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Lake Macquarie, NSW 2283

22 October 2018

RE : DA 73-11-98 Newstan Colliery Mod 8

To Whom It May Concern

Five Bays Sustainable Neighbourhood Group (Five Bays SNG) is a part of Lake Macquarie City Council's Sustainable Neighbourhood Program. <http://www.sustainableneighbourhoods.org.au/five-bays.html>

One of the groups' goals is to protect and care for our natural environment. One of our projects is advocating for Awaba Conservation Area, which has been waiting to be formalised since 1972.

Lake Macquarie City Council (LMCC) has purchased a part of the proposed Conservation Area, and designated the parcel of land as Awaba Biodiversity Conservation Area, Lot 463 DP1138964 304 Wilton Road.

Modification 8 is within the boundaries of the proposed Awaba Conservation Area and crosses the south- western corner of the Awaba Biodiversity Conservation Area (ABCA). LMCC has identified ABCA as an important and significant biodiversity high value area. Please find the ABCA Plan of Management in the attachments. On Page 13 of the Environmental Assessment, land ownership is incorrect for Lot 463 DP1138964. I have notified Centennial Newstan of my observations. Ms Melissa Anderson, from planning was included into the correspondence. Mr Iain Hornshaw of Centennial Coal, assures me this has been corrected, supplying the appropriate map.

Concerns

On page 11, figure 2-4, projected fault lines and water courses are shown. Kilaben Creek and a projected fault line is in the ABCA. While these are first workings, Five Bays SNG requests that Centennial Coal works closely with LMCC in ensuring the integrity of Kilaben Creek and surrounding ecosystems.

Page 37 discusses Aboriginal community engagement and in 2010 Centennial Coal sent requests to particular Registered Aboriginal Parties. Since 2010, it is my understanding that with Biraban Local Aboriginal Land Council (LALC) as had a change of executive management at least three times in the last two years. It is also my understanding that Biraban LALC has put forward land claims within the Awaba Conservation Area. Five Bays SNG request that Centennial Coal approach the new CEO of Biraban LALC to renew the appropriate channels of dialogue and communications.

As the Chair of Five Bays Sustainable Neighbourhood Group, I appreciate the opportunity to make comment on this modification application. I look forward to seeing the outcomes of Centennial Coal working closer with LMCC, ensuring the integrity of water ways and the high value bushland that exists within the proposed first workings area.

Yours sincerely

Robyn Charlton

Chair

Five Bays Sustainable Neighbourhood Group.



Awaba Biodiversity Conservation Area - Plan of Management 2015



Lake Macquarie City Council February 2015

Acknowledgements

This Plan was prepared in consultation with a range of Lake Macquarie City Council staff and other organisations with an interest in the management of the land. Comments from the NSW Office of Environment and Heritage are gratefully acknowledged.

Photo credits

Lake Macquarie City Council, Martin Fallding and Niche Environment and Heritage.

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Summary

The Awaba Biodiversity Conservation Area has been established by Lake Macquarie City Council for the purposes of protecting its natural ecosystems and biodiversity values. It provides an offset to compensate for the loss of biodiversity resulting from Council development elsewhere in the City.

The land has an area of 121 ha, is located south of Wilton Road at Awaba, and forms part of a large area of natural bushland. It has significant biodiversity values.

This Plan of Management outlines Lake Macquarie City Council's objectives and actions in managing the land. The Plan has been prepared in consultation with stakeholders with an interest in its future management.

Key issues addressed in the Plan are weeds, maintaining biodiversity and threatened species, access and tracks, bush fire management, feral animals, and monitoring and reporting.

1 About the Plan

This Plan has been prepared to guide future management of the Awaba Biodiversity Conservation Area, a bushland site owned by Lake Macquarie City Council. The plan is referred to as the Awaba Biodiversity Conservation Area Plan of Management.

The Plan applies to all of Lot 463 DP 1138964, 304 Wilton Road, Awaba as shown on Map 1, an area of 121.19 ha. The land was purchased by the Council for the purpose of protecting the biodiversity values of the site in perpetuity and to use the site as a biodiversity offset for expansion of the Awaba Waste Management Facility (AWMF). Other Council development projects will potentially use biodiversity offsets resulting from the protection of the land.

The Awaba Waste Management Facility project approval (consolidated) as modified by the NSW Land and Environment Court on 23 October 2013 requires the making of a Biodiversity Offset Management Plan (BOMP). This Plan fulfils that consent requirement.

This Awaba Biodiversity Conservation Area Plan of Management outlines how the land will be managed to protect and maintain its biodiversity offset values. Key roles of the Plan are:

- To record the biodiversity offset strategy required as a development consent condition, and to document biodiversity values on the land.
- To provide a framework for ongoing management of the land, by outlining key issues, objectives, management areas, actions and a budget.
- To identify requirements for monitoring and evaluation.
- To identify a process of stakeholder consultation in managing the land and revising the Plan as required.

Lake Macquarie City Council is the manager of the land. The land is categorised as Operational Land for the purposes of the *Local Government Act 1993*, meaning that Lake Macquarie City Council as landowner is managing the area for operational purposes to support the AWMF rather than a community purpose such a parkland. There is no legislative requirement for the preparation of a plan of management for the land.

The land forms part of a larger contiguous area of native vegetation recognised as having high biodiversity values. Current planning controls applying to the land and surrounding areas recognise and aim to protect these natural values.

The Plan recognises prior Aboriginal use and ownership of the land and acknowledges its traditional owners. The land has cultural importance for a number of Aboriginal people and groups, and a desire for access rights has been expressed. Part of the land contains track constructed and maintained by the Westlakes Automobile Club Inc, a non-profit community association. Centennial Newstan has existing rights affecting the land under current mining leases and development consent. The Plan recognises these uses and outlines continuing responsibilities where they are to continue.

This Plan was approved by the NSW Department of Planning and Environment on 22 January 2015 and commenced on 1 February 2015. The provisions of the Plan are to be reported on annually, and the Plan is to be reviewed and updated at not less than 5 yearly intervals after its commencement.

2 About the land

The land is south of Wilton Road at Awaba, and has an undulating topography rising from about 20 metres to 100 metres above sea level. It comprises two main gullies running from west to east and three east–west oriented ridgelines with sandy loam soils. The southern gully on the land forms the headwaters of Kilaben Creek.

The land contains native vegetation over virtually its whole area with the exception of some tracks. Although there is evidence of some light logging in the past, the native vegetation remains in very good condition and there are virtually no weeds evident, except in localised areas of disturbance along tracks. Access tracks were constructed on the land around the late 1950's, some of which were used to service a former power line crossing the site from south-east to north-west. which has now been removed.



Figure 1 - View north across the land

A biodiversity assessment of the land was undertaken to document its biodiversity values and credits that could be generated using the Biobanking Assessment Methodology (Niche Environment and Heritage 2013, DECCW 2009). Vegetation mapping for the site was reviewed and updated by Eastcoast Flora Survey (2014) to maintain consistency with the Lake Macquarie City Council vegetation mapping program, and identifies five vegetation communities as shown on Map 2. A total of 151 native plant species were recorded (Niche Environment and Heritage 2013), including the threatened species *Tetratheca juncea* and *Acacia bynoeana* (one specimen only). Thirty six fauna species have been recorded on the site, including two threatened fauna species, being the Powerful Owl and Glossy Black Cockatoo. Species lists are provided in Appendix A.

Flora and fauna surveys of the site have concentrated on creation of ecosystem credits and on threatened species for which species credits can be created under the Biobanking Assessment Methodology. As a result, the species recorded do not represent a comprehensive list of all native species present on the site. In particular, ground orchids could be expected to occur, and the number of fauna species using the site is expected to be much greater than the number currently identified.



Figure 2 - Forest and woodland vegetation communities occur on the land

The land comprises the Awaba and Doyalson soil landscapes (Murphy 1993). The Awaba soil landscape is characterised by low rolling hills on predominantly coarse-grained sediments of the Narrabeen Group and Newcastle Coal measures. It contains some localised steep slopes and narrow, incised drainage lines. Soils are shallow, erodible and of low fertility. The Doyalson soil landscape forms the southern portion of the land and comprises gently undulating rises on Munmorah Conglomerate, with broad crests and ridges with long, gently inclined slopes. Soils in this landscape are moderately deep, infertile and are subject to erosion and localised seasonal waterlogging. The soil characteristics have implications for management of trails on the land.



Figure 3 - A number of plants in the family Proteaceae occur on the land, including *Lambertia formosa*

An Aboriginal Heritage Information Management System (AHIMS) search for identified Aboriginal sites shows that one site has been identified on the land (Site ID 45-7-0319) which comprises a carved or scarred tree. It is expected that the land contains other Aboriginal cultural heritage values. Sensitive Aboriginal landscapes on the land include ridges and watercourses.

3 Plan status

This Plan is required to fulfil the terms of a condition of consent for the Awaba Waste Management Facility (AWMF), which requires biodiversity offsets to compensate for the loss of biodiversity values arising from the development. This was a major project (MP 10_0139) under the now defunct Part 3A of the *Environmental Planning and Assessment Act 1979*. Consent for the AWMF was Issued on 8 May 2013 by NSW Planning and Infrastructure and Condition 51, Schedule 4 of the consent states that “Prior to construction, the Proponent shall prepare a Biodiversity Offset Management Plan for Lot 463 DP 1138964 in consultation with OEH and to the satisfaction of the Director-General”. The biodiversity offset strategy to be implemented through this Plan is outlined in Section 4. Condition 51A of the approval for the AWMF requires a restriction as to user on the land to implement the Biodiversity Offset Strategy.

In addition, this Plan will guide Lake Macquarie City Council as landowner and management authority in how to manage the land. The Plan outlines principles to guide management actions and identifies required management actions and a budget for implementing these actions.

The land is affected by a number of interests and restrictions as identified below:

- Lot 463 DP 1138964 is within and surrounded by various mining authorities held by Centennial Newstan Pty Ltd. Exploration Licence No 5138 (EL5138) and Mining Lease No 1452 (ML1452) overlap the land. These titles are granted under the *Mining Act 1992*. EL5138 includes the surface and land below to a depth of 15.24m and gives the holder various rights to explore for coal. ML1452 was granted on 6 July 1999 for a period of 21 years and operates until 2020 (unless extended by renewal). The lease excludes the surface of the land to a depth of 15.24m. ML1452 permits underground mining and was granted following development consent for the Newstan Life Extension Project, but it is unclear as to whether development consent for mining exists under the land. Under the *Mining Act 1992*, the holder of a sub-surface mining lease can make application to carry out various surface activities related to mining but is required to reach agreement with the landowner, prior to commencing surface works. The mining lease holder has advised Council that in the event of future underground mining, up to approximately 6 ha of surface disturbance to the land may be required.
- The land was purchased from the NSW Aboriginal Land Council. There are no site specific Aboriginal interests in, or claims on the land, although Lake Macquarie City Council recognises that the land is Aboriginal traditional land and is of Aboriginal cultural value. A number of Aboriginal groups have been consulted with in the preparation of the Plan.
- Under the terms of the AWMF development approval (condition 51A), Lake Macquarie City Council is required to register a restriction on user burdening the land (Lot 463 DP 1138964) in favour of the Minister for Planning and Infrastructure to implement the Biodiversity Offset Strategy in condition 50 of the approval.

- Part of the land contains a constructed track used for motor racing and maintained by the Westlakes Automobile Club Inc. Preliminary discussions have taken place between representatives of Lake Macquarie City Council and the club to determine a process to determine the future of this track, as discussed elsewhere in the Plan.
- Under the terms of the AWMF development approval (condition 51A), Lake Macquarie City Council is required to register a restriction on user burdening the land (Lot 463 DP 1138964) in favour of the Minister for Planning and Infrastructure to implement the Biodiversity Offset Strategy in condition 50 of the approval. It is a requirement that the restriction on user instrument not restrict or constrain the holder of an authority granted or renewed under the *Mining Act 1992* or any Act consolidating or replacing that Act from carrying out on the subject land prospecting, mining operations, mining purposes and related improvements and activities authorised by or under any such authority.
- Native Title Claims under the *Native Title Act 1993* affecting large areas have the potential to affect the land in the future but have not been determined. Lake Macquarie City Council is aware that the Wonnarua People are party to an Indigenous Land Use Agreement in respect of coal mining leases adjacent to the land.

Under the terms of the *Local Government Act 1993*, the land is classified as Operational. No plan of management for the land is required under this legislation. However, management will generally be consistent with that applied to Community land categorised as Natural Area under that Act. There are no easements, rights of carriageway, or other title restrictions currently affecting the land.

This Plan does not over-rule existing legislation that also applies to the management of Council owned land. Other legislation and policies to be considered in management of the land include, but are not limited to:

- *Local Government Act 1993*
- *Environmental Planning & Assessment Act 1979*, & instruments made under that Act
- *Threatened Species Conservation Act 1995*
- *Native Vegetation Act 2003*
- *Water Management Act 2000*
- *Clean Waters Act 1970*
- *Rural Fires Act 1997*
- *Noxious Weeds Act 1993*
- *Pesticides Act 1999*
- Lake Macquarie Bush Fire Risk Management Plan
- Lake Macquarie Biodiversity Offsetting Practice Guideline
- Lake Macquarie Vertebrate Pest Policy

Note that no provisions in a recovery plan or threat abatement plan prepared under the *Threatened Species Conservation Act 1995* or *Fisheries Management Act 1994* that apply to the land.

This Plan authorises the granting of future leases and licences or delegation of management of the land for purposes consistent with the objectives of this Plan. This Plan also allows Council to enter into a conservation agreement, including a Biobanking agreement under the *Threatened Species Conservation Act 1995* with the Minister administering the *National Parks and Wildlife Act 1974* and *Threatened Species Conservation Act 1995* to provide for the maintenance of its biodiversity values in perpetuity.

4 Biodiversity strategy

A Biodiversity Offset Strategy was prepared as part of the AWMF project documentation and is summarised in approval condition 50 (Table 3). The strategy provides that the whole of the land will be conserved for its biodiversity values in perpetuity, pursuant to the terms of a restrictive covenant referred to in the AWMF Development Approval (condition 51A), specifically to compensate for the loss of biodiversity values on a number of Lake Macquarie City Council development sites. The strategy is based on the application of the NSW Biobanking Assessment Methodology (Version 2.0) to the land by Niche Environment and Heritage (2013). As no Biobank site is to be established, no formal Biobanking credits have been created, and therefore the offsetting measurement is referred to as an “equivalent credit”.



Figure 4 - The key management objective for the land is to protect its biodiversity values

Based on the determination by Niche Environment and Heritage (2013) and as outlined in the Biodiversity Offset Strategy and approved in the development consent, the “equivalent credits” available for offsetting on Lot 463 DP 1138964 and the “equivalent credits” used to offset the approved AWMF project are shown in the following table. The calculations are based on the determination by Niche (2013) and accepted by the approval authority.

Table 1 Biodiversity offsetting “equivalent credits” for Lot 463 DP 1138964

“Equivalent credit” type	“Equivalent credits” available	“Equivalent credits” used to offset AWMF	“Equivalent credits” available for other offsets
Ecosystem credits	869	392	477
Species credits – <i>Tetratheca juncea</i>	49,938	33,853	16,085
Species credits – <i>Acacia bynoeana</i>	6	0	6

Note: Since Biobanking credits are not being created, and therefore cannot be retired under the Biobanking Scheme as provided for in the *Threatened Species Conservation Act 1995*, Lake Macquarie City Council undertakes to record and account for the ‘equivalent credits’ on the land to ensure that they are not used more than once to offset development on other sites.

The calculation and use of the land for biodiversity offsetting has taken into account the Office of Environment and Heritage principles for the use of biodiversity offsets in NSW. In particular, the use and management of the land complies with these principles, particularly since the site will protect biodiversity values in the long term, the offsets are quantifiable, achieve like for like or better outcomes, and supplementary, and enforceable through development consent processes.

Development consent for the AWMF requires biodiversity offsets to be provided on Lot 463 DP 1138964 by maintaining on that land:

- 33,853 *Tetratheca juncea* species “equivalent credits”
- 392 ecosystem “equivalent credits”

A biodiversity offsets balance register for the site is maintained, and Appendix F shows this balance at the time of the preparation of the plan. Lake Macquarie City Council undertakes to record and account for offsets on the land to ensure they are not used more than once to offset development on other sites. Offsets are provided on the land for three development projects, and a map showing the allocated offset areas for each project is in Appendix G.

Under the terms of condition 51 of the project approval, the Plan must be prepared prior to construction of the AWMF “*in consultation with the Office of Environment and Heritage and to the satisfaction of the Director-General of the Department of Planning and Infrastructure*”.

This Plan has been prepared in consultation with the Office of Environment and Heritage as required by the consent condition. A letter outlining the consultation process and conclusions is included in Appendix C.

5 Plan objectives

This Plan aims to protect the biodiversity values on the land as a biodiversity offset with the following land management objectives:

1. To maintain and improve the biodiversity values of the land, and support the conservation of adjoining bushland.
2. To periodically monitor biodiversity, and review the effectiveness of management actions.
3. To provide access for approved uses on the land (eg Aboriginal traditional use or scientific research) compatible with the protection of its biodiversity values.
4. To minimise long-term management costs.
5. To ensure that the interests of neighbouring property owners and users are taken into account in managing the land.

Lake Macquarie City Council will consider making the site a Biobanking site under the *Threatened Species Conservation Act 1995* if this becomes feasible in the future.

6 Management issues & guidelines

This part identifies priority issues and guidelines for the management of the land in general order of priority as follows:

- Weed management
- Maintaining biodiversity and threatened species
- Access and track management
- Bush fire management
- Feral animal management
- Governance, monitoring and reporting
- Other issues

The following sections of the Plan provide background information for each issue, together with management principles, management actions and budget, relationships to other management issues, actions not allowed, and monitoring and record keeping requirements. In some cases active management is required, whereas the management of some issues requires passive management (ie not taking actions).



Figure 5 - Large trees with hollows provide important fauna habitat

6.1 Weed management

Background information

For the purpose of native vegetation management, a weed is regarded as any non-locally indigenous plant.

Overall, the bushland on the site is in excellent condition and has relatively few weeds. Weeds that do occur on the land are identified in Appendix A and are mainly distributed along the roadside on the northern part of the land, and along the internal tracks.

Weed invasion probably represents the most significant long term threat to the biodiversity values of the land, and will require ongoing monitoring and management actions. There is a risk of new weed invasions, which is difficult to anticipate, and for which allowance should be made.

An important component of initial weed surveys and control measures will be the preparation of a distribution map for each weed species. This will form the basis for planning the annual weed management program.

Measures are to be implemented to control and manage existing and future processes leading to weed invasion and sources of weeds which are invasive of natural areas. An important element of weed control is an understanding the causes of weed invasion and taking measures to minimise these causes.

Weed invasion occurs in natural areas mainly as a result of the following factors:

- physical disturbance due to construction activity, clearing, or mowing
- increased soil moisture due to runoff
- increased nutrients from runoff or waste dumping
- increased light levels due to clearing or dieback
- increase in weed propagules and seed dispersal agents.

Measures are to be taken to prevent the occurrence of factors leading to weed invasion. Typically, weeds move into bushland from adjoining urban or other modified areas. The main entry locations are stormwater drains, roads and tracks. Weeds tend to spread most rapidly downslope along watercourses, roads and tracks, and then move slowly into adjacent bushland.

The weeds identified in Table 2 have been identified on the land and require management, and if possible removal. Weeds identified in Table 3 are potential weeds.

Table 2 Weeds currently occurring on the land

Common name	Scientific name	Key characteristics	Management strategy	Site location & management actions
Asparagus sp.	<i>Asparagus aethiopicus?</i>	Class 4 Noxious Weed. Perennial climber or scrambling plant commonly spread by dumped garden waste containing seeds and rhizomes and by birds that eat the colourful berries and deposit seeds in their droppings. Seeds germinate readily and start new infestations	Hand remove small populations or isolated plants. Carefully remove all fragments of the tuberous root system and all berries. Carefully treat larger infestations with herbicide or by weeding. If flowering, cut foliage back to main stem to prevent fruiting. If already fruiting, harvest material and destroy by burning or deep burial	Along Wilton Road. Hand removal
Bitou bush*	<i>Chrysanthemoides monilifera rotundata</i>	Class 4 Noxious Weed and a Weed of National Significance	Must be managed in a manner that reduces its numbers spread and continuously inhibits its reproduction	Scattered across site in natural bushland. Regular inspection and manual removal.

Common name	Scientific name	Key characteristics	Management strategy	Site location & management actions
Blackberry *	<i>Rubus fruticosus</i>	Class 4 noxious weed. Perennial with canes capable of forming new plants where tips contact ground. Spread by birds and animals. Only one plant identified on the land.	Growth must be managed in a manner that reduces its numbers spread and incidence and continuously inhibits its reproduction	Only one plant identified on the land along internal track near creek. Seek to manage and prevent spread of infestations by manual removal and/or chemical treatment with a metsulfuron – methyl product.
Buffalo grass	<i>Stenotaphrum secundatum</i>	Creeping grass usually 10-30 cm tall. Widespread lawn grass	Foliar spray	Along Wilton Road. Spray
Carpet grass	<i>Axonopus fissifolius</i>	Summer growing perennial grass.	Foliar spray	Internal track near gully crossing. Spray
Cassia	<i>Senna pendula</i>	Perennial sprawling multi-stemmed shrub or tree up to 5m tall. The large seed pods are eaten by birds and other animals. Establishes in a wide range of native plant communities	Dispose of large seed pods. Plants easily dug out, removing all roots. Herbicide treatment using the cut and paint technique	Along Wilton Road. Manually remove
Thatch grass	<i>Hyparrhenia rufa</i> subsp. <i>rufa</i>	A long lived invasive drought, fire and herbicide tolerant tussock grass. Dispersed by wind and vehicles. Flowers and sets seed from spring to autumn	Foliar spray, with 2 – 3 applications for control. Potential for spread by slashing and vehicles	Along Wilton Road. Spray and monitor spread

Common name	Scientific name	Key characteristics	Management strategy	Site location & management actions
Crofton weed*	<i>Ageratina adenophora</i>	Class 4 Noxious Weed. Flowers in mid Spring (mid October), seed spreads by wind, preferentially grows along watercourses, wet areas and in disturbed areas	The growth of the plant must be managed in a manner that reduces its numbers spread and incidence and continuously inhibits its reproduction. Control by annual physical removal and/or chemical treatment with a metsulfuron – methyl product. Remove when flowering (usually August/September) and before seeding. Map the distribution, regular inspection, liaise with neighbours to prevent spread	On disturbed land near edge of WAC track. Inspect and pull out by hand (preferably when soil is moist)
Whiskey grass	<i>Andropogon virginicus</i>	Perennial tufted grass 0.5 – 1m in height. Reproduces mainly by seed, and commonly dispersed by vehicles or slashing. Can invade open woodlands and forests	Foliar spray, or physical removal before seeding in summer/autumn.	Primarily along tracks

Common name	Scientific name	Key characteristics	Management strategy	Site location & management actions
Phoenix Palm	<i>Phoenix canariensis</i>	Seeds spread by birds and water	Dig out, seedlings and small plants (all year round), and dispose of material appropriately off site. Drill and inject large plants (all year round): drill holes at least 2.5 cm deep every 10 cm around trunk, near the ground, and inject each with 10 ml glyphosate (undiluted). Cut and paint stumps (all year round): glyphosate (250ml/L). Leaves can be mulched, but dispose of trunk appropriately. Alternatively, overall spray (spring-summer): spray new growth with glyphosate (20ml/L) + penetrant. Monitor periodically	Along Wilton Road. Mechanical removal is preferred
London Pride	<i>saxifraga umbrosa</i>	Horticultural plant	Little known	Along Wilton Road. Manual removal
Rhodes Grass	<i>Chloris gayana</i>	Drought tolerant perennial or annual grass, generally in disturbed areas	Manual removal when other grasses are being treated with chemicals.	Along Wilton Road

Note - weeds identified with * are listed as noxious under the *Noxious Weeds Act 1993*.

Table 3 **Potential weeds** (capable of spreading to the land)

Common name	Scientific name	Key characteristics	Management strategy	Management actions
Camphor laurel	<i>Cinnamomum camphora</i>	Large tree capable of invading bushland. Seeds spread by birds	Manual removal of seedlings if found	Monitor
Lantana*	<i>Lantana species</i>	Weed of National Significance	Monitor. Manual removal	Monitor
African Love Grass	<i>Eragrostis curvula</i>	Perennial grass found along roadsides, spread by vehicles	Monitor tracks and road sides, and spray if present.	Monitor

Note: This is an indicative list only, and other weeds have potential to colonise the land. Note that the adjacent Awaba Waste Management Facility (AWMF) could be an important source of weed dispersal onto the land to which the Plan applies, and continuous improvement of management at this Facility should remain on objective.



Figure 6 - Weeds including Bitou Bush occur on the land, mainly in disturbed areas

Key principles

Controlling weeds requires attention to the biological characteristics of individual species, as summarised in Table 2 and 3. Priority for weed management will be given to reduction in the occurrence of existing species, and monitoring and elimination of the identified potential species.

An important part of weed management is regular monitoring of weeds in natural areas on an ongoing basis. This is to be done by periodically walking over the land at times when plants are most likely to be evident (eg during flowering or rapid growth

stages), and at least annually. Walking routes should be along all existing tracks (weeds are most likely to grow here), along watercourses, and also randomly in areas not commonly frequented, particularly for those species spread by birds.

Monitoring is to be undertaken to identify and respond to the occurrence of new plant species posing a potential threat to natural areas.

Weed control is to be carried out in a manner that minimises negative environmental impacts. Different techniques are required in varying situations, especially along watercourses, which are very sensitive to pollution impacts.

Where there are existing infestations, the management priority is to ensure that there is no spread of the area of infestation, and the preferred method is to work from the least infested areas first, to the most infested areas last.

Noxious weeds (plants posing a threat to agriculture, the environment or the community) are formally declared under the *Noxious Weeds Act 1993*. Some categories of noxious weeds are legally required to be removed as soon as possible.

The preferred method of weed control is manual removal, or control by slashing. Weed spraying with chemicals is a last resort option.

Vehicles have potential to spread introduced weed species (eg earthmoving machinery) and shall be washed before entering the site, and any areas of operation will be monitored annually for two subsequent years during Spring.

A key area for weed control is along internal tracks and land directly adjacent and downslope from the Westlakes Automobile Club track, and in the vicinity of any associated earthworks.

Management requirements

Correct weed identification is essential.

It is important to undertake manual removal of weeds at the correct time (Tables 2 and 3). This means removal before flowering and seeding, or when a weed plant is at maximum visibility. During moist soil conditions, mechanical removal is most effective, since maximum root removal can be achieved.

Relationship to other management issues

Other management issues directly relate to the potential for introduction and spread of weeds, and their management. Weeds are most likely to be introduced by motor vehicles, rubbish dumping, earthworks and by wind and bird spread. More intense weed survey and control must be undertaken in the 12 months following any bush fire.

Management actions & budget

Allow 1 – 2 weeks per year for monitoring and physical removal of weeds by a qualified team at a suitable time during at least 2 seasons.

Things not to do

Do not allow existing weeds to seed and spread further, especially Crofton Weed and Blackberry.

Measuring performance & keeping records

Undertake a comprehensive weed survey in the first year of management.

Regular weed monitoring (see survey and monitoring program in Section 6.2).

Prepare and maintain a map of the distribution of each weed species on the land (both current and historic distribution), updated annually.

6.2 Maintaining biodiversity and threatened species

Background information

Biodiversity refers to the variety of native flora and flora species and other organisms that occur on the land. A key objective of management is to retain the biodiversity and natural vegetation communities occurring on the land, especially listed threatened species.

The main purpose of owning and managing the land is to maintain and enhance its biodiversity values, especially the threatened species occurring on the land. Part of this Plan is documentation of the biodiversity values of the land and identifying which of these values have been used as development offsets and which of these values may potentially be available for future offsets. The second key component of the Plan is the outline of the management actions that are needed to maintain and enhance biodiversity values on the land.



Figure 7 - Vegetation communities on the land have high biodiversity value

Biodiversity values on the site have been assessed by Niche Environment and Heritage (2013) using the Biobanking Assessment Methodology applying in 2013 (Version 2.0). Key threatened species occurring on the site are the plants *Tetratheca juncea* and *Grevillea parviflora* subsp. *parviflora*, although knowledge of the latter on the site is uncertain. While threatened fauna species probably do utilise the site as permanent residents or intermittently, these have not been documented. Although the Biobanking Assessment Methodology has been used to quantify offsetting values, no credits have been created or traded and therefore these values are indicative only. While they have no legal status apart from a development consent

requirement, they nevertheless provide the basis for negotiated offset arrangements and are formally recognised in the Plan.

The matters most likely to affect biodiversity values and threatened species arise directly or indirectly from human impacts and disturbance, and include weed invasion, impacts from use of access tracks and bush fires. These matters are identified as separate management issues.



Figure 8 - The threatened plant species *Tetratheca juncea* occurs extensively on the land

Key principles

A list of species present on the land will be maintained and periodically updated (Appendix A).

Before any activity with the potential to disturb the land surface or vegetation is carried out on the land, a flora survey must be undertaken to establish an inventory of the species present, and any specific management requirements for particular plants.

Where land disturbance occurs, measures are to be taken to ensure minimal disturbance. Earthmoving machinery is to be washed down prior to entering onto the land to prevent the introduction of non-indigenous plant material.

On sites to be rehabilitated, natural regeneration is the preferred method. Any planting of vegetation in rehabilitation areas will only use local genetic material from the land.

Dead trees and fallen timber are to be retained on the land except where these have the potential to fall on Wilton Road and/or cause a traffic hazard.

Different plant species have varying fire sensitivity and may require varying fire frequencies and intensities for survival. This is to be considered in undertaking any management activities involving the use of fire (see also section 6.4 and Appendix B). Characteristics of the following species or groups occurring on the land are outlined in the Table 4. This table provides examples only and is not comprehensive.

Table 4 Examples of plant fire responses and characteristics

Scientific name	Common name	Fire response & characteristics
<i>Tetralochea juncea</i>	Black-eyed Susan	Resprouts and grows from seed. Fire frequency should not be shorter than the time taken for plants to develop to reproductive maturity, and go through one or more reproductive cycles to replenish the seed bank. Maintaining habitat requires periodic fire with a probable desirable interval of between 7 and 30 years (Lake Macquarie City Council 2014).
<i>Callicoma serratifolia</i>	Black Wattle	Resprouter. Primary juvenile period 3-5 years.
<i>Imperata cylindrica</i>	Blady grass	Resprouter.
<i>Pteridium esculentum</i>	Bracken fern	Resprouter. Indefinite longevity.
	Ground orchids	Killed. Fires should avoid flowering/ fruiting periods.

Deliberate introduction of new fauna species, or relocation of species from off the site, must not be undertaken.

Measures are to be taken to avoid fragmentation of vegetation in natural areas by roads, tracks, services, etc. Natural areas should be retained in contiguous areas as large as possible, with the minimum length of perimeters.

Native fauna populations and habitats are to be protected, maintained and enhanced. Impacts on wildlife and habitat are to be taken into consideration whenever any management activity is proposed (such as bushland regeneration, weed control, bushfire hazard reduction, etc). It is noted that a comprehensive fauna survey of the land has not been undertaken, as the Biobanking assessment undertaken for the land did not include fauna surveys for all species or groups.

The land is occupied and utilised by listed threatened native flora and fauna species. Any activities undertaken on the land shall be carried out in a manner that ensures that these species are not adversely affected by the activity. Management measures are described in Table 5.

Table 5 Management measures for threatened species known from the site

Scientific name	Common name	Characteristics & management measures
<i>Tetratheca juncea</i>	Black-eyed Susan	Widely spread across the site, mainly on ridges. Retain native vegetation, and suitable bush fire regime.
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>		Identification of this species requires further investigation. Management requires retention of native vegetation. No comprehensive survey has been undertaken although it is known to be dispersed across the site.
<i>Acacia bynoeana</i>		Only one plant of this species has been identified on the site. Further survey is warranted. Distribution may be affected by bush fire regime.
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	Retain dead trees and native vegetation structure. Species primarily uses the land for foraging, especially <i>Allocasuarina</i> species.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	Nomadic species observed on the site. Retain native vegetation structure.
<i>Ninox strenua</i>	Powerful Owl	Retain dead trees and native vegetation structure. Species primarily uses the land for foraging. Possible roosting or nesting trees in moist gullies, but none have been identified.

Note that other threatened species are likely to occur on the land including the Squirrel Glider, and a number of bird species.

Management requirements

Important skills required to manage biodiversity on the land are as follows:

- Fauna identification and monitoring
- Plant identification and monitoring

Flora and fauna surveys are to be consistent with relevant Lake Macquarie City Council survey guidelines and methodology.

Relationship to other management issues

Biodiversity is significantly affected by weed and bush fire management. The biodiversity issues related to weed and bush fire management are identified in Sections 6.1 and 6.4.

Management actions & budget

- Implement the proposed biodiversity monitoring program
- Provide annual budget allocation for monitoring

Things not to do

Do not introduce new species.

Measuring performance & keeping records

- Record observations of species
- Photo identification points (periodic photographs)
- Flora and fauna survey and monitoring program as outlined in Table 6, with location of sites shown on Map 3.

Table 6 Flora and fauna survey program

Species/Group	Month			Techniques	Comments
	Sept	Jan-Feb	Apr		
Native vegetation (essential)	X	X		Annual quadrat floristic surveys at identified monitoring plots (see Map 3). 5 yearly photo monitoring at each site, or after bushfires.	Systematic plot surveys can be done at any time, and about 6 months after fire. Photos to record structure and condition. Minimum of 50% of plots to be surveyed annually. Record weeds.
Weeds (essential)	X	X	X	Walk all tracks 6 monthly plus random meander	Record location and species for addition to GIS database
Small and arboreal mammals (essential)		X	X	Trapping (Elliott traps) 50 x 5 nights	Survey of small and arboreal mammals at 5 yearly intervals
Large mammals (essential)	X	X	X	Day/night transects	Use volunteers. Used opportunistically to indicate presence of feral animals. Undertaken at minimum 5 yearly interval
Amphibians (optional)		X		Frog calls and spotlighting, normally during wet conditions	Use volunteers.
Invertebrates (optional)	X	X	X	Various methods, including pitfall traps	Use volunteers. Low priority.
Birds (essential)	X	X	X	Observation	Update bird list and records continually. Record during vegetation surveys.

Note: Results of monitoring to be included in annual reporting documentation. The Council may use the community ecosystem monitoring program to undertake some of this monitoring work.



Figure 9 - Creek lines with listed endangered ecological communities occur on the land

6.3 Access and track management

Background information

Existing access tracks occur within the site, and form part of a larger track network extending to surrounding properties. There is no direct vehicular access to the land from Wilton Road. Tracks from the north and west are accessed through Crown land within mining authorities held by Centennial Newstan Pty Limited, and the track on the south of the land partly is located on Crown land within mining authorities held by Centennial Newstan Pty Limited and can be accessed from Wilton Road through land currently owned by the NSW Aboriginal Land Council.

The internal access tracks include steep and eroded sections and require works if they are to be retained for long term access purposes. Some of the tracks have been constructed on the land to service a former power line traversing the land, which has since been removed, and others may have been constructed for bush fire control in 1994. The tracks are used intermittently as part of an informal motorcycle and 4WD track network. This has impacted upon biodiversity values and the disturbance is likely to result in weed invasion and other impacts. It is proposed that a review of the track network be carried out in conjunction with adjoining landowners.

Access tracks are necessary for management of the land and bush fire management and represent a significant investment. Determining an access strategy for the land is a high priority in the early years of management. While internal tracks potentially have some value for bush fire management purposes, these tracks are not suitable for vehicles. Some tracks will be able to be closed and rehabilitated, while remaining tracks will need regular maintenance and stabilisation.

No fences exist on the land, and it is not feasible or desirable to fence the property boundaries. Access to the land from Wilton Road is restricted by steep slopes and

the road embankment and effectively prevents access along its full frontage to the land.

The Plan recognises vehicular access through the land may have a range of impacts such as introduction of weeds species, causing soil erosion or adversely affecting water quality. Any adverse impacts are most likely during wet weather, especially during winter months.

Public access to the land should not be encouraged, although walking is unlikely to cause any significant impacts on the site. It is proposed that access will not be prevented, however prior permission will be required.

Key principles

The use of the land by the public will not be encouraged or promoted as the priority use of the land is for biodiversity conservation and visitor use has the potential to adversely affect its biodiversity values. Since all tracks accessing the land from Wilton Road traverse private property not in Council's ownership, access limits along these tracks requires the co-operation of these landowners.

Subject to the limitations on activities permitted on the land as outlined in Section 10, the Council may allow public access to the land (eg by Aboriginal groups) by walking subject to adequate prior notification and consent.

Avoiding damage to tracks is best achieved by avoiding (or minimising) their use during wet weather, and by heavy vehicles such as 4WDs.

The Plan does not authorise the construction of new tracks or roads, or the substantial realignment of existing tracks.

Where a track is determined to be essential for access, periodic maintenance is to be undertaken to ensure that existing roads are regularly maintained in a safe condition. Maintenance is to have regard to relevant bush fire standards, potential safety and environmental risks.

Mountain bike riding is permitted on tracks where it will cause no damage to natural vegetation, or contribute to soil erosion or track damage.

Recreational 4WD and trail bikes are not permitted on the land, but their unauthorised use is likely to be difficult to control for the foreseeable future.

Measures (eg signage) are to be taken to cease or prevent any unauthorised access across the land consistent with that on the adjoining lands. Directional or safety signs will not be erected on the land.

Management requirements

Access tracks required for vehicular use for management are shown on Map A1 (Appendix B). Other management requirements are to:

- Negotiate with neighbouring landowners in relation to access issues and encroachments
- Undertake maintenance work only on trails that are designated as fire trails, and recognised by the Rural Fire Service
- Periodically review road safety and hazards such as trees, and the condition of tracks

Relationship to other management issues

This issue relates to bush fire management, illegal rubbish dumping, and to the ability to carry out biodiversity monitoring.

Management actions & budget

- Formalise a review of tracks within 2 years of the commencement of the Plan
- Review opportunities for the construction of gates or other access control measures

Things not to do

Vehicles are not to be used on any tracks not designated on Map A1, and not on any tracks during rain or wet conditions.

6.4 Bush fire management

Background information

The land forms part of a much larger area of bushland. A strategy for managing bush fires on the land has been prepared, having regard to the Lake Macquarie Bush Fire Management Plan, the management intentions of adjoining landowners and Rural Fire Service requirements. The bush fire management strategy is in Appendix B.

Since there will be no built assets on the land apart from potential access controls (eg gates or signs), the main bush fire management issue is to avoid potential escape of fire from the land (and consequential impacts on life and property), as well as ensuring that the bushfire management regime (ie frequency, intensity and seasonality of fire) is suitable for maintaining biodiversity and habitat structure on the land (see Section 6.2).

While there are currently a number of access tracks through the land, some of which are identified on Rural Fire Service mapping, these are not designated fire trails, and with the exception of the track along the southern boundary are in steep terrain and unsuitable for this purpose.

Advice from the local Rural Fire Brigade captain indicates that the last fire on the land was in 1994, when a number of tracks were bulldozed through bushland on, or in the vicinity of the land to make control lines.

Bush fire risks and management measures are summarised in Table 7.

Table 7 Bush fire assessment and management measures on the land

Type of risk	Potential loss	Potential risk	Risk management measures
Damage to buildings	Nil	Low	N/A
Damage to fences, gates and signs	Nil	Low	Currently no improvements or measures in place. New construction should be fire resistant
Loss of native species	Low	Low	Maintain desired fire regime
Loss of human life	Moderate	Low	Inform users of risks, and advise of procedures in the event of fire. Prevent access during extreme or catastrophic fire weather conditions
Damage to services (electricity, phone lines, etc)	Nil	Low	Not applicable
Escape of fires to neighbouring properties	Low for immediately adjoining properties	Low	Designated fire trails are proposed between property and adjoining properties to east, south and west. Asset protection measures for the adjoining Westlakes Automobile Club Inc. occupied land are able to be provided on that land.

Key principles

The bush fire strategy outlined in Appendix B is to be followed. This strategy is to be periodically reviewed.

In conjunction with adjoining landowners, negotiate a maintained designated fire trail around the land using existing tracks suitable for this purpose.

Weed monitoring and control needs to be undertaken after bush fires and any hazard reduction burning.

Periodic ecological burning as a conservation measure may be considered in the future.

Management requirements

- Implement bush fire strategy
- Maintain any designated bush fire trails as negotiated with neighbouring landowners
- Consult with the Rural Fire Service in relation to Plan reviews

Relationship to other management issues

Bush fire management is a key issue affecting all other management issues for the land. It is closely related to access and tracks.

Management actions & budget

- Discuss bush fire management arrangements with the Rural Fire Service
- Periodically review bush fire management strategy, particularly following local fire events.
- Liaise with neighbouring land owners and occupiers

Things not to do

Ensure that there is no potential for accidental ignition of fires during high fire danger periods.

Measuring performance & keeping records

A map record is to be kept showing the areas of the land burnt by any fires.

A photographic record is to be made immediately after fires, utilising existing vegetation monitoring points.

6.5 Feral animal management

Background information

Introduced fauna and feral animals have potential to adversely affect native species. Some species have potential to occur on the land.

There has been no investigation of feral animals occurring on the land. However, given that virtually all of the land contains native vegetation in a relatively undisturbed state, it is expected that feral animal populations are low and unlikely that control actions are required.

Key principles

Opportunistic monitoring will be undertaken to observe whether feral species are present, and periodic feral animal monitoring is desirable to determine the presence of species and to estimate the population of these species where present.

Domestic animals (dogs and cats) are incompatible with the protection and management of native fauna and habitat. These species are not allowed on the site.

It will be important to ensure ongoing monitoring to review the presence of feral animals over time.

Management requirements

Non-native animals will not be allowed on the site, including companion animals.

Biodiversity monitoring will be undertaken to identify the presence of feral animals.

Relationship to other management issues

The presence of feral animals will adversely affect the biodiversity values of the land.

Management actions & budget

No actions are proposed, although a contingency is proposed to allow necessary control measures to occur.

Things not to do

Introduction of feral animals is not to occur.

Measuring performance & keeping records

Feral animals will be recorded as part of the biodiversity monitoring program.

6.6 Governance, monitoring and reporting

Background information

This land will remain as a permanent offset site where biodiversity values are required to be retained. A covenant is to be imposed on the land requiring measures to protect and maintain its natural values.

The Plan forms part of a range of governance measures to ensure that the land is effectively managed, that management funding will be adequate in perpetuity and can be accounted for, and that environmental monitoring is undertaken and used to inform adaptive land management.

Lake Macquarie City Council has in place a Biodiversity Offset Practice Guideline for administration and financial management to ensure that biodiversity offset values are managed appropriately.

Key principles

The land is to remain classified as Operational Land under the Local Government Act 1993 at least until such time as it is determined that no further biodiversity offsets are required for Council developments.

Lake Macquarie City Council will be responsible for managing the land, with annual funding allocated through an integrated planning and reporting framework (LG Act).

Biodiversity data collection and management is to be undertaken in a way that it can be analysed by appropriate statistical techniques so that ecological changes and trends can be detected as early as possible to support adaptive management practice.

Management requirements

Financial arrangements for in perpetuity funding are to be made.

Relationship to other management issues

Monitoring is a key element of the Plan to enable improved adaptive management.

Management actions & budget

Establish governance and management framework

Measuring performance & keeping records

The monitoring and reporting outlined in Table 8 will be undertaken.

Table 8 Monitoring and reporting program

Matter to be monitored and reported	Frequency & method	Comments
Biodiversity	Varying frequency as outlined in Section 6.2	See Table 6
Weeds	Regular and after bush fires	Map and report on weed distribution records at least annually
Bush fire	After fire events	Map the area of the land burnt by fire. Photographs at vegetation monitoring points immediately after fires and at 6 monthly intervals for 2 years post fire. Refer to Section 6.4.
Financial expenditure	Annual	Financial accounts for the land are to be maintained and reported annually

6.7 Other issues

Other issues for future management of the land are:

- Unauthorised rubbish dumping
- Westlakes Automobile Club track
- Neighbour relations
- Potential future underground coal mining
- Aboriginal cultural heritage
- Other risks

Background information

Other management issues that will arise include dumping of rubbish, the use of track constructed on the land by the Westlakes Automobile Club Inc. (WAC), and management of Aboriginal heritage values on the site. The surface impacts of potential future underground coal mining also could impact on the site. This will be dealt with pursuant to the existing rights under current mining leases and development consent, pursuant to the terms of a Restrictive Covenant referred to in the AWMF Development Approval (condition 51A) and as part of the consideration of any future development applications and other necessary approvals for this purpose.

It is also possible that other unanticipated issues may arise in the future, which might include the introduction of pathogens or organisms that affect biodiversity values such as Phytophthora or Myrtle Rust. Contingencies and arrangements will need to be put in place to accommodate these if they eventuate and impact on the management objectives for the land.

Rubbish dumping is expected to be an ongoing issue along the Wilton Road frontage. Limited access to the remainder of the site means that this has not been a problem elsewhere on the site to date.

In conjunction with a Crown Land permissive occupancy on the adjoining land, WAC has constructed and maintains a section of its unsealed track on Council land. A number of options for the future of this track exist which require further negotiation between WAC and the Council and might include the following:

1. Immediate closure and rehabilitation of the track. Costs and timing of closure and rehabilitation methods to be negotiated between Council and WAC.
2. Formalise an interim short term (eg 3 year) lease arrangement between Council and WAC, during which time the longer term future of this track is determined. Such an arrangement would require that WAC indemnify Council for any risks that may be associated with its use of the track, undertake regular weed management associated with the track, and carry out environmental improvements (eg rubbish removal) associated with the track and its operation.
3. Enter into a long term (eg 20 year) commercial lease between WAC and Council, with WAC to pay Council's full costs of the lease, including survey costs and an annual commercial lease payment.

It is appropriate for the WAC track section of the land to be recognised as a separate management area in the Plan to facilitate resolving the presence of part of the track on Council land, and associated ongoing weed issues.

Key principles

Rubbish will be removed from the land as soon as practicable after Council is aware of it.

Actions to manage rubbish on the land will be consistent with the Council's illegal dumping strategy, and may include a range of measures including signage.

Until the future of the track constructed on Council land by the WAC is resolved, measures shall be taken to ensure that this does not have direct or indirect impacts on the biodiversity values of the land.

A long term lease of the WAC track should be at no cost to the Council.

While existing rights under the current mining leases and development consent are recognised, the Council shall oppose any surface or underground mining of the land where this has potential to adversely affect the biodiversity values for which the site is protected and managed. In the event that any damage is caused, suitable biodiversity offset arrangements and financial compensation will be sought for any losses arising or reasonably anticipated.

Management requirements

- Undertake regular rubbish removal along the Wilton Road frontage of the land
- Consult with Aboriginal interest groups about cultural heritage issues and access arrangements for the land
- Initiate negotiations with WAC to make formal arrangements for access to that section of the track on Council land and its ongoing management

Relationship to other management issues

These additional identified issues are not expected to affect the biodiversity values of the land.

Management actions & budget

Negotiate with WAC in relation to legal and management actions relating to the future use and operation of its track.

Maintain contact with neighbouring landowners and occupiers as required, including the WAC, Centennial Coal and Aboriginal organisations.

Things not to do

Do not allow dumped rubbish to accumulate on the land.

Measuring performance & keeping records

Report annually on rubbish dumping and removal, and management actions associated with the WAC track.

7 Management areas

This Part describes the way in which specific management areas are to be managed. It must be read in conjunction with the general principles and guidelines outlined in earlier sections.

Two management areas are identified for management of the land. Each area has differing management objectives and priorities. These are:

1. Natural Area - comprising undisturbed bushland native vegetation.
2. WAC occupied area – comprising that part of the WAC track constructed on Council land, any disturbed area in the vicinity, and a 20 metre bushland buffer.

Map 4 identifies the geographic extent of the management areas, and the objectives and priorities for each unit are shown in Table 9. Soil and native vegetation characteristics are common to both management areas, the only difference being in relation to the use of the land and the extent of physical disturbance.

Table 9 Area management objectives and priorities

Management area	Area (approx)	Area management objectives	Management priorities
Natural Area	121.25 ha	Protect biodiversity values, consistent with the Plan objectives and principles	Prevent physical disturbance to the land, monitor biodiversity, monitor and remove weeds.
Westlakes Automobile Club occupied area	1.77 ha	Maintain current biodiversity values, implement any agreement in relation to future use of the track made under Section 6.7.	Control weeds and prevent establishment and spread of weeds. Remove rubbish.

8 Budget, management actions and program

An annual works program will be implemented, consistent with an annual funding allocation of \$37,500 to \$70,000 depending on management responsibilities applicable in a given year, indexed each year in accordance with CPI.

The funding allocation is based on an estimate of the measures required to maintain the biodiversity values on the land, plus a contingency to cover unexpected events. This has been calculated in a separate spreadsheet.

9 Monitoring, reporting and review program

The Plan is to be reviewed within five years of the commencement of the Plan. However, the Plan remains in force despite any failure to undertake or complete such a review.

A review of the Plan is to commence at least one year prior to the date on which it ceases to remain in force. The purpose of the review is to determine whether the objectives of the Plan remain valid, and whether the Plan remains appropriate for securing those objectives. In undertaking the review, the Council is to consider the results of annual reporting and relevant background information and will consult with stakeholders with an interest in the management of the land.

This Plan specifies a management reporting and review framework with indicators and performance targets for the land, as indicated in Table 10.

Table 10 Management reporting and review framework

Issue	Objectives & Performance Targets	Means of Achievement	Manner of Assessment
Biodiversity conservation	To maintain and improve the biodiversity values of the land.	Compliance with Plan principles and actions.	Annual report.
	To periodically monitor biodiversity, and review the effectiveness of management actions.	Compliance with Plan monitoring requirements.	Annual report.
Bushland management	To limit access to facilitate approved uses on the land compatible with the protection of its biodiversity values.	Compliance with Plan principles and actions.	Annual report.

Issue	Objectives & Performance Targets	Means of Achievement	Manner of Assessment
Governance	To minimise long term management costs.	Annual financial report.	Annual report.
	To ensure that the interests of neighbouring property owners and users are taken into account.	Periodic consultation with neighbouring landowners and interest groups.	Consultation undertaken.

10 Permitted activities and responsibilities

This Plan identifies activities that are permitted without approval, activities that may be permitted with approval, and activities that are prohibited on this land. These are as outlined below. Note that a restrictive covenant is proposed to apply to the land as referred to in the AWMF development approval (Condition 51). Activities carried out must be consistent with a covenant, where it applies to the land.

Activities that do not require approval:

- Activities arranged under the auspice of bodies appointed by Council to manage the land or engaged by Council to carry out works consistent with a Plan and a restrictive covenant where it applies.
- Bush fire hazard reduction works by an authorised body, or by Council carried out in accordance with a bush fire risk management plan

Activities requiring Council's approval:

- Bush walking, research/study/education, sight-seeing
- Picnics, camping or events by an approved community group (eg scouts, guides, Aboriginal groups)
- Native seed collection.

Prohibited activities:

- Any activity that may be considered by an authorised Council officer to be dangerous to other users, or that would compromise the core objectives for the land category
- Any activity undertaken contrary to a notice on the land
- Asset Protection Zone creation for any proposed development on adjoining land
- Fires, unless specifically approved by Council

- Placing fill or rubbish on the land, unless specifically approved by Council
- Removing bush rocks or endemic plant or animal species from the land
- Trail, trike or quad bike, or unregistered vehicle use on the land
- Any other activity considered by an authorised Council officer to be contrary to the Plan objectives

Leases and licences are not authorised under this Plan, except for necessary arrangements within the Westlakes Automobile Club track area in accordance with any agreement between Lake Macquarie City Council and the WAC.

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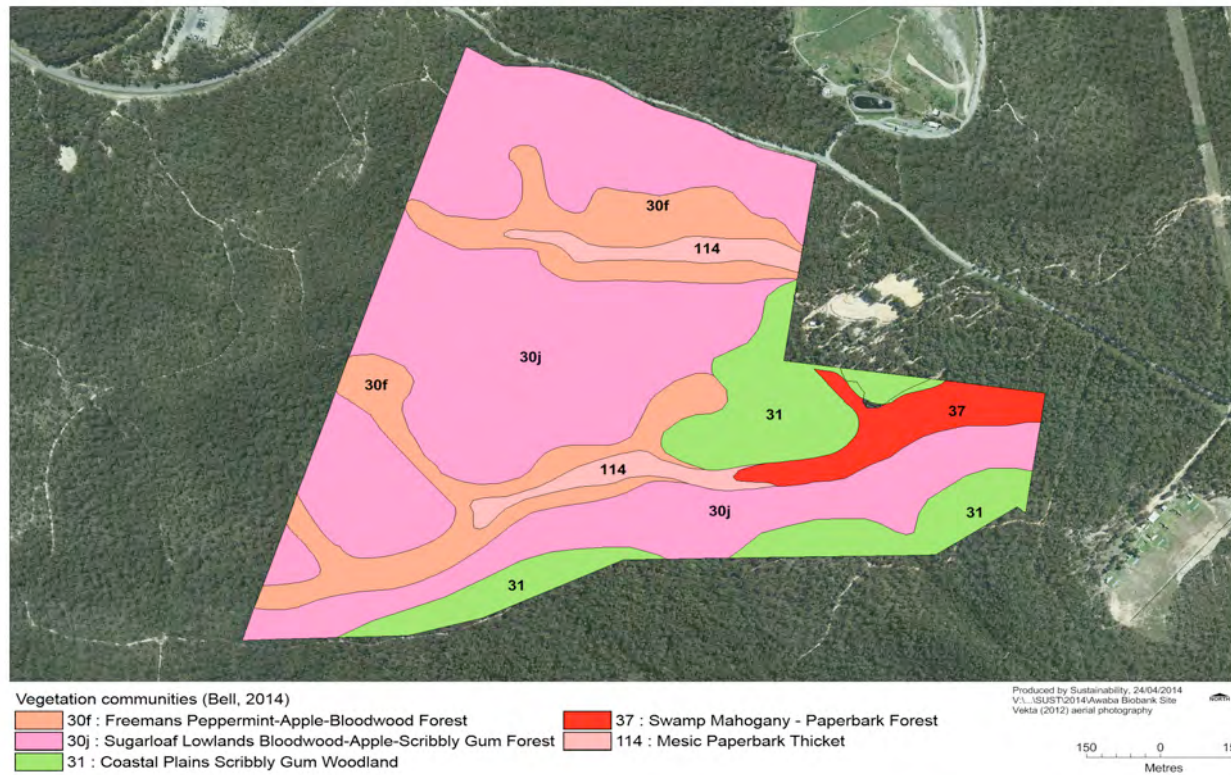
List of maps

Map 1	Location map
Map 2	Vegetation communities on the land
Map 3	Biodiversity management issues
Map 4	Management areas and infrastructure

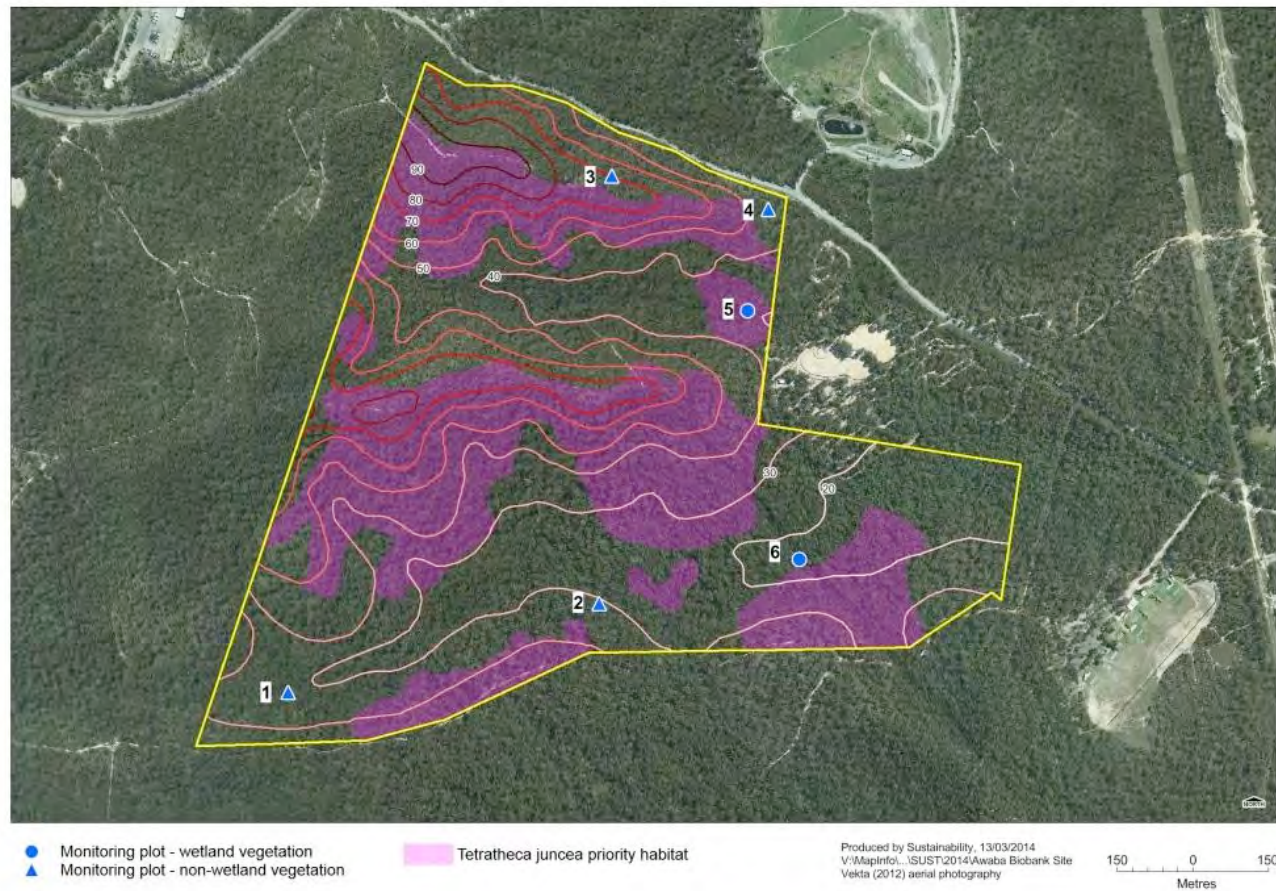
Map 1 Location map



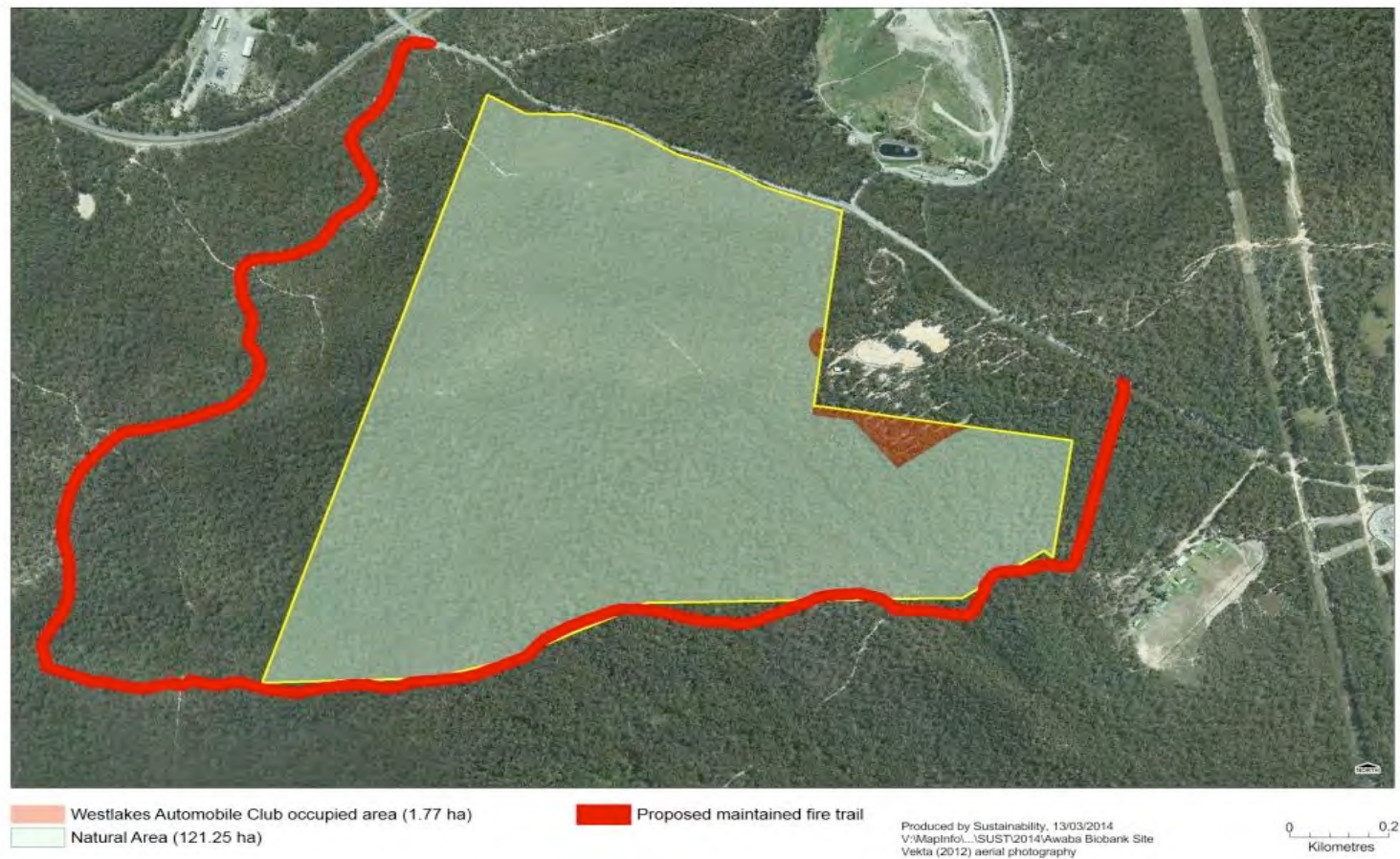
Map 2 Vegetation communities on the land



Map 3 Biodiversity management issues



Map 4 Management areas & infrastructure



Appendix A Flora and Fauna Records for the Site

A1 Flora (native) recorded during the field survey (Niche 2013)

Family	Species	Common name
Acanthaceae	<i>Brunoniella australis</i>	Blue Trumpet
Acanthaceae	<i>Pseuderanthemum variabile</i>	Pastel Flower
Adiantaceae	<i>Adiantum aethiopicum</i>	Common Maidenhair
Alismataceae	<i>Alisma plantago-aquatica</i>	Water Plantain
Apiaceae	<i>Hydrocotyle sibthorpioides</i>	
Apiaceae	<i>Platysace linearifolia</i>	
Apiaceae	<i>Xanthosia tridentata</i>	Rock Xanthosia
Araceae	<i>Gymnostachys anceps</i>	Settler's Twine
Araliaceae	<i>Astrotricha longifolia</i>	
Araliaceae	<i>Polyscias sambucifolia</i>	Elderberry Panax
Asteraceae	<i>Enydra fluctuans</i>	
Bignoniaceae	<i>Pandorea pandorana</i>	Wonga Wonga Vine
Blechnaceae	<i>Blechnum cartilagineum</i>	Gristle Fern
Blechnaceae	<i>Blechnum indicum</i>	Swamp Water Fern
Casuarinaceae	<i>Allocasuarina littoralis</i>	Black She-Oak
Casuarinaceae	<i>Allocasuarina torulosa</i>	Forest Oak
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed
Convolvulaceae	<i>Polymeria calycina</i>	
Cunoniaceae	<i>Bauera rubioides</i>	River Rose
Cunoniaceae	<i>Callicoma serratifolia</i>	Black Wattle
Cunoniaceae	<i>Ceratopetalum gummiferum</i>	Christmas Bush
Cunoniaceae	<i>Schizomeria ovata</i>	Crabapple
Cyperaceae	<i>Baumea articulata</i>	Jointed Twig-rush
Cyperaceae	<i>Carex inversa</i>	Knob Sedge
Cyperaceae	<i>Cyathochaeta diandra</i>	
Cyperaceae	<i>Eleocharis gracilis</i>	
Cyperaceae	<i>Gahnia clarkei</i>	Tall Saw-sedge
Cyperaceae	<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge
Cyperaceae	<i>Lepidosperma laterale</i>	Variable Sword-sedge
Cyperaceae	<i>Ptilothrix deusta</i>	
Cyperaceae	<i>Schoenus melanostachys</i>	
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken
Dicksoniaceae	<i>Calochlaena dubia</i>	Rainbow Fern

Dilleniaceae	<i>Hibbertia aspera</i>	Rough Guinea Flower
Dilleniaceae	<i>Hibbertia dentata</i>	Twining Guinea Flower
Dilleniaceae	<i>Hibbertia obtusifolia</i>	Hoary Guinea Flower
Dioscoreaceae	<i>Dioscorea transversa</i>	Native Yam
Doryanthaceae	<i>Doryanthes excelsa</i>	Gymea Lily
Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	Blueberry Ash
Elaeocarpaceae	<i>Tetraloche juncea</i>	Black-eyed Susan
Ericaceae	<i>Epacris pulchella</i>	Wallum Heath
Ericaceae	<i>Leucopogon lanceolatus</i>	
Ericaceae	<i>Leucopogon microphyllus</i>	
Ericaceae	<i>Monotoca scoparia</i>	
Fabaceae (Faboideae)	<i>Almaleea paludosa</i>	
Fabaceae (Faboideae)	<i>Bossiaea obcordata</i>	Spiny Bossiaea
Fabaceae (Faboideae)	<i>Dillwynia retorta</i>	
Fabaceae (Faboideae)	<i>Glycine clandestina</i>	Twining glycine
Fabaceae (Faboideae)	<i>Glycine tabacina</i>	Variable Glycine
Fabaceae (Faboideae)	<i>Gompholobium glabratum</i>	Dainty Wedge Pea
Fabaceae (Faboideae)	<i>Gompholobium grandiflorum</i>	Large Wedge Pea
Fabaceae (Faboideae)	<i>Gompholobium minus</i>	Dwarf Wedge Pea
Fabaceae (Faboideae)	<i>Hardenbergia violacea</i>	False Sarsaparilla
Fabaceae (Faboideae)	<i>Hovea linearis</i>	
Fabaceae (Faboideae)	<i>Kennedia rubicunda</i>	Dusky Coral Pea
Fabaceae (Faboideae)	<i>Mirbelia rubiifolia</i>	Heathy Mirbelia
Fabaceae (Faboideae)	<i>Platylobium formosum</i>	
Fabaceae (Faboideae)	<i>Podolobium ilicifolium</i>	Prickly Shaggy Pea
Fabaceae (Faboideae)	<i>Pultenaea rosmarinifolia</i>	
Fabaceae (Faboideae)	<i>Pultenaea tuberculata</i>	
Fabaceae (Mimosoideae)	<i>Acacia bynoeana</i>	Bynoe's Wattle
Fabaceae (Mimosoideae)	<i>Acacia irrorata</i>	Green Wattle
Fabaceae (Mimosoideae)	<i>Acacia irrorata subsp. irrorata</i>	Green Wattle
Fabaceae (Mimosoideae)	<i>Acacia longifolia</i>	
Fabaceae (Mimosoideae)	<i>Acacia suaveolens</i>	Sweet Wattle
Fabaceae (Mimosoideae)	<i>Acacia terminalis</i>	Sunshine Wattle
Goodeniaceae	<i>Dampiera stricta</i>	
Goodeniaceae	<i>Goodenia heterophylla subsp. heterophylla</i>	
Goodeniaceae	<i>Scaevola ramosissima</i>	Purple Fan-flower

Haloragaceae	<i>Gonocarpus teucrioides</i>	Germander Raspwort
Iridaceae	<i>Patersonia glabrata</i>	Leafy Purple-flag
Iridaceae	<i>Patersonia sericea</i>	Silky Purple-Flag
Lamiaceae	<i>Clerodendrum tomentosum</i>	Hairy Clerodendrum
Lauraceae	<i>Cassytha glabella</i>	
Lindsaeaceae	<i>Lindsaea linearis</i>	Screw Fern
Lindsaeaceae	<i>Lindsaea microphylla</i>	Lacy Wedge Fern
Lobeliaceae	<i>Pratia purpurascens</i>	Whiteroot
Loganiaceae	<i>Logania albiflora</i>	
Lomandraceae	<i>Lomandra confertifolia</i>	Matrush
Lomandraceae	<i>Lomandra cylindrica</i>	
Lomandraceae	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
Lomandraceae	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	Many-flowered Mat-rush
Lomandraceae	<i>Lomandra obliqua</i>	
Loranthaceae	<i>Dendrophthoe</i> spp.	
Luzuriagaceae	<i>Eustrephus latifolius</i>	Wombat Berry
Luzuriagaceae	<i>Geitonoplesium cymosum</i>	Scrambling Lily
Myrtaceae	<i>Acmena smithii</i>	Lilly Pilly
Myrtaceae	<i>Angophora costata</i>	Sydney Red Gum
Myrtaceae	<i>Corymbia gummifera</i>	Red Bloodwood
Myrtaceae	<i>Eucalyptus capitellata</i>	Brown Stringybark
Myrtaceae	<i>Eucalyptus haemastoma</i>	Broad-leaved Scribbly Gum
Myrtaceae	<i>Eucalyptus piperita</i>	Sydney Peppermint
Myrtaceae	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	
Myrtaceae	<i>Eucalyptus robusta</i>	Swamp Mahogany
Myrtaceae	<i>Eucalyptus umbra</i>	Broad-leaved White Mahogany
Myrtaceae	<i>Leptospermum polygalifolium</i>	Tantoon
Myrtaceae	<i>Leptospermum trinervium</i>	Slender Tea-tree
Myrtaceae	<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark
Myrtaceae	<i>Melaleuca sieberi</i>	
Myrtaceae	<i>Micromyrtus ciliata</i>	Fringed Heath-myrtle
Myrtaceae	<i>Syncarpia glomulifera</i>	Turpentine
Oleaceae	<i>Notelaea longifolia</i>	Large Mock-olive
Orchidaceae	<i>Dipodium punctatum</i>	
Phormiaceae	<i>Dianella caerulea</i> var. <i>producta</i>	

Phormiaceae	<i>Dianella revoluta</i>	Blueberry Lily
Phyllanthaceae	<i>Glochidion ferdinandi</i>	Cheese Tree
Phyllanthaceae	<i>Phyllanthus hirtellus</i>	Thyme Spurge
Phyllanthaceae	<i>Poranthera ericifolia</i>	
Pittosporaceae	<i>Billardiera scandens</i>	Hairy Apple Berry
Pittosporaceae	<i>Bursaria spinosa</i>	Native Blackthorn
Pittosporaceae	<i>Pittosporum revolutum</i>	Rough Fruit Pittosporum
Poaceae	<i>Anisopogon avenaceus</i>	Oat Speargrass
Poaceae	<i>Entolasia marginata</i>	Bordered Panic
Poaceae	<i>Entolasia stricta</i>	Wiry Panic
Poaceae	<i>Imperata cylindrica</i>	Blady Grass
Poaceae	<i>Joycea pallida</i>	Silvertop Wallaby Grass
Poaceae	<i>Microlaena stipoides</i>	Weeping Grass
Poaceae	<i>Oplismenus aemulus</i>	
Poaceae	<i>Oplismenus imbecillis</i>	
Poaceae	<i>Panicum simile</i>	Two-colour Panic
Poaceae	<i>Tetrarrhena juncea</i>	Wiry Ricegrass
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Polygalaceae	<i>Comesperma ericinum</i>	Pyramid Flower
Proteaceae	<i>Banksia oblongifolia</i>	Fern-leaved Banksia
Proteaceae	<i>Banksia spinulosa</i>	Hairpin Banksia
Proteaceae	<i>Banksia spinulosa</i> var. <i>collina</i>	
Proteaceae	<i>Grevillea humilis</i> subsp. <i>humilis</i>	Linear-leaf Grevillea
Proteaceae	<i>Grevillea sericea</i>	Pink Spider Flower
Proteaceae	<i>Hakea bakeriana</i>	
Proteaceae	<i>Hakea dactyloides</i>	Finger Hakea
Proteaceae	<i>Isopogon anemonifolius</i>	Broad-leaf Drumsticks
Proteaceae	<i>Lambertia formosa</i>	Mountain Devil
Proteaceae	<i>Lomatia silaifolia</i>	Crinkle Bush
Proteaceae	<i>Persoonia levis</i>	Broad-leaved Geebung
Proteaceae	<i>Persoonia linearis</i>	Narrow-leaved Geebung
Proteaceae	<i>Xylomelum pyriforme</i>	Woody Pear
Ranunculaceae	<i>Clematis aristata</i>	Old Man's Beard
Restionaceae	<i>Baloskion tetraphyllum</i> subsp. <i>tetraphyllum</i>	
Restionaceae	<i>Lepyrodia anarthria</i>	
Rubiaceae	<i>Opercularia diphylla</i>	Stinkweed

Rutaceae	<i>Boronia polygalifolia</i>	Dwarf Boronia
Sapindaceae	<i>Dodonaea triquetra</i>	Large-leaf Hop-bush
Schizaeaceae	<i>Schizaea bifida</i>	Forked Comb Fern
Scrophulariaceae	<i>Gratiola spp.</i>	
Smilacaceae	<i>Smilax australis</i>	Lawyer Vine
Smilacaceae	<i>Smilax glyciophylla</i>	Sweet Sarsparilla
Sterculiaceae	<i>Commersonia fraseri</i>	Brush Kurrajong
Thymelaeaceae	<i>Pimelea linifolia</i>	Slender Rice Flower
Xanthorrhoeaceae	<i>Xanthorrhoea media</i>	
Zamiaceae	<i>Macrozamia reducta</i>	

A2 Weeds recorded on the site

[illegible]

A3 Fauna recorded on the site (Niche 2013)

Vegetation Type	30f: Freemans Peppermint - Apple-Bloodwood Forest			30h: Sugarloaf Lowlands Bloodwood-Apple Forest				31: Coastal Plains Scribbly Gum Woodland		37: Swamp Mahogany - Paperbark Forest	42: Narrabeen Alluvial Sedge Woodland		
Waypoint (Figure 4)	03	059	063	136	056	139	143	084	093	088	145	147	Opportunistic
Common Name													
Grey Fantail	H	O			O							O	
Rufous Fantail										O			O
Grey Butcher Bird	H	H											
Pied Butcher Bird													O
Australian Magpie													H
Australian Raven	H	O		H	O	H	H	H	H		O	O	H
Noisy Miner	H												
White-throated Tree Creeper	H		H	H	H	H	H		H		H	H	
Eastern Whipbird	H	H	O					H	H				
White-browed Scrubwren	O		O		O								
Variegated Wren	O								O	O	O	O	
Rufous Whistler	H	H	H	H		H	H	O		O	H		H
Bar-Shouldered Dove	H												H
Eastern Spinebill	O		H							O			H
Channel-billed Cuckoo		H											
Eastern Koel	H												
Powerful Owl			O										
Scarlet Robin													O
Noisy Friarbird	H				H			H					H
New Holland Honeyeater								H					
Sacred Kingfisher								O		H			
Australian White Ibis								O					
Sulphur-Crested Cockatoo								H					
Golden Whistler			H				H	H	H		H		
Rainbow Lorikeet							O	O					H
Currawong								H					
Olive-Backed Oriol								H	H				
Grey Shrike-Thrush	H			H				H		H			
Shining-Bronze Cuckoo										H			
Kookaburra													H

Vegetation Type	30f: Freemans Peppermint - Apple-Bloodwood Forest			30h: Sugarloaf Lowlands Bloodwood-Apple Forest				31: Coastal Plains Scribbly Gum Woodland		37: Swamp Mahogany - Paperbark Forest	42: Narrabeen Alluvial Sedge Woodland		
Waypoint (Figure 4)	03	059	063	136	056	139	143	084	093	088	145	147	Opportunistic
Common Name													
Fantail Cuckoo										H		H	
Red-Browed Finch									O				
Eastern Yellow Robin										O			
Brown Falcon													O
Spangled Drongo													O
Eastern Rosella								H					

H= Heard, O= Observed

Appendix B Bush fire management strategy

Background

This bush fire management strategy applies to Lot 463 DP 1138964, 304 Wilton Road, Awaba. It should be read and applied in conjunction with the current bushland management plan applying to the land.

Lake Macquarie City Council's responsibilities and objectives

Lake Macquarie City Council is the landowner and manager, and is responsible for taking reasonable measures to prevent fires from occurring on the land and from escaping from the land to nearby land.

It is recognised that fire is a naturally occurring phenomenon that has periodically occurred on the land over a long time period, and that the native vegetation communities and plant species are adapted to fire, and in many cases require a fire regime to reproduce and be maintained on the land.

In preparing the strategy, the Council has consulted with the Rural Fire Service and adjoining landowners, including the Westlakes Automobile Club Inc. which occupies adjoining land containing buildings and improvements and is used periodically for events.

Bush fire management strategy

The strategy for managing fire on the land is as follows:

1. Recognise that the land forms part of a large area of continuous native vegetation, and hazard reduction actions on the land must be undertaken in conjunction with the management of adjoining land.
2. Support a designated fire trail around the land in conjunction with adjoining landowners and occupiers, as shown on Map A1.
3. Ecological burning (for maintaining biodiversity on the land) will not be undertaken, with wild fires relied upon to maintain vegetation communities.
4. No tracks will be retained or maintained within the land for the purpose of bush fire management, except for the existing track along the southern boundary. For the purposes of the Rural Fire Service, the trail traversing the land from South-East to North-West will be regarded as a dormant trail.
5. Any wild fires occurring on the land will be managed by Rural Fire Service, using the designated fire trail network and Wilton Road. Existing trails within the land are not to be used for vehicular use.
6. Lake Macquarie City Council will negotiate and seek to reach agreement with the owner of Lot 464 DP 1138964 (currently owned by the NSW Aboriginal Land Council) about obtaining legal access across its land to facilitate the formalisation of a designated fire trail generally along the alignment of the existing track on this land (see Map A1).
7. Upon designation of fire trails in the locality by the Rural Fire Service, Lake Macquarie City Council will take responsibility for maintaining the condition of the designated fire trail generally along the southern boundary of the land. This will be maintained to Rural Fire Service standards in conjunction with sections owned by other landowners.

8. The occupier of Lot 473 DP 1138964 is the Westlakes Automobile Club Inc. which has advised that it is aware of bush fire hazards and has taken measures to manage the risks, and no special measures to contain bush fires are required on the adjoining Lot 463 1138964.
9. Lake Macquarie City Council will take reasonable measures to restrict public access to the land to prevent unauthorised access which may result in accidental or deliberate fire ignition.
10. Where fires occur on the land, the fire perimeter and intensity will be mapped and recorded within 3 months, and a program of monitoring and removing weeds and rubbish shall be undertaken at 3 monthly intervals for the following 12 months.

Review of strategy

The bush fire management strategy is to be reviewed periodically in conjunction with the review of the bushland management plan applying to the land, and following any bush fires on the land.

Map A1 Bush fire strategy map





Office of
Environment
& Heritage

Your reference: MP10-0139
Our reference: DOC14/240924-01
Contact: Robert Gibson, 4908 6851

Mr Brian Bell
General Manager
Lake Macquarie City Council
Box 1906
HUNTER REGION MAIL CENTRE NSW 2310

Attention: Martin Fallding

Dear Mr Bell

RE: AWABA BIODIVERSITY CONSERVATION AREA – BIODIVERSITY OFFSETS AND MANAGEMENT PLAN

I refer to your letter dated 16 October 2014 seeking advice from the Office of Environment and Heritage (OEH) in relation to the Plan of Management for the Awaba Biodiversity Conservation Area (ABCA). OEH understands the conservation area comprises all of Lot 463 in Deposited Plan 1138964 and is being used to fulfil biodiversity offset requirements for three projects:

1. The Awaba Waste Management Facility Expansion Project (MP10-0139)
2. Awaba Alternative Waste Treatment Facility
3. Lake Macquarie Transport Interchange, Glendale (Stage 1).

Of these projects only one, the Awaba Waste Management Facility Expansion Project, a Part 3A project under the *Environmental Planning and Assessment Act 1979* (EP&A Act), required formal consultation with OEH in relation to its offset package. The offsets for the other two projects are being dealt with entirely by Council under Part 4 of the EP&A Act.

Consent conditions 50 to 51 of Schedule 4 of the consolidated consent for the Awaba Waste Management Facility Expansion Project, required that the Biodiversity Offset Management Plan for this project was prepared in consultation with OEH. A copy of the updated Plan of Management was provided with your letter, which OEH has reviewed. OEH encourages the development of such plans to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives. However, OEH does not normally approve or endorse these documents as our role is to set environmental objectives for environmental/conservation management, not to be directly involved in the development of strategies to achieve those objectives. In this instance however, the following recommendations and comments are provided for your consideration:

- update Table A2 to include the current Latin name of all exotic plants recorded on the ABCA, so that there is no ambiguity as to which species the management plan is referring to; and
- amend 'Appendix F: Biodiversity Offset Balance Register for the Site' so that it includes a map to identify which parts of the ABCA are used as offsets for any particular development project.

From a review of available information the ABCA generates more than the required number of ecosystem and species credits required to offset the Awaba Waste Management Facility Expansion Project. OEH acknowledges that Council is proposing to use additional estimated credits from the ABCA to provide the offsets required for the other two projects in accordance with Council's offsetting requirements. OEH supports this approach provided the land on the ABCA that provides the credits for the offsets for each of the three developments is identified clearly on a map with an associated explanatory report that may be part of the ABCA Plan of Management. The assignment of the ABCA need not require any formal subdivision of the Lot.

As described in the Plan of Management, Council intends to set aside some ABCA land containing *Tetratheca juncea* plants that may be used to offset future developments that impact this Vulnerable species. The requirement to place all of Lot 463 under a restrictive covenant, as required by consent condition 51A for the Awaba Waste Management Facility Expansion Project, could result in a reduction in offsetting value of those *Tetratheca juncea* plants. This is because existing conservation obligations reduce the number of species credits generated by the application of the BioBanking Assessment Methodology (www.environment.nsw.gov.au/resources/biobanking/09181bioopsman.pdf) and can meet the concept of 'additionality' of OEH's offset policies (available at www.environment.nsw.gov.au/biodivoffsets). Note that any such discounting or additionality may not apply where Council's offset policy alone is being applied in which BBAM is being used as a guide. OEH however would need to consider this aspect of the policy if we have a formal role in future projects with offset components on the ABCA.

Lastly, OEH notes that if BBAM was implemented in full for the three projects listed in your letter and the ABCA, then some of the vegetation communities on ABCA would not be able to be used as an offset for some of the vegetation communities on the development sites. Additionally, the threatened species' credits available from the ABCA would need to be established either by survey or by expert report.

If you require any further information regarding this matter, please contact Robert Gibson, Regional Biodiversity Conservation Officer, on 4908 6851.

Yours sincerely



6 NOV 2014

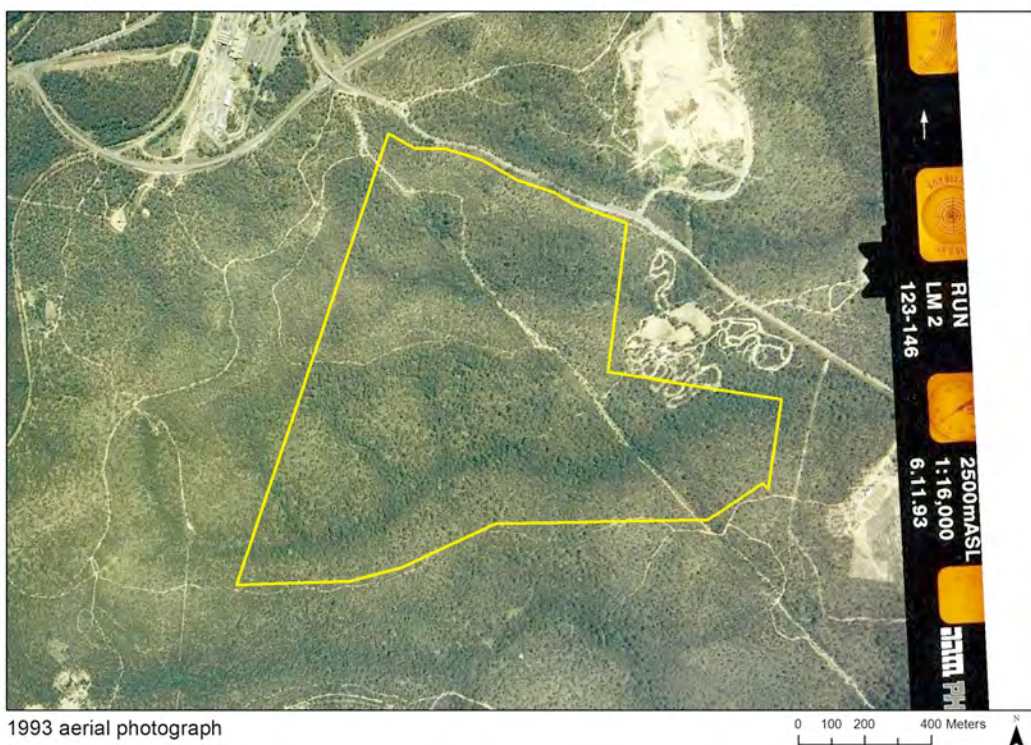
RICHARD BATH
Senior Team Leader Planning, Hunter Central Coast Region
Regional Operations

Appendix D Plan Preparation Process and Consultation

Preparation of this Plan involved consultation with a range of interest groups and adjoining landowners as outlined below:

Organisation	Nature of consultation
NSW Aboriginal Land Council	Phone discussions and on-site meetings regarding access, track and bush fire management. Adjoining landowner.
Biraban Local Aboriginal Land Council	Phone discussion and on-site meeting. Interested in Aboriginal cultural heritage, access to the land, and potential bushland management contracting opportunities.
Wonnarua Nation Aboriginal Corporation	Phone discussion and meeting. Primarily interested in Aboriginal cultural heritage issues, and legal agreement with Centennial Coal.
Westlakes Automobile Club Inc. (WAC)	Phone discussion and meeting with WAC committee. Adjoining land occupier. Part of WAC track is constructed on Council land.
Centennial Coal	Phone discussion and meeting. Holds mining authorities (surface & sub-surface) and development consent affecting the land and adjoining land.
Rural Fire Service	Phone discussions and meeting. Interested in bush fire hazard reduction and trail management.
NSW Planning and Infrastructure	Phone discussion. Under consent condition is responsible for approval of the Plan.
NSW Office of Environment and Heritage (OEH)	Meeting and site inspection. OEH is required to be consulted in the preparation of the Plan.
Lake Macquarie City Council (LMCC)	LMCC is the management authority for the Plan. A range of people within LMCC have been consulted in relation to bush fire management, leases and licencing, access tracks, and other issues.

Appendix E Historic Aerial Photographs



Appendix F Biodiversity Offset Balance Register for the Site

Biodiversity offsets provided on the Awaba Biodiversity Conservation Area (ABCA) at Lot 463 DP 1138964, 304 Wilton Road, Awaba are outlined below. The ABCA will provide biodiversity offsets for three Lake Macquarie City Council development projects, namely the Awaba Waste Management Facility (AWMF), the Lake Macquarie Transport Interchange (LMTI) and the Awaba Alternative Waste Treatment Facility (AWT). The balance and division of biodiversity offsets between the three projects is provided for administrative and management purposes. This information will be included in a biodiversity offset register maintained by the Council.

1 Offset summary (for register)

GENERAL INFORMATION	
Name	Awaba Biodiversity Conservation Area
Property description	Lot 463 DP 1138964
Owner	Lake Macquarie City Council
Land classification	Operational land
Locality	304 Wilton Road, Awaba
OFFSET DESCRIPTION	
Area	121.91 ha
Type of offset	Land managed by Council for biodiversity conservation, subject to a plan of management and a restriction as to user. The land fully offsets three approved development projects, with the cost apportioned between each project.
Projects offset	Awaba Waste Management Facility (AWMF) – 45.6% Lake Macquarie Transport Interchange (LMTI) – 26.2% Awaba Alternative Waste Treatment Facility (AWT) – 28.2%
Available offsets	<i>Tetratheca juncea</i> 1,791 clumps (10,746 assumed 'credits' using Biobanking Assessment Methodology V2.1)

2 'Credit' balance calculation

The calculation of biodiversity offsets on the ABCA is based on 'assumed credits' using the Biobanking Assessment Methodology V2.0 and 2.1.

The Awaba Biodiversity Conservation Area (ABCA) will provide offsets for three LMCC projects, and calculations below indicate how the offsets are provided and how the costs of the offsets are apportioned. The three projects are the Awaba Waste Management Facility (AWMF), the Lake Macquarie Transport Interchange (LMTI) and the Awaba Alternative Waste Treatment Facility (AWT).

The three projects will fully utilise the available biodiversity offset potential of the ABCA, except for 10,746 'assumed credits' for *Tetratheca juncea*. These remaining 'credits' will be available for use in negotiated biodiversity offsets for other future Lake Macquarie City Council projects if required. Note that these are not Biobanking credits created under the NSW Biobanking scheme.

Ecosystem credits are representative of the extent of native vegetation disturbed and the area of offset required. Using the Biobanking Assessment Methodology, the ecosystem credits required for the projects are nearly the same as the ecosystem credits available on the ABCA site, although the vegetation types in the offset site are not the same as the types removed by the projects. The methodology applies a standard of maintaining or improving native vegetation, and the credit balance indicates that this standard has been met in the offset arrangement even though equivalent vegetation types are not offset.

Species credits cannot be balanced due to insufficient ecological survey on the ABCA, except for two species *Tetratheca juncea* and *Acacia bynoeana*. Other species required to be offset for the development projects are likely to occur on the ABCA but cannot be quantified. Because the offset requirement for these species is relatively small and the offset site is reasonably large, it is assumed that the offset for species other than *Tetratheca juncea* is adequate and will be fully utilised.

The proportion of cost of providing the ABCA offset site has been determined based on the proportion of ecosystem credits for each of the three development projects. The final proportion is AWMF 45.6%, LMTI 26.2%, and AWT 28.2% as outlined in the table below.

'Assumed Credit' calculation table

	ABCA available 'credits' (Lot 463)	'Credits' offset on Lot 463			Balance	Unused 'credits'
	ABCA (1)	AWMF (2)	LMTI (3)	AWT (4)		
Vegetation type	Ecosystem 'credits'					
HU546 Forest Red Gum - Rough-barked Apple open forest on poorly drained lowlands of the Central Coast, Sydney Basin			89		-89	
HU591 Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin 11.5 ha	34				+34	
HU610 Scribbly Gum - Red Bloodwood heathy woodland on the coastal plains of the Central Coast, Sydney Basin 21.5 ha	115	260	136	242	-523	
HU621 Smooth-barked Apple - Red Bloodwood open forest on coastal plains on the Central Coast, Sydney Basin 54.5 ha	392	132			+260	
HU633 Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin 4.30 ha	42				+42	
HU641 Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin 66.00 ha	286				+286	
TOTAL	869	392	225	242	+10	
Proportion of ecosystem credits for 3 projects		45.6%	26.2%	28.2%		

	ABCA available 'credits' (Lot 463)	'Credits' offset on Lot 463			Balance	Unused 'credits'
	ABCA (1)	AWMF (2)	LMTI (3)	AWT (4)		
Species name	Species 'credits'					
<i>Tetratheca juncea</i>	49,938	33,853	15	5,324	+ 10,746	+ 10,746
<i>Acacia bynoeana</i>	6				Full offset assumed	
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Not surveyed but probably present			765	Full offset assumed	
Squirrel Glider	Not surveyed but probably present		82		Full offset assumed	
Little Bentwing-bat	Not surveyed but probably present		49		Full offset assumed	
Eastern Bentwing-bat	Not surveyed but probably present		49		Full offset assumed	
Powerful Owl	Not surveyed but probably present		112		Full offset assumed	
Grey-headed Flying-fox	Not surveyed but probably present		40		Full offset assumed	
Eastern Freetail-bat	Not surveyed but probably present		82		Full offset assumed	
Greater Broad-nosed Bat	Not surveyed but probably present		82		Full offset assumed	
TOTAL	49,944 known	33,853	511	6,089		

ABCA cost apportionment table

PROJECT	Proportion of ABCA ecosystem 'credits'	Notes
Awaba Waste Management Facility (AWMF)	45.6%	Offset proportion increased because a higher proportion of species credits is required
Lake Macquarie Transport Interchange (LMTI)	26.2%	Offset proportion discounted because a lower proportion of species credits is required
Awaba Alternative Waste Treatment Facility (AWT)	28.2%	Offset proportion increased because a higher proportion of species credits is required

Notes:

- (1) 'Credits' refers to estimated Biobanking credits determined using the NSW Biobanking Assessment Methodology. These 'credits' are assumed because they have not been created as formal credits under the NSW Biobanking Scheme.
- (2) Determination of the final balance assumes that more weight should be given to ecosystem credits than species credits.

References	TRIM ref	Biobanking credit report date
1 Niche Environment and Heritage, 2013, Biobanking Assessment Report, Awaba BioBank Site – Lot 463, Wilton Road, Awaba NSW, September 2013	D03428617	24 September 2013
2 Niche Environment and Heritage, 2012, Lot 372 – Awaba Landfill Site Offsetting Assessment Report, August 2012	D02977754	30 April 2012
3 Stefan Rose, 2014, Biobanking credit report for Glendale Transport Interchange	D06977410	1 May 2014
4 Niche Environment and Heritage, 2013, Biobanking Assessment Report, Development Site Awaba Alternative Waste Treatment Facility 413 Wilton Road (Lot 373 DP 723259), Awaba NSW, November 2013	D06829484	15 November 2013

3 Application of biodiversity offset principles

The offsets provided in the Awaba Biodiversity Conservation Area for the three nominated projects conform with the NSW Office of Environment and Heritage Principles for the Use of Biodiversity offsets in NSW and have been taken into account in reviewing biodiversity impacts and determining appropriate offset arrangements. Consideration of these principles is as follows:

1. Impacts must be avoided first by using prevention and mitigation measures.

Measures to avoid and minimise impacts of all three projects have formed part of the project design. Biodiversity offsets will be provided for residual impacts.

2. All regulatory requirements must be met.

Assessment and approval processes for all three projects comply with relevant regulatory requirements.

3. Offsets must never reward ongoing poor performance.

In developing its offset arrangements for the land, Lake Macquarie City Council is meeting best practice standards for biodiversity offsetting, and has committed to establishing and managing an offset site in perpetuity.

4. Offsets will complement other government programs.

The establishment of a biodiversity offset site at Awaba is consistent with the approach outlined in the Lower Hunter Regional Conservation Plan 2009 by the NSW Government, and complements other Council and NSW Government programs.

5. Offsets must be underpinned by sound ecological principles.

The size of the offset requirement has been determined by applying the NSW Biobanking Assessment Methodology for all projects by accredited assessors. This provides a consistent ecological basis for assessment of biodiversity.

6. Offsets should aim to result in a net improvement in biodiversity over time.

Establishing a biodiversity offset site at Awaba and implementing a management plan will at least maintain biodiversity values as an offset for the provision of essential community infrastructure.

7. Offsets must be enduring – they must offset the impact of the development for the period that the impact occurs.

The Awaba Biodiversity Conservation Area provides in perpetuity biodiversity offset, as Lake Macquarie City Council is committed to retaining and managing this land to protect its biodiversity values.

8. Offsets should be agreed prior to the impact occurring.

Offsets have been demonstrated as part of the approval process, and will form a requirement of conditions of consent.

9. Offsets must be quantifiable – the impacts and benefits must be reliably estimated.

Offsets have been quantified using the Biobanking Assessment Methodology, using accredited assessors. The final offsetting arrangement will not be under the NSW Biobanking Scheme, but is a negotiated outcome based on what is possible and reasonable.

10. Offsets must be targeted.

Based on the Biobanking Assessment Methodology, the offsets provided are basically like for like, and ecosystem credits determined are comparable. There is a surplus of species credits for *Tetratheca juncea*. Offsets and management costs for the three projects be apportioned on the basis of the credits determined using the Biobanking Assessment Methodology. It has been determined that the Awaba Biodiversity Conservation Area provides an adequate number of credits, provides conservation security for this land as provided by a restrictive covenant and funded management plan, and it is anticipated that the site will not be used for further offsetting as would otherwise be possible if it was established as a Biobank site, with the exception of surplus *Tetratheca juncea* credits.

11. Offsets must be located appropriately.

The offsets on the Awaba Biodiversity Conservation Area are located in an area with similar ecological characteristics to the areas affected by the development.

12. Offsets must be supplementary.

The proposed offset is beyond existing requirements and is not funded under another scheme or arrangement.

13. Offsets and their actions must be enforceable through development consent conditions, licence conditions, conservation agreements or contracts.

The offset is enforceable through development consent conditions.

Appendix G Map of Biodiversity Offset Allocation

The map below shows allocated offset areas for the three projects and is based on the calculations in Appendix F.

