of¹⁵ nor can any part of the Parklands be compulsorily acquired¹⁶ other than by an Act of Parliament, with the exceptions of providing for public utilities¹⁷ and where any lease or licence arrangement is expressly authorised in the Plan.¹⁸ The Authority is required to identify the types of leases and licences that may be issued in relation to the Parklands, and comply with certain tender processes¹⁹ and public notification and consultation requirements²⁰ before any lease or licence is proposed to be entered into. The maximum term of any lease or licence is 25 years including any options²¹ and no lease or licence can be sublet for a purpose other than a purpose for which the land is allowed to be used under the Plan²² or the specific purpose stated in the lease or licence.

¹² Required by Section 18 (1) of the SOPA Act (2001)

¹³ Established by Section 18 (2) of the SOPA Act (2001)

¹⁴ As required by Section 19 (6) of the SOPA Act (2001)

¹⁵ As prescribed by Clause 31(1) of the SOPA Act (2001)

¹⁶ As prescribed by Clause 31(2) of the SOPA Act (2001)

¹⁷ As provided by Clause 32 (2) (a) of the SOPA Act (2001)

¹⁸ As provided by Clause 32 (2) (b) of the SOPA Act (2001)

¹⁹ In accordance with NSW Government Code of Tender Practice and SOPA Tender Guidelines

²⁰ In accordance with Clause 32 (4) (5) (6) & (7) of the SOPA Act (2001)

²¹ As prescribed by Clause 32 (10) of the SOPA Act (2001)

²² As prescribed by Clause 32 (8) of the SOPA Act (2001)

3.7 Threatened Species and Communities

There are about 70 hectares of the Parklands comprised of Sydney Turpentine – Ironbark Forest and areas of saltmarsh. These include areas that contain either important ecological communities or include vulnerable plant species (such as the saltmarsh species *Wilsonia backhousei*) and are protected²³ from any action likely to result in harm to the species, populations, or communities. There are other areas, covering about 85 hectares, that provide Primary Habitat associated with the conservation of the Green and Golden Bell Frog (GGBF), which is endangered in NSW and vulnerable in Australia. Generally the frog and its habitat are required to be conservatively managed in accordance with the SOPA Frog Management Plan (2002). There are two insectivorous bat species recorded in the Parklands that are listed as vulnerable species in NSW. The Parklands support an abundance of bird life including migratory species. Up to twenty species of migratory birds are listed under international agreements²⁴ signed between the governments of Australia, Japan and China. These agreements and associated matters are administered by the NSW National Parks & Wildlife Service and in some cases Environment Australia.

3.8 Environment Protection

There are a number of areas within the Parklands, covering almost 200 hectares, that are in some way subject to the provisions of regulatory instruments²⁵ associated with the management of former landfill areas, remediated landfill waste containment sites, the treatment of wastes within them and protection of the surrounding environment. Current instruments include: Environment Protection Licences relating to discharges from Wilson Park and the WRAMS Operation, legal notices relating to contaminated land for Kronos Hill²⁶ and Wilson Park²⁷, a legal notice relating to unhealthy building land for Blaxland Common²⁸ and legal notices relating to environmentally hazardous chemicals for Bicentennial Park, Badu Mangrove²⁹, Woo-la-ra, Blaxland Common and Wilson Park³⁰. These matters are administered by the Environment Protection Authority.

3.9 Community Access

The Concept Plan envisages all people having reasonable access to public places and public facilities in the Parklands. This requires that the Parklands are designed and managed so they can be used by everyone in a way that is independent, equitable and dignified and that people with disabilities, older people and people with young families can visit and experience the Parklands.

In order to conserve the natural and cultural values of the Parklands, and meet a range of statutory obligations some areas of the Parklands may not be open to the public at any particular time or may be subject to limited access.

²³ Protected by the *NSW Threatened Species Conservation Act (1995)*, and the *Commonwealth Environment Protection & Biodiversity Conservation Act (1999)*.

²⁴ The JAMBA and CAMBA Migratory Bird Agreements with Japan and China.

²⁵ Licences issued under the provisions of one or more of the *NSW Protection of the Environment Operations Act (1997)*, *NSW Contaminated Lands Act (1997)*, and the *NSW Unhealthy Building Lands Act (1990)*.

²⁶ Clause 28 of the *NSW Contaminated Land Act (1997)* Legal Notice

²⁷ Clause 26 of the *NSW Contaminated Land Act (1997)* Legal Notice

²⁸ Clause 5 of the *NSW Unhealthy Building Land Act (1990)* Legal Notice

²⁹ These two areas under Section 35 notice under the *NSW Environmentally Hazardous Chemicals Act (1985)*.

³⁰ These three areas under Clause 35 of the *NSW Protection of the Environment Operations Act (1997)* Legal Notice

Some 19% of Australians³¹ have some kind of disability, and many more have older family members or young children. People may have a temporary injury or illness that incapacitates them. That is, special needs and disability come in many forms. These are not just issues for people with vision impairment or who use a wheelchair.

The Commonwealth *Disability Discrimination Act (1992)* and the Building Code of Australia set out requirements and standards associated with access in public places and SOPA has an Access Strategy for the Parklands.

3.10 Visitor Health and Safety

The Authority has a duty of care³² in relation to health and safety of both employees and visitors to the Parklands. In particular this requires, and places a duty on, the person controlling the Parklands to undertake hazard identification and risk assessment and to implement risk control measures. The duty of care imposes an obligation on the Authority to take the following measures (in the order specified or by a combination of these if no single measure is sufficient for that purpose) to minimise the risk to the lowest level reasonably practicable:

- Substituting the hazard, giving rise to the risk with a hazard that gives rise to an acceptable risk.
- Isolating the hazard from the person put at risk.
- Minimising the risk by engineering means.
- Minimising the risk by administrative means (for example, by adopting safe working practices or providing appropriate training, instruction or information).
- Using personal protective equipment.

A visitor health and safety strategy will be maintained for the Parklands, as a part of a corporate occupational health and safety plan that also addresses employee, asset management and event management issues.

3.11 Waterways or Wetlands

There are areas within the Parklands, extending over some 140 hectares involving waterways and wetlands. Any works that involve the removal of mangroves or dredging in waterways or wetlands which or may affect any form of fish habitat will require a written permit³³ from NSW Fisheries. Fishing in Homebush Bay, Haslams Creek and Powells Creek is prohibited by NSW Fisheries.

Any developments that involve the removal of material from a foreshore or bank or estuary or land within 40 metres of 'protected waters' may need a Part 3A Permit³⁴ from the NSW Department of Land and Water Conservation. Protected waters for the purposes of this Plan include Haslams Creek, Powells Creek and Boundary Creek and the tidal wetlands of Badu Mangroves, Nuwi Wetland and Wannal Wetland.

³¹ According to the Australian Bureau of Statistics (2001)

³² Imposed by the NSW Occupational Health and Safety Act (2000) and the NSW Occupational Health and Safety Regulation (2001)

³³ Required under the NSW Fisheries Management Act (1994).

³⁴ Required under the NSW Rivers & Foreshores Improvement Act (1948)

3.12 Water Recycling

The Parklands include a unique water reclamation and recycling network with physical connections and flows between Management Precincts as part of a Parklands wide system and with the Urban Core, venues and Newington. There is a complex web of collection and delivery pipelines spread across the Parklands, mostly underground, that form an integrated network. There are legislative obligations placed on the Authority to promote and expand the use and distribution of recycled water at Sydney Olympic Park³⁵ and contractual commitments³⁶ related to commercial operations of the system.

3.13 Waste Generation

Waste production, treatment and disposal activities across the whole of the Parklands is subject to regulation. The Parklands are required³⁷ to promote the avoidance of waste while encouraging re-use and recycling of waste. All solid and liquid wastes from the Parklands (such as landfill leachate) must be transported by licenced transporters and be disposed of at licenced facilities. The Environment Protection Authority is the approval authority regarding these matters.

3.14 Heritage Areas

Some 50 hectares of the Parklands are considered to be a heritage precinct. Certain restrictions apply to the use and development of these areas under the NSW Heritage Act once placed on the NSW Heritage Register. The Minister for Planning, on the advice of the NSW Heritage Council, administers³⁸ these matters.

3.15 Pest Control

The Parklands contain noxious, invasive and environmental weeds in some places or at certain times. Both terrestrial and aquatic noxious weeds may cause management problems. Noxious weeds must be controlled³⁹ by the land manager, depending on the classification of the weed. Feral animals can prey on local wildlife and impact greatly on native species and habitat. The presence of some feral animals are regarded as threatening processes⁴⁰ in relation to biodiversity conservation and either legal or management obligations are imposed to ensure their control. The presence of saltwater wetlands in the Parklands and the tendency of these wetlands to provide mosquito breeding habitat requires pro-active management of the pests during the warmer months of the year in order to remove this irritation to Parkland visitors and the local community.

³⁵ As required by Clause 48 of the SOPA Act (2001)

³⁶ Kilpatrick Green is contracted to operate the WRAMS system under a long term agreement.

³⁷ Required under the NSW Waste Minimisation & Management Act (1995)

³⁸ Empowered under the NSW Heritage Act (1997)

³⁹ Required by the Noxious Weeds Act (1993)

⁴⁰ Threatening Processes are listed under the NSW Threatened Species Conservation Act (1995) and Commonwealth Environment Protection & Biodiversity Conservation Act (1999)

3.16 Wetlands Ecosystems

There are over 120 hectares of wetlands (both salt and fresh water) across the Parklands that are composed of a high diversity of habitats, which support a great abundance and diversity of bird species. The combination of saltmarsh, intertidal and freshwater wetlands in the Parklands provides one of the only regional habitats for migratory waders. The wetlands also support the only known Mangrove Gerygone (*Gerygone levigaster*) population in Sydney and the saltmarsh provides habitat for Sydney's largest population of White-fronted Chat (*Ephianura albifrons*). Many of the wetlands within the Parklands area are listed on the Register of the National Estate and form a major component of the important remnant wetlands of the upper Parramatta River. There is a saltwater wetland, known as Wanngal Wetland, incorporated into the Newington Nature Reserve.

3.17 Catchment Management

The Parklands is within the Sydney Harbour Catchment. The Sydney Harbour Catchment Management Board⁴¹ coordinates natural resources management in the Catchment, and in addition to ongoing activity in relation to education, consultation and strategic investment advice, it prepares a catchment management 'blueprint' for the area. This Plan endeavours to contribute to the achievement of objectives adopted by the NSW Government for the Catchment. This includes ensuring that the natural environment, recreational and scenic values are consistent with integrated natural resource and environment management; achieving preservation and enhancement of biodiversity; recognising and preserving cultural heritage as it relates to the natural environment; and promoting Ecologically Sustainable Development principles.

The Authority will proactively seek to influence catchment management policies that have the potential to impact on the Parklands, and support catchment management initiatives that have the potential to enhance or protect the Parklands.

The site lies at the end of the Haslams Creek, Powells Creek, Boundary Creek and Middle Parramatta River catchments and so is affected by upstream landuse and events, as well as itself affecting the Parramatta River and Sydney Harbour further downstream. Two low-lying ridges which run north – south across the site divide it into 3 main surface water catchments:

- Wanngal Wetland which drains into the Parramatta River.
- Haslams Creek / Woodlands Creek / Narawang Wetland which drain into Homebush Bay.
- Powells Creek / Boundary Creek / Bicentennial Park which drain into Homebush Bay.

4 Corporate Framework

The Plan recognises that the Parklands must be Programmed and managed within a complex and wide reaching framework that includes a range of corporate policy and strategy requirements. However, this Plan prescribes the extent to which those policies and strategies must support the delivery of the outcomes identified in this Plan.

⁴¹ Under the provisions of the *NSW Catchment Management Act (1989)*

The implementation of the Plan will be the responsibility of the Parklands Division of the Sydney Olympic Park Authority. Its implementation will not be dispersed across a range of administrative units within SOPA. Such unified authority will avoid the confusion and lack of coordination which would derive from fragmented responsibility. Such unified responsibility will best facilitate the implementation of the requirements of the Plan.

When corporate policies and strategies are reviewed or updated from time to time, the Plan requires that the process take into particular account the Principles and Guidelines detailed in Section 5 of the General Scheme of Operations and the Parkland Values, General Objectives, Local Objectives, and Local Policies in each of the Local Schemes of Operations in this Plan to ensure that the corporate policy and strategy requirements applicable to the Parklands are consistent with the Plan.

To the extent that any inconsistency exists between the Plan and any corporate policy and strategy requirement the Plan provisions will take precedence.

4.1 Corporate Plan and Operations Plans

There is a Corporate Plan for the Sydney Olympic Park Authority. This plan sets out the strategic direction of the organisation over the next five to seven years. It includes identification of key business issues, strategic objectives, strategies and initiatives and key performance indicators. The Corporate Plan is adopted by the Sydney Olympic Park Authority Board and applies to the Parklands to the extent that the principles and values of Parklands 2020 have been located in the Corporate Plan.

There is also an annual Operations Plan and associated annual Budget. These plans detail the way in which the objectives of the Corporate Plan will be progressed in the coming year. These plans identify the business issues requiring attention; the strategies, programs and initiatives to be pursued; the tasks to be undertaken and the output measures to be applied, thereby setting performance targets, assignment of responsibilities and allocation of resources.

The Operations Plan and Budget provide the working framework for near term activity in the Parklands, including the setting of operational priorities and determining the extent to which both recurrent and capital works and services will be progressed or curtailed. The Operations Plan and Budget are always subject to current Government policy and funding priorities. These will be reflected in the rate and nature of implementation of the Plan during any particular year.

However, the Plan of Management has both capital and recurrent implications in that the Ministerial endorsement of the Plan will require the allocation of agreed targeted expenditure in order to observe the statutory requirement that, following such endorsement, the Plan is required to be implemented.

4.2 Landscape Strategy

The Authority's Site Wide Planting Strategy⁴², Homebush Bay Development Guidelines Volume 5 – Landscape Strategy (1995), and the Parklands Elements Design Manual⁴³ make up the Landscape Strategy for the Parklands. The Landscape Strategy for the Parklands, as amended from time to time, is adopted by the Plan.

The Site Wide Planting Strategy requires aesthetic characteristics to be designed to provide interest and where possible delight the park visitor; it places an emphasis on landscapes that can be largely self sustaining and self defining; it requires a landscape that reinforces the concepts of Parklands 2020; and intends a landscape that identifies itself as clearly Australian and specifically shaped by the nature of Homebush and its Sydney region characteristics. This strategy may be amended from time to time consistent with Parklands 2020.

The Parklands Elements Design Manual includes reference to Parklands 2020 and related documents, and defines the design image for the Parklands. It outlines the range of Parkland elements and associated design principles, strategies and special considerations to be implemented and considered in the design, construction and placement of elements in the Parklands. This manual may be amended from time to time consistent with Parklands 2020.

4.3 People Movement Strategy

A SOPA People Movement Strategy has been developed for the whole of Sydney Olympic Park and is adopted by the Plan. This strategy involves a number of short term and long term actions. The successful implementation of the People Movement Strategy will rely significantly on the parallel implementation of: improved site wide directional signage; marketing strategies to promote site linkages and available transport services; Lighting Plan for the Parklands; Access Strategy, Disability Action Plan and Access Guidelines; and processes to ensure a regular review of shade, shelter and amenities. This strategy will be required to be periodically amended to reflect the emerging and evolving Parklands Program and may be amended from time to time consistent with Parklands 2020.

A successful People Movement Strategy requires a mix of short and long term planning options that maximise the flexibility of existing and future site links between transport infrastructure, site features/facilities and services over time. Implementing such a strategy for Sydney Olympic Park therefore requires consideration of the following core objectives: maximising repeat visitation; enhancing visitor experience (safety, environmental impacts, accessibility, amenity); reducing car dependency; accommodating users who have limited independent mobility; supporting existing and future development and other commercial considerations; maximising flexibility; maximising public access to The Parklands from venues and the urban core; and maximising use of existing transport modes. Satisfying each of these objectives will be crucial to the realisation of the Parklands strategy.

⁴² Site Wide Planting Strategy, Bruce Mackenzie Design, Peter Walker & Partners, Hassell (1998)

⁴³ Parklands Elements Design Manual, Hassell (1999)

4.4 Systemic Environmental Management

There is an Environmental Management System that applies to the management of the Parklands.

The Authority has revised its Environmental Management System to include the following elements: the Sustainability Policy; the Sustainability Strategy; the environmental tender specifications; environmental training; and a comprehensive environmental communication strategy.

This System complements and reinforces the planned environmental outcomes of Sydney Olympic Park in the past and directs the future of both the Parklands and the Urban Core. It is an important corporate policy that this System be sustained in all of the built environment at Sydney Olympic Park so that no inconsistency develops between the two areas.

The built and natural environment of Sydney Olympic Park was planned in 2000 to represent an international benchmark of Ecologically Sustainable Development (ESD). The development of the infrastructure and surrounding Parklands showcases energy and water conservation, waste minimisation, pollution avoidance and the protection of the unique natural environment.

The Authority will continue the systemic holistic approach to ESD to ensure that future developments within the Parklands continue to ‘raise the bar’ in terms of environmental innovation and sustainable management practices in all aspects of their design, construction and operation.

4.5 Asset Management Plans

The NSW Government requires the Authority to manage assets (including both natural and built elements) according to Total Asset Management principles. The Asset Management Plans prepared by the Authority aim to cover the entire asset life cycle and therefore cover asset acquisition, creation, evolution, maintenance and operations, renewal, adaptation and disposal.

There is currently one main Asset Management Plan for the Parklands covering the main range of asset components including site fabric, site services, site equipment, and buildings and building equipment. There are some other plans that apply to specific structures or facilities such as the Northern Water Feature and the WRAMS system.

Asset Management Plans have an important role to play in the management of built assets and constructed elements of the Parklands - as a planning tool, an operational plan and funding support document.

The Plan requires that any Asset Management Plans relating to the Parklands be consistent with the requirements and provisions of the Plan. The Plan also provides that where any inconsistency or conflict arises the Plan’s provisions will take precedence and / or the Asset Management Plan/s will be amended to comply with the Plan.

4.6 Marketing Strategy

The Sydney Olympic Park Authority Strategic Marketing Plan refers to the Parklands. The Marketing Plan recognises the need to focus on creating and enhancing an overall image for the Parklands as well as contributing to the image of Sydney Olympic Park, marketing the Authority's products (including the Parklands), supporting the marketing of venue driven products, and creating market synergies.

With reference to the Parklands, the Marketing Plan will be required to assist in the creation of increased general visitation in the near term, high levels of Program participation in the medium term and generally increased support for tourism.

5 Systemic Issues

There are a number of important systems and issues that are of strategic significance to the whole of the Parklands, which are best managed on a whole of Parklands basis. This will ensure that the General Objectives for each Management Precinct are achieved in a consistent and appropriate way. The Plan equally recognises that there are many operational elements and issues that are best managed on a Management Precinct basis in order to reflect local circumstances and achieve the Local Objectives.

The systems and issues listed in this section are considered to be of particular management significance on a whole of Parklands basis because:

- They may impact across more than one site.
- They may be affected by statutory regulation applying to the Parklands as a whole.
- They are or may be a key attraction to the Parklands.
- They may relate to a unique or substantial example of a kind of system or issue.
- Their management will require substantial support from information obtained through ongoing environmental research and ecological survey.

The various statutory and corporate requirements set out in Sections 5 and 6 of this General Scheme of Operations are brought together and taken into account in this Section at an operational level when setting management principles and guidelines.

The Plan requires that the Parkland management issues identified in this Section be managed in accordance with the associated Principles and Guidelines for the whole Parklands. Without limiting the generality of this requirement, where a particular part of the Parklands has circumstances that require a local interpretation of or variation to the Guidelines then specific requirements have been prescribed in the Local Scheme of Operations for the relevant Management Precinct.

5.1 Fresh Water Management Issue

Water is the most critical element of the Parklands ecosystem as it provides the essence of life for all flora, fauna and ecosystems in the Parklands. As a limited resource, the appropriate collection, storage, use, recycling and management of water within the Parklands is necessary in order to meet ESD and other conservation objectives and to establish and maintain landscapes and habitat.

The challenge for the Plan is to address the significant seasonal imbalance between natural and harvested water supply and balance this against the demand for ecological, horticultural and venue supplies, while maintaining ecological, water quality, and public contact standards.

5.1.1 Fresh Water Management Principles

Water harvest and re-use in the Parklands must be managed in a way that balances the conflicting demands between water for irrigation, water for venue support services and water for habitat support. Water identified as surplus to the requirements for maintenance of ecological systems should be made available to the Water Reclamation & Management Scheme (WRAMS) for secondary use allocation. In determining the availability of surplus water in the Parklands, priority consideration must be given to the different seasonal demands made by both species and ecological communities. The importance of an efficient WRAMS operation as an example of water conservation best practice is fundamentally important to the Parklands. Any change to the management arrangement of WRAMS must ensure that this Scheme continues to operate effectively as environmental, operational and educational foundational infrastructure of the Parklands.

5.1.2 Fresh Water Management Guidelines

Before proceeding with the construction, replacement or removal of any natural or built elements that have the potential to increase demand for water use or reduce capacity for water harvest, such changes must be assessed and justified against the following requirements:

- Protection or enhancement of significant habitat and ecosystems.
- Environmental flows for conservation of ecosystems.
- Limiting the use and application of permanent irrigation.
- Capturing surplus water that otherwise is lost to parkland use.
- Avoiding wastage in existing operations.
- Enhancing the conservation value of the WRAMS operation.
- Maximising as far as possible the use of WRAMS.

5.2 Remediated Landfill Management Issue

Management of remediated landfills is among the most significant issues for the future success of the Parklands. Although an estimated 280 hectares of the Parklands have been remediated in some way over the last 20 years, only about 101 hectares⁴⁴ or nearly 25% of the Parklands is now built on remediated waste containment mounds, involving over 9 million cubic metres⁴⁵ of waste materials and a comprehensive network of leachate collection, transport and monitoring infrastructure. This typically limits the depth of any excavations, the tree species suitable for planting and the range of appropriate land-uses possible. Remediated lands also produce large amounts of leachate each year that must be either contained and treated without the risk of public contact or transported to a liquid waste treatment facility.

The challenge is, given the presence of waste under much of the Parklands, to manage the significant implications in relation to use, maintenance and development of the Parklands as well as maintain the waste containment mounds and leachate management systems according to environmental requirements while also facilitating increased levels of knowledge.

5.2.1 Remediated Landfill Management Principles

Unless established waste containment areas are failing or are reasonably suspected of failing and there is a real risk to human health or environmental damage, works, uses or activities that disturb or threaten the secure containment of the waste should not occur. Change may be appropriate in the event that new practices or technologies confirm that enhanced waste containment methods will provide a greater community good than the risk associated with disturbance of the waste.

5.2.2 Remediated Landfill Management Guidelines

Before proceeding with the construction, replacement or removal of any natural or built elements that are located in areas over or adjacent to waste containment mounds, or relate to leachate management, such changes must be assessed and justified against the following requirements:

- The need to protect waste containment features such as pipelines, membranes, bunds and caps.
- The need for collection and application of data relevant to remediation management and research.
- The need to minimise the potential impact on human health or cause environmental damage.
- The need to comply with the OH&S Plan for Remediated Landfill Areas at Sydney Olympic Park and any Environment Protection Authority requirements.
- The need to undertake research to identify potential uses for leachate and to inform the educational opportunities provided generally by the site remediation program.
- The need to manage leachate according to sustainable processes.

⁴⁴ See Plan 4 attached as Appendix 5 for distribution of remediated waste containment areas.

⁴⁵ According to OCA's Environment Report 1999 (ex BCP)

5.3 Landscape Management Issue

The presentation of the landscape is an important management requirement for the Parklands. Almost 90% of the Parklands have been subjected to major landscape works in some way. The Parklands are substantially constructed landforms within which there are planted or restored landscapes, soils and ecosystems. The landforms cannot be substantially modified in the future as they now accommodate developing landscapes and functioning ecosystems that have become valuable in their own right. Many have been the result of management of contaminated soil. Several million trees, shrubs and grasses have been planted⁴⁶ during landscape works in the Parklands. New and existing planting is essential in providing the background and foundation to the Parklands from which the various functional and structural elements emerge or are blended together. A key element of the Parkland landscape are the trees, because of their size, scale and visual impact. Trees and understorey plants are relatively slow growing and will take many years to create the habitats and mature landscapes envisaged for the Parklands.

The challenge is to ensure that the different areas mature and develop as physical settings and Program places; reflect the characteristics of natural plant communities; appear as a part of a single parkland entity; and provide wildlife habitat while encouraging increased visitor use and experience without compromising environmental and species protection obligations.

5.3.1 Landscape Management Principles

Planting of the Parklands should be progressed early. All future developments in the Parklands are ‘landscape projects’ where the planting elements will be as important as all other elements. Achieving the Concept of the Parklands will require the provision of a variety of images and experiences to the park visitor, while satisfying all obligations to provide wildlife habitat.

5.3.2 Landscape Management Guidelines

New, replacement or removal of any plants in the Parklands will, as far as practical, be subject to all of the following requirements or establish their inapplicability:

- Using plants grown from local provenance.
- Enhancing plant community species diversity and structural complexity.
- Emphasising plant quality selection, site preparation, and plant establishment plans.
- Compliance with species or communities operational management plans.
- Completion of planting in areas already commenced.
- Consideration of operational and visitation requirements relating to space and access.
- Planting shrubs and trees that complete connectivity linkages.
- Enhancing habitat values of the plant community.
- Recognising the importance of planting in support of Programs.
- Acknowledging the implications of constructed soils and waste containment mounds.
- Complementing other environmental aspects such as catchment health and soil erosion control.
- Being compatible with the principles set out in the Authority’s Site Wide Planting Strategy.

⁴⁶ Generally in accordance with the Parklands Site Wide Planting Strategy (Hassell 1998)

5.4 Biodiversity Management Issue

The remnant and constructed landscapes of the Parklands contain diverse and ecologically significant habitat and they are home to a variety of unique flora and fauna species and communities (both aquatic and terrestrial) that are significant at a local, regional, national and international level. Conservation and enhancement of biodiversity has been incorporated into planning, design and construction of the Parkland landscapes. Some elements of the Parklands landscape have been constructed or conserved specifically for biodiversity conservation. Many of the immature constructed landscapes are lacking in natural levels of species diversity and structural complexity at present. Species and communities present in the Parklands that are classified as threatened have significant legislative protection that imposes conservation management obligations on the Parklands managers.

Because of the small size of habitats and ecosystems, their constructed and altered nature, and because of the many competing management issues, conservation of biodiversity at Sydney Olympic Park will require ongoing active management, informed by an ongoing research and monitoring program.

The challenge is to manage the Parklands to conserve and enhance genetic, species and ecosystem diversity, to maintain adequate quantity and quality of habitat to support ecological communities, to support essential ecological processes and life support systems and to balance the various competing management objectives. Reasonable levels of public use and access to the Parklands, especially for research and educational purposes, must be facilitated without compromising the integrity of ecological communities or breaching any regulatory provisions. In addition the Authority must protect biodiversity and ecosystems from construction and development works and from environmental harm.

5.4.1 Biodiversity Management Principles

The Parklands are managed to conserve and enhance their biodiversity value in terms of species, genetic and ecosystem diversity. Existing ecosystems should be conserved. Where new landscapes and communities are created this should not threaten existing ecosystems and, where possible, it should complement them. Conservation and management of biodiversity across the Parklands will be incorporated into all Parklands operational plans. Specific operational plans will be developed and implemented for particular communities and species that require special management.

5.4.2 Biodiversity Management Guidelines

Before the implementation of any new developments, modification of ecosystems, or before changes in use or changes in parkland work practices, proposals must undergo an ecological review process that considers:

- Consistency with the objectives of the corporate ecological sustainability strategy.
- Short and long term biodiversity and ecosystem impacts that may be direct, indirect or cumulative.

- Ecosystem management objectives.
- Opportunities for biodiversity and ecosystem enhancement.
- All relevant objectives and legal requirements in any species and/or ecological communities operational management plans⁴⁷.
- The precautionary principle⁴⁸.
- Reference to the relevant Policy and Guidelines of NSW Government agencies.

5.5 Visitation Management Issue

The Parklands are located in the centre of the Sydney metropolitan area. They are large enough to support a diverse and large scale site use as well as meeting other recreational needs of the region. There is a clear obligation and intent to encourage the use and enjoyment of the Parklands. This will require provision of a diversity of visitation experiences, including the creation of tangible experiences of education, recreation, history, the arts and the environment. There is also a complex ethnicity associated with visitation to the Parklands. With this comes an equally complex range of needs and expectations by visitors.

The challenge is to facilitate programming to maintain a high degree of flexibility, provide a variety of quality experiences for visitors, ensure that places can be rested from time to time, control access to sensitive places and ensure that initiatives reflecting changing needs, directions and opportunities can be accommodated.

5.5.1 Visitation Management Principles

The Parklands should be managed to ensure that the frequency, locations or intensity of use does not degrade the land (including its natural and built elements) nor reduce the established quality of visitor experiences. The Parklands should be managed as both a place and a program, recognising that where the integrity of the place is not compromised, the established visitation needs of the community should influence and guide the management and development of the place.

5.5.2 Visitation Management Guidelines

To assist in achieving this goal, visitation management must take into account the following approach to managing scale and intensity of use or development:

- Visitor levels, movement trends and incidents will be monitored.
- Visitor impacts on built and natural elements will be monitored.
- Access to some places may need to be limited to Program access only.
- Programmed access (times, activities and places) will be managed in response to visitor level, movement, impact trends and seasonal requirements of environmentally sensitive areas.
- Visitors to the park will usually be under some degree of park supervision.

⁴⁷ See Plan 3 as Appendix 4 for areas covered by the SOPA Frog Management Plan.

⁴⁸ As defined in the *NSW Protection of the Environment Operations Act*.

- The needs and expectations of park visitors will be identified and where possible prioritised for management purposes.
- Potential conflicts between different visitor activities will be addressed during the planning of Programs.
- Sale and consumption of alcohol will be accordance with legislative and regulatory requirements⁴⁹.

5.6 Activity Management Issue

Despite the best efforts by the Parklands to provide a diverse range of spaces, activities and opportunities for the community, and despite the high value placed on the Parklands by the public, some groups or individuals visiting the Parklands will behave in ways that are illegal, or are inappropriate in the Parklands.

The challenge is to sensibly manage the use and enjoyment of visitors to the Parklands by imposing barriers and constraints, while also providing regulations so that the majority of people can have a high quality experience relatively free from risk, threat or interference from others.

5.6.1 Activity Management Principles

Any person acting reasonably should be able to visit a wide range of public places in the Parklands and be free to engage in activities consistent with the objectives and functions of the Parklands, in an environment that meets generally accepted community standards of presentation and safety.

5.6.2 Activity Management Guidelines

In planning and implementing the management of the activities of visitors to the Parklands the following requirements apply:

- The Sydney Olympic Park Authority Regulations will be the instrument that defines the visitor code of conduct and behavior and associated penalties for offensive activities in the Parklands.
- The Authority will adopt implementation guidelines for the Parklands that reflect the direction and intent of the Plan of Management.
- Where a permit is required to undertake any otherwise restricted activity, the permit will be in writing and issued only by an Authorised Delegate of the Authority.
- Monitoring and maintenance regimes will be in place to ensure the Parklands are appropriately presentable, functional and safe.
- Authority rangers will monitor and enforce visitor compliance with Parklands Regulations in accordance with approved guidelines.

⁴⁹ Under the *NSW Liquor Act (1982)* and SOPA Regulations

5.7 Natural and Cultural Heritage Management Issue

The Parklands have been subjected to different scales and intensities of change since the first settlers arrived in Sydney, with most of the site having been significantly disturbed at some time. The result is that the Parklands are part of a rich history and have close association with many different eras - indigenous, colonial, pastoral, industrial, naval and post-industrial times.

The challenge is to encourage the development of new stories in and about the Parklands while facilitating growing use and enjoyment without compromising the evidence associated with past eras. The themes of 'story telling' and 'meeting place' are two reference points for the consideration of how this issue will be addressed.

5.7.1 Natural and Cultural Heritage Management Principles

Historic buildings and artifacts are important elements of the Parklands in that they provide physical evidence of some of the wide range of past human activity in the area, provide an understanding of some of the histories of this area through education and interpretive activities and provide opportunities to adaptively re-use facilities while preserving their essential heritage character.

5.7.2 Natural and Cultural Heritage Management Guidelines

Historic buildings, areas and artifacts are to be conserved for the use, understanding and benefit of present and future generations according to the following requirements:

- All artifacts are to be catalogued, and stored or displayed according to accepted museum practices.
- Historic buildings are to be made available for adaptive re-use in accordance with advice from heritage management experts and / or an approved Conservation Master Plan and, where appropriate, individual conservation management plans.
- Management protocols should be developed to include provision for action should new heritage items or historical archaeological sites be located in the future.
- Landscapes of heritage significance are to be conserved in a way that protects the key visual elements without preventing the natural evolution of the place.

5.8 Boundary Management Issue

Separating one place or thing from another in the Parklands and managing the interfaces with other areas will significantly affect the experience of visitors. Protective fencing has been used extensively throughout the Parklands both during construction and for operational purposes. Fences in all their forms are an important tool in parkland management, but over time it may be determined that some are no longer ideally located, designed or needed. Nonetheless, many will be required for protection of species and habitat, providing for public safety, excluding or restricting access, protecting significant assets and defining entries to and boundaries of the Parklands.

The challenge is to ensure that structural and planted barriers or boundary markers are not poorly located or designed when they are required, they do not impose an unacceptable visual or physical barrier within a setting that is meant to be open, and they are fit for purpose.

5.8.1 Boundary Management Principles

The extent of any structural barriers or boundary markers (such as fencing) in the Parklands should be kept to the absolute minimum. Plantings consistent with the design intent for the Parklands is preferred where it will be adequate for purpose. Where necessary, fences and other structures should be fit for purpose while appropriate to the setting. Alternatives to fencing, as a means of creating separation, should always be given careful consideration during planning and design. There is a need for temporary fencing during the staged construction of the Parklands.

5.8.2 Boundary Management Guidelines

Before construction, replacement or removal of any fences in the Parklands, such changes must be assessed and justified against the following requirements:

- The need to protect species and habitat.
- The need to provide for and maintain public safety.
- The need to exclude or restrict access.
- The need to protect significant assets.
- The need to define entries to and boundaries of the Parklands.

5.9 Sign Management Issue

The nature and extent of signage in the Parklands is important as this will be a powerful means of communicating diverse messages to a range of visitors regarding directions, information and interpretation, event promotions and warnings.

The challenge is to provide sufficient appropriately scaled, located or designed signage that also provides an acceptable visual impact, is meaningful, is not misleading and increases the quality of visitor experiences.

5.9.1 Sign Management Principles

The extent of any signage in the Parklands should be kept to a necessary minimum. Where necessary, signs should be fit for purpose while appropriate to the setting and associated Programs. Consistency of style and structure across the site, use of internationally accepted symbols and language, a clear understanding of the message to be conveyed and the needs and expectations of visitors should always be given careful consideration during planning and design.

5.9.2 Sign Management Guidelines

Before construction, replacement or removal of any signs in the Parklands, such changes must be assessed and justified against all of the following requirements:

- Design and construction standards contained in the Parklands Signage Strategy and the Parklands Elements Design Manual as amended by the Authority from time to time.
- SOPA Guidelines for Outdoor Advertising, Identification, and Promotional Signage.
- The need to deliver interpretive information.
- Clearly communicating safety advice, instructions or warnings.
- Providing adequate way-finding assistance.
- Making best use of sign space available including multi-use.
- Providing informative programming or scheduling information.
- The need to promote Parkland or Sydney Olympic Park events and activities.
- The need to comply with SEPP 64⁵⁰ requirements prohibiting advertising in the Parklands.
- The need for signs to be located and read clearly by people with vision impairment.

5.10 Transport Management Issue

Transport routes and modes must be efficient and make visitation to the Parklands a pleasant experience. The Parklands includes a significant carpark in the centre of the site, to be supplemented by a Transitway bus stop at the same location. The Sydney Olympic Park Railway station is located in the centre of the built environment of Sydney Olympic Park to the west of Bicentennial Park and the Brickpit, while nearby railway stations are located at Concord West and North Strathfield, allowing access to the south-eastern end of the Parklands. The Homebush Bay ferry terminal is located on the Parramatta River to the north of the Parklands. Bennelong Road (single lane traffic) and Hill Road (double lane traffic) dissect the Parklands north / south and east / west respectively. These roads provide enhanced internal road access but also restrict internal off-road connections. There are many kilometres of off-road bicycle paths and shared pedestrian ways across the Parklands.

The challenge is to provide sufficient connectivity across the whole site (including enabling visitors to better use existing rail and bus services) in support of attracting new and repeat visitors to the Parklands, facilitating their movement from one place to another in a practical, environmentally sensitive and efficient manner and connecting into new or existing regional transport strategies.

5.10.1 Transport Management Principles

Access to and within the Parklands should be kept to a level that reflects the requirements of visitors and Programs. The Parklands carparking strategy, and people movement strategy will be based on central hubs from which alternative secondary access routes and modes radiate. It is important to acknowledge the evolving access requirements of visitors as the Parklands develop over many years.

⁵⁰ SEPP 64 is the State Environmental Planning Policy dealing with all forms of signage.

5.10.2 Transport Management Guidelines

Before introduction, replacement or removal of any access or transport elements in the Parklands, such changes must be assessed and justified against the following requirements:

- Considering the long-term strategy to promote mass transit options.
- Minimising car dependency outside key destinations.
- Meeting environmental (ESD) obligations.
- Taking opportunities to use alternative (green) energy or technology sources.
- Enhancing internal and external networks.
- Acknowledging long term access requirements in planning and design.
- Using innovative and unique forms of transport that reflect local circumstances.
- Taking into account overall traffic management of the Parklands.
- Enhancing connectivity between management precincts.

5.11 Access Management Issue

Access to public places within the Parklands is a fundamental right of every person in the community. The Parklands by their nature include some areas that are readily or easily accessible by every person, while other areas are either physically difficult to access by some people due to their personal circumstances or because access is deliberately restricted for management (including safety, health, environmental and conservation) reasons.

The challenge is to balance the right and desire for access against the environmental and / or financial costs and implications of providing unlimited access to all public places by all people.

5.11.1 Access Management Principles

Access to the different parts of the Parklands will be based on a regime where the emphasis is on at least providing access for all people (both able and people with disabilities) to samples of the different places for all people for most of the time. This approach will recognise that access to some places at some times may be limited to allow resting or regeneration of areas, to protect important values of the Parklands or to avoid risk to visitors. Where access to some areas may be restricted for some, equality of opportunity can be provided in alternative technological ways.

5.11.2 Access Management Guidelines

Before introduction, replacement or removal of any elements or services in the Parklands or modifying established access levels, such changes must be assessed and justified against the following requirements:

- Maintaining an equitable access strategy for the Parklands that reflects the right of public access and the need to protect the important elements of the places.
- Generally access to natural areas for non-programmed activity will be limited to the period dawn to dusk.

- Many areas of the Parklands are not safe for use on a 24 hour basis due to isolation, asset risk, landscape hazards, environment protection, or lack of supervision.
- Areas identified as being of high ecological value and/ or high cultural heritage value will be more restricted to public access than those identified as being of high recreational value.
- Some areas may have access restricted to Program participants or ticketed entry only.
- Disability access requirements will be incorporated into all development in accordance with the legislative⁵¹ requirements, the Parklands Access Strategy and the Building Code of Australia standards.
- Periodic site assessments for the different places will be used to identify access deficiencies and contribute to site improvement works programs.
- Vehicle access to some areas for certain events or periods of time may be required.

5.12 Infrastructure Management Issue

Infrastructure (built heavy engineering structures and utility services) is required to support the utility of functional and structural elements in the Parklands.

The challenge is to ensure this is done in an holistic way. If this is not achieved, many buildings and Parkland facilities will not function in a manner adequate to support the various Programs required for the Parklands.

5.12.1 Infrastructure Management Principles

Infrastructure in the Parklands should be maintained at a standard that reflects the level of support needed to provide the range and location of Parkland Programs. All designs are to be consistent with Ecologically Sustainable Development principles.

5.12.2 Infrastructure Management Guidelines

Before construction, replacement or removal of any infrastructure in the Parklands, such changes must be assessed and justified against the following requirements:

- Using opportunities to adapt existing infrastructure.
- Minimising any impact on the landscape and the environment.
- Taking opportunities to use alternative (green) energy or technology sources.
- Maximising the potential for sustainable design.
- Making flexible provision for future requirements.
- Complying fully with the Environmental Management System.
- Considering the implications for established or planned Parkland visitation.

⁵¹ Commonwealth Disability Discrimination Act (1992)

5.13 Sustainability Management Issue

The Parklands environment was designed and built to benchmark standards of ESD. The ability of the Parklands, as a sustainable physical place, to provide for the intended future parkland uses and activities is partly dependent on the underlying quality and flexibility of the site maintenance regime and the resilience of the natural and built elements that comprise it.

The challenge is in managing the Parklands with adequate emphasis and priority being given to ensuring short term use and activity does not compromise longer term viability and resilience.

5.13.1 Sustainability Management Principles

The Parklands should be managed in accordance with principles of ecological sustainability best practice.

5.13.2 Sustainability Management Guidelines

- The Parklands will continue to be designed, developed, and operated to comply with the requirements of the Environmental Guidelines for Sydney Olympic Park.
- Future design, development and operation of the Parklands will be in accordance with the corporate policy, strategy and environmental management system of the Authority.
- The Parklands will continue to promote and advance the principles of ESD in order that future environmental technologies and sustainable management initiatives are identified and supported.

5.14 Buildings & Facilities Management Issue

Buildings and facilities are required to house and support various Programs in the Parklands. Unless they are used, located and adapted in a way that enhances the overall quality and diversity of experience for visitors, it is likely that existing facilities will be under-utilised or unnecessary new facilities will be constructed.

The challenge is to let Program needs and visitation patterns guide the provision of facilities while also providing facilities to guide use or in anticipation of needs.

5.14.1 Buildings & Facilities Management Principles

Buildings in the Parklands should be maintained to a level that reflects the range and location of Parkland Programs and support requirements. Buildings should be maintained and modified in response to agreed purpose while remaining appropriate to the setting. Adaptive re-use of existing buildings is preferred over construction of new buildings. All designs are to be consistent with Ecologically Sustainable Development principles. Buildings and structures identified as being of historic significance will be managed according to the principles of the Burra Charter and, where applicable, the Conservation Master Plan.

5.14.2 Buildings & Facilities Management Guidelines

Before construction, replacement or removal of any buildings or facilities in the Parklands, such changes must be assessed and justified against the following requirements:

- Recognising the potential for use of temporary buildings or mobile structures.
- Adapting existing buildings for re-use.
- Preferring multi-use of existing and new buildings.
- Precluding exclusive or long-term use by any single interest visitation group.
- Using opportunities to trial amenities in order to determine best location or form and potential levels of use.
- Achieving best design and location for the setting.
- Making use of or sharing existing infrastructure.
- Protecting existing heritage values.
- Conserving historic buildings and structures.
- The need to comply with the Building Code of Australia.

5.15 Land Occupation Management Issue

A number of uses and activities of a programmed or event nature may be best staged and operated, at least in part, by organisations other than the Authority. The principles of public land and community land management strictly limit any exclusive occupation or use by any person or group and any such use or occupation must be done in accordance with various public notification and consultation processes. Every occupation agreed to places additional constraints on future opportunities and management flexibility. The range of visitation and service provider contracts, are essentially licenses to access and/ or use the Parklands and these are intended to be the subject of this section.

The challenges are to facilitate the range of potential occupation agreements within a commercially acceptable timeframe without compromising the public notification and consultation objectives, and to ensure that any agreement does not compromise other uses or activities or opportunities in the future, some of which are not yet imagined.

5.15.1 Land Occupation Management Principles

The Parklands should not be alienated for exclusive or substantially private purposes unless, in consideration of corporate objectives and Parkland objectives, it is in the best interests of the Authority, the Parklands and the community, and so long as it does not permanently or irreversibly degrade the Parklands' values or spirit of place.

5.15.2 Land Occupation Management Guidelines

Before there is any change in the occupation of any part of the Parklands under any lease, licence or other estate, (excluding service provider agreements and general visitation), consideration must be given to the following requirements:

- That the occupation will not reduce the level of public access currently available, or if it does, then not for a significant period of time.
- That the overall impact of the occupation will provide a greater net benefit (in cultural, economic, social and / or environmental terms) to the Parklands than the physical impact of the occupation itself.
- That the occupation will not introduce new or exacerbate existing conflicts between users.
- That the occupation will comply with the relevant provisions and requirements of the SOPA Act and this Plan of Management and other legislation, including seeking community comment on significant proposals.
- That community group access will be according to a SOPA Policy which includes not allowing exclusive use by any particular group on an ongoing basis.

5.16 Safety and Security Management Issue

Inviting visitors to the Parklands in itself attracts a high level duty of care for the Authority in relation to protection of visitors from harm or risk. This includes management of physical hazards, inappropriate activities, environmental risks and to some extent unlawful activities by others. The Parklands are a vast place with many potential risks. Visitors to the site may from time to time be filmed by security surveillance cameras while in the Parklands.

The challenge is to have sufficient maintenance programs in place, technology in use, people on site and response mechanisms available to ensure that the risk of hazard and incident occurrence is low and, in the event that safety or security is compromised, the consequences of significant impact are low.

5.16.1 Safety and Security Management Principles

Every visitor to the Parklands acting in a reasonable manner under the circumstances and in the environment provided by the Parklands has the right to expect the Parklands are maintained and operated in a safe and secure manner and that, where circumstances or the environment change, management will respond appropriately.

5.16.2 Safety and Security Management Guidelines

In managing Parkland security the consideration must be given to the following requirements:

- A current safety and security management plan/s will be in place, to be implemented by the Authority.
- The safety and security management plan will include provision for risk management in accordance with OH&S obligations relating to employees and park visitors.
- The safety and security management plan will be based on the Australian Standard for Risk Management.
- A Parklands Hazard Review will be undertaken annually in relation to Visitor Health & Safety Management in the Parklands, as part of SOPA's corporate OH&S plan.
- Safety and security matters and incidents will be recorded, monitored and considered in the regular review of safety and security standards and implementation practices.

- Safety and security management will include (but not be limited to) the use of tools such as education, enforcement, induction, ranger presence, physical access barriers, lighting, closed circuit television (CCTV), alcohol-free zones, signage, and area closures as appropriate.
- Where filming or monitoring of visitors using closed circuit television (CCTV) it is undertaken it must be in accordance with SOPA's CCTV Policy and Guidelines.

5.17 Lighting Management Issue

Lighting has the potential to expand use times in the Parklands beyond daylight hours, making better use of open space, providing opportunities for public access that otherwise may not be possible and enhancing the aesthetic values of Parkland features. However, lighting that is inappropriate in terms of location, timing, intensity and design can cause public nuisance, annoy neighbours, provide a false sense of security, challenge the functional resilience of lighted places and diminish the quality of habitat values and natural ambience of the area.

The challenge is to establish a lighting regime for the Parklands that appropriately supports any extended use or enhanced condition or experiences for visitors while not creating nuisance and interfering with other functions and objectives of the Parklands.

5.17.1 Lighting Management Principles

Lighting of the Parklands should be kept to a minimum, and where present must be non-intrusive to ensure preservation of the natural ambience. Lighting of the Parklands, from the perspective of both decoration and amenity, must be based on a site-wide approach. Where necessary, lighting of the Parklands should not exceed fitness for purpose and area of intended illumination while also being appropriate to the setting. Alternatives to lighting, as a means of protecting or highlighting elements of an area, should always be given careful consideration during planning and design, and light-spill prevention.

5.17.2 Lighting Management Guidelines

Before any installation, replacement or removal of lighting or associated structures in the Parklands, proposals must be assessed and justified against the following requirements:

- The need for and alternatives to illuminating an element or place.
- Not interfering with the nocturnal activities of wildlife, particularly in the wetland areas.
- Being non-intrusive to neighbouring residents or Parkland users.
- Considering the cumulative effects with other lighting.
- Limiting hours of operation to suit the circumstances of the site.
- Providing for, or in support of, security activities.
- Ensuring a lack of lighting to deter visitation to inappropriate areas.
- Supporting visitation to areas where after-dark use is desirable or invited.
- Preserving the natural ambience of the site.
- Using 'green' power generated from renewable resources.

5.18 Pest Management Issue

The principles of Ecological Sustainable Development must be applied to pest management in an attempt to avoid the need for artificial pest control. However, in the short term at least, pest plants and pest animals have the potential to cause significant damage. This applies at a species and ecological community level, as individuals and species are progressively injured, killed or displaced physically and consequently the nature and structure of habitat and food chains are substantially changed. Uncontrolled pests can create habitats that are more advantageous to other pest species or transform some otherwise insignificant native species into pest species. Some pests create significant nuisance or inconvenience to Parkland visitors.

The challenge is to create habitats and environments that are relatively self-sustaining and require minimal artificial control of the pest species and hence not causing greater disturbance and environmental impact than the problem itself. This applies in particular to avoiding the use of treatment materials and techniques that harm the environment or ecology of the Parklands or its visitors.

5.18.1 Pest Management Principles

The objective in pest plant and animal management should generally be on prevention followed by early control of new infestations. For established populations it may be necessary to aim to achieve a realistic level of control rather than eradication, use low environmental impact control techniques, operate at optimum treatment times and give greater weight to long term implications rather than short term convenience.

5.18.2 Pest Management Guidelines

Before any new pest treatments, changes in the established approach to treatment or changes in work practices associated with treatments, proposals must be carefully assessed and justified in terms of the following requirements:

- Consider ecological implications for other associated species and communities.
- Refer to the NSW Pest Management Guidelines and the SOPA Integrated Pest Management Plan.
- Promote practices that deter establishment of pest species and populations.
- Identify nuisance implications for visitors to the Parklands.
- Consider any legislative obligations.
- Understand the adequacy of knowledge about the subject.
- Consider alternatives with a longer term focus.
- Consider visitor safety.
- Address welfare issues of pest animal control.
- Consider the potential to use biological or non-chemical controls.

5.19 Works & Services Management Issue

Maintenance and operation of the Parklands involve a range of works and services that have been initiated for different reasons. They include activities to: preserve the working life of assets, maintain serviceability of systems, prevent either undesirable change or premature deterioration of natural elements and systems, comply with legislative or contractual obligations, make the landscape aesthetically pleasing for visitors and ensure the different places are relatively safe. It is often the asset management activities that have the greatest impact on the integrity of the landscapes and ecosystems of the Parklands and ultimately determine whether the values of the Parklands are conserved or diminished over time. There are not unlimited resources available and environmental conditions often work against many of the service objectives.

The challenge is to define the standards of service in a way that respects the desired balance required between the competing interests and requirements of visitation Programs, asset management objectives, natural systems and processes and statutory obligations. The need also exists to ensure that the defined standards are delivered or implemented in an appropriate manner according to an appropriate schedule, while remaining adaptable to changing circumstances and demands. If maintenance is based purely on the assets' recorded value, without adequate consideration for the underlying maintenance needs, resources may be misdirected or inadequate⁵². Similarly if maintenance is deferred there may be a time delay between reducing the resources applied to maintenance and realising the actual reduction in remaining service potential.

5.19.1 Works & Services Management Principles

The Parklands should be maintained and operated according to service levels that reflect a responsible balance between Program provision, visitor demand, resource availability, ecosystem and landscape resilience, land capability and risk management. The service standards should be set and maintained at a level that protects the values of the Parklands and achieves the objectives set for the Parklands. In defining standards of service, the focus should be on articulating clearly what needs to be achieved in relation to each interest or element, and establishing the appropriate balance between any conflicting issues and interests. The emphasis in provision of the required services should be how those defined services will be provided in an efficient and effective manner.

5.19.2 Works & Services Management Guidelines

Before introducing new standards, changing existing standards or ceasing to apply established standards, proposals must be carefully assessed in terms of the following:

- Ecological implications for associated species and communities.
- Impact on programmed and non-programmed visitation.
- Cost implications including both liabilities and opportunities.
- Contractual and resource implications.

⁵² An issue emphasised by the NSW Auditor General in his report to Parliament 2002 Vol 3.

- Consultation with key stakeholders.
- Aesthetic and horticultural presentation implications for visitor experience.
- Effect on asset depreciation and serviceability.
- Relative priority (importance) of achieving a standard for one element over another.
- Achieving sustainability in the longer term.
- Maintaining asset and systems function.
- Service delivery functions accommodating visitor activities wherever possible.
- Supporting accessible, safe and secure places.
- Meeting OH&S requirements.
- Local requirements identified in Section 5 of each Local Scheme of Operations.

5.20 Price Management Issue

Provision of value added services in the Parklands is required as part of implementing Parklands 2020. There is a general reluctance by Parkland visitors to pay the full cost for services other than ‘special’ services. Visitation to public parklands can be very price sensitive. There is the risk that certain cultural and socio-economic groups will be excluded from the Parklands if all access and Programs are on a cost basis. Even though attempts were made in design to create a ‘low cost’ Parklands model, nonetheless the cost of maintaining and programming these Parklands will always be higher than if it were created on a non-remediated and more homogenous site. This is because of the scale and complexity of the site combined with particularly high levels of regulatory constraints and obligations associated with environmental issues. Providing and maintaining parklands, as public open space, are seen by many in society as one of the community service obligations of Government.

The challenge is to fund the Parklands operation in circumstances where constraints to Government funding and increased costs may apply, but in a market place where visitor expectations are that environmental standards will be high, public open space will be provided at no cost and Programs will at least be heavily subsidised.

5.20.1 Price Management Principles

Basic access to non-controlled areas of the Parklands should never attract a charge. Where Programmed activities are provided in the Parklands, a charge should apply at a minimum rate of cost recovery, unless as part of a promotional event. Where premium Programs that include high value added products and services are provided, commercial charge rates should apply. The Parklands will direct all net revenue derived from the hire, or use, of the land or its facilities back into the Parklands in a way that provides a greater net benefit than the loss sustained by the hire or use. In this context of ensuring free public access where Government resources are constrained, it will be imperative that partnerships are formed between the Parklands and appropriate corporations and institutions as a basis for the sponsorship and support of a range of public visitation Programs. The Parklands should engage in standard commercial arrangements to achieve these ends.

5.20.2 Price Management Guidelines

Before the introduction of any new charges, changes in established charges or deletion of any charges, proposals must be carefully assessed in terms of the following:

- The need to maintain an equitable level of base access to the Parklands.
- Not discriminating against any person or group other than in a positive way.
- The extent that there are direct costs associated with the peculiar needs of any class of visitor.
- Helping fund the recurrent operation of the Parklands.
- Applying user-pays principles to value-added Programs.
- Encouraging visitation, use and enjoyment of the Parklands.
- Growing the Program suite for the Parklands in line with that indicated in Parklands 2020.
- Limiting the extent of exclusive use or occupation of the Parklands.
- Exploring all proper commercial opportunities to support visitation Programs.

5.21 Potential Acid Sulphate Soil Management Issue

Potential Acid Sulphate Soils (PASS) is the common name given to soils that contain iron sulfides which in the Parklands are in the form of estuarine silts within and below the tidal range. There are naturally formed Acid Sulphate Soils in a number of locations within the Parklands, mainly in and adjacent to estuarine areas such as adjacent to the Parramatta River and Haslams Creek. When naturally occurring iron sulfides are disturbed, dried out, and oxidised with the acid that is formed being transported by subsequent re-wetting and draining of the soil, this sulphuric acid can drain into waterways and cause severe detrimental environmental impacts.

The challenge is to develop a sustainable landscape using soils that are not often ideal in depth, structure or composition for the purpose for which they are used, and to manage any future landscaping or development that may be required to use such soils or expose Acid Sulphate soils.

5.21.1 Potential Acid Sulphate Soil Management Principles

Any works and landforming in the Parklands should exclude the disturbance of Acid Sulphate Soils and, where they have been disturbed, they should be managed to prevent any environmental harm. In accordance with Clause 20A of the SREP 24, development that is likely to result in more than 1 tonne of soil being disturbed, or lower the water table, on land in which Acid Sulphate soils are present may only be carried out with consent from the Minister for Planning.

5.21.2 Potential Acid Sulphate Soil Management Guidelines

In relation to any proposal that involves major excavation works within areas where potential Acid Sulphate soils exist, the following requirements must be met:

- Undertake soil tests to determine if Acid Sulphate soils are present on the site.

- If Acid Sulphate soils are identified, prepare an Acid Sulphate Soil management plan in accordance with the "Acid Sulphate Soil Manual: NSW Acid Sulphate Soil Advisory Committee, August 1998".
- A soil management plan must include protocols for testing excavated material for Acid Sulphate potential and treating or disposing of soils in a manner that will not result in the generation of acidic leachates.

5.22 Fire Management Issue

The Parklands by their very nature (i.e. through native species, strong growth, high fuel content, topography, dry-land and windy plains) have the potential to accumulate a store of fire fuels in the vegetated areas with the effect that, when weather conditions are most severe, the fuels ignite. An uncontrolled fire in urban parkland conditions not only destroys many of the values of the park but also places visitors, neighbours and adjacent property in physical danger.

The challenge is to maintain the landscape and ecology of the Parklands without allowing them to develop into a potential firestorm where lives and property could be lost.

5.22.1 Fire Management Principles

To avoid unreasonable risk to life, property or the environment, the Parklands will be subject to a comprehensive fire management plan. Implementation of the plan should aim to minimise the risk of an uncontrolled fire starting and, if one were to start, the likelihood of it spreading or the risk associated with it spreading would be minimal.

5.22.2 Fire Management Guidelines

- A current Fire Management Plan for the Parklands will be written and maintained.
- The annual recurrent Parklands maintenance program will include the necessary funding and works required to implement the plan.
- Priority will be given to avoiding the starting and spread of uncontrolled fires.
- The Parklands will maintain a close liaison with local fire authorities (NSW Fire Brigade and National Parks & Wildlife Service).
- The Fire Management Plan will include public notification and evacuation procedures.
- The National Parks and Wildlife Service and Sydney Olympic Park Authority will undertake fire management of Newington Nature Reserve and surrounding areas in a complementary manner.
- The lighting of fires in the Parklands will be managed in accordance with requirements of the EPA and other legislative authorities.
- Use of ecological burns to promote regeneration in particular areas inside and outside the Nature Reserve will be part of the fire management plan.

6 Identification of Management Precincts

Parklands 2020 identified five different precincts for the purposes of concept design and construction of the Parklands. These precincts, and what they represent in terms of the design themes referred to in the physical plan (i.e. ‘lowlands’, ‘walls’ and ‘rooms’ and ‘elevated landforms’, and the excavated brickpit), are not changed by this Plan.

For the purposes of strategic and operational management of the place and use of the place, the Plan has divided the Parklands into seventeen separate Management Precincts⁵³. The Management Precincts are set out to support the visitation Programs and conserve the important physical characteristics of the Parklands. To do so they have been established along physical landscape or naturalistic boundaries that reflect changes in ecosystems, landforms, historic use, natural features, land tenure or intended uses. The identification of the various Management Precincts in the Parklands, in these terms, is also required in order to facilitate compliance with the land categorisation requirements of the Act.

The various Management Precincts identified for the Parklands are shown on Plan 2 attached as Appendix 2.

7 Naming of Management Precincts

The Plan names⁵⁴ the different Management Precincts⁵⁴ to reflect one or more appropriate elements of their common use name, historical linkages, dominant features, geographic location or other significant characteristics. The names of the various Management Precincts are detailed in Column 2 of Table 1 attached as Appendix 3, and references to former names are listed in Table 2 attached as Appendix 6.

The Management Precinct names assigned by the Plan are subject to endorsement by the NSW Geographical Names Board. In the event that any proposed name is not endorsed by the NSW Geographical Names Board an alternative name will be proposed.

The Plan recognises the right of the Authority to name and rename precincts⁵⁵ in the Parklands and accordingly the Plan authorises the naming or renaming of Management Precincts or places, including those named or renamed in this Plan, outside the Plan of Management process.

8 Management Precinct Categorisation

Categorisation of the different Management Precincts is required in order to assist in the establishment of a set of relevant objectives. These objectives can be used as key reference points when determining the appropriateness of both current and future uses, and activities and functions for each place. These objectives are also a reference point for public reporting on the performance of the Authority in implementing the Plan.

⁵³ Enabled by Clause 33(1) of the SOPA Act (2001)

⁵⁴ Enabled by Clause 33 (3) of the SOPA Act (2001)

⁵⁵ In accordance with Clause 33(3) of the SOPA Act (2001)

The Plan categorises⁵⁶ the Management Precincts based on an assessment of the type of ecological or constructed system that has, does or may exist in the area and in some cases the intended use of the area.

The categories available to be assigned to the various Management Precincts have been adapted primarily from the NSW *Local Government Act (1993)*⁵⁷. The assignment of categories has taken into account the intent of the regulatory guidelines⁵⁸ associated with NSW *Local Government Act (1993)* provisions while also avoiding conflicts with the provisions of the SOPA Act⁵⁹ and requirements of the NSW *National Parks & Wildlife Act (1974)*⁶⁰.

8.1 Adoption of Categories

The Plan has adopted six Categories for application to the Management Precincts in the Parklands. They are ‘Natural Area’, ‘Park Land’, ‘Cultural Areas’, ‘Sports Park’, ‘Nature Reserve’ and ‘General Community Land’. These categories are used to determine the General Objectives for each Management Precinct.

The different Management Precincts in terms of the Categories assigned to them by this Plan, and the reasons⁶¹ for assigning the particular Category are detailed in Table 1 attached as Appendix 3.

8.2 Adoption of Zones

Where the characteristics of the majority of the land in any Management Precinct leads it to be categorised as one type, but the Management Objectives of that Category do not adequately recognise some important element within the Management Precinct, one or more Sub-Categories (Zones) have also been assigned. The use of Zones aims to reflect the particular significance of the element not adequately recognised by Categorisation.

The Plan has adopted numerous Zones for application in relation to parts of the various Management Precincts in the Parklands. The assigned Zones are represented on the individual Management Precinct maps included in each Local Scheme of Operations of the Plan. The Zones used are: ‘Park’; ‘Buffer’; ‘Sports’; ‘Visitation’; ‘Refuge’; ‘Habitat’; ‘Bioremediation’; ‘Wetland’; ‘Foreshore’; ‘Lake’; ‘Riparian Creek’; ‘Reservoir’; ‘Mangal’; ‘Edge’ and ‘Landslip’.

Zones are used to guide the selection of Local Objectives for each Management Zone and Local Policies for each Management Precinct. Although more than one Management Precinct may have the same name applied to a Zone because there are common characteristics, each Management Precinct may have a different range of Local Objectives attached to the Zone in order to reflect the Management Precinct’s particular circumstances.

⁵⁶ In accordance with Clause 34 of the SOPA Act (2001) import of LGA Clauses 36 (3) (a)

⁵⁷ In accordance with Clause 34 of the SOPA Act (2001) import of LGA Clauses 36 (4)

⁵⁸ Required by SOPA Act (2001) import of LGA Clause 36 (6) which calls up LGA Regulations (1999) Part 3 Clause 9 (2)

⁵⁹ The SOPA Act (2001) already uses a defined term differently to that in the Guidelines, and includes an additional Category.

⁶⁰ Newington Nature Reserve Precincts cannot be classified using the Guidelines as they are already classified a ‘Nature Reserve’ under the National Parks & Wildlife Act (1974)

⁶¹ May be required as a result of SOPA Act (2001) import of LGA Regulations (1999) Clause 22 (2)

The Zones assigned by this Plan to each of the different Management Precincts are identified and detailed in Column 2 of Table 1 attached as Appendix 3.

9 Precinct Objectives

The Plan establishes a series of General Objectives and Local Objectives for each Management Precinct.

9.1 General Objectives

Most of the General Objectives are those prescribed in association with the Categorisation of the particular Management Precinct, and some others have been included because they relate to important general aspects of the Management Precinct that may otherwise be overlooked.

The General Objectives⁶² are those objectives that apply to the whole of each Management Precinct and are detailed in Section 1.6 in the respective Local Scheme of Operations in Part 3 and Part 4 of the Plan.

Generally Management Precincts of the same Category will have the same ‘core’ General Objectives and where appropriate other objectives that relate to that particular place.

9.2 Local Objectives

Some of the Local Objectives are those prescribed in association with the Sub-categorisation into a particular Management Zone and most have been included because they relate to important detailed aspects of a Management Zone that may otherwise be overlooked.

Local Objectives are those objectives that apply to each Management Zone within a Management Precinct and are detailed in Section 1.7 in the respective Local Scheme of Operations in Part 3 and Part 4 of the Plan.

Generally Management Zones may not⁶³ have the same ‘core’ Local Objectives, as these objectives are targeted at specific local issues or characteristics that relate to that particular Management Zone.

10 Performance Assessment

The Plan requires the Authority to report on its performance⁶⁴ in relation to achievement of the General Objectives associated with the Categories of land assigned to the different Management Precincts in the Parklands.

A report (the Parklands Management Plan Report) outlining progress by the Authority in relation to achievement of the General Objectives of the Plan assigned to each Category of land on a

⁶² Required by SOPA Act Clause 34 (4) importation of LGA Clauses 36 (3) (a)

⁶³ Other than when required by SOPA Act Clause 34 (4) importation of LGA Clauses 36 (3) (a) with respect to ‘Natural Areas’.

⁶⁴ Required as part of compliance with SOPA Act importation of LGA Clause 36(3) (d)

Management Precinct basis, will be provided in association with the Sydney Olympic Park Authority Annual Environment Report to the Minister.

Details of the Management Performance Assessment requirements for each management Precinct are contained in Section 5.9 of each respective Local Scheme of Operations in Part 3 and Section 5.11 in Part 4.

Details of the Performance Targets relating to the General Objectives for each Management Precinct are contained in Section 5.8 in each respective Local Scheme of Operations in Part 3, and Section 5.10 in Part 4.

11 Parkland Management

11.1 Adaptive Management Framework

Parklands 2020 envisaged an evolving Parklands that would continue to respond to changing needs and values over time, and therefore the Plan authorises the further development and ongoing refinement of an adaptive management framework for the Parklands. As values, land-uses and knowledge relating to the Parklands change, management is required to periodically revisit objectives, systematically evaluate progress in light of new information or circumstances and incrementally adjust actions where necessary.

The framework will involve ecological monitoring and survey, researching environmental issues of concern, identifying risks and potential consequences, prioritising operations, and incremental adjustment of management systems and strategies, informed by the outcomes of the research Program and operational experience. The monitoring and re-evaluation of the managed research will endeavour to provide an iterative cycle, so that the Parklands can adapt to changing requirements and maintain resilience.

11.2 Research & Investigation

The Plan recognises that management of the systemic and whole of site issues is complex as a result of the Parkland inter-relatedness, environmental sensitivity and dynamic nature. Because of the complexity, Parkland managers require substantial information support in order to maintain the high compliance standards and duty of care imposed under legislative and statutory regulation. To achieve the objectives set for the Parklands and to pursue the conceptual intent of Parklands 2020 in these circumstances, requires information from a Program of scientific research, environmental assessment and monitoring, ecological survey and social study. These Programs will be designed and implemented to achieve the following objectives:

- To better understand the unique spirit of place of the Parklands through a Program of continuing research.
- To gather data for management regarding the social and physical catchments within which the Parklands is located.
- To consult the community regarding the manner in which the Parklands can appropriately become a significant learning and recreation space.

- To undertake a comprehensive ongoing Program of ecological study to ensure that this remains an area where natural features are enhanced.
- To undertake relevant scientific research to ensure that adequate current knowledge is maintained about the physical features of the area as they relate to visitor health and safety.
- To ensure that the outcomes of these Programs are deposited in a central data system and that this facility is capable of being integrated and dispersed to Program and Place managers in the Parklands and throughout SOPA.

The following general areas of scientific study are essential to support the Parkland management function. There will be others added in the future.

Water and Soil Management:

including water quality, groundwater flows, tidal movements, salinisation, soil structures, erosion, revegetation, recycled water use, water harvesting, and low flow irrigation.

Remediated Landfill Management:

including leachate quality, site application for leachates, subsidence monitoring, bioremediation effectiveness, landfill containment assessments, and risk and safety audits.

Environmental Management:

including local impacts of climate change, catchment management issues, sediment and bioaccumulation analysis and monitoring, re-use of leachates, site applications for solar power, and enhanced facility designs.

Biodiversity Management:

including effectiveness of species conservation, reintroduction of lost species, fauna and flora species and community monitoring, habitat restoration, pest animal control, migratory bird habitats, and terrestrial and wetland succession.

Visitation Management:

including establishing site capability, assessing impacts of visitation on ecosystems, factors in site resilience, user preferences, use patterns, changing needs, presentation standards, and facility type trials.

Vegetation Management:

including flora species and community monitoring, plant health and establishment, protection of endangered species, horticultural success trials, revegetation, and weed control.

11.3 Asset Management

For the purposes of this Plan, the general standards and priorities for works and services and outcomes required for the different elements in the Parklands are defined on a Management Precinct basis. The details outlining how these standards will be achieved are to be defined in the Authority's Parklands Asset Management Plan⁶⁵ and associated Operational Maintenance Plans.

⁶⁵ As amended from time to time by the Authority.

The range of works and services to be provided across the Parklands will vary from site to site depending on the elements present, the nature of visitor use and the requirements of the Local Schemes of Operations. The following outcomes are required from the range of works and services, where applicable, to each Management Precinct:

- Environmentally sound minimisation, collection, recycling and disposal of waste.
- Presentable and environmentally healthy cleaning of visitor elements and facilities.
- Sustainable control and management of pest plants and pest animals.
- Accessible, safe, secure and properly functioning buildings and built facilities.
- Safe, reliable and functional utility services, roads, pathways, cycleways, bridges and drains.
- Presentable, safe, accessible and functional horticultural, turf and built landscape elements.
- Ecologically sound conservation of natural and constructed habitat elements and ecological systems.
- Suitably located, accurate, presentable and functional visitor interpretation, wayfinding and regulatory signage.
- Contained, monitored and protected remediated landfill areas with reliable and functional leachate management systems.
- Timely, safe, focussed and responsive security patrols and systems.
- Safe, timely and informed provision of parkland environmental risk patrol services.
- Timely, scheduled and informed provision of visitor monitoring and support services.

To ensure the Parklands Asset Management Plan is consistent with this Plan of Management, the Parklands Asset Management Plan is to be reviewed and amended within twelve months of the Plan of Management being adopted. The review and amendments will aim to demonstrate that the different areas, assets, asset objectives, relative importance of the assets and the asset criticality values in the Parklands Asset Management Plan reflect the provisions of the Plan of Management.

Within the Local Scheme of Operations for each Management Precinct the more important works and services issues or requirements are identified. The Plan requires that the maintenance frequencies, maintenance schedules and tasks, maintenance response times, bench-marking and performance measures associated with the implementation of the Parklands Asset Management Plan⁶⁶ will, as far as possible, be designed, planned and implemented to support the relevant Local Scheme of Operations for each Management Precinct.

11.4 Fees & Charges

The Plan authorises the Authority to set fees and charges in relation to any use or activity approved for the Parklands under this plan. Fees and charges, or the basis upon which fees and charges are to be established, are to be set and revised on an annual basis and must be available for public inspection at the offices of the Authority during normal business hours.

⁶⁶ As amended from time to time by the Authority.

11.5 Plan of Management Compliance Test (PMC Test)

There may be some new activities related to works, uses, activities or enhancements required in future or existing activities related to works, uses, activities or enhancements that at some stage are no longer required for the Parklands. Some of these potential changes cannot at the time of making this Plan be readily defined or specified in advance, and therefore where minor changes are required in the future, the Plan provides a mechanism for their inclusion without the need for remaking the whole Plan.

Therefore, the Authority may, subject to the terms and conditions contained in this Section, vary the range of Particular Activities in Section 3.3.1 or Particular Building Uses in Section 3.3.2 of a Local Scheme of Operations not otherwise explicitly restricted or provided for in the Local Scheme of Operations. This provision is limited to matters where the nature and detail of the proposed activity or use is consistent with the classes of Approved General Uses in Section 3.3 of each Local Scheme of Operations, the relevant provisions of the General Scheme of Operations and the intent of Parklands 2020.

11.5.1 Application of the Plan of Management Compliance Test

The Plan of Management Compliance Test must be applied when considering whether to expand or reduce the list of Particular Activities in Section 3.3.1 or Particular Building Uses in Section 3.3.2 of a Local Scheme of Operations.

The Plan of Management Compliance Test must be applied when determining whether or not it is appropriate to undertake major works, implement major change or deliver major programs associated with the Particular Activities in Subsection 3.3.1 or Particular Building Uses in Subsection 3.3.2, and whether or not certain conditions should be applied. ‘Major’ for the purposes of this section may include but are not limited to: changing existing management practices; adjusting works and service prescriptions; varying the scale and nature of any use; altering strategic plans; and the adding, renovation, transformation, or demolition of natural or built elements.

11.5.2 Plan of Management Compliance Test Limitations

- The Authority may vary the range of Particular Activities in Section 3.3.1 or Particular Building Uses in Section 3.3.2 of the Local Schemes of Operation after the proposal has been subjected to the PMC Test and that test has established the appropriateness of the proposal.
- The PMC Test is not to be used in such a way to avoid or undermine the provisions in the SOPA Act relating to the circumstances that require the amendment of an existing Plan or the adoption of a new Plan.
- An approval made under the PMC Test does not override any other statutory approvals or consent or obligation that may apply to a change in use or activity in the Parklands.

- The PMC Test provisions do not apply to the Management Precincts that comprise the Newington Nature Reserve.

11.5.3 The Plan of Management Compliance Test Process

The PMC Test involves establishing whether or not or to what extent implementation of the proposal is consistent with the values and objectives for the Parklands, and setting parameters and conditions where necessary in order to protect Parkland values and characteristics.

The PMC Test requires a documented report from the proponent that identifies the extent to which the proposal supports or conflicts with all of the following parts of the Plan:

- The Concept Plan for the Parklands in Part 1 Section 2 (and Parklands 2020).
- The Values in Part 2 Sections 2.1 to 2.7.
- The Statutory Framework in Part 2 Sections 3.1 to 3.17.
- The Systemic Issues, Principles and Guidelines in Part 2 Sections 5.1 to 5.22.
- The General Objectives in Part 3 Section 1.6.
- The Local Objectives in Part 3.
- The Approved General Uses in Part 3 Section 3.3
- The Local Policies in Part 3 Section 5.2.

The report must be considered by an Authorised Delegate of the Authority and take into account relevant internal and external comment and recommendations where appropriate, and the provisions and intent of the Plan, to determine whether or not the proposal is supported and if so under what terms and conditions.

Before making a determination in relation to any PMC Test report, the draft determination must be forwarded to the Millennium Parklands Advisory Committee (appointed under the Act) for comment and advice.

If in the view of the Authorised Delegate the test establishes that the proposal is consistent with the requirements of this Section (as applicable to the relevant Management Precinct/s in the Parklands) and that these provisions or their intent are supported, enhanced and / or protected, and the Parklands Advisory Committee supports the draft determination (or as amended), then the proposal may be approved by the Authorised Delegate.

If in the view of the Authorised Delegate the test establishes that the proposal is not consistent with the requirements of this Section (as applicable to the relevant Management Precinct/s in the Parklands) and that these provisions or their intent are not adequately supported, enhanced and / or protected, or the Millennium Parklands Advisory Committee does not support the draft determination (or as amended), then the proposal may be not be approved by the Authorised Delegate.

11.6 Delegations of Authority

All authorisations, approvals and requirements of the Plan that reasonably involve a determination to be made by the Authority are to be subject to the Authority's Delegations of Authority Manual⁶⁷.

The Plan provides that the exercising of any Delegations of Authority associated with this Plan may only be undertaken by an Authorised Delegate whom has sufficient, knowledge, skill, experience and understanding of managing the Parklands that they are adequately informed to make competent determinations and/or will know when to seek additional advice or expertise in order to make a determination.

⁶⁷ The document whereby powers and authority of the Sydney Olympic Park Authority Board that are delegated to the Authority's Chief Executive are sub-delegated to appropriate Authority staff.

Plan of Management for the Parklands at Sydney Olympic Park.

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