

Plan of Management Boomerang Park

April 2016



PORT STEPHENS
COUNCIL

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- Appendix A:** Umwelt 2016. *Review of Boomerang Park Heritage Significance and Aboriginal Heritage Due Diligence Assessment*. Report prepared for Port Stephens Council
- Appendix B:** GHD, 2014. *Boomerang Park – Site Analysis Plan*. Prepared for Port Stephens Council
- Appendix C:** Firebird ecoSultants 2015. *Assessment of Existing Flora and Fauna Habitats within Boomerang Park Raymond Terrace*. Report prepared for Port Stephens Council

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01

INTRODUCTION

1.1 Boomerang Park

Boomerang Park is located in close proximity to the Raymond Terrace commercial area. The park is bounded by Kangaroo Street in the north-east, Irrawang Street in the north-west, Glenelg Street in the south-west and Elizabeth Avenue in the south. Refer Figure 1 – Context plan.

1.2 Land to which this Plan of Management applies

This Plan of Management (PoM) applies to Boomerang Park, Raymond Terrace, located within the Parish of Eldon, County of Gloucester.

The legal description of the land comprising Boomerang Park is Lot 1 in DP 1018979 and Lot 1 in DP 41713. Port Stephens Council is the registered proprietor of both of these lots.

Boomerang Park has a total area of approximately 22 hectares. The park includes three (3) buildings which are primarily utilised by the Raymond Terrace Senior Citizens Centre, Raymond Terrace Before and After School Care and the Port Stephens Dog Sports Club.

1.3 Hunter Water Corporation Land

The physical area generally regarded as comprising Boomerang Park also includes two other parcels of land, being Lot 109 in DP 1140938 and Lot 1 DP 1085482.

These two parcels are owned by Hunter Water Corporation and are often visually and physically viewed as part of Boomerang Park. Port Stephens Council does not legally control these two lots. The use and management of these lots, owned by Hunter Water Corporation, is not governed by this Plan of Management. However, this Plan of Management has had regard to the existence and location of these lots as being a de facto part of the land generally regarded as comprising Boomerang Park.

Figure 2 illustrates the land legally comprising Boomerang Park and the location of the two additional lots owned by Hunter Water Corporation.

Table 1 lists the land to which this Plan of Management applies and the additional Hunter Water Corporation land.

FIGURE 1 CONTEXT PLAN



FIGURE 2 BOOMERANG PARK – LAND OWNED BY PORT STEPHENS COUNCIL AND LAND OWNED BY HUNTER WATER CORPORATION

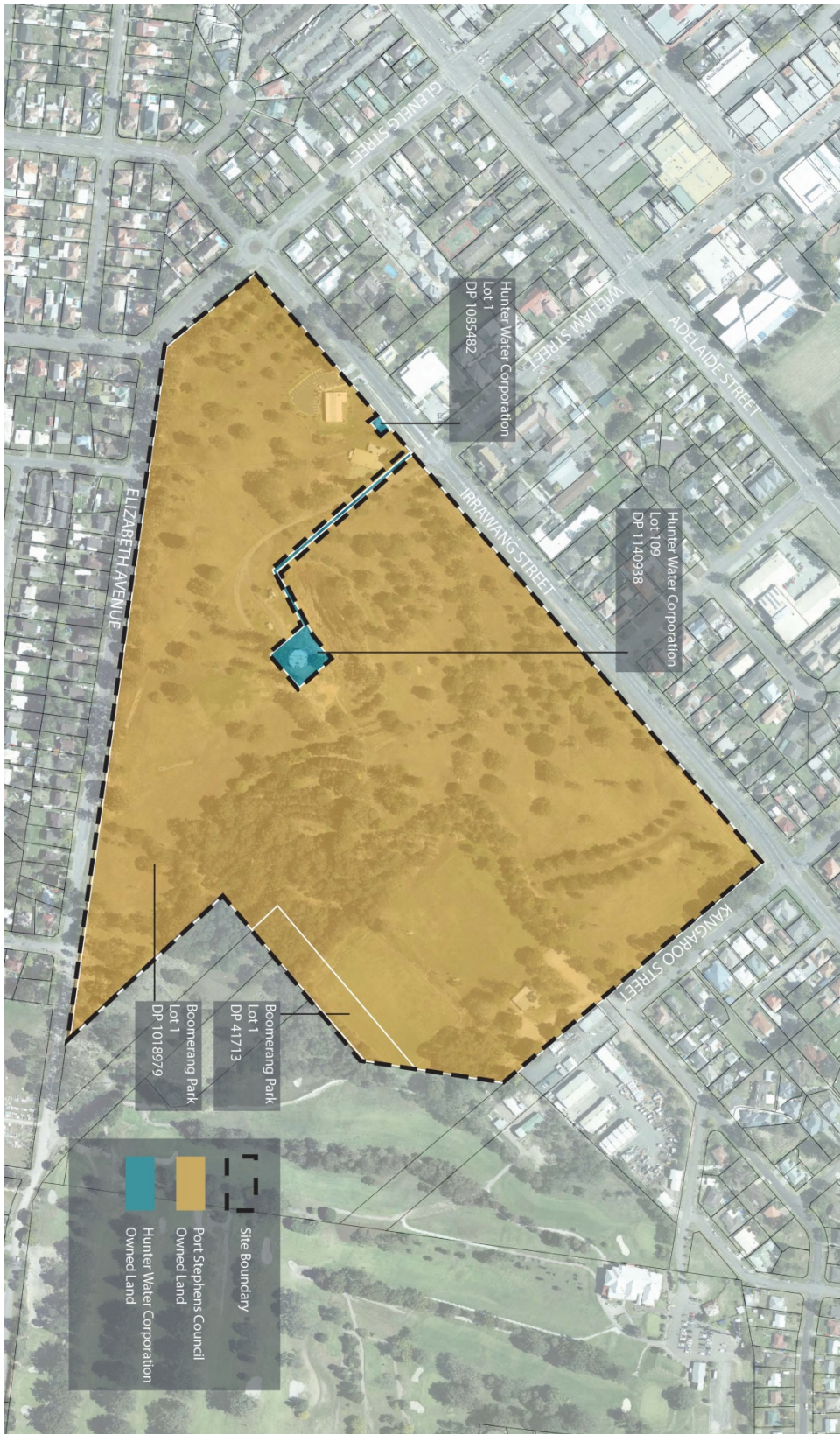


TABLE 1

LAND OWNED BY PORT STEPHENS COUNCIL TO WHICH THIS PLAN OF MANAGEMENT APPLIES AND OTHER LAND					
Name	Lot / DP	Area (m2)	LEP Zoning	Classification	Ownership
Land to which this Plan of Management applies					
Boomerang Park	1 / 1018979	215,756	RE1	Community Land	Port Stephens Council
Boomerang Park	1 / 41713	4,956	RE1	Community Land	Port Stephens Council
Other land parcels used in conjunction with the park					
Hunter Water Corporation (access and water reservoir)	109 / 1140938	1,869	SP1	NA	Hunter Water Corporation
Hunter Water Corporation (pumping station)	1 / 1085482	129	SP1	NA	Hunter Water Corporation

1.4 What is a Plan of Management?

The *Local Government Act 1993* (the Act) requires all public land, which is Council-owned or controlled land, with certain exceptions, to be classified as either 'community' or 'operational' land. Land that has been classified as 'community' land is to be managed and used in accordance with a Plan of Management adopted by the Council.

A Plan of Management identifies issues affecting the subject land, and outlines how the land is intended to be used, improved, maintained and managed into the future. This document provides a transparent and co-ordinated approach to public land management.

A Plan of Management is typically accompanied by a landscape master plan that shows proposed future uses and developments/improvements to that open space (refer Section 4).

1.5 Purpose of this Plan of Management

The purpose of this Plan of Management is to:

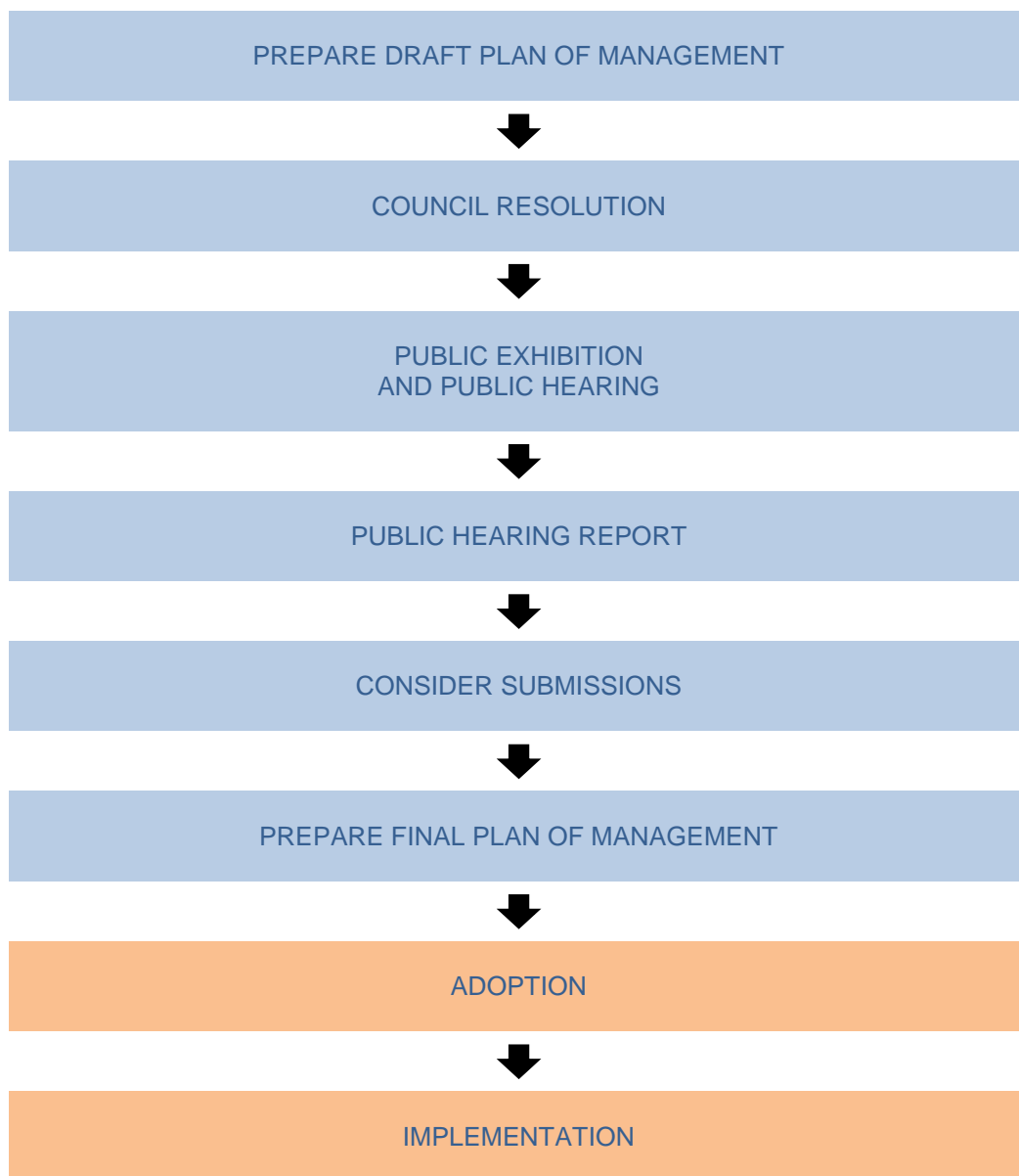
- Replace the previous Plan of Management for Boomerang Park, adopted November 2000;
- Provide a framework for consistent management of Boomerang Park by Port Stephens Council over the next five to ten years;
- Provide a basis for effective day to day decision making;
- Provide an overview of existing assets and facilities and how these facilities will be managed;
- Set guidelines for permissible uses to guide future activities within the park; and
- Accommodate and integrate the interests of Port Stephens Council (as land owner and manager), local residents and business owners (as neighbours and users), visitors to the area and future users of Boomerang Park.

1.6 Objectives of this Plan of Management

The objectives of the Plan of Management are to:

- Meet all legislative requirements;
- Support the conservation and interpretation of heritage values of the park;
- Support the ecological values of the park;
- Expand the recreational opportunities for all ages within Boomerang Park;
- Develop management actions which align with the landscape master plan.

1.7 Process of preparing this Plan of Management



1.8 Community consultation

Prior to the development of this Plan of Management, Council engaged GHD consultants to prepare a landscape master plan for Boomerang Park.

The master plan was prepared in conjunction with a community consultation process that included:

- 18 November 2013 – Community workshop at the Senior Citizens hall in Boomerang Park.
- 16 January 2014 – Consultation with the Youth Advisory Panel at Raymond Terrace Library.
- 18 June 2014 to 15 July 2014 – Public exhibition of the draft master plan for comment.

Following the public exhibition period and incorporation of comments from residents built into the final master plan, Council adopted the master plan at its meeting on 25 November 2014. Refer Figure 5 in Section 4 for a copy of the adopted landscape master plan.

Further to this Council has also carried out consultation with local children and their carers in regards to the playground concept development.

Before a Plan of Management can be adopted by Council it must be placed on public exhibition for at least 28 days. The period in which written submissions can be received is not less than 42 days from the first day of public exhibition.

In addition, a public hearing must be held, in accordance with the requirements of Sections 40(A) and 47(G) of the Act if community land is intended to be categorised or re-categorised.

Community consultation and input is important to ensure that the PoM meets the needs of the local community.

02

LAND DESCRIPTION AND PLANNING

2.1 Location and context

Boomerang Park is situated at the southern end of William Street, which forms the spine through the commercial centre of Raymond Terrace. The park is centrally located within Raymond Terrace, which means that it is well positioned for local residents, nearby schools and community groups.

The park and the land owned by Hunter Water Corporation is located in the context of suburban and urban development (refer Figure 1 and Appendix B – Site Analysis Plan). Located immediately adjacent to the south-eastern and eastern sections of the site are the Raymond Terrace Historic Cemetery, the Muree Golf Course and Port Stephens Council's Raymond Terrace Depot. Surrounding land uses include residential housing (primarily single residences), St Brigid's Primary School and Catholic Church.

2.2 History and development of Boomerang Park

An assessment of the history of Boomerang Park was undertaken as part of the preparation of this Plan of Management with a summary of findings outlined below. This assessment was undertaken by external consultants Umwelt, with the full report attached as Appendix A.

The area of land now known as Boomerang Park was surveyed and dedicated as a 'public reserve' in 1837 (at the same time Raymond Terrace was gazetted as a village) and was later dedicated as a recreation reserve in September 1892.

The name "Boomerang Park" was given to the park in 1914. It was named after a local author, J. R. Houlding who wrote under the pseudonym of "Old Boomerang". At other stages in its existence the park was also known as "The Reserve" and "Quarry Hill". The area of the quarry, which was excavated in 1862, is now marked by the pond at the base of the water tower.

In the past, various parts of the park have been used to incorporate a racecourse, a sports pavilion, tennis courts, a cricket pitch, a golf course and a football field. The park has also been used for celebrations of Federation, Armistice (after World Wars I and II), and the Bicentennial Bonfire Project. It was also used as a training ground for Light Horsemen to serve in the Boer War and soldiers undergoing training prior to serving the Allied Forces in World War II.

2.3 Physical description

The topography of the site varies across the park with the most significant component being the peak that is located approximately in the middle of the site. The site then generally slopes away in all directions from this point with small areas of level ground being evident in the outer portions of the site.

A Site Analysis Plan which was prepared as a part of the development of the Landscape Master Plan, by consultants GHD is attached as Appendix B.

2.4 Ecology

In preparation of this Plan of Management, an assessment of existing flora and fauna habitats at Boomerang Park was undertaken by consultant ecologists Firebird ecoSultants. A summary of the findings are outlined below with the full report, including management recommendations, attached as Appendix C.

Flora

The vegetation cover within the site consists of a mixture of native and exotic species that have been planted within the reserve by Council, local communities and other community groups. Some endemic vegetation still exists in pockets towards the cemetery and this has further been developed into Koala food line plantings to the rear of the disused soccer fields.

Field surveys undertaken confirmed that natural vegetation on site has been markedly altered from its original condition and is present mainly as scattered trees, both remnant and planted.

The only remnant vegetation on the site occurs in the central portions of the park, which has some affinities with Hunter Lowland Redgum Forest, given the presence of canopy trees such as Forest Red Gum (*Eucalyptus tereticornis*) and Rough-barked Apple (*Angophora floribunda*). One threatened flora species was found within this area of the site being Earp's Gum (*Eucalyptus parramattensis* subsp. *decadens*). This species is listed as vulnerable under both the *Threatened Species Conservation Act 1995* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

Due to the land use history of the park, it is not easily determined which eucalypts are remnant or planted trees. Mature eucalypts identified within the park include Forest Red Gum (*Eucalyptus tereticornis*), Bangalay (*Eucalyptus botryoides*), Tallowwood (*Eucalyptus micrcorys*), Swamp Mahogany (*Eucalyptus robusta*) and Sydney Blue Gum (*Eucalyptus saligna*).

A number of exotic and non-endemic native (planted species) occur in the park, including within the koala feed tree revegetation area, and this has impacted on the occurrence of remnant vegetation within the site. These species include Camphor laurel (*Cinnamomum camphora*) and conifers (mainly *Pinus* sp.).

Fauna

Boomerang Park contains some areas of potential habitat for a number of mammals, birds, reptiles and frogs, which can persist in modified landscapes, urban parklands or adjacent to residential areas.

The assessment of Boomerang Park confirmed the presence of one (1) threatened fauna species, being a family group of Grey-crowned Babblers (*Pomatostomus temporalis temporalis*). This species is listed as being 'vulnerable' under the *Threatened Species Conservation Act 1995*.

Other threatened species have been previously recorded within Boomerang Park including the Koala (*Phascolarctos cinereus*) and Grey-headed Flying-fox (*Pteropus poliocephalus*). Both of these species are listed as vulnerable under both the *Threatened Species Conservation Act 1995* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. No evidence of either species at the site was obtained during the current study.

2.5 Current park usage

Boomerang Park provides for a range of community and recreation facilities including park space, playground equipment, Senior Citizens Community Hall, Raymond Terrace Before and After School Care and the Port Stephens Dog Sports Club.

Other facilities within the park include an amenities building, dog off leash area, seating, shelters, paths and detention basin.

There is little provision for formal off street parking within the park, with only small areas of off street parking located near each of the community buildings on the site. There is however, ample on street parking given the majority of the park is bounded by roads.

The size of Boomerang Park and the relatively small number of formal users has resulted in a large proportion of the reserve being underutilised.

There is a small area of the park which is burdened by an easement for water supply pipelines in favour of the Hunter Water Corporation.

The Hunter Water Corporation land (refer Figure 2) contains a disused concrete water tower, pipelines and pumping station.

2.6 Use of existing recreational facilities and their condition

The park provides a range of recreational facilities. The conditions of these facilities and improvements have been assessed as part of this Plan of Management, as required by the following provisions of the Act:

TABLE 2

LOCAL GOVERNMENT ACT 1993	
Section	Requirement
Section 36 (3A) (a) (i)	Condition of the land and of any buildings or other improvements on the land as at the date of adoption of the Plan of Management.
Section 36 (3A) (a) (ii)	The use of the land and any such buildings or improvements as at that date.

The following table makes reference to the specific provisions in the *Local Government Act, 1993* legislation and provides a response to the requirements of the provision.

In providing an assessment of the current condition the following definitions have been used:

Good – new or well maintained

Fair – maintained but in need of repair

Poor – in need of major repairs or demolition


TABLE 3

DESCRIPTION OF FACILITY, CONDITION AND CURRENT USES			
Item	Description	Condition Clause 36 (3A) (a) (i)	Current Use Clause 36 (3A) (a) (ii)
Senior Citizens Hall			
	Single storey building including hall, amenities and kitchen facilities.	Good	Community building used by the Senior Citizens Club.
Raymond Terrace Before and After School Care			
	Single storey building with fenced outdoor play area.	Fair	Community building including hall area, amenities primarily used by Raymond Terrace Before and After School Care.
Club House			
	Single storey club house building, with amenities, canteen, storage and change room facilities.	Poor	Community building used for Port Stephens Dog Sports Club and school use.
Public Amenities Building			
	Single storey brick toilet facilities, which are in poor condition and poorly located (limited casual surveillance opportunities).	Poor Requires demolition or considerable upgrade or refurbishment.	Park amenities.
Playground			
	Newly constructed playground area with picnic tables and shelters.	Good	Popular area for children's play.

TABLE 3 continued

Item	Description	Condition Clause 36 (3A) (a) (i)	Current Use Clause 36 (3A) (a) (ii)
Main Lawn Area			
	Open lawn area with surrounding paths and amenity tree planting.	Good	Informal recreation, gathering and meeting space.
Northern Access Road			
	Narrow asphalt road.	Fair	Access road mainly servicing public amenities building.
Car Park – North (Irrawang Street access)			
	Car park with asphalt surface.	Fair – Poor Requires upgrade.	Car parking mainly serving the Before and After School Care and the newly constructed playground.
Park Furniture			
 	Various park furniture items are located in the park of varying ages and condition.	Good – Poor The newly installed park furniture adjacent to the play ground is in good condition. In general all other furniture on site will need to be repaired or replaced as the park is upgraded.	Park amenities.

In addition, the following infrastructure is located on the Hunter Water Corporation land within the park:

Water Tower (owned by Hunter Water)			
	Concrete water tower, which is no longer in operation and requires demolition.	Poor	Disused.

03

LEGISLATION AND POLICY FRAMEWORK

3.1 Introduction

This section describes the legislative and policy framework applying to Boomerang Park.

The most relevant legislation applying to the use and management of Boomerang Park is *the Local Government Act 1993*, the *Threatened Species Act 1974* and the *Port Stephens Local Environmental Plan 2013*. Relevant sections are referenced below. Full versions of the legislation can be accessed at www.austlii.edu.au and Council's policies are also available online at www.portstephens.nsw.gov.au.

3.2 Local Government Act 1993

The *Local Government Act 1993* requires that all public land be classified as either 'operational' or 'community'. Public land is land owned or controlled by the Council, with some exceptions.

Boomerang Park is owned by Port Stephens Council and is classified as community land (refer Table 1).

Operational land is generally not available for community use and is typically held as an investment or land which facilitates Council carrying out its functions e.g. works depot.

Community land is intended for public use and benefit, and must not be sold. In accordance with the *Local Government Act 1993*, Council is required to prepare Plans of Management for community land.

Requirements of the *Local Government Act, 1993* for the content and exhibition of a community land Plan of Management are shown in Table 4.

TABLE 4

CONTENTS OF A PLAN OF MANAGEMENT REQUIRED UNDER THE LOCAL GOVERNMENT ACT 1993		
Requirement of the Local Government Act	Relevant Sections of the Act	Reference to this Plan
A Plan of Management must identify:		
The category of the land.	S36(3)(a)	Section 3.3
Land categories for application to community land.	S36(4)	Section 3.3
The objectives and performance targets of the plan with respect to the land.	S36(3)(b)	Section 5
The means by which the Council proposes to achieve the plan's objectives and performance targets.	S36(3)(c)	Section 5
The manner in which Council proposes to assess its performance in achieving the plan's objectives and performance targets.	S36(3)(d)	Section 5
A Plan of Management must include:		
A description of the condition of the land, and of any buildings or other improvements on the land as at the date of adoption of the Plan of Management.	S36(3A)(a)(i)	Section 2
A description of the use of the land and any such buildings as at that date of adoption of the Plan of Management.	S36(3A)(a)(ii)	Section 2
This Plan of Management must:		
Specify the purposes for which the land and any such buildings or improvements, will be permitted to be used.	S36(3A)(b)(i)	Section 3.11 – 3.17
Specify the purposes for which any further development of the land will be permitted, whether under lease, licence or otherwise.	S36(3A)(b)(ii)	Sections 3.5, 3.11-3.17, Section 4
Describe the scale and intensity of any such permitted use or development.	S36(3A)(b)(iii)	Sections 3.11-3.17, Section 4
Express authorisation of leases, licences or other estates over community land.	S46(1)(b)	Sections 3.11 and 3.12

3.3 Land categorisation

As a part of the development of the Plan of Management it is a requirement that community land be further categorised into a number of categories which focus on the primary intent of the land. These categories include park, sportsground, cultural significance, natural area and general community use.

The current categories applying to Boomerang Park are 'area of cultural significance', 'park' and 'sportsground' under the 2000 Plan of Management.

For this Plan of Management Boomerang Park has been categorised as a 'Park' (refer Figure 3). The intention of this is to provide a focus on the essential nature of the land and to guide how it should be best managed. This is in accordance with the guidelines in the *Local Government (General) Regulation 2005*.

Under the *Local Government (General) Regulation 2005*, community land:

...should be categorised as a park under section 36(4) of the Act if the land is, or is proposed to be, improved by landscaping, gardens, or the provision of non-sporting equipment and facilities, for mainly passive or active recreational, social, educational and cultural pursuits that do not unduly intrude on the peaceful enjoyment of the land by others.

The Act establishes core objectives for all categories of community land, and Council must manage accordingly. Any additional objectives established by Council must comply with these core objectives.

Categorised as a Park under S36 (4) the core objectives of this category as per the Act are to:

- a) encourage, promote and facilitate recreational, cultural, social and educational pastimes and activities, and
- b) provide for passive recreational activities or pastimes and for the casual playing of games, and
- c) improve the land in such a way as to promote and facilitate its use to achieve the other core objectives for its management.

FIGURE 3 LAND CATEGORISATION MAP



3.4 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the statutory planning framework for environmental and land use planning in NSW, through the State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).

Development or uses of the park requiring development consent under the EP&A Act will be the subject of a development application which will be assessed under Section 79(c) of the *Environmental Planning and Assessment Act 1979*.

3.5 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policies (SEPPs) deal with planning issues of state significance, such as the provision of infrastructure and coastal protection.

The Infrastructure SEPP includes generic provisions to allow for development to be exempt development (which does not require development consent or Part V assessment) or to be development which does require consent but only requires a Part V Assessment under the EP&A Act. There are 23 classes of infrastructure development where a Development Application is not required and only a Part V Assessment has to be undertaken. Some of these classes relevant to public reserves include:

- Roads, cycle ways, single storey car parks, ticketing facilities and viewing platforms;
- Outdoor recreational facilities, including playing fields, but not including grandstands;
- Information facilities such as information boards;
- Lighting;
- Landscaping, including irrigation systems;
- Amenity facilities,
- Maintenance depots; and
- Environmental management works.

For further information on all State Environmental Planning Policies refer to the NSW legislation website at www.legislation.nsw.gov.au.

This Plan of Management permits future use and development of Boomerang Park for any purpose which is exempt development or development that does not require consent, under the planning law.

3.6 Port Stephens Local Environmental Plan 2013

The Port Stephens Local Environmental Plan (PSLEP) 2013 controls development at a local level and sets out how land is to be used. This is achieved through allocating 'zones' to different parcels of land, such as rural, residential, public recreational, environmental conservation and business zones. Each zone has a number of objectives, which indicate the principle purpose of the land and also specifies which developments are permitted with consent, permitted without consent, or prohibited. All land is subject to the controls of the PSLEP.

It should be noted that whilst a LEP is an important instrument, a SEPP can override a LEP's provisions. This is because SEPPs deal with issues of state significance over local planning issues.

3.7 Zoning

Under the Port Stephens Local Environment Plan (PSLEP) 2013 the Council owned land comprising Boomerang Park is zoned RE1 Public Recreation. The objectives of this zone are:

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.

3.8 Threatened Species Conservation Act 1995

The aim of the *Threatened Species Conservation Act 1995* (TSC Act) is to conserve threatened species, populations and ecological communities of flora and fauna state-wide. The main objectives of the TSC Act are to conserve biological diversity, prevent the extinction of threatened species, promote the recovery of threatened or endangered species and reduce the pressures that threaten such species.

Where a threatened species or endangered local community (as listed by the TSC Act) occurs on community land, or has its habitat on community land the TSC Act applies to that site.

Council engaged consultants Firebird ecoSultants to undertake an assessment of existing flora and fauna habitats on the site (refer Appendix C). This ecological assessment identified important flora and fauna species on the site; however no critical habitats were identified. A number of management recommendations were made to maintain and improve the ecological values of the site. Council adopts these recommendations (detailed in Appendix C) under this Plan of Management for the ongoing management and development of Boomerang Park.

3.9 Heritage

Schedule 5 of the Port Stephens Local Environment Plan (PSLEP) 2013 identifies Boomerang Park's former stone quarry and mature tree planting as being of local heritage significance.

Council acknowledges the heritage significance of items by their inclusion in the PSLEP. The PSLEP provides a strong framework to protect these assets.

Heritage consultants Umwelt were engaged by Council to undertake further heritage studies in preparation of this Plan of Management (refer Appendix A). The findings of this report recognise the heritage significance of the park as a whole, rather than any individual items or areas.

In line with the recommendations of this report, it is the intention of this Plan of Management to remain consistent with the PSLEP but to focus primarily on the park as an area established for recreational use, as originally dedicated, balancing future use, management and care of the land as a whole.

3.10 Other Relevant Legislation, Policies and Documents

Australian Government

- *Disability Discrimination Act 1992*; and
- *Environment Protection and Biodiversity Conservation Act 1999*.

NSW Government

- *Anti-Discrimination Act 1977*;
- *Building Professionals Act 2005*;
- *Children (Protection and Parental Responsibility) Act 1997*;
- *Companion Animals Act 1998*;
- *Companion Animals Regulation 2008*;
- *Contaminated Land Management Act 1997*;
- *Environmental Planning and Assessment Act 1979*;
- *Environmental Planning and Assessment Regulation 2000*;
- *Food Act 2003*;
- *Heritage Act 1977*;
- *Land Acquisition (Just Terms Compensation) Act 1991*;
- *National Parks and Wildlife Act 1974*;
- *Noxious Weeds Act 1993*;
- *Protection of the Environment Operations Act 1997*;
- *Public Health Act 2010*;
- *Public Interest Disclosures Act 2008*;
- *Retail Trading Act 2008*;
- *Roads Act 1993*;
- *State Environmental Planning Policies (Infrastructure)*;
- *Water Management Act 2000*; and
- *Work Health and Safety Act 2011*.

Port Stephens Council

- *Advertising Signs Policy*;
- *Alcohol in Parks and Reserves Policy*;
- *Events Policy*;
- *Markets Policy*;
- *Parking Policy and Guidelines*;
- *Smoke Free Outdoor Areas Policy*;
- *Tree Management Policy and Procedures*;
- *Commercial Operators Policy*.

3.11 Leases, Licences and other Estates over Community Land

A lease will be typically required where exclusive use or control of all or part of Boomerang Park is proposed.

Licences allow multiple and non-exclusive use of an area. A licence may be required where intermittent or short-term use or control of all or part of the site is proposed. A number of licences for different users can apply to the same area at the same time, provided there is no conflict of interest.

Leases and licences can be established by the Council for public or private purposes, providing they are consistent with the major objectives of this Plan of Management, and that the residential and environmental amenity of surrounding areas is maintained. Licences and leases for the use of land for activities must be permissible under the *Local Government Act 1993*, the Port Stephens Council Local Environmental Plan 2013, this Plan of Management, and pursuant to development consent if required.

Other estates include easements, as well as a wide range of other interests in the park.

Existing leases, licences and other estates

There are no current leases and licences for Boomerang Park.

There is a small area of the park which is burdened by an easement for water supply pipelines in favour of Hunter Water Corporation (refer Figure 2).

Future leases, licences and other estates

Leases and licences formalise the use of community land by groups and organisations. The *Local Government Act 1993* requires that any lease or licence of community land be authorised by a Plan of Management. Activities must be compatible with the categorisation and zoning of the land and provide benefits, services, or facilities for users of the land.

Pursuant to the provisions of Section 46 of the Act, Council may lease or licence community land in a Plan of Management for purposes consistent with the categorisation and zoning of the land.

Activities generally include those permissible in the Port Stephens Council Local Environmental Plan 2013, are consistent with the core objectives of the applicable community land category, and those that do not interfere with the use and enjoyment of the parkland by other park users.

This Plan of Management authorises the grant of leases, licences and other estates over the park and any buildings in the park for the following purposes:

TABLE 5

LEASES, LICENCES AND OTHER ESTATES		
Type of arrangement authorised	Land and facilities covered	Purpose for which leasing/licensing will be granted
Lease	Park and community buildings	<p>Any lease proposal will be individually assessed and considered, having regard to the community benefit, compatibility with the values and objectives with this Plan of Management and the suitability of the park area and/or building.</p> <p>Compatible uses may include:</p> <ul style="list-style-type: none"> - Child care or vacation care; - Commercial retail uses associated with the facility (e.g. sale or hire of recreational/sporting equipment, sale of Men's Shed products); - Cultural purposes, including concerts, and art exhibitions; - Educational purposes, including libraries, workshops and educational classes; - Health or medical practitioners associated with the relevant facility (e.g. physiotherapy); - Kiosk, café and refreshment purposes including seating and tables; - Sporting or recreational purposes by private operator including fitness classes, dance classes and management of court facilities (e.g. croquet courts).
Licence	Park and community buildings	<p>Any licence proposal will be individually assessed and considered, having regard to the community benefit, compatibility with the values and objectives with this Plan of Management and the suitability of the park area and/or building.</p> <p>Compatible uses may include:</p> <ul style="list-style-type: none"> - Café/kiosk areas, including outdoor seating and tables; - Educational purposes, including libraries, educational classes/workshops; - Social purposes including child care or vacation care and community groups e.g. Senior Citizens, Men's Shed; - Sporting and recreational purposes, including fitness or dancing classes, the hire and sale of recreational/sporting equipment and management of courts or similar facilities.

Table 5 continued

Type of arrangement authorised	Land and facilities covered	Purpose for which leasing/licensing will be granted
Grants of Estate	Park and community buildings	<p>This Plan of Management allows Council to grant 'an estate' over community land for the provision of public utilities and works associated with or ancillary to public utilities and works associated with or ancillary to public utilities in accordance with the <i>Local Government Act 1993</i>.</p> <p>Estates may also be granted across community land for the provision of 'pipes, conduits, or other connections under the surface of the ground for the connection of premises adjoining the community land to a facility of the Council or other public utility provider that is situated on community land'.</p>

Entry into specific future leases, licences, casual hire, agreements and grant of other estate will be subject to approval by Council.

Fees for short-term, casual bookings will be in line with the fees and charges as published annually in the Schedule of Fees and Charges.

In assessing the suitability of Boomerang Park as a venue for particular performances and events, Council will apply the following criteria that the event should:

- not result in physical damage to the park;
- be available to all sectors of the community;
- not result in a significant impact on adjoining residents or other users of the park; and
- organisers of the event should be responsible for cleaning up the site and repairing any damage that may occur.

Community land may be used for emergency purposes, including training, when the need arises.

3.12 Community building facilities

The **Senior Citizens Community Hall** is managed by a committee of volunteers on behalf of Council. Under the *Local Government Act 1993*, Council is able to delegate some of its functions to a Committee of Council in accordance with the provisions of s.355. The 'Terms of Reference' outline the function of the Committee as delegated by Council, and an administrative structure and set of procedures to ensure that the Council is able to monitor the conduct and performance of the Committee.

The **clubhouse facility** is primarily used by the Port Stephens Dog Sports Club, under a Sporting Facility Use Agreement. This agreement allows sporting groups use of such Council facilities in accordance with specified conditions.

3.13 Future use and development

Uses and developments at Boomerang Park must be consistent with:

- **relevant legislative requirements**; specifically the *Local Government Act 1993*, *Threatened Species Act 1995* and the *Environmental Planning and Assessment Act 1979* and the zoning under the Port Stephens Local Environmental Plan 2013;
- the **guidelines and core objectives of the community land category** under the *Local Government Act 1993*;
- **relevant Council policies** as listed in Section 3.8 and any Council policies which will continue to be developed after the preparation and adoption of this Plan of Management.

The legislation requires a description of the future use and development that will be allowable in Boomerang Park as per the following requirements:

TABLE 6

LOCAL GOVERNMENT ACT 1993	
Clause	Requirement
Clause 36 (3A) (b) (i)	The purposes for which the land and any such buildings or improvements will be permitted to be used
Clause 36 (3A) (b) (ii)	The purposes for which any further development of the land will be permitted, whether under lease, licence or otherwise
Clause 36 (3A) (b) (iii)	The scale and intensity of any such permitted use or development

Under the *Local Government Act 1993*, uses and developments with land classified as community land must be consistent with the park's categorisation and the core objectives (refer Section 3.3) of each category.

Whilst it is not possible to forecast every potential use, development or structure that may occur at Boomerang Park, these activities should be generally compatible with the intended function of the land and the wider community context. These may be an application for use of the site, because funding or another opportunity becomes available, or to address a future need or management issues.

The table overleaf has been developed to guide permissible future use and development improvements that will be allowable in Boomerang Park:

TABLE 7

PERMISSIBLE FUTURE USE AND DEVELOPMENT OF THE PARK		
The purposes for which the land and any such buildings or improvements will be permitted to be used	The purposes for which any further development of the land will be permitted, whether under lease, licence or otherwise	The scale and intensity of any such permitted use or development
<ul style="list-style-type: none"> - Active and passive recreation including children's play; - Advertising of a temporary nature (subject to Council approval); - Busking (subject to Council approval); - Community gardens; - Events including exhibitions, festivals, parades, markets, fairs, auctions, public address, wedding ceremonies/ receptions and similar events and gatherings (subject to relevant Council Policy and approval); - Feral animal control and eradication; - Filming and photographic projects (in accordance with relevant Council Policy) ; - Group recreational use, such as picnics ; - Low intensity commercial activities subject to licence approval (e.g. recreational equipment hire); - Maintenance /minor works; - Restricted access ancillary areas (e.g. storage areas associated with functions, gardening equipment); - Service areas ancillary to the use of the land (e.g. loading bays, car parking, bike racks); - Signage – compliance, directional, interpretive, identification and safety; - Vehicular access subject to Council approval. 	<ul style="list-style-type: none"> - Amenities to facilitate the safety, use and enjoyment of the park e.g. play equipment, shade structures; - Ancillary service, transport or loading areas; - Community gardens; - Development (particularly buildings) for the purposes of addressing the needs of a particular group (e.g. Men's Shed); - Environmental management works; - Information facilities such as information boards; - Landscaping works, including planting, irrigation systems and minor earthworks to improve access, amenity and the visual character of the park; - Lighting, seating, pathways, courts or marked areas (e.g. croquet courts, access paths and activity trails); - Maintenance depots; - Roads, cycleways, shared paths, single storey car parks, ticketing facilities and viewing platforms. 	<p>The scale and intensity of permitted developments are shown in the Master Plan.</p> <p>The development of the proposed new Men's Shed community building will be subject to a separate Development Application.</p> <p>The scale and intensity of permitted uses and activities should be generally compatible with both the intended function of the park and the wider community context.</p> <p>Organised events will need to be in accordance with Council's Event Policy.</p>

3.14 Proposed Men's Shed community building

The proposed development of a new community building will support the Men's Shed community group. A Development Application will need to be lodged by Port Stephens Council for the development.

3.15 Dog management

An area of Boomerang Park has been allocated by Council as suitable for dog off-leash exercise (refer Figure 4). The Port Stephens Dog Sports Club utilises this area for dog obedience and agility training.

The New South Wales *Companion Animal Act 1998* places a number of requirements on Council to promote responsible animal ownership. Dogs are prohibited within 10 metres of children's play areas, food preparation/consumption areas and recreation areas where dogs are prohibited by the local authority. Owners are to clean up after and maintain control of their animal at all times.

3.16 Environmental management

Throughout Boomerang Park there is a combination of native and exotic tree plantings that range from large parkland trees that provide shade and contribute to the overall parkland aesthetic, to smaller less formal native and remnant tree plantings within more densely vegetated areas of the park.

As discussed in Section 2.4, Council engaged consultants Firebird ecoSultants who undertook an assessment of the existing flora and fauna in the park. This report (refer Appendix C) provides ongoing management recommendations to maintain/improve the ecological values of the park, which include:

- Development of a weed control program for the control and removal of exotic plant species;
- Revegetation and replanting of areas most affected by weed removal with native species, to improve the condition and habitat values of these native areas.

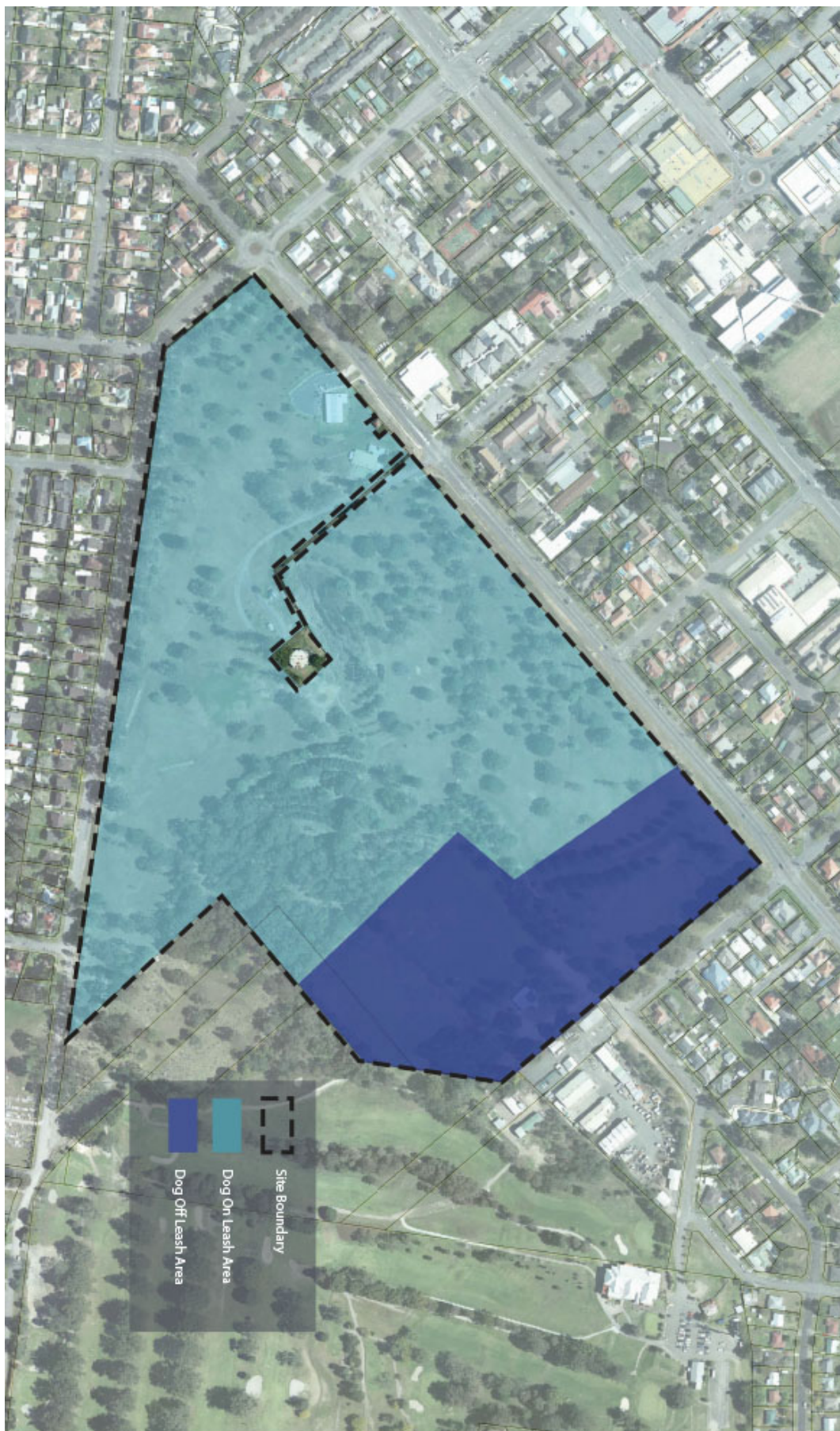
3.17 Prohibited uses

Prohibited uses are any purpose other than a purpose for which development may be carried out without development consent or only with development consent. This includes prohibited activities in accordance with relevant Council policies.

The types of activities that would be considered prohibited at Boomerang Park include, but are not limited to:

- Agriculture;
- Agistment of stock;
- Extractive industries;
- Gaming;
- Private alienation or encroachment;
- Recreational motor vehicles, including four wheel driving, motor bikes, trail bike riding or similar;
- Unauthorised dumping of refuse including building materials.

FIGURE 4 DOG MANAGEMENT AREA



04

LANDSCAPE MASTER PLAN

4.1 Vision

In 2013, Council appointed consultants GHD to develop a concept landscape master plan (refer Figure 5) for Boomerang Park, which included a community consultation process (refer Section 1.8).

The landscape master plan development process aimed to deliver the following:

- Create a vision for the future of Boomerang Park;
- Transform an underutilised community space into a rich and vibrant recreation area;
- Provide a diverse range of recreational facilities and settings that cater for a range of needs within the community.

The master plan is conceptual only. All proposed elements are subject to detailed design work.

This Plan of Management permits the use and development of the park generally in accordance with the landscape master plan.

However, the landscape master plan shows a possible rezoning of part of the park as residential. This Plan of Management does not permit that use of the park, or endorse any such rezoning. That is the subject of separate statutory processes and community consultation as per Council's resolution.

FIGURE 5 LANDSCAPE MASTER PLAN



LEGEND

- EXISTING BUILDINGS INVESTIGATE FOR PARK WATER NEEDS
- PROPOSED BUILDINGS, INVESTIGATE CAPTURE OF ROOFWATER AND REUSE FOR PARK WATER NEEDS
- SHEDS (SHEDS) / FENCE SETTINGS / BENS
- VEHICLE ACCESS / CAR PARKING SPACES
- PROPOSED DESTINATION PLAYGROUND
- PROPOSED PATHS / TRAILS WITHIN THE PARK
- ACTIVE FIELDS / COURTS
- EXISTING POND ENHANCE RECREATION VALUE
- EXISTING DETENTION BASIN AND OVERLAND FLOW PATHS ENHANCE CAPTURE OF ROOFWATER AND STORMWATER
- EXISTING REMAINED AMENITY TREES
- NATURAL CHARACTER VEGETATION AREAS
- PROPOSED SHADE TREE PLANTING TO PROVIDE SHADE / AMENITY
- STREET FOOTPATH CONNECTIONS (EXISTING AND FUTURE)
- PARK ENTRANCES TO BE ENHANCED WITH PATH CONNECTIONS, SIGNAGE AND TREE PLANTING
- PROPOSED REZONING AREAS FOR RESIDENTIAL PURPOSES EXTENSIVE INVESTIGATION BY COUNCIL. REFER NOTE 27

PRELIMINARY

REV	DESCRIPTION	BY	DATE
D	UPDATE WITH HPC COMMENT	GM	02/04/14
C	UPDATE WITH HPC COMMENT	GM	31/03/14

PORT STEPHENS COUNCIL
BOOMERANG PARK MASTER PLAN
DRAFT LANDSCAPE MASTER PLAN

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Scale: 1:1000 for A1 job no. 41-27135
date: APR 2014 rev no. D

approved (PD) G.WOOD SK004

05

IMPLEMENTATION
AND REVIEW

5.1 Strategy and Action Plan

Section 36 of the *Local Government Act 1993* outlines that a Plan of Management for community land must identify the following:

- the category of the land;
- the objectives and performance targets of the Plan of Management with respect to the land;
- the means by which the Council proposes to achieve the Plan of Management's objectives and performance targets;
- the manner in which the Council proposes to assess its performance with respect to the plan's objectives and performance targets.

TABLE 8

PERFORMANCE TARGETS		
Objectives and performance targets of the Plan of Management with respect to the land s.36(b)	Means by which Council proposes to achieve the Plan of Management's objectives and performance targets s.36(c)	Manner in which Council proposes to assess its performance with respect to the Plan of Management's objectives and performance targets s.36(d)
Uses and Recreation		
To provide for a range of different activities enhancing opportunities for recreational use of the park.	Provide improved facilities as shown in the master plan.	Number of facilities upgraded and installed. Enhanced recreational opportunities for visitors to the park.
Improve amenity		
Provide and maintain a high standard of amenities for Boomerang Park users, including people with disabilities.	Provide amenities to increase use and enjoyment of the park, including toilet facilities, shade and bins.	Number of facilities upgraded and installed.
Access and Circulation		
Provide improved pedestrian access to and within the park.	The master plan proposes a network of circulation pathways through the park.	Completion of pathway network through the park in accordance with relevant Australian Standards.

TABLE 8 continued.

Objectives and performance targets of the Plan of Management with respect to the land s.36(b)	Means by which Council proposes to achieve the Plan of Management's objectives and performance targets s.36(c)	Manner in which Council proposes to assess its performance with respect to the Plan of Management's objectives and performance targets s.36(d)
Parking		
Provide adequate parking provision for park visitors.	Proposed upgrade to existing car park area to ensure adequate off street parking for park visitors.	Completion of car parking works.
Building Facilities		
Ensure existing community building facilities are effectively managed to support the activities of the community user groups.	Council to undertake regular inspections of buildings and ensure improvements are undertaken on a needs basis.	Community centre user satisfaction surveys. Facility inspections and audits.
New community facility to support Raymond Terrace Men's Shed.	Assessment of proposal by Council and subsequent conditional consent.	Construction complete and conditions of consent met.
Cultural and Heritage Significance		
Protect and interpret the heritage and cultural significance of the park as a recreation area.	Prepare an interpretation strategy including the development of signage and interpretive material that displays the park's history.	Interpretation strategy complete and interpretive materials installed as part of the park's upgrade works.
Biodiversity		
Increase and strengthen diversity.	Implement bush restoration and habitat protection measures	Flora and fauna surveys.
Signage		
Increase signage	Provide additional signage for directional, safety and interpretive purposes.	New signage system developed and implemented.

TABLE 8 continued.

Objectives and performance targets of the Plan of Management with respect to the land s.36(b)	Means by which Council proposes to achieve the Plan of Management's objectives and performance targets s.36(c)	Manner in which Council proposes to assess its performance with respect to the Plan of Management's objectives and performance targets s.36(d)
Safety and Security		
To ensure that the park is a safe and secure place for visitors.	Safety and security have been considered in the development of the master plan by proposing locations for new facilities where good sight lines and passive surveillance are provided.	Completion of works proposed in the master plan in accordance with relevant Australian Standards.
Improve park surveillance.	Avoid creating secluded areas that lack surveillance.	Surveillance is improved.
Management and Maintenance		
To provide a clean and well maintained park.	Maintenance programs carried out in accordance with maintenance specifications. Continually review work practices and procedures for maintenance operations through bench marking and adoption of industry best standards.	The park is considered clean and well maintained at all times.
Provide adequate bin facilities including recycling bins.	Investigate current bin locations and identify opportunities for new bin locations, including recycling bins.	New bins installed and rubbish recycled.

5.2 Implementation

All proposed works and improvements within this Plan of Management are subject to funds becoming available. The landscape master plan (Figure 5) represents a long term vision to improve the park and works proposed will be implemented according to priorities and budget allocations. Funding is dependent on available Council resources and is assessed annually against the other priorities of Council.

Council will also seek to obtain funding from other sources, including State and Federal Government grants, developer contributions and site revenue. Site revenue includes potential income generated from leases, licences, approved events and the proposed reclassification and rezoning of the allotted land area for residential purposes (refer Section 4: Landscape Master Plan).

5.3 Monitoring and evaluation

This Plan of Management is intended to be reviewed every five years. This will ensure that the Plan of Management continues to reflect, as best possible, the needs of the community and the resources required to meet its objectives.

APPENDIX A

Umwelt 2016. *Review of Boomerang Park Heritage Significance and Aboriginal Heritage Due Diligence Assessment*. Report prepared for Port Stephens Council.



Our Ref: 3700/R01/TA/ARe/19012016

19 January 2016

Port Stephens Council

To whom it may concern

Re: Review of Boomerang Park Heritage Significance and Aboriginal Heritage Due Diligence Assessment

1.0 Introduction

Port Stephens Council (PSC) is updating their Plan of Management for Boomerang Park and has identified a need to clarify the heritage significance of Boomerang Park and undertake an Aboriginal heritage due diligence assessment of the park.

Boomerang Park is located in the town of Raymond Terrace, approximately 20 kilometres north-west of Newcastle (**Figure 1.1**).

2.0 History

Raymond Terrace is located in the traditional lands of the Worimi people. Natural swamps exist around the town, making it a rich resource area for flora and fauna (Hunter 1996: 91). The junction of the Williams and Hunter Rivers would ensure a regular supply of fresh water for people in the area.

The location of Raymond Terrace at the junction of the Williams and Hunter Rivers made it a significant point for early Europeans travelling up the Hunter Valley. Governor Macquarie camped at Raymond Terrace during a visit in July 1818 (Hunter 1996: 9).

The lack of a township in the area was an adversity for those taking up land grants in the region, who had to travel to Newcastle or Sydney for supplies. In 1834 a plan for the village of Raymond Terrace was drawn up and streets were laid out. The town was surveyed in 1836 and proclaimed the 'Village of Raymond Terrace' in 1837. Boomerang Park was surveyed and dedicated as a 'Public Reserve' at this time. The park is located approximately 800 metres east of the Hunter River and appears on the 1836 survey of Raymond Terrace as a reserve for public recreation (**Figure 2.1**). The earliest known name for the park was simply 'The Reserve'. It was later dedicated as a Recreation Reserve in 1892 (Jackson 1996: 1.6).

The Boomerang Park area was used as a source of natural resources during the early settlement of the region. Timber was sourced from the area by early convict gangs and stone obtained from the hill in the centre of the park. The quarrying of sandstone gave the park the name of 'Quarry Hill'. The Raymond Terrace Police also used the cleared land as a horse paddock. The earliest buildings constructed in Raymond Terrace were predominantly made of slab and weatherboard, however the presence of local stone meant that these structures could be replaced with more permanent buildings.

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The stone from Quarry Hill was deemed too soft for building and the Muree estate quarry on the eastern side of the park was used for local stone (Boomerang Park, Hull 1999: 3; Jackson 1996: 1.6). . In 1841 Mr G. Elde Darby had applied to the police office for permission to open a quarry on the eastern boundary of the park reserve on land set aside for a paddock for police horses (Hunter 1996: 9).

While Darby's application was refused at the time, quarrying was occurring at Quarry Hill and on the Muree Estate. Muree stone was used in the 1840s and 1850s for a number of buildings in Raymond Terrace (Hunter 1996: 96- 7). In 1887 Muree stone was awarded a medal at the Adelaide Jubilee International Exhibition and again in 1893 at a World Exhibition in Chicago. The void left in Quarry Hill filled with water and was used by young men as a local swimming pool (Hull 1999: 3; Jackson 1996: 1.6). Today the void is still filled with water and plants (**Plate 1**).



■ Plate 1: View of filled quarry void from top of Quarry Hill

In the 1860s the park was used as a racecourse and the ground next to St Brigid's Church on William Street at the northwest edge of the park was used for training horses (Hull, 1999: 3; Jackson 1996: 1.6). The racetrack was later relocated due to danger posed by falling trees and hanging branches (Boomerang Park Management Corporation).

In 1895 the park was used for a number of sports, resulting in council constructing a Sports Pavilion, two tennis courts, a cricket pitch and a football field, near the site of today's reservoir (Boomerang Park Management Corporation, nd). In 1912 a concrete wicket was constructed (**Plate 2**) (Jackson 1996: 1.6). The park was enclosed by a wooden fence with double gates at the entrance on Irrawang Street. The gates and 1895 constructed sports pavilion fell into disrepair and were demolished in the early twentieth century (Hull 1999:4).



■ Plate 2: Concreted wicket on the Boomerang Park cricket pitch

In 1928 an orchard was planted over the Muree quarry and the Hunter District Water Board built the now disused reservoir on top of the hill within Boomerang Park (Jackson 1996: 1.6). In 1934 the park was the site of the 9-hole Raymond Terrace Golf Course that was expanded and moved to its current location immediately east of Boomerang Park (Hunter 1996: 98). In 1934 a sports day was put on in the park to celebrate 50 years of Municipal Council (Hull 1999: 3).

Tree planting within Boomerang Park has occurred at various times through the park's history. A photograph of the park around 1850 shows mature eucalypt species in the park. A photograph from about 1900 also shows plantings of Norfolk Island, Hoop and Bunyip pines. A number of tree planting events have been undertaken including 20 Stone Pine trees in 1896. In 1901 a further 36 trees were recommended by Council and more trees were again planted in 1905. Today there are a number of mature trees within the park; likely related to the early Council plantings (**Plate 3**).



■ Plate 3: Double row of mature trees along Elizabeth Street.

The park has been used for a variety of community events and activities, including celebrations of Federation in 1901, light horse training and preparation for the Boer War, a marshalling ground for both World Wars, Armistice celebrations in 1918, an army training camp prior to World War II, bicentenary celebrations in 1988 and 'Australia Remember' celebrations in 1999, where the park was emphasised as a place of local importance, particularly in terms of community gatherings (Boomerang Park Management Corporation; Hull 1999: 4; Jackson 1996: 1.6). The Irrawang Public School have used the park for its sports events (Hull 1999: 4- 5).

The name Boomerang Park was given in the early 1900s after the early local businessman, second postmaster and poet J. R. Houlding, who wrote under the name Old Boomerang (OEH nd; Hull 1993: 4).

2.1 John Richard Houlding

J. R. Houlding was born in Essex, England in 1822 and arrived in Sydney in 1839. In February 1840 he went to New Zealand, where he bought some land. He returned to Sydney in 1841 and in 1843 married Elizabeth Hannaford. Houlding moved to Raymond Terrace and became the second postmaster, a store keeper and a ship owner until he sold his shop in 1852 and retired (Teale, 1972).

His life after retirement was difficult and Houlding travelled to England in 1854. In 1855 he returned to New South Wales where he lost his 'moderate' fortune. After this he suffered a nervous collapse and began writing while recovering (Teale, 1972).

In the early 1860s he wrote a novel, *Australian Capers*, a story of the downfall of an inexperienced migrant and his conversion to Christianity, seemingly autobiographical. Houlding was invited to write for the *Sydney Mail*, where he wrote as 'Old Boomerang'. His contributions were published as *Australia Tales and Sketches from Real Life* in 1868. Houlding wrote until his eyesight failed in the 1890s. He died in 1918 and is buried in Sydney (Teale, 1972).

3.0 Heritage Listings

The Raymond Terrace Heritage Conservation Area was classified by the National Trust and forms an historic streetscape together with Boomerang Park (EJE Architecture 1995: 82).

The park was nominated for listing on the Register of the National Estate (RNE), however was not accepted by the Australian Heritage Commission for this listing. The RNE is now closed and maintained as a non-statutory record of heritage listings.

Boomerang Park, including former stone quarry and mature tree plantings, is listed as an item of local heritage significance on the PSC Local Environmental Plan (LEP) 2013.

4.0 Park Elements

The park contains a number of individual elements that have been part of its history. As noted in **Section 3.0**, the former stone quarry and mature tree plantings form part of the park's listing under the PSC LEP 2013. In addition the central hill next to the former quarry, the cricket pitch and sports fields have been used throughout the park's history. The tree plantings have been completed since the 1850s at various points around the park, with some substantial mature trees surviving today.

In addition to the elements that exist today, there are a number of former historical elements of the park, including a racecourse, football field, golf course, entry gates and sports pavilion. These have all since been demolished, with no visible evidence remaining.

While not formally part of Boomerang Park, the Raymond Terrace golf course is located on the site of the Muree quarry, where much of the stone used for the local building was sourced. The Muree quarry replaced the Boomerang Park quarry at Quarry Hill. The cricket pitch and sports fields are located on the only flat areas of the park.

5.0 Heritage Significance

The significance of the park is presented in the nomination for RNE listing as:

The park has some historic interest for its associations with the development of town planning in the colony of New South Wales, as the town was founded in 1837 and laid out in accordance with the 1829 town planning regulations of the colony. The park demonstrates the importance of open space in Colonial town planning. It also has associations with local celebrations of important national events such as Federation, horse training for the Boer War and the 1918 armistice (Australian Heritage Database. Nd).

The LEP listing of Boomerang Park including former stone quarry and mature tree plantings identifies the park's significance as:

Public Reserve provided for when the town of Raymond Terrace was surveyed in 1836. It was dedicated a Recreation Reserve in September 1892 and has been in continuous use since (OEH, nd).

Note that while the quarry and mature tree plantings along Elizabeth Street are specifically identified in the listing name they do not form part of the statement of significance included as part of the listing.

A further statement of significance prepared for the park states:

Boomerang Park is the oldest park in the Port Stephens Local Government Area. It forms an important part in the thematic relationship between a town, its religious institutions and the cemetery. Boomerang Park has been an area where the community has expressed itself. This expression is evident in the early history of the park where it was a focus of community sport and recreation. It was also the focus for simple community events such as the planting of 5 trees to honour the coronation of King George. Larger community celebrations such as the peace celebrations cement the role of Boomerang Park as a public meeting place and landmark even during the most socially unsettled times. The park is open space and is available to all people. Boomerang Park remains a focus for the community as seen in the recent interest of the public in tree planting activities and public events

such as 'Australia Remembers' celebrations. Therefore, Boomerang Park is also an example of 'living' heritage and should be protected and cherished in order for it to fulfil its role as an area for community expression in future years (Hull, 1999: 8).

The most recent statement of significance for the park states:

Boomerang Park is of high local heritage significance for its association with the early development of the township of Raymond Terrace from 1837 to the present. It is significant for its association with JR Houlding who gave the park its name in 1914 and for providing a centre for community activity for over 175 years of settlement at Raymond Terrace. The park is also significant for its association with the sandstone quarry and as a natural open grassed area supporting native and introduced trees to the area. While the use of the park has changed over time, the area is still well loved by the local community (Carr 2015: 7).

All the above statements of significance for Boomerang Park indicate that the significance of the park is centred on the park as a whole, rather than individual elements such as the former quarry, the Elizabeth Street trees or cricket pitch for example. However, these individual elements do contribute to the overall significance of the park and as individual items intrinsically form part of the overall significance of the park.

The park is of local heritage significance as a cultural landscape established for public recreation and directly related to the establishment and history of the town of Raymond Terrace; with the park's reservation forming part of the original town planning of Raymond Terrace in 1837. Although modified by clearing and quarrying events, in general the park retains its original the landscape elements such as the hill (later utilised for quarrying) and flat areas (later utilised for sport). While the park failed to be listed on the RNE, it is of local significance and is recognised on the LEP. As discussed by Hull, the continued use of the park for community celebrations, events and sports is significant and continues the original intent of the park as 'a reserve for public recreation'. Its existence as open space available to all citizens and continued use for celebration make it an example of what Hull refers to as 'living' heritage.

6.0 Aboriginal Cultural Heritage Due Diligence Assessment

Section 8 of the due diligence code outlines the process to guide due diligence assessments. While there currently is no proposed activity, this assessment has considered the archaeological potential of site as a whole and potential future impacts in general.

6.1 National Parks and Wildlife Act 1974

The Office of Environment and Heritage (OEH) is primarily responsible for regulating the management of Aboriginal cultural heritage in New South Wales under the *National Parks and Wildlife Act 1974* (NPW Act). The NPW Act is accompanied by the National Parks and Wildlife Regulation 2009 (the Regulation) and other codes of practice and guidelines including the due diligence code.

The NPW Act defines an Aboriginal object as:

any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales.

In accordance with Section 86(1) of the NPW Act, it is an offence to harm or desecrate a known Aboriginal object, whilst it is also an offence to harm an Aboriginal object under Section 86(2). Harm is defined any act or omission that:

- a) destroys, defaces or damages an object or place, or
- b) in relation to an object – moves the object from the land on which it had been situated, or
- c) is specified by the regulations, or
- d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c),

but does not include any act or omission that:

- e) desecrates the object or place (noting that desecration constitutes an offence separate to harm), or
- f) is trivial or negligible, or
- g) is excluded from this definition by the regulations.

Section 87(2, 4) establishes that it is a defence to prosecution under Section 86(2) (the strict liability offence) if due diligence was exercised to reasonably determine that the activity or omission would not result in harm to an Aboriginal object or if the activity or omission constituting the offence is a low impact act or omission (in accordance with Section 80B of the Regulation). The Regulation identifies that compliance with the due diligence code is taken to constitute due diligence in determining whether a proposed activity will harm an Aboriginal object.

6.2 Consultation with Aboriginal parties

Consultation with Aboriginal people is critical to identifying and assessing the significance of Aboriginal objects and/or places as well as determining and carrying out appropriate strategies to mitigate impacts to Aboriginal heritage. The project is located within the boundaries of the Worimi Local Aboriginal Land Council (WLALC). This assessment was not conducted in consultation with the WLALC or any other Aboriginal parties and therefore does not provide any information with regard to Aboriginal cultural significance or value of the works area.

6.3 Environmental Context

Raymond Terrace is located on the Hunter River at its junction with the Williams River, 1.2 kilometres north of the Tomago sand beds. Boomerang Park is located one kilometre from the Hunter River, on a hill with view to the junction of the two rivers to the north and over the sand beds to the south. Raymond Terrace is subject to flooding.

The reasons for European settlement of Raymond Terrace are reasons why Aboriginal people would have chosen to use the area ;as a result of the continuous access to fresh water in the river as well as significant flora and fauna resources likely to have been present. While today the land between Boomerang Park and the Hunter River is heavily built up, it is likely that the more level land between Irrawang and Adelaide Streets, back from the flood plain would have been used for camping. The slopes of the northeast portion of Boomerang Park are unlikely to have been used for camping.

6.4 Archaeological Context

A review of the archaeological context of the park is critical to understanding both the archaeological potential of the area and the nature of any previously identified sites.

6.4.1 Previously Recorded Archaeological Sites

The OEH Aboriginal Heritage Information Management System (AHIMS) is a database of Aboriginal sites for which site cards have been submitted. The results of the AHIMS database searches undertaken on 8 January 2016 shows that no sites exist within Boomerang Park or within 200 metres of the park, with 11 sites recorded in a broader area of 2.5 kilometres outside the park (**Figure 6.1**). These sites are all located along the Pacific Highway, south of Raymond Terrace.

The previously identified sites are predominantly small artefact scatters and isolated artefacts. One scarred tree is present.

The early development of Raymond Terrace would have destroyed much of the archaeological evidence of Aboriginal use of the area. While Boomerang Park remains clear of development, it has been used heavily in the past for a variety of activities. A number of these would have impacted to some extent on archaeological sites that may have been present. Previous modifications within the park include vegetation clearance and

planting, creation of sporting fields, construction of pavilions, water tower and more recently the community facilities along Irrawang Street. Within the park, the most likely area to have contained Aboriginal archaeological material would be the hill, now disturbed by the reservoir.

6.5 Visual Inspection

A visual inspection of Boomerang Park was undertaken the 12 December 2015 by Amanda Reynolds (Senior Archaeologist - Umwelt). The inspection was undertaken to identify any Aboriginal archaeological sites, or areas like to contain Aboriginal archaeological material that may be present within Boomerang Park. During the inspection a substantial amount of the park was observed to have been previously cleared of vegetation. Much of the existing vegetation has been systematically planted, such as the row of trees along Elizabeth Street. Additionally, a number of facilities were constructed in the park, including sports fields, a cricket pitch, picnic and barbeque area, water reservoir and amenities block.

No Aboriginal archaeological sites were identified during the inspection of Boomerang Park. There were no areas of potential archaeological deposit (PAD). Boomerang Park is located one kilometre from the Hunter River and approximately 250 metres from the edge of the floodplain. Typically Aboriginal sites are located within 200 metres of water, which places Boomerang outside of the sensitive landscape area. The previous modifications within the park, especially the quarry and reservoir in the centre have impacted significantly on the hill area, where artefacts would have been most likely to be present.

6.6 Consideration of archaeological potential within Boomerang Park Against Due Diligence Code

Section 8 of the due diligence code outlines the process to guide due diligence assessments. It is described below.

1: *Will the activity disturb the ground surface or any culturally modified trees?*

No. The current proposal is solely to update the Plan of Management for Boomerang Park. As there are no physical works associated with this there will be no ground surface disturbance. Future works, however are likely to disturb the ground surface. The previous clearance and replanting of trees reduces the potential to impact culturally modified trees significantly.

2: *Are there any:*

a) *Relevant confirmed site records or other associated landscape feature information on AHIMS*

As discussed in **Section 6.4.1**, there are no recorded sites within 200 metres of the park on AHIMS.

b) *Any other sources of information of which a person is already aware?*

No.

c) *Landscape features that are likely to indicate the presence of Aboriginal objects?*

The due diligence code identifies landscape features that indicate the likely existence of Aboriginal objects as including areas within 200 metres of waters and locations within a sand dune system. The park is located approximately 800 metres south of the Hunter River and any of its tributaries and approximately two kilometres north of the Tomago Sand beds. The park is not located on or near a ridgeline, cliff face or overhang. The park is therefore not located within a sensitive landscape.

3: *Desktop Assessment and Visual Inspection:*

Sections 6.3, 6.4 and 6.5 provide the details of the desktop assessment and visual inspection of the park. The due diligence code specifies 'Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable.'

Previous desktop research indicates that at the time of European exploration of the area the park was heavily treed, apart from the hill. There are a number of references to tree planting through the park's European history, explaining the large number of mature trees around the park. The inspection identified that a significant portion of the park has been previously disturbed. Vegetation has been cleared and structures constructed at various locations around the park.

No Aboriginal archaeological sites or areas of archaeological sensitivity were identified during the visual inspection of the park. The park has been subject to clear and observable disturbance through the clearance of vegetation, construction of recreational facilities and access roads. It is assessed that there is low potential for Aboriginal objects to remain in the park.

7.0 Plan of Management

The Plan of Management for Boomerang Park should consider the heritage significance of the park as an area established for recreational use, as reflected in its original dedication and history of land use, and in particular the intangible significance of the park as a cultural landscape and an example of 'living heritage'.

Any management framework established for the park should consider and aim to protect and interpret the intangible significance of the park as a whole rather than any particular individual items or areas. While there are the various individual elements within the park such as the former quarry, the Elizabeth Street trees or cricket pitch which together contribute to the significance of the park, these individual items should not necessarily be considered in isolation.

The Plan of Management should allow for the heritage values of the park to be appropriately interpreted. Heritage interpretation is a means of communicating ideas and feelings which help people understand more about themselves and their environment (Interpretation Australia Association (IAA)).

Boomerang Park would benefit from having an Interpretation Strategy prepared; particularly if future works within the park are proposed. Any interpretation of the park should communicate its significance including its history, uses, associations and meanings to the Raymond Terrace area and community. Interpretation should engage the future users of the park to assist them to understand the history and importance of an area specifically established for public recreation and directly related to the establishment and history of the town of Raymond Terrace itself.

The benefits of any interpretation would be to:

- enrich the experience of the future users of Boomerang Park by making it more meaningful and enjoyable
- assist the users to develop a keener awareness, appreciation and understanding of the heritage being experienced and
- encourage thoughtful use of the park by the visitor (IAA).

8.0 Conclusions

As a result of the historical research of Boomerang Park and associated due diligence inspection, the following conclusions are drawn:

- While the existing individual physical elements of Boomerang Park are important and contribute to the cultural significance of the park to the Raymond Terrace area, Boomerang Park as a whole is significant as an area established for public recreation directly related to the establishment and history of the town of Raymond Terrace rather than any of the individual elements.
- The Aboriginal due diligence assessment identified that there would be a low likelihood of harm to Aboriginal objects if works, including ground disturbance, are undertaken within Boomerang Park.

Yours sincerely



Amanda Reynolds
Senior Archaeologist

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Image Source: Google Earth - CNES / Astrium (2015)

0 0.5 1.0 2.0 km
1:35 000

Legend

■ Study Area

FIGURE 1.1
Locality Plan

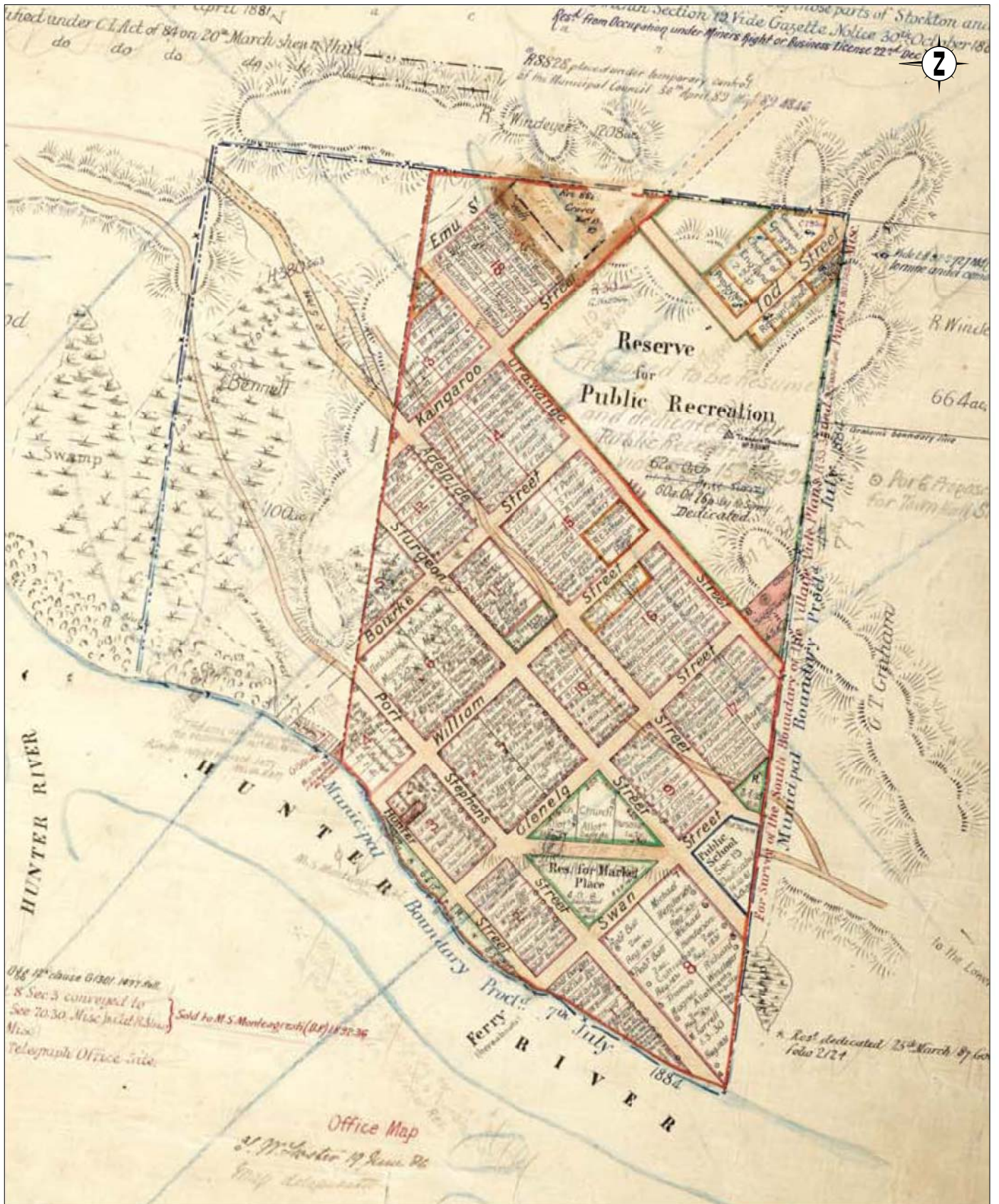


Image Source: NSW Government (2015)

0 100 250 500m
Approximate Scale 1:10 000

FIGURE 2.1

1836 Survey of Raymond Terrace



Image Source: Google Earth - CNES / Astrium (2015)
 Data Source: LPI (2009), AHIMS (2016)

0 0.25 0.5 1.0 km
 1:20 000

Legend

- Study Area
- Artefact Scatter
- Isolated Find
- e Potential Archaeological Deposit (PAD)
- e Artefact and Potential Archaeological Deposit (PAD)
- 🌳 Modified Tree (Carved or Scarred)

FIGURE 6.1

Aboriginal Heritage Sites in the Vicinity of the Study Area

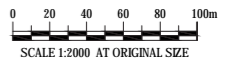
APPENDIX B

GHD, 2014. *Boomerang Park – Site Analysis Plan*. Prepared for Port Stephens Council.



- EXISTING BUILT FORM / ELEMENTS ON SITE:**
- 1 SENIOR CITIZENS HALL AND CAR PARK
 - 2 AFTER SCHOOL CARE CENTRE
 - 3 CLUB HOUSE AND FIELDS USED BY DOG CLUB
 - 4 WATER TOWER (DISUSED), NOT OWNED BY PSC
 - 5 SOCCER FIELDS
 - 6 CRICKET OVAL
 - 7 PLAYGROUND (DISUSED AND IN DISREPAIR)
 - 8 PUBLIC AMENITIES, IN POOR CONDITION AND POORLY LOCATED (NO CASUAL SURVEILLANCE FROM STREETS)
 - 9 BOOMERANG PARK ENTRY SIGNAGE (SMALL SCALE SIGN), LACKS 'DRAW CARD' FACILITIES VISIBLE FROM ENTRY
 - 10 WALL, PLANTING AND PARK SIGNAGE ABOVE DETENTION BASIN
 - 11 VEHICLE WHEEL TRACKS THROUGHOUT OPEN GRASS AREAS TO SOUTH OF MAIN ACCESS ROAD. UNCONTROLLED ACCESS AND SAFETY / MAINTENANCE ISSUES.

- LEGEND**
- TOPOGRAPHY AND DRAINAGE**
- EXISTING POND
 - GRASSED DETENTION BASIN
 - OVERLAND FLOW PATHS AND OPEN SWALES. WET GROUND CONDITIONS IN SOME ADJOINING GRASS AREAS
 - MAJOR ELEVATED AREA OF SITE - VIEWS ACROSS PARK AND TO HILLS TO NORTH-EAST. PROMINENT TOPOGRAPHICAL ELEMENT LIMITS CLEAR VIEWS THROUGH PARK FROM ENTRIES
- VEGETATION**
- EXISTING AMENITY TREES
 - REVEGETATED CORRIDOR (KOALA FOOD TREES)
 - DENSE BUFFER - WHERE SURROUNDING SOCCER FIELDS VISUALLY DISCONNECTS FIELDS FROM REMAINDER OF PARK
- ACCESS AND CONNECTIONS**
- BUS STOPS SURROUNDING PARK
 - EXTERNAL FOOTPATHS SURROUNDING PARK (NONE EXIST ON SITE)
 - FORMALISED GRAVEL/ASPHALT VEHICLE ACCESS INTO PARK, SURFACE IN POOR CONDITION. NO ACCESS CONTROL MEASURES ALONG ROAD EDGES
 - EVIDENCE OF WORN ACCESS TRACKS THROUGH PARK (NOT FORMALISED). LIMITED EQUITABLE ACCESS TO AND BETWEEN FACILITIES
- EXISTING BUILT FORM**
- MAJOR EXISTING COMMUNITY FACILITIES
 - EXISTING PARK FURNITURE INCLUDING SEATS, PICNIC SHELTERS, BINS (IN VARYING CONDITION). FURNITURE ELEMENTS ARE NOT GROUPED OR CONNECTED BY PATHS, AND DO NOT PRESENT AS A SUITE OF ELEMENTS
 - IMAGE LOCATIONS, REFER TO IMAGES ON SK002



PRELIMINARY

B	UPDATE WITH PSC COMMENT	GW*	25.02.14
A	INITIAL ISSUE	GW*	06.12.13
rev	description	app'd	date

**PORT STEPHENS COUNCIL
BOOMERANG PARK MASTER PLAN
SITE ANALYSIS PLAN**



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scale | 1:2000 for A1 job no. | 41-27135
date | FEB 2014 rev no. | B

approved (PD) | G.WOOD* SK001

- SURROUNDING LAND USES:**
- 1 HISTORIC CEMETERY
 - 2 MUREE GOLF COURSE
 - 3 COUNCIL DEPOT
 - 4 CATHOLIC SCHOOL
 - 5 ST. BRIGID'S CATHOLIC CHURCH
 - 6 PORT STEPHEN'S COUNCIL CHAMBERS
 - 7 RAYMOND TERRACE SPORTS FIELDS (POSSIBLY TO BE REDEVELOPED FOR COMMERCIAL USES)
 - 8 CEMETERY
 - 9 MARKET PLACE SHOPPING CENTRE

APPENDIX C

Firebird ecoSultants 2015. *Assessment of Existing Flora and Fauna Habitats within Boomerang Park Raymond Terrace.* Report prepared for Port Stephens Council.



ASSESSMENT OF EXISTING FLORA AND FAUNA HABITATS

WITHIN BOOMERANG PARK RAYMOND TERRACE

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Prepared for:	Port Stephens Council
Reference No.	Boomerang Park
Document Status & Date:	Draft December 2015



Terms & Abbreviations

Abbreviation	Meaning
API	Aerial Photograph Interpretation
CKPoM	Port Stephens Council Comprehensive Koala Plan of Management (2002)
DoE	Department of the Environment
DPE	Department of Planning and Environment
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
ha	hectare
LEP	Local Environmental Plan
LGA	Local Government Area
LHCCREMS	Lower Hunter and Central Coast Regional Environment Management Strategy Vegetation Survey, Classification and Mapping; Lower Hunter and Central Coast Region
MNES	Matters of National Environmental Significance
NPWS	National Parks and Wildlife Service
OEH	Office of Environment and Heritage
PSC	Port Stephens Council
ROTAP	Rare or Threatened Australian Plants
TSC Act	<i>Threatened Species Conservation Act 1995</i>



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I INTRODUCTION

Firebird ecoSultants Pty Ltd has been engaged by Port Stephens Council to undertake an assessment of flora and fauna habitats at Boomerang Park, Raymond Terrace within the Port Stephens Local Government Area. The site is a 22 hectare passive recreation area located close to the commercial area of Raymond Terrace. This report aims to assemble up-to-date ecological information that can be used to inform a revised Plan of Management for Boomerang Park.

Council requested that a site assessment and resultant flora/fauna mapping be undertaken to ground truth existing data, and confirm the location and status of native vegetation and potential threatened species habitats on the site, including endangered ecological communities which are listed under the *Threatened Species Conservation Act 1995* (TSC Act) and *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This information will be used to inform a revised Plan of Management which is currently being undertaken by Council.

This ecological assessment included a field based survey of the site to review/confirm status of vegetation and threatened species habitats on the site, which was undertaken on the 4th December 2015, as well as desktop based analysis of environmental databases and historical records of threatened species, and collation/review of previous ecological assessments on the site or surrounding area.

I.1 Site Particulars


Locality:	Boomerang Park, Raymond Terrace.
LGA:	Port Stephens Council
Lot /DP:	Lot 1 DP1018979
Area:	22 hectares
Zoning:	Boomerang Park is a mixture of RE 1 Public Recreation, SP1 Special Activities and SP2 Infrastructure (Cemetery) under the Port Stephens LEP 2013
Current Land Use:	Public Recreation

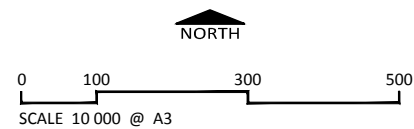


FIGURE 1-1: SITE LOCALITY MAP

CLIENT Port Stephens Council
 SITE DETAILS Boomerang Park
 DATE 15 December 2015

Legend

 Subject Site



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I.2 Boomerang Park Management Framework

Boomerang Park Plan of Management (2000)

The Plan of Management is to provide Port Stephens Council and all relevant stakeholders with a framework that enables decisions in regards to the site to be made on a consistent and equitable basis. This plan meets all of the requirements of the *Local Government Act 1993* and has taken into account other strategic plans that have been produced by Port Stephens Council.

The land is owned by Port Stephens Council and is classified as community land. This Plan of Management further categorises the land into the categories of “an area of cultural significance”, “park” and “sportsground” as prescribed by the *Local Government Act 1993*. The subject land has long been used for public recreation and is now key component of the open space system in the Raymond Terrace planning district.

The park caters for a wide range of recreational and community interests and needs which also includes the conservation of flora and fauna. One of the aims and objectives of the plan of management is to protect and enhance the biodiversity of flora and fauna in the local area

The vegetation cover within the site consists of a mixture of native and exotic species that have been planted within the reserve by Council, local committees and other community groups. Some endemic vegetation still exists in small pockets towards the cemetery and this has further been developed into Koala food line plantings to the rear of the soccer fields.

The utilisation of parts of Boomerang Park by koalas is demonstrated by the results of a community-based survey conducted in 1992 (Callaghan et al. 1994), records kept by the Native Animal Trust Fund and Australian Wildlife Hospital and an on-going radio tracking study to monitor the impact on koalas of the Raymond Terrace Bypass.

Figure 3.2 of the plan of management shows the areas of habitat use in Boomerang Park used by koalas as high, medium or no (Glen Stevenson pers. comm. 1999). It is important that existing koala habitat in this park is protected and that additional koala habitat is restored via revegetation. Future planting schemes should enhance existing habitat and should also be directed away from roads and areas used by dogs, and should consist of the appropriate preferred koala food tree species such as *Eucalyptus microcorys* (Tallowwood), *E. robusta* (Swamp Mahogany), *E. parramattensis* (Parramatta Red Gum) and *E. tereticornis* (Forest Red Gum).

Policy statements guiding the plan also state that development that negatively impacts of koala habitat should not be permitted and that the site shall be promoted as habitat for koalas in conjunction with other compatible uses.



Boomerang Park Master Plan (2014)

On 25 November 2014 Port Stephens Council made a resolution to adopt the draft Boomerang Park Master Plan. This master plan contains several strategies to improve the environmental values of the park including by:

- Removal of water weeds and provide dense sedge plantings to pond perimeter... to enhance the environmental values of the pond (Area 19);
- Increase in density of vegetation to buffer / drainage area to enhance natural character, natural drainage function and habitat connectivity (Area 21); and
- Provide denser canopy vegetation in passive recreation areas (Area 22).

Reclassification and rezoning of part of Boomerang Park

Port Stephens Council is preparing a planning proposal for the reclassification and rezoning of a 4.5 hectare part of Lot 1 DP 1018979 Boomerang Park. The planning proposal seeks to reclassify and rezone a 4.5 hectare part of Boomerang Park at Raymond Terrace. The proposed reclassification would change the classification of the land under the *Local Government Act 1993* from community land to operational land.

The proposed rezoning would change the current RE1 Public Recreation zone to R2 Low Density Residential in the Port Stephens LEP 2013. Council has resolved, despite the uses permissible in the R2 zone, to limit the potential redevelopment of the site to seniors housing. The planning proposal was approved at the gateway by the Department of Planning and Environment on 2 December 2015.

A preliminary ecological assessment has been undertaken by Firebird ecoSultants (March 2015) to support this planning proposal.

I.3 Scope of Study

Port Stephens Council requested that a site assessment and resultant flora/fauna mapping be undertaken to ground truth existing data, and confirm the location and status of native vegetation and potential threatened species habitats on the site, including endangered ecological communities which are listed under the TSC Act and EPBC Act. This information will be used to inform a revised Plan of Management which is currently being undertaken by Council.

As requested by Council the assessment should focus on:

- Completion of updated NSW Wildlife Atlas search and EPBC Protected Matters search for the Park and surrounds (up to 10km radius of the Park);
- Literature review of relevant studies completed across the Park and surrounding areas;
- Ground truthing the existing vegetation mapping to refine the relevant vegetation



communities across the Park. This should be supported by adequate survey to accurately identify and classify vegetation communities across the Park and refine the current mapping;

- Completion of habitat assessment across the Park as part of the works completed above – this should identify habitat types and condition across the park, along with opportunistically identifying suitable habitat for listed threatened species;
- Survey to identify and map koala feed and habitat trees across the Park, generally following the requirements of Council’s Comprehensive Koala Plan of Management; and
- Opportunistic identification of threatened species across the Park as part of the completion of the above works (i.e. no formal survey of threatened fauna species).

I.4 Qualifications and Licensing

Qualifications

This report was written by Sarah Jones and Nicholas Alexander and with fieldwork undertaken by Nicholas Alexander.

Licensing

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL100533;
- Animal Research Authority (Trim File No: TRIM 11/5655) issued by NSW Department of Primary Industries; and
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: TRIM 11/5655) issued by Department of Primary Industries.

Certification

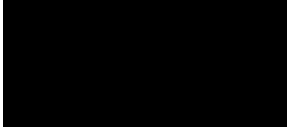
As the principal author, I, Sarah Jones make the following certification:

- The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the site;
- Commonwealth, state and local government policies and guidelines formed the basis of project surveying methodology, or where the survey work has been undertaken with specified departures from industry standard guidelines, details of which are discussed and justified in Section 2;
- All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the *Animal Research Act 1995*,



National Parks and Wildlife Act 1974 and the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes.

Signature of Principal Author and Certifier:



Sarah Jones
Ecologist / Bushfire Planner
FPA BPAD-A Certified Practitioner (BPD-PA-26512)
B.Env.Sc., G.Dip.DBPA (Design for Bushfire Prone Areas)



2 METHODOLOGY

This ecological assessment included a field based survey of the site to review/confirm status of vegetation and threatened species habitats on the site, which was undertaken on the 4th December 2015, as well as desktop based analysis of environmental databases and historical records of threatened species (e.g. Office of Environment and Heritage (OEH) BioNet – Atlas of NSW Wildlife), and collation/review of existing information regarding the site and surrounding areas (e.g. Boomerang Park Plan of Management, Firebird ecoSultants March 2015).

The current field surveys and assessment compliments that previously undertaken by Firebird ecoSultants (March 2015) for the preliminary ecological assessment for the proposed Reclassification and rezoning of part of a 4.5 hectare portion of Boomerang Park.

2.1 Literature Review

Information sources reviewed included:

- (a) Aerial Photograph Interpretation (API);
- (b) Review of fauna and flora records contained in the Office of Environment and Heritage (OEH) Atlas of NSW Wildlife (NSW BioNet) and EPBC Act Protected Matters Report search tool within a 10 km radius of the study area;
- (c) OEH Threatened Species, Populations and Ecological Communities website (<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/>);
- (d) Environmental / planning reports undertaken over the site or area, such as Port Stephens Council (2002) *Port Stephens Council Comprehensive Koala Plan of Management (CKPoM) – June 2002* and Port Stephens Council (2000) *Boomerang Park Plan of Management. November 2000*;
- (e) Collective knowledge gained from previous ecological assessments in the local area.

2.2 Field Survey

Diurnal and nocturnal field surveys were undertaken on the 4th December 2015 using the methods described below.

2.2.1 Vegetation Mapping

Vegetation mapping carried out on the site was undertaken as follows:

- Aerial Photograph Interpretation (API) to map the community(s) extent into definable map units.



-
- Confirmation of the community type(s) present (dominant species) via undertaking flora surveys and identification.
 - Review of Lower Hunter and Central Coast Regional Environmental Management Strategy (LHCCREMS) vegetation mapping (NPWS 2000, House 2003).
 - Mapping the type and general extent of the community(s) present into definable map units where appropriate.

This included an assessment of the potential for the derived vegetation communities to constitute an endangered ecological community (EEC) as listed under the TSC Act or threatened ecological community listed under the EPBC Act. The floristic composition, geomorphological characters and geographic distribution were considered when determining whether an EEC/TEC was present.

2.2.2 Significant Flora Survey

A list of potentially occurring significant flora species from the locality (10km radius) was compiled, which included threatened species (Endangered or Vulnerable) and EEC's listed under the TSC Act, those species listed under the EPBC Act, Rare or Threatened Australian Plants (ROTAP) listed flora species (Briggs and Leigh 1996), as well as any other species deemed to be of local importance. Targeted searches were then undertaken over the site for these species using the "Random Meander Technique" described by Cropper (1993).

2.2.3 Fauna and Habitat Assessment

Targeted surveys were undertaken for the Koala with transects undertaken across the site with brief searches being undertaken at the base of each tree for scats and looking in the tree for Koalas.

Incidental records of any other fauna species observed during the site inspection, including during nocturnal spotlighting were noted. This included opportunistic sightings of secondary indications (scratches, scats, diggings, tracks etc.) of any resident or migratory species. Two person hours were spent spotlighting at night across the park, although no native fauna species were observed.

An assessment of the relative habitat values present on site was also carried out. This assessment focused primarily on the identification of specific habitat types and resources on the site favoured by known threatened species from the region. The assessment also considered the potential value of the site (and surrounds) for all major guilds of native flora and fauna.

2.2.4 Survey Limitations

Field surveys were restricted one day diurnal and nocturnal assessment on the 4th December 2015 totalling nine person hours of survey effort. Whilst this level of survey effort was considered sufficient to inform future planning for the park and provide management recommendations, it was unlikely to detect all of the species present



within the study area or have potential to occur within the study area due to seasonal, temporal and other environmental factors.

In order to address these limitations which are inherent in ecological surveys due to project time frames, seasonal and weather restrictions, the habitat assessment and results from previous surveys of the park (e.g. Firebird ecoSultants March 2015) were used to assess whether threatened species were likely to be present. Furthermore, where necessary the precautionary principle of 'assumed presence' has been applied.



3 RESULTS

The following chapter provides a summary of the results obtained during the current study.

3.1 Threatened Species and EPBC Act Database Searches

A review of the OEH Atlas of NSW Wildlife (BioNet) identified that approximately 14 threatened fauna species have been recorded within the Raymond Terrace township, including Wallum Froglet, Green and Golden Bell Frog, Superb Fruit-Dove, Black-necked Stork, Australian Painted Snipe, Glossy Black-Cockatoo, Little Lorikeet, Swift Parrot, Masked Owl, Spotted-tailed Quoll, Koala, Squirrel Glider, Grey-headed Flying-fox, and Eastern Bentwing-bat.

A number of these species have only been recorded on several occasions or are historical records (e.g. Green and Golden Bell Frog) and these species may no longer exist within the peri-urban areas of Raymond Terrace.

There is also a record of the vulnerable plant Tall Knotweed (*Persicaria elatior*) from the Grahamstown Dam Canal off Joseph Sheen Drive. This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance. The recently listed orchid Tall Rustyhood (*Pterostylis chaetophora*) has also been recorded from the Grahamstown catchment area. The preferred habitat of *P. chaetophora* is seasonally moist, dry sclerophyll forest with a grass and shrub understorey. At Columbey National Park, a small population was found in regrowth *Eucalyptus amplifolia* subsp. *amplifolia* forest (Bell 2009).

The only threatened species to have been previously recorded within Boomerang Park is the Koala, although due to the close proximity of the flying-fox maternity camp at Newbury Park in Raymond Terrace, the Grey-headed Flying-fox would also be a regular seasonal visitor to the park.

A number of other threatened flora and fauna species have been recorded within 10 kilometres of Boomerang Park and these are as shown below in Table 3-1, Table 3-2 and Table 3-3. A number of these species are associated with the lower hunter estuary (e.g. migratory shorebirds, *Zannichellia palustris*) or are associated with larger vegetation remnants (e.g. Brown Treecreeper, Turquoise Parrot) and do not have any potential habitat within the site and therefore are considered unlikely to occur.

A total of eleven (11) flora species have been recorded on the Atlas of NSW Wildlife database within the 10 kilometre radius of the study area (Table 3.1).

Table 3-1: Threatened flora species recorded within a 10km radius of the site (Atlas of NSW Wildlife)

Scientific Name	Common Name	TSC Act	EPBC Act
<i>Asperula asthenes</i>	Trailing Woodruff	V	V
<i>Commersonia prostrata</i>	Dwarf Kerrawang	E	E
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	E
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	V	V
<i>Eucalyptus parramattensis subsp. decadens</i>	Earp's Gum	V	V
<i>Grevillea parviflora subsp. parviflora</i>	Small-flower Grevillea	V	V
<i>Maundia triglochinoidea</i>		V	-
<i>Persicaria elatior</i>	Tall Knotweed	V	V
<i>Pterostylis chaetophora</i>	Tall Rustyhood	V	-
<i>Zannichellia palustris</i>		E	-

Status (TSC Act):

E: Endangered Species

V: Vulnerable Species

Status (EPBC Act):

E: Endangered Species

V: Vulnerable Species

A total of 55 threatened fauna species have been recorded on the Atlas of NSW Wildlife database within the 10 kilometre radius of the study area (Table 3.2).

Table 3-2: Threatened fauna species recorded within a 10km radius of the site (Atlas of NSW Wildlife)

Scientific Name	Common Name	TSC Act	EPBC Act
Birds			
<i>Anseranas semipalmata</i>	Magpie Goose	V	-
<i>Oxyura australis</i>	Blue-billed Duck	V	-
<i>Stictonetta naevosa</i>	Freckled Duck	V	-
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-
<i>Rostratula australis</i>	Australian Painted Snipe	E	E
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	CE
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	V	M
<i>Limosa limosa</i>	Black-tailed Godwit	V	M
<i>Calidris tenuirostris</i>	Great Knot	V	M

Scientific Name	Common Name	TSC Act	EPBC Act
<i>Charadrius leschenaultii</i>	Greater Sand-plover	V	M
<i>Charadrius mongolus</i>	Lesser Sand-plover	V	M
<i>Xenus cinereus</i>	Terek Sandpiper	V	M
<i>Haematopus longirostris</i>	Pied Oystercatcher	E	-
<i>Burhinus grallarius</i>	Bush Stone-curlew	E	-
<i>Sternula albifrons</i>	Little Tern	E	-
<i>Pandion cristatus</i>	Eastern Osprey	V	-
<i>Circus assimilis</i>	Spotted Harrier	V	-
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-
<i>Lophoictinia isura</i>	Square-tailed Kite	V	-
<i>Falco subniger</i>	Black Falcon	V	-
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	V	-
<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V	-
<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V	-
<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V	-
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-
<i>Lathamus discolor</i>	Swift Parrot	E	E
<i>Neophema pulchella</i>	Turquoise Parrot	V	-
<i>Ninox strenua</i>	Powerful Owl	V	-
<i>Tyto longimembris</i>	Eastern Grass Owl	V	-
<i>Tyto novaehollandiae</i>	Masked Owl	V	-
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	E
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V	-
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-
<i>Petroica boodang</i>	Scarlet Robin	V	-
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-
<i>Epthianura albifrons</i>	White-fronted Chat	V	-
<i>Dromaius novaehollandiae</i>	Emu population in NSW North Coast Bioregion and Port Stephens local government area	EP	-



Scientific Name	Common Name	TSC Act	EPBC Act
Mammals			
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i>	Spotted-tailed Quoll	V	E
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-
<i>Phascolarctos cinereus</i>	Koala	V	V
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V
<i>Mormopterus norfolkensis</i>	Eastern Freetail Bat	V	-
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-
<i>Myotis macropus</i>	Southern Myotis	V	-
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V	-
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V	-
Hepetofauna			
<i>Crinia tinnula</i>	Wallum Froglet	V	-
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V

Status (TSC Act):

CE: Critically Endangered
 E: Endangered Species
 V: Vulnerable Species
 EP: Endangered Population

Status (EPBC Act):

E: Endangered Species
 V: Vulnerable Species
 M: Migratory Species

A protected matters report under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) has also been completed for a 10km radius of Boomerang Park and the results are summarised in Table 3-3 below and in Appendix A. These lists provide a more generic list of species or species habitat that may occur within the area. For a number of species listed by the protected matters report (e.g. Wandering Albatross, Brush-tailed Rock-wallaby, Loggerhead Turtle) no potential species habitats occurs on the site and therefore they are unlikely to occur.



Table 3-3: Matters of National Environmental Significance recorded within a 10km radius of the site

Matter of National Environmental Significance	Number Recorded
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	1
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None
Listed Threatened Ecological Communities	3
Listed Threatened Species	52
Listed Migratory Species	63

Please Note: the MNES report summarises the matters of national environmental significance that may occur in, or may relate to, the area nominated

3.2 Flora Survey and Vegetation Mapping

Surveys undertaken by the current study recorded 88 flora species, including 38 exotic species. A number of additional introduced and native plants have been used for landscaping and revegetation purposes within the park, and these are provided in Appendix D of the Boomerang Park Plan of Management. The list of species recorded during the current study is provided in Appendix B. A map of the vegetation communities is shown in Figure 3-1 below. Photographs of the vegetation and habitat values of the park are also shown below.

As noted within the Boomerang Park Plan of Management the vegetation cover within the site consists of a mixture of native and exotic species that have been planted within the reserve by Council, local committees and other community groups. Some endemic vegetation still exists in small pockets towards the cemetery and this has further been developed into Koala food line plantings to the rear of the soccer fields.

The field surveys undertaken for the current assessment confirmed that natural vegetation which covers parts of the site has been markedly altered from its original condition and is present mainly as scattered trees, both remnant and planted.

Due to a long history of clearing, multiple land uses and plantings for recreational and environmental purposes, determining what natural vegetation community types occur on the site could not be confidently determined. As stated in the Boomerang Park Plan of Management tree planting has occurred in the park at various times, however no reference of a historical nature was made of the plantings. Nevertheless, some of the Norfolk Island, Hoop and Bunya pines are estimated to be over 100 years old.



The only remnant vegetation on the site occurs in the central portions of the park and this vegetation has some affinities with Hunter Lowland Redgum Forest due to the dominance of canopy trees such as Forest Red Gum (*Eucalyptus tereticornis*) and Rough-barked Apple (*Angophora floribunda*). Adjacent to this area is native vegetation which appears to have been part revegetation/planting efforts and contains a number of preferred koala food trees.

The Lower Hunter and Central Coast Regional Environmental Management Strategy (LHCCREMS) vegetation mapping (NPWS 2000, House 2003) maps Boomerang Park as containing mainly Lower Hunter Spotted Gum Ironbark Forest, Hunter Lowland Redgum Forest and smaller areas of Swamp Mahogany – Paperbark Forest. These three vegetation communities correspond to endangered ecological communities (EECs) listed under the TSC Act, including Lower Hunter Spotted Gum - Ironbark Forest in the Sydney Basin Bioregion, Hunter Lowland Redgum Forest in the Sydney Basin and NSW North Coast bioregions, Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions. However, the field surveys confirmed that the majority of vegetation mapped in Boomerang Park is not remnant forest and does not necessarily correspond to these EECs.

A large number of exotic and non-endemic native (planted species) occur in the park and this has impacted on the occurrence of remnant native vegetation within the site. Forested portions of land bordering the sports fields are almost completely dominated by Camphor Laurel (*Cinnamomum camphora*) and conifers (mainly *Pinus* sp.). The Koala Feed Tree revegetation area also has a moderate presence of weed species including Camphor Laurel and Lantana (*Lantana camara*).

Due to the land use history of the park, it is hard to determine which eucalypts are remnant or just planted trees. Mature eucalypts known within the park include Forest Red Gum (*Eucalyptus tereticornis*), Bangalay (*Eucalyptus botryoides*), Tallowwood (*Eucalyptus microcorys*), Swamp Mahogany (*Eucalyptus robusta*) and Sydney Blue Gum (*Eucalyptus saligna*).

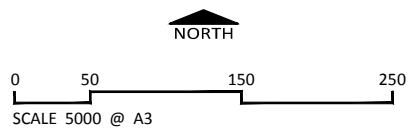


Note:
 Boundaries are not survey accurate.
 Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

- Legend**
- ▬ Subject Site
 - ▨ Hunter lowland redgum forest
 - ▨ Native regenerating forest (area subject to revegetation/planting efforts)
 - Grey-crowned babbler habitat (location of individuals & nest)
 - ▨ Proposed residential area
 - ▨ Native vegetation and exotic trees

FIGURE 3-1: VEGETATION MAP

CLIENT Client
 SITE DETAILS Boomerang Park
 DATE 10 March 2015



Firebird ecoSultants Pty Ltd
 ABN - 16 105 985 993
 Level 1, 146 Hunter Street, Newcastle NSW 2300
 P O Box 354 Newcastle NSW 2300



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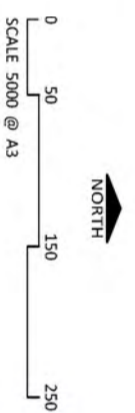
Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

FIGURE 3 - 2: THREATENED SPECIES HABITAT MAP

CLIENT
Port Stephens Council
Boomerang Park
DATE
15 December 2015

Legend

- Subject Site
- Eucalyptus robusta
- Eucalyptus tereticornis
- Eucalyptus microcoris
- Eucalyptus parramattensis



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- Legend**
- 1 Koala Feed Tree Plantings
Revegetation Area (1995 onwards)
 - 2 Exotic Regeneration
(Conifers, and Camphor Laurel)
 - 3 Grey-crowned Babbler Nests



3.2.1 Endangered Ecological Communities

The only remnant vegetation on the site occurs in the central portions of the park and this vegetation has some affinities with Hunter Lowland Redgum Forest due to the dominance of canopy trees such as Forest Red Gum (*Eucalyptus tereticornis*) and Rough-barked Apple (*Angophora floribunda*). As such this vegetation is likely to be commensurate with the endangered ecological community listed under the TSC Act being Hunter Lowland Redgum Forest in the Sydney Basin and NSW North Coast bioregions. This area of EEC is approximately 1.5 hectares in size.

No other threatened ecological communities listed under the TSC Act or the EPBC Act were found to occur on the site.

3.2.2 Threatened Flora

One threatened flora species was found within the site, being Earp's Gum (*Eucalyptus parramattensis subsp. decadens*). This species is listed as vulnerable under both the TSC Act and EPBC Act.

Earp's Gum generally occurs in dry sclerophyll woodland with dry heath understorey on deep, low-nutrient sands. The Tomago Sandbeds meta-population is bounded by Salt Ash and Tanilba Bay in the north and Williamtown and Tomago in the south. Such habitat features do not occur within Boomerang Park.

The Boomerang Park Plan of Management (2000) identifies that *Eucalyptus parramattensis* (Parramatta Red Gum) has been used in planting / revegetation efforts to provide for preferred koala food trees. However, it is unclear of the provenance of this plant material. The location of these trees is shown in Figure 3-2.

It is considered that some minor areas of potential habitat for the vulnerable orchid Tall Rustyhood (*Pterostylis chaetophora*) occur within the Hunter Lowland Redgum Forest community on the site. This species has been recorded in similar habitats within the Port Stephens LGA (e.g. Grahamstown catchment area, Columbey National Park), however further field surveys would be required during the September–November flowering period for this cryptic ground orchid to determine whether it occurs in the park.

The other threatened flora species listed under the TSC Act or EPBC Act which have been recorded within a 10 kilometre radius of the study area (see Table 3.1 and Appendix A), are considered unlikely to occur due to their specialist habitat requirements combined with the degraded habitat found on site.

Photo 1: Cleared land with scattered planted native/non-endemic trees



Photo 2: Naturalised *Pinus* sp. And Camphor Laurel adjacent to sports fields



Photo 3: Koala Feed Tree revegetation area



Photo 4: Koala Feed Tree revegetation area



3.1 Fauna and Habitat Assessment

Fauna species recorded during field investigations were largely representative of the peri-urban area of Raymond Terrace and due to survey limitations were mainly



restricted to common bird species. The list of the recorded species is provided in Appendix B.

3.1.1 Habitat Description

Boomerang Park is a relatively large and partially vegetated urban park within the Raymond Terrace township. It supports habitat for native flora and fauna species including some species that are threatened (e.g. Grey-crowned Babbler, Koala, Grey-headed Flying-fox).

The park contains a number of passive and active recreational facilities, a cemetery, a pond, a detention basin and a day care centre. A 4.5 hectare portion of the park is also currently subject to a planning proposal to accommodate a future seniors housing project.

The vegetation mainly consists of scattered eucalypt and other exotic trees including conifers. Within the remnant / planted area behind the soccer fields habitat features such as understorey, fallen timber, rocky outcrops and leaf litter occurs. This part of the park provides habitat suitable for a number fauna including small woodland bird species, terrestrial/arboreal mammals and reptiles.

Several habitat trees, including large old trees, hollows and fissures in trees and dead standing trees were observed within the park. These trees provide potential habitat for hollow dependent birds and mammals, including potentially threatened species such as Squirrel Glider and microchiropteran bats.

The cleared/grassland areas which occurs over the majority of the park may offer some habitat for grassland birds and common open country species. The open areas within the grassland allow predatory species to easily sight prey and would therefore generally be avoided by small marsupials or rodents. These areas may also be utilised as foraging areas for microchiropteran bat species that prefer structurally open habitats and associated edge habitat for foraging.

There is an existing dam/waterbody at the location of a disused quarry near the water tower. There are also several ephemeral drainage lines and detention basins within the park and therefore there is some habitat for wetland/water birds and frogs.

Collectively these features provide habitat for a number of mammals, birds, reptiles and frogs, which can persist in modified landscapes, urban parklands or adjacent to residential areas.

3.1.2 Corridors and Connectivity

Vegetation within the park is continuous Muree Golf Course and larger areas of vegetation to the south towards Adelaide Street. However, the Pacific Highway (Raymond Terrace bypass) provides a significant barrier between this area and much larger areas of remnant vegetation to the east around Heatherbrae and Grahamstown



dam and further onto Tilligerry State Conservation Area. This is particularly relevant for a number of fauna species such as the Koala, although there are some underpass structures to help facilitate movement of fauna between patches.

The site is located outside of the lower hunter green corridor as defined by the Lower Hunter Regional Strategy (Department of Planning, 2006). A review of the Office of Environment and Heritage's (OEH) key habitats and corridors mapping (Scotts, 2003) also shows that the park is not located in any regional wildlife corridors.

3.2 Threatened Fauna

During the current investigations and those previously undertaken by Firebird ecoSultants in February 2015 one (1) threatened fauna species was recorded within Boomerang Park, being a family group of Grey-crowned Babblers (*Pomatostomus temporalis temporalis*). At least three (3) individuals were observed foraging in the central portion of the park in proximity to Irawang Street and seven babbler nests were also observed within this area, as shown in Figure 3-2. This species is listed as Vulnerable under the TSC Act.

Several other threatened species have been previously recorded within Boomerang Park or immediately adjacent areas including the Koala (*Phascolarctos cinereus*) and Grey-headed Flying-fox (*Pteropus poliocephalus*). Both these species are listed as vulnerable under the TSC Act and the EPBC Act. These three threatened fauna species which are known to occur are dealt with in greater detail below.

Boomerang Park also contains some areas of potential habitat for a number other threatened fauna species such as Squirrel Glider, woodland birds which can tolerate disturbed or urban areas (e.g. Swift Parrot, Little Lorikeet), Forest Owls (e.g. Powerful Owl, Masked Owl) and micro-bats (e.g. Little Bentwing-bat, Eastern Bentwing-bat, Eastern Freetail-bat and Southern Myotis). However, due to fauna survey limitations with the current study, these species can only be assumed to be present based on features or areas of potential habitat within the park.

3.2.1 Koala

Boomerang Park has been subject to active plantings of Koala food trees and a survey of preferred koala food trees was undertaken. The Port Stephens Comprehensive Koala Plan of Management (CKPoM) identifies three species as preferred koala food trees in the Port Stephens LGA, including Swamp Mahogany (*Eucalyptus robusta*), Parramatta Red Gum (*Eucalyptus parramattensis*), and Forest Red Gum (*Eucalyptus tereticornis*), and hybrids of any of these species. All three species were found to occur within the park and the location of these preferred koala food trees is shown in Figure 3-2.



A number of other tree species found within the park are listed as being potentially important to koalas in the Port Stephens LGA (as identified in Appendix 8 of the CKPoM), including:

- Spotted Gum (*Corymbia maculata*)
- Scribbly Gum (*Eucalyptus signata*)
- Tallowood (*Eucalyptus microcorys*) – distribution shown in Figure 3-2
- Sydney Blue Gum (*Eucalyptus saligna*)
- Narrow-leaved Ironbark (*Eucalyptus crebra*)
- Red Bloodwood (*Eucalyptus gumnifera*)

No evidence of Koalas, including by searches for Koala scats at the base of trees within Boomerang Park, was obtained during the current study. However, the Koala is the most numerous recorded threatened species within Raymond Terrace, with in-excess of 850 records on the OEH Atlas of NSW Wildlife alone. The most recent of these records appears to be from 2006 within Boomerang Park itself. According to the Atlas data the majority of Koala records within Raymond Terrace are from the 1980's and 1990's with a significant decline in reporting and observations since this period.

The anecdotal evidence, as noted in Eco Logical Australia (2013), is that Raymond Terrace used to have high koala activity, but this is no longer the case. The decline in Koala observations may be indicative of the constraints and threats posed from fragmentation and degradation of habitat, barriers to habitat connectivity (e.g. Pacific Highway construction), road fatalities, and predation by dogs.

Figure 3.2 of the Boomerang Park Plan of Management (2000) shows the areas of habitat in Boomerang Park used by koalas and classes this as high, medium or no. A review of the Koala Habitat Planning Map for the Port Stephens Local Government Area identifies that no Koala habitat occurs on the site. However, the adjacent golf course (Muree golf course) has areas of Preferred Koala Habitat mapped between the fairways.

3.2.2 Grey-crowned Babbler

A family group of Grey-crowned Babblers containing at least three (3) individuals was observed foraging in the central portion of the park in proximity to Irrawang Street and seven babbler nests were also observed within this area, as shown in Figure 3-2.

Although the species was only recorded in this part of Boomerang Park, any vegetated areas, including introduced planted shrubs and trees are likely to offer potential habitat for this family group or groups.

The NSW Scientific Committee - final determination for the Grey-crowned babbler (eastern subspecies) - vulnerable species listing states that "Grey-crowned Babblers occupy open woodlands dominated by mature eucalypts, with regenerating trees, tall shrubs, and an intact ground cover of grass and forbs. The species builds conspicuous



dome-shaped nests and breeds co-operatively in sedentary family groups of 2-13 birds. Grey-crowned Babblers are insectivorous and forage in leaf litter and on bark of trees.” Further it is identified that “Grey-crowned Babbler habitat has been disproportionately cleared for agriculture. Isolation of populations in scattered remnants is exacerbated by the apparent reluctance of birds to traverse tracts of cleared land.”

Babbler groups' home ranges vary from 2-53 ha (Blakers et al. 1984) and increase with increasing group size (Counsilman 1977). Group size also appears to be related to habitat elements such as the amount of wooded cover and the type of ground layer (Department of Sustainability and Environment, 2003).

Size of home range does not therefore relate directly to size of group but is probably associated with the density of standing vegetation in the home range to which the Babblers largely confine their activities. For example, the two groups with the largest home ranges, studied by King (1980) which included home ranges between 38 to 53 hectares, both occupied areas that were largely cleared of tall vegetation and moved among widely scattered individual or clumps of trees and shrubs.

As stated within the scientific literature (e.g. Department of Sustainability and Environment, 2003) minimum home ranges for the Grey-crowned Babbler appear to be greater than 2 hectares, therefore there is sufficient habitat present within Boomerang Park to support at least one or more family group of babblers.

Grey-crowned Babblers are relatively common within the wider locality and able to persist within rural residential and urban parklands. There are a number of recorded populations and records of Grey-crowned Babbler's on the Atlas of NSW Wildlife (BioNET) in the Port Stephens, Maitland and Cessnock LGAs including within the townships of, Brandy Hill, Seaham, Wallalong, Paterson, Tocal, Thornton, Berry Park, and Black Hill.

3.2.3 Grey-headed Flying-fox

There is a known flying-fox maternity camp within Raymond Terrace in Newbury Park between Adelaide Street and Thomas Street. This camp approximately 300 metres to the north of Boomerang Park. The species is highly likely to occur within Boomerang Park during the flowering and fruiting of eucalypts and other tree species.

The Raymond Terrace camp is a new camp that established in 2010. At the present time, it is not considered as critical to the survival of the GHFF within the region, however it is considered that this camp could function as an important refuge for the grey-headed flying-fox during future food shortages, or as shifts in climate patterns occur (GeoLINK 2013).

As this is a relatively recent camp in close proximity to Boomerang Park, it is unknown at this stage whether flying-foxes are likely to establish a camp within the park at some point in the future, and GeoLINK (2013) state that it is not possible to predict where flying-fox camps may establish.



4 MANAGEMENT RECOMMENDATIONS

This report was commissioned to assemble up-to-date ecological information which can be used to inform a revised Plan of Management for Boomerang Park. The park was found to contain habitat areas for a number of native plant and animal species including an endangered ecological community (Hunter Lowland Redgum Forest) and threatened species such as the Grey-crowned Babbler, Koala and Grey-headed Flying-fox.

The existing strategies to improve the environmental values of the draft Boomerang Park Master Plan 2014 (e.g. removal of weeds in Area 19, increase density of vegetation in Area 21, provide denser canopy vegetation in passive recreation areas in Area 22) have been reviewed and are supported on ecological grounds. Sufficient areas of habitat for a range of native plant and animal species are likely to be maintained or enhanced within Boomerang Park provided it is managed in accordance with the draft master plan.

A number of additional management recommendations are made below to maintain/improve the ecological values of the park:

- Weed control program should be developed for the control and removal exotic plant species with particular regards to Camphor Laurel (*Cinnamomum camphora*) and *Pinus* sp. around sports ovals where they have naturalised. Infestations of Lantana (*Lantana camara*) and other weed species within the koala food tree revegetation area and Hunter Lowland Redgum Forest should also be controlled to improve the condition and habitat values of these native areas. Revegetation/replanting of these areas with native species should also be included as part of the weed control program.
- Additional consideration should be provided to the maintaining habitat for the Grey-crowned Babbler, including retention of existing nest trees.
- Installation of nest boxes should be considered to provide additional habitat features for hollow-dependent fauna including birds, Squirrel Glider and microchiropteran bats.
- Should any further ecological field surveys be undertaken to support the planning proposal for the reclassification and rezoning of part of Boomerang Park, the results of these surveys (e.g. any additional records of threatened species) should also be used to inform the revised plan of management



5 BIBLIOGRAPHY

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APPENDIX A EPBC ACT PROTECTED MATTERS REPORT



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 17/12/15 13:35:28

[Summary](#)

[Details](#)

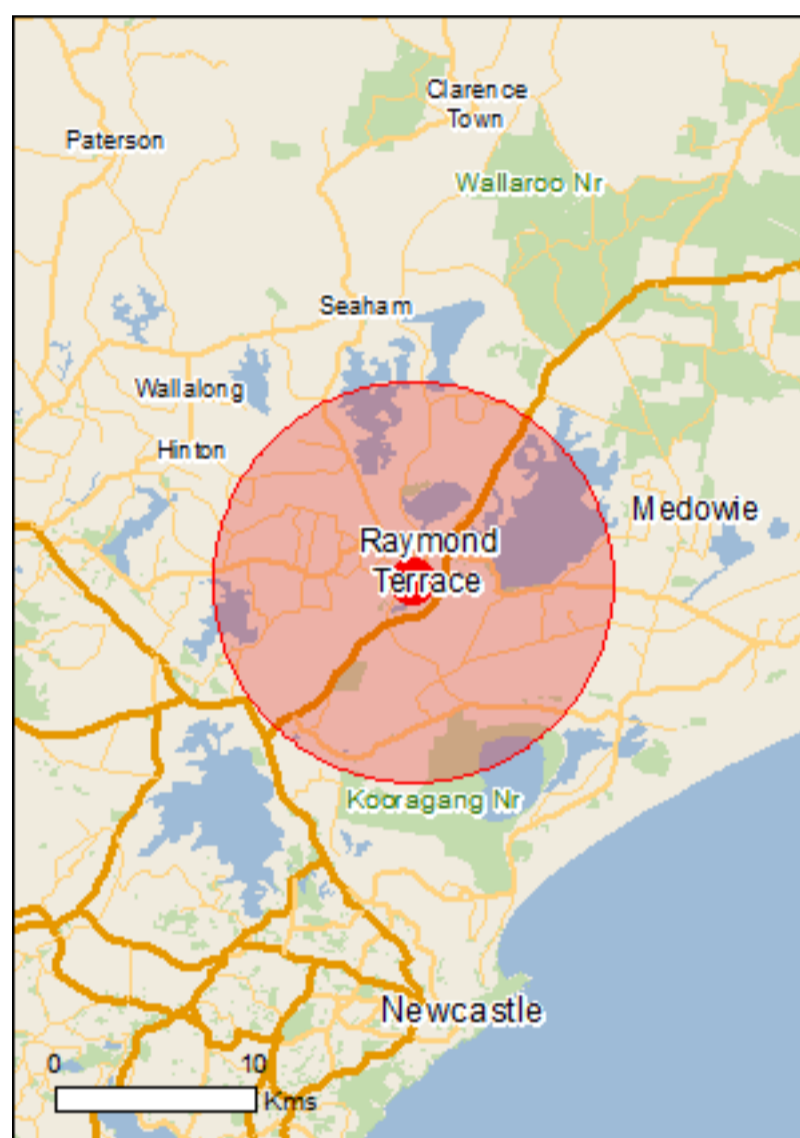
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

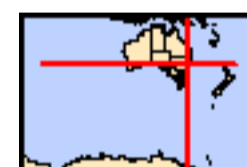
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 10.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	52
Listed Migratory Species:	63

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	8
Commonwealth Heritage Places:	1
Listed Marine Species:	66
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	2
Regional Forest Agreements:	1
Invasive Species:	46
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)

[\[Resource Information \]](#)

Name	Proximity
Hunter estuary wetlands	Within Ramsar site

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Roosting known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area
Diomedea epomophora epomophora Southern Royal Albatross [25996]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora sanfordi Northern Royal Albatross [82331]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans antipodensis Antipodean Albatross [82269]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans exulans Tristan Albatross [82337]	Endangered	Species or species habitat may occur within area
Diomedea exulans gibsoni Gibson's Albatross [82271]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Name	Status	Type of Presence
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew [847]	Critically Endangered	Roosting known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta salvini Salvin's Albatross [82343]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris impavida Campbell Albatross [82449]	Vulnerable	Species or species habitat may occur within area
Fish		
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Angophora inopina Charmhaven Apple [64832]	Vulnerable	Species or species habitat likely to occur within area
Asperula asthenes Trailing Woodruff [14004]	Vulnerable	Species or species habitat likely to occur within area
Commersonia prostrata Dwarf Kerrawang [87152]	Endangered	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area
Eucalyptus parramattensis subsp. decadens Earp's Gum, Earp's Dirty Gum [56148]	Vulnerable	Species or species habitat known to occur within area
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat known to occur within area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area
Persicaria elatior Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea epomophora (sensu stricto) Southern Royal Albatross [1072]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered*	Foraging, feeding or related behaviour likely to occur within area
Macronectes giganteus Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within

Name	Threatened	Type of Presence area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		habitat may occur within area Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Roosting known to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Breeding likely to occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]		Roosting known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Roosting known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]		Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]		Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area

Name	Threatened	Type of Presence
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Numenius madagascariensis Eastern Curlew [847]	Critically Endangered	Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Commonwealth Land - Australian Telecommunications Commission Commonwealth Land - Commonwealth Trading Bank of Australia Commonwealth Land - Defence Housing Authority Commonwealth Land - Defence Service Homes Corporation Commonwealth Land - Director of War Service Homes Commonwealth Land - Telstra Corporation Limited Defence - RAAF BASE WILLIAMTOWN

Commonwealth Heritage Places [\[Resource Information \]](#)

Name	State	Status
Historic Williamtown RAAF Base Group	NSW	Listed place

Listed Marine Species [\[Resource Information \]](#)

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Roosting known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Breeding likely to occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]		Roosting known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Roosting known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]		Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]		Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea epomophora (sensu stricto) Southern Royal Albatross [1072]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area

Name	Threatened	Type of Presence
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered*	Foraging, feeding or related behaviour likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Himantopus himantopus Black-winged Stilt [870]		Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Macronectes giganteus Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew [847]	Critically Endangered	Roosting known to occur within area

Name	Threatened	Type of Presence
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area

Reptiles

Name	Threatened	Type of Presence
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Whales and other Cetaceans [\[Resource Information \]](#)

Name	Status	Type of Presence
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Mammals

Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
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Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Name	State
Hunter Wetlands	NSW
Tilligerry	NSW

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [\[Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
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Birds

Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species

Name	Status	Type of Presence
<p>Vulpes vulpes Red Fox, Fox [18]</p>		<p>habitat likely to occur within area</p> <p>Species or species habitat likely to occur within area</p>
Plants		
<p>Alternanthera philoxeroides Alligator Weed [11620]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Asparagus plumosus Climbing Asparagus-fern [48993]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Genista sp. X Genista monspessulana Broom [67538]</p>		<p>Species or species habitat may occur within area</p>
<p>Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Opuntia spp. Prickly Pears [82753]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]</p>		<p>Species or species habitat may occur within area</p>
<p>Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]</p>		<p>Species or species habitat likely to occur within area</p>

Name	Status	Type of Presence
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Nationally Important Wetlands		[Resource Information]
Name	State	
Kooragang Nature Reserve	NSW	

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-32.76614 151.7501

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Parks and Wildlife Commission NT, Northern Territory Government](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.



APPENDIX B RECORDED SPECIES



FLORA

CLASS PINOSPIDA (Conifers)

*Pinus spp.** - Pine

ARAUCARIACEAE

Araucaria bidwillii - Bunya Pine

*Araucaria heterophylla** - Norfolk Island Pine

CUPRESSACEAE

*Cupressus spp.** - Cypress

CLASS MAGNOLIOPSIDA (Flowering Plants)

APOCYNACEAE

Parsonsia straminea - Common Silkpod

ARACEAE

*Monstera deliciosa** - Fruit Salad Plant

ASPARAGACEAE

*Asparagus aethiopicus** - Asparagus Fern

*Asparagus setaceus** - Lace Fern

ASTERACEAE

*Bidens pilosa** - Cobblers Peg

*Cirsium vulgare** - Spear Thistle

*Conyza sumatrensis** - Tall Fleabane

*Coreopsis lanceolata** - Lance-leaved Coriopsis

*Hypochaeris radicata** - Catsear

*Senecio madagascariensis** - Fireweed

BIGNONIACEAE

*Jacaranda mimosifolia** - Jacaranda

CASUARINACEAE

Casuarina glauca - Swamp Oak

COMMELINACEAE

Commelina cyanea - Native Wandering Jew

*Tradescantia fluminensis** - Wandering Jew

CONVOLVULACEAE

Dichondra repens - Kidney Weed

CYPERACEAE

*Cyperus aggregatus** - Inflated-scale Flatsedge

*Cyperus papyrus** - Papyrus Sedge

Schoenoplectus validus - River Club-rush

FABACEAE - Subfamily Faboideae

*Trifolium repens** - White Clover

FABACEAE - Subfamily Mimosoideae

Acacia longifolia subsp. Longifolia - Sydney Golden Wattle

Acacia longissima - Long-leaf Wattle



FAGACEAE

*Quercus spp.** - Oak Tree

GERANIACEAE

*Geranium spp.** - Geranium

IRIDACEAE

Patersonia spp. - Purple Flag

LAMIACEAE

Westringia spp. - Native Rosemary

LAURACEAE

*Cinnamomum camphora** - Camphor Laurel

LOMANDRACEAE

Lomandra longifolia - Spiny-headed Mat-rush

LYTHRACEAE

*Lagerstroemia indica** - Crape Myrtle

MYRTACEAE

Angophora costata - Smooth-barked Apple

Callistemon citrinus - Crimson Bottlebrush

Callistemon linearis - Narrow-leaved Bottlebrush

Corymbia gummifera - Red Bloodwood

Corymbia maculata - Spotted Gum

Eucalyptus botryoides - Bangalay

Eucalyptus cinerea - Argyle Apple

Eucalyptus crebra - Narrow-leaved Ironbark

Eucalyptus globulus - Blue Gum

Eucalyptus microcorys - Tallowwood

Eucalyptus parramatensis subsp. decadens - Earp's Gum

Eucalyptus pilularis - Blackbutt

Eucalyptus piperita - Sydney Peppermint

Eucalyptus punctata - Grey Gum

Eucalyptus robusta - Swamp Mahogany

Eucalyptus saligna - Sydney Blue Gum

Eucalyptus signata - Scribbly Gum

Eucalyptus tereticornis - Forest Red Gum

Leptospermum polygalifolium - Lemon-scented Tea-tree

Lophostemon confertus - Brush Box

Melaleuca quinquenervia - Broad-leaved Paperbark

Melaleuca styphelioides - Prickly-leaved Paperbark

Syncarpia glomulifera - Turpentine

NYMPHAEACEAE

*Nymphaea spp.** - Water Lily

OLEACEAE

*Ligustrum sinense** - Small-leaved Privet

OXALIDACEAE



Oxalis perennans - Woodsorrel

PHORMIACEAE

Dianella caerulea - Blue Flax-lily

PITTOSPORACEAE

Pittosporum undulatum - Sweet Pittosporum

PLANTAGINACEAE

*Plantago lanceolata** – Ribwort Plantain

POACEAE

*Axonopus fissifolius** - Narrow-leaved Carpet Grass

*Briza maxima** - Quaking Grass

Cynodon dactylon - Common Couch

Deyeuxia quadriseta - Reed Bent-grass

*Digitaria sanguinalis** - Crab Grass

Imperata cylindrica - Blady Grass

Microlaena stipoides var. *stipoides* - Weeping Grass

*Melinis repens** - Red Natal Grass

*Paspalum dilatatum** - Paspalum

*Paspalum urvillei** - Vasey Grass

*Setaria parviflora** - Marsh Bristlegrass

*Stenotaphrum secundatum** - Buffalo Grass

Themeda australis - Kangaroo Grass

PROTEACEAE

Banksia integrifolia subsp. *Integrifolia* - Coastal Banksia

Banksia oblongifolia - Fern-leaved Banksia

Grevillea robusta - Silky Oak

Grevillea spp. - Grevillea

Hakea dactyloides - Finger Hakea

SALICACEAE

Salix spp.* - Willow

SALVINIACEAE

*Salvinia molesta** - Giant Salvinia

SAPINDACEAE

Cupaniopsis anacardioides - Tuckeroo

Dodonaea triquetra - Common Hop Bush

SOLANACEAE

*Solanum mauritianum** - Wild Tobacco

STRELITZIACEAE

*Strelitzia reginae** - Bird of Paradise

TYPHACEAE

Typha orientalis - Bullrush

VERBENACEAE

*Lantana camara** - Lantana

*Verbena bonariensis** - Purpletop

* Denotes non-endemic/ introduced species



FAUNA SPECIES

BIRDS

Alisterus scapularis - Australian King-parrot

Coracina novaehollandiae - Black-faced Cuckoo-shrike

Cracticus nigrogularis - Pied Butcherbird

Cracticus tibicen - Australian Magpie

Eudynamys orientalis - Eastern Koel

Falco longipennis - Australian Hobby

Manorina melanocephala - Noisy Miner

Ocyphaps lophotes - Crested Pigeon

Platycercus eximius - Eastern Rosella

Pomatostomus temporalis temporalis - Grey-crowned Babbler

Trichoglossus haematodus - Rainbow Lorikeet

Vanellus miles - Masked Lapwing

MAMMALS

Oryctolagus cuniculus - Rabbit