Review of Environmental Factors (REF) - Dog off-leash access

Bill Andriske Mollymook Oval, Mollymook

Assessment and approvals overview

Item	Details
Assessment Type	Division 5.1 *Environmental Planning and Assessment (EP&A) Act 1979* (NSW) - REF
Proponent	Shoalhaven City Council
Determining authority	Shoalhaven City Council
Required approvals (consents, licenses and permits)	Nil
Required publication	This REF is published on Shoalhaven City Council's website (as the determining authority), in accordance with Section 171(4) *Environmental Planning and Assessment Regulation 2021* (as a matter of public interest).

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1 Introduction

This document provides the environmental assessment for a dog off-leash access area and associated ancillary works at Bill Andriske Mollymook Oval (Bill Andriske Oval), in line with requirements for such activities under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The assessment relates to the impact of the proposed activity on the community and the environment in accordance with Section 171 of the *Environmental Planning and Assessment Regulation 2021* (NSW) (EP&A Regulation).

Shoalhaven City Council has recently amended the Shoalhaven Off-Leash Exercise Areas for Dogs Policy and created a new draft Policy, being renamed the Access Areas for Dogs Policy. This REF is one of several REFs that assess the viability and suitability of each dog off-leash access area throughout the Shoalhaven local government area (LGA).

This document will provide general details of the proposed activity, legislative context, and potential impacts on the community and the environment to satisfy the due diligence and legislative requirements and obligations of Shoalhaven City Council (Council).

Information obtained through stakeholder engagement, including with the NSW National Parks and Wildlife Service (NPWS) and broader community, was considered in the preparation of this assessment.

Section 9 of this REF includes the mitigation measures required to be implemented by Council in relation to the ongoing use of the Bill Andriske Oval dog off-leash access area.

1.1 Proposed activity

The use of parts of Bill Andriske Oval for dog off-leash access constitutes an ‘activity’ under Part 5 of the EP&A Act. The dog off-leash access area, referred to as the subject site herein, includes the portion of Bill Andriske Oval where direct impacts on the community and the environment from dog off-leash access may occur and have been assessed (Figure 1). An area including a 50-metre buffer to the subject site, where direct and indirect impacts on the community and the environment may occur, has also been assessed, and is referred to as the study area.

The subject site is designated as a dog off-leash access area under the Access Areas for Dogs Policy and has been used for dog off-leash access since 2006.

The proposed activity includes:

- Provision of a dog off-leash access area with restricted times, where dogs can be off-leash during off-peak times (1 October to 30 April from 4 pm to 8 am; 1 May to 30 September from 3 pm to 10 am) to limit impacts on other users and recreational activities.

Ancillary works associated with this activity will include the installation of Access Areas for Dogs Policy signage. Existing signposts will be utilised where possible.

Figure 1 Location of the dog off-leash access area at Bill Andriske Oval, Mollymook Beach.

1.2 Sources of information

This REF has been informed by:

- Database searches:
  - NSW BioNet (accessed on 6 September 2022 and 14 June 2023)
  - Birdata (including Birdlife Australia's shorebird monitoring program survey data) (accessed on 6 September 2022)
  - Council's GIS Enquiry (various data layers from September 2022 to July 2023). This contains GIS layers with data sourced under licence, including sensitive data locations and records for threatened species.
  - Aboriginal Heritage Information Management System (AHIMS) (accessed on 22 November 2022 and 31 May 2023).
  - Council records and archives (January 2023).
- Consultation with the NSW Department of Planning and Environment (DPE) agency NPWS, including consultation with the NPWS Shorebird Ranger and records from the NSW Shorebird Recovery Program.
- Consultation with Council's Rangers to ascertain the appropriateness of existing controls and the enhancement of mitigation measures to ensure a nil to negligible impact on the community and the environment.
- Consultation with the community.
- An on-site survey for the presence of Aboriginal objects on 12 October 2022.
- Site inspections carried out on 12 October 2022 and 19 July 2023 to assess the range of environmental factors required to be considered.

Likelihood of occurrence was assessed for threatened flora and fauna listed under the *Biodiversity Conservation Act 2016 (*NSW) (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) that have been recorded within 10 kilometres of the subject site (referred to hereafter as the 'locality').

Based on the nature of the subject site and proposed activity, it was considered that the above listed habitat assessment, literature review and database searches were appropriate means for assessing the potential impact on environmental factors in accordance with Section 171 of the EP&A Regulation.

2 Location and context

2.1 Location

The dog off-leash access area is located within the Bill Andriske Oval (Lot 1 DP 222936), within the township of Mollymook Beach, between Mitchell Parade and Carroll Avenue (Figure 1 and Figure 2; Appendix 1 – Plates 1-7). The reserve includes a section of Mollymoke Farm Creek and associated wetland area (Figure 1).

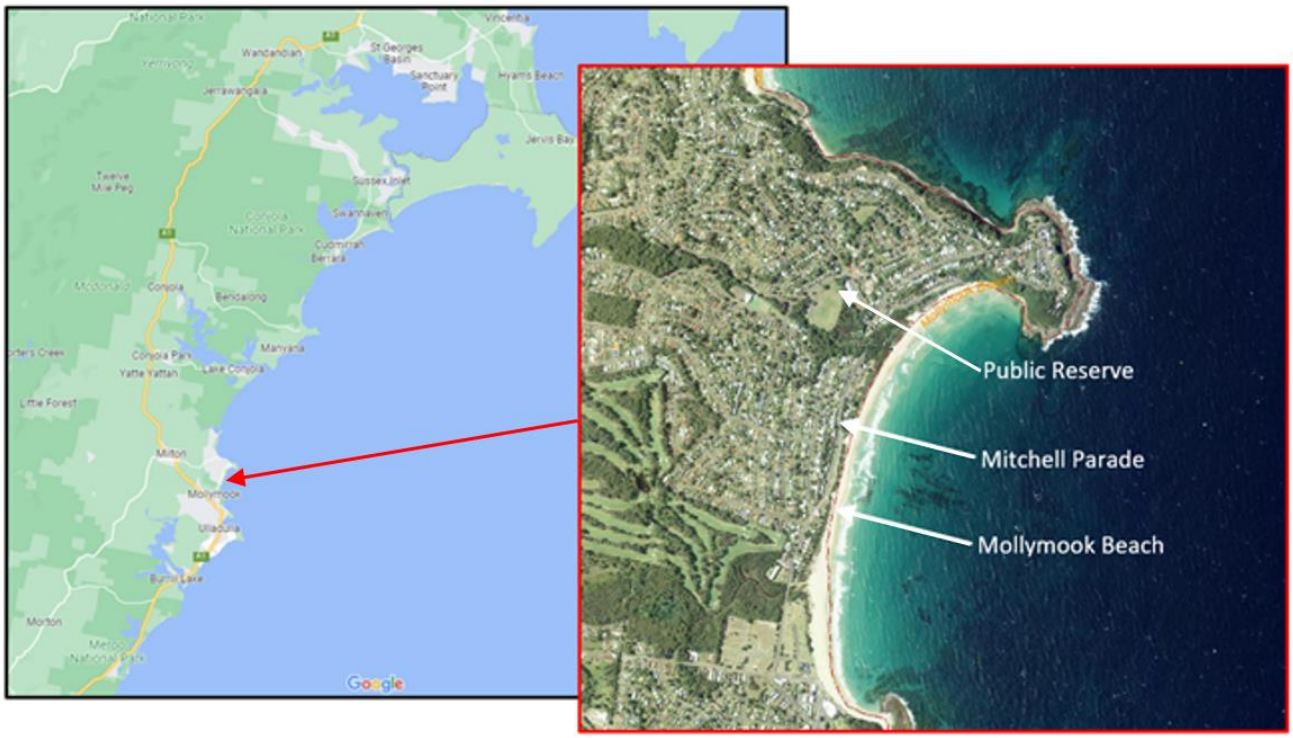

Figure 2 Location of the Bill Andriske Oval, Mollymook Beach on the southeast coast of NSW.

The public reserve is zoned RE1 – Public Recreation (*Shoalhaven Local Environment Plan, 2014* (SLEP)).

2.2 Land ownership and management

Bill Andriske Oval is owned by Council (purchase date 22 June 1965). The purpose of this reserve was deemed to be 'public garden and recreation space' on 7 August 1964 as part of a subdivision plan (DP 222936).

The Bill Andriske Oval Strategic Master Plan (Ayling and Drury Landscape Architecture and Locale Consulting, 2013) addresses the sporting field area of the reserve only and does not make any reference to the exercising of dogs.

3 Existing Environment

3.1 Community values

Bill Andriske Oval is frequently used as a sporting field and recreational reserve. The public reserve is actively used by residents and visitors for sporting events and activities, birdwatching and dog-walking.

The public (including community members and visitors) utilise Bill Andriske Oval as a timed dog off-leash access area throughout the year.

3.2 Landscape features

Bill Andriske Oval is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Sydney Basin bioregion and subregion of Jervis (SYB14). The subject site is a grassed reserve area located within the reserve. It is bordered by residential dwellings in the southwest and northeast, a playing field and roads. Mollymoke Farm Creek is located in the southern portion of the reserve, south of the off-leash area and playing field. Mollymoke Farm Creek is classified as a Category 2 watercourse defined under clause 7.6 of the SLEP 2014, identified as 'riparian land' on the 'Riparian Land and Watercourses Map'.

Landscape features and significant vegetation are described in Section 6.1.

3.3 Biodiversity

Bill Andriske Oval contains areas of bushland and parkland alongside the sporting field. It contains potential habitat for bird species to breed, forage and find shelter. Riparian corridors, such as that provided by Mollymoke Farm Creek are important for wildlife as they enable migration between habitats and provide food and shelter for many species (refer to Section 6).

In the context of this REF, the subject site:

- is known to contain threatened species listed under the BC Act and the EPBC Act.
- is not mapped on the Biodiversity Value Map (BV Map) which identifies land with high biodiversity value as defined by the *Biodiversity Conservation Regulation 2017* (NSW) (BC Regulation).

A detailed habitat and vegetation assessment is provided in Section 6.1 and a detailed assessment of threatened biodiversity is provided in Section 6.2.

3.4 Cultural heritage

The AHIMS search indicated that there were no recorded Aboriginal heritage sites within the subject site.

No items of local non-indigenous heritage significance or any items on the state heritage list or the SLEP are located within, or in proximity to, the subject site.

Further assessment of indigenous and non-indigenous heritage is provided in Section 6.3.

4 Permissibility

The proposed activity is permissible under all relevant legislation (refer to Table 1 below).

Table 1 Summary of legislation and permissibility

Relevant Legislation
NSW State Legislation
Environmental Planning and Assessment Act 1979 (EP&A Act)
Permissible ☑ Not permissible ☐
Section 4.1 (Development that does not need consent) of the EP&A Act states that: *'If an environmental planning instrument provides that specified development may be carried out without the need for development consent, a person may carry the development out, in accordance with the instrument, on land to which the provision applies.'* Designating a dog off-leash access area constitutes an 'activity' (given activity also applies to 'use of the land'). Section 2.73(3) of the NSW *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport & Infrastructure SEPP) provides that: *'Any of the following development may be carried out by or on behalf of a council without consent on a public reserve under the control of or vested in the council—* *(a) development for any of the following purposes—* *(ii) recreation areas and recreation facilities (outdoor), but not including grandstands'* Section 4.68(1) (Continuance of and limitations on other lawful uses) of the EP&A Act further states: *'Nothing in an environmental planning instrument operates so as to require consent to be obtained under this Act for the continuance of a use of a building, work or land for a lawful purpose for which it was being used immediately before the coming into force of the instrument or so as to prevent the continuance of that use except with consent under this Act being obtained.'* The use of the land at Bill Andriske Oval for dog off-leash exercise constitutes 'continuing use' under Section 4.68(1). The use of the public reserve at Mollymook for the purpose of recreation commenced prior to the introduction of the requirement to obtain development consent for that use under relevant environmental planning instruments. The use of the land at Bill Andriske Oval does not involve the enlargement, expansion or intensification for the purpose of a recreation area. Therefore, in accordance with Section 4.1 and Section 4.68 of the EP&A Act, the activity can be carried out by (or on behalf of) a public authority as development without consent. As with other Part 5 activities, Part 5.5(1) of the EP&A Act requires that *a determining authority in its consideration of an activity shall… examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.* This document provides the Part 5.5(1) assessment in the form of a REF.
Coastal Management Act 2016
Permissible ☑ Not permissible ☐
The *Coastal Management Act 2016* establishes the framework and overarching objectives for coastal management in New South Wales. The Act provides for the preparation of Coastal

Relevant Legislation
Management Programs (CMP) which set the long-term strategy for coordinated management of the coast with a focus on achieving the objects of the Act. The 2018 *Coastal Zone Management Plan for the Shoalhaven Coastline, https://doc.shoalhaven.nsw.gov.au/DisplayDoc.aspx?record=D18/379377,* which is likely to provide the basis for the CMP in preparation at the time of writing, addresses the need to manage the impacts of pest species and dogs within the coastal zone, particularly for the protection of threatened shorebirds. The implementation of the NSW South Coast Shorebird Recovery Program is listed as high priority. The proposed activity is considered consistent with these strategies, because dogs will continue to be prohibited from environmentally sensitive areas.
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)
Permissible ☑ Not permissible ☐
The subject site is mapped under Division 3 Coastal Environment Area and Division 4 Coastal Use Area for the purpose of the SEPP. The development controls relevant to these mapped areas do not apply to development that can be carried out without consent. The subject site and study area are not mapped by this SEPP as Coastal Wetlands, Littoral Rainforest and Coastal Vulnerability Areas.
Shoalhaven Local Environmental Plan 2014 (SLEP)
Permissible ☑ Not permissible ☐
In circumstances where development consent is not required, the SLEP does not apply. However all relevant factors of consideration as outlined in Part 5 of the EP&A Act are required to be complied with. This REF, including Section 5 Assessment of Environmental Factors (Section 171 of the EP&A Regulation), fulfils this requirement.
Protection of the Environment Operations Act 1997 (POEO Act)
Permissible ☑ Not permissible ☐
The proposed activity does not constitute scheduled development work or scheduled activities as listed in Schedule 1 of the POEO Act. The proposed activity therefore does not require an environmental protection licence. The POEO Act regulates and controls pollution of land, air, water, and the emission of noise and provides for notices and offences pertaining to these. This Act also regulates waste management. Impacts associated with pollution or waste management are considered unlikely to result from the proposed activity.
National Parks and Wildlife Act 1974 (NPW Act)
Permissible ☑ Not permissible ☐
The NSW Department of Planning and Environment (DPE) administers the NPW Act, which manages: • Conservation of nature. • Conservation of objects, places and features of cultural value.

Relevant Legislation
• Public appreciation, understanding and enjoyment of nature and cultural heritage. • Land reserved under this Act. DPE must consider the objectives listed above, the public interest and appropriate management of the subject site and study area. The NPW Act controls activities carried out in designated Parks, Reserves and Aboriginal areas. The NPW Act also requires consideration of impacts on all native birds, reptiles, amphibians and mammals protected under this Act. Additional consideration is required for potential impacts on Aboriginal cultural heritage. Such impacts are addressed in Section 6.
Biodiversity Conservation Act 2016 (BC Act)
Permissible ☑ Not permissible ☐
The proposed activity is: • Unlikely to have a significant impact on species and communities listed in the schedules of the Act (Section 6.2). • Not within an area declared to be of 'outstanding biodiversity value' as defined in the Act. • Unlikely to have a significant impact on threatened species and/or threatened ecological communities (TEC) listed in the schedules of the Act. • Not considered to have a serious and irreversible impact on biodiversity values. The proposed activity therefore is not deemed to be *likely to significantly affect threatened species* and a Biodiversity Development Assessment Report (BDAR) and entry into the Biodiversity Offset Scheme (BOS) is not required.
Heritage Act 1977 (Heritage Act)
Permissible ☑ Not permissible ☐
The Heritage Act is concerned with all aspects of the conservation of heritage places and items. Heritage items of state significance are listed on the State Heritage Register. The Heritage Act provides protection for non-Aboriginal historic artefacts and/or sites (older than 50 years). A review of potential impacts on non-Aboriginal heritage is detailed in Section 6.3.
Local Land Services Act 2013
Permissible ☑ Not permissible ☐
No clearing of vegetation is proposed. No separate authorisation under the Act is required.
Water Management Act 2000
Permissible ☑ Not permissible ☐
Local councils are exempt from s.91E(1) of the Act in relation to all controlled activites that they carry out in, on or under waterfront land (by virtue of Section 41 of the *Water Management (General) Regulation 2018).* The proposed activity would not interfere with the aquifer and therefore an interference licence is not required (Section 91F).
Aboriginal Land Rights Act 1993
Permissible ☑ Not permissible ☐

Relevant Legislation
The land is owned by Shoalhaven City Council and therefore not subject to this Act.
Fisheries Management Act 1994 (FM Act)
Permissible ☑ Not permissible ☐
If a planned development or activity is likely to have any impact on a threatened species, populations or ecological communities, or their habitats listed under the FM Act, a preliminary assessment of the potential impacts must be made (under Division 12, Part 7A), which is known as the 'Assessment of Significance' or '7 Part Test'. As the proposed activity is unlikely to have an impact on threatened species, populations or ecological communities (Appendices 2, 3 and 4), or their habitats listed under the FM Act, a 7 Part Test is not required.
Commonwealth legislation
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
Permissible ☑ Not permissible ☐
Matters of National Environmental Significance (MNES) are defined in Part 3 of the EPBC Act and include a range of environmental matters. These include world and national heritage, internationally important wetlands, nationally threatened species and communities, and migratory species, along with other matters. The proposed activity would not be undertaken on Commonwealth land and no Matters of National Environmental Significance are likely to be significantly impacted on by the proposed activity (refer Section 6.2 and Appendix 4). The proposed activity does not require Commonwealth referral.
Native Title Act 1993
Permissible ☑ Not permissible ☐
The *Native Title Act 1993* is not applicable as the land is in Council ownership.

5 Assessment of environmental factors

Section 171 of the EP&A Regulation lists the factors to be investigated when consideration is being given to the likely impact of an activity on the environment under Part 5 of the EP&A Act.

Table 2 summarises the assessment of each of the Section 171(2) factors in relation to the proposed activity. The identification of key environmental factors relevant to the proposed activity is further described in Section 6 and the assessments of potential impact are summarised in Section 8.

Table 2 Assessment of Section 171 (EP&A Regulation) matters

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impacts	Reason
a) the environmental impact on the community	Negligible/ Positive	The subject site is located within Community Land and is frequently used as a public reserve for social and recreational activities. The proposed activity would not impact on the community's access to, and amenity of Bill Andriske Oval. The proposed activity would not impact on views, community services and infrastructure such as water, waste management, educational, medical or social services.
b) the transformation of the locality	Negligible	The subject site is located within a public reserve which contains grassed areas and an oval for recreational and sport use. The locality will remain a public reserve.
c) the environmental impact on the ecosystems of the locality	Negligible	The ecosystems in the locality are typically terrestrial and species that utilise riparian ecosystems may be present due to the proximity of Mollymoke Farm Creek. As such, the proposed activity is relevant because the presence of dogs can impact on wildlife occupying these environs. However, analysis indicates the impact on these ecosystems is negligible given the assessments carried out and with the implementation of mitigative controls. Refer to Section 6.2 for details.
d) reduction of the aesthetic, recreational, scientific or	Negligible/ Positive	There would be minimal impact on the aesthetic, recreational, scientific or other environmental qualities or value of the

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impacts	Reason
other environmental quality or value of the locality		locality. The subject site will remain a public reserve and recreational opportunities would not be diminished. The proposed activity would enhance the recreational values of the subject site by providing a controlled dog off-leash area that allows shared and balanced use for the public. Time restrictions enable both dog owners and non-dog owners to utilise the reserve intermittently without disruption. The area will remain family friendly, and recreational activities can still be conducted without dog disturbance within on-leash times. Dog disturbance will be minimal during dog off-leash times as dogs are required, under the *Companion Animals Act 1998* (NSW) (CA Act), to remain under control of their owner/walker. The person in control of the dog(s) is also responsible for waste disposal (including dog faeces). Compliance inspections will be carried out regularly to enforce these legal obligations and to help build a culture of appropriate public pet supervision. This will be reinforced with appropriate communications such as signage and website information. The establishment of a time restricted dog off-leash access area may potentially result in an increase in noise (i.e., increased dogs barking) during the designated off-leash times. The subject site is adjacent to existing public and recreational facilities where noise is generated. Therefore, noise pollution from dog off-leash access area is considered to be within a normal range conducive to the existing public use of the areas. As a result, noise would not be considered a disruptive level. Reports or complaints made to Council regarding noise will be monitored.

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impacts	Reason
		Refer to Section 3 and Section 6 for details.
e) the effects on any locality, place or building that has – (i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or (ii) other special value for present or future generations	Negligible	The subject site has no significant aesthetic, architectural, cultural, historical, scientific or social values likely to be impacted on by this activity. No items in the vicinity of the subject site which are listed on the State Heritage Register and the SLEP would be impacted on by the proposed activity. The subject site is not within an Aboriginal Place declared under the NPW Act. In accordance with the NSW DPE's Due Diligence Code of Practice, the proposed activity does not require an Aboriginal Heritage Impact Permit as it is unlikely to harm an Aboriginal artefact to harm Aboriginal heritage sites. Refer to Section 6.3 for details.
f) the impact on the habitat of protected animals, within the meaning of the Biodiversity Conservation Act 2016	Negligible	The impact on protected animals under the BC Act, that have been recorded within the locality, have been considered in association with the proposed activity. No habitat will be removed or otherwise impacted on by the proposed activity. The Test of Significance (BC Act) provided in Appendix 3 concludes that the proposed activity would not have a significant impact on threatened fauna and flora. Protected animals listed under the BC Act that occur in the Shoalhaven LGA, including all native birds, reptiles, amphibians and mammals will not be significantly impacted on by the proposed activity and no further assessment is required. Refer to Section 6.2 and Section 8.1 for details.

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impacts	Reason
g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air	Negligible	The subject site is located within a public reserve that contains a sporting field, parkland areas and areas of native vegetation. There are no species likely to rely on the subject site to the extent that modification would put them further in danger. The Tests of Significance (BC Act; Appendix 3) and the testing of Significant Impact Criteria for MNES (Appendix 4) concludes that the proposed activity would not have a significant impact on threatened flora and fauna. Refer to Section 6.2 and Section 8.1 for details.
h) long-term effects on the environment	Negligible/ Positive	The use of the subject site for time restricted dog off-leash access will result in intermittent and ongoing use of the reserve by the public. The assessments undertaken and mitigation measures to be implemented indicate there will be no long-term effects on the environment. Regular monitoring by Council Rangers will occur to enforce compliance. The presence of Council Rangers will also enable the provision of education to the community. Refer to sections 6, 8 and 9 for details.
i) degradation of the quality of the environment	Negligible	The proposed activity involves ongoing and intermittent use of the public reserve for the use of dog off-leash access. The mitigation measures (Section 9) to be implemented will minimise impacts on, and risks to the quality of, the environment. The proposed activity is unlikely to introduce priority weeds, vermin, or feral animals into the area or contaminate the soil within the subject site and/or study area.

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impacts	Reason
		Long-term or long-lasting impact on aquatic ecosystems through the input of sediment or nutrient into the ecosystem is considered unlikely. The proposed activity is unlikely to disturb the soil surface within the subject site beyond that which occurs in response to natural events and other recreational uses.
j) risk to the safety of the environment	Negligible / Positive	The subject site is located close to Mollymoke Farm Creek. The proposed activity would not increase the levels of risks that may occur in response to hazardous wastes, bushfire, flood, landslip or coastal hazard.
k) reduction in the range of beneficial uses of the environment	Negligible/ Positive	The subject site is used for social and recreation opportunities, as well as access to them. The proposed activity would have no impact on the beneficial use of Bill Andriske Oval. Refer to Section 3 for details.
l) pollution of the environment	Negligible	The proposed activity is not expected to result in pollution of the environment. It is unlikely that the activity (including mitigation measures) would result in water, noise (refer item d above), or air pollution, spillages, dust, odours, vibration or radiation. With the requirement that dog owners clean up faeces, waste pollution from dogs is unlikely to have an impact on the natural environment. Garbage bins are located at main access points to the off-leash zone to promote compliance.
m) environmental problems associated with the disposal of waste	Negligible	The proposed activity involves time restricted dog off-leash access within the subject site. There would be no trackable waste, hazardous waste, liquid waste, or restricted solid waste as described in the POEO Act as a result of the proposed activity.

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impacts	Reason
		Under the requirement that dog owners clean up faeces, waste pollution from dogs is unlikely to have an impact on the natural environment. Garbage bins are located at main access points to the off-leash zone to promote compliance and these are regularly serviced to prevent overburden.
n) increased demands on natural or other resources that are, or are likely to become, in short supply	Negligible	No natural or other resources that are, or are likely to become, in short supply will have increasing demands in response to the proposed activity.
o) the cumulative environmental effect with other existing or likely future activities	Negligible	The subject site is used for social and recreational activities all year round. The proposed activity would not create a cumulative environmental effect with other existing or likely future activities within the subject site.
p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions	Negligible	The proposed activity is not likely to have any impact on coastal processes or coastal hazards, including those projected under climate change conditions.
q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	Negligible	There are no local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1 applicable to the subject site.
r) other relevant environmental factors	Negligible	There are no other relevant environmental factors.

Note – the 'locality' in this context is as per the EP&A Regulation and refers to the subject site and study area within this REF.

6 Detailed assessment of key environmental factors

The following sections present the detailed assessments of the key environmental factors relevant to the proposed activity. Threatened fauna and flora, heritage and community values are included. Potential impacts of the proposed activity in relation to these are assessed in Section 8.

6.1 Habitat and vegetation assessment

The subject site was assessed by a Council Biodiversity Project Officer on 12 October 2022 from 10 am to 12 pm. Survey involved a vegetation and habitat assessment of the subject site and study area. Flora and fauna species within the subject site and study area were documented as well as an investigation of habitat availability for threatened fauna species.

Within the study area, vegetation mapped as occurring in proximity to the subject site includes the BC Act listed (TECs) *Bangalay Sand Forest in the Sydney Basin and Southeast Corner Bioregions* and *Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner Bioregions* (Figure 3). Plant Community Types (PCT) mapped to occur within the study area include PCT4009 Shoalhaven Lowland Flats Wet Swamp Forest and PCT3267 Shoalhaven Foothills Turpentine Forest (Figure 3).

Native vegetation within the subject site is limited and includes scattered Bangalay (*Eucalyptus botryoides*), Bottlebrush (*Callistemon* spp.), Kangaroo Grass (*Themeda australis*), Spiny-headed Mat-rush (*Lomandra longifolia*), *Syzygium australe* and Lilly Pilly (*Acmena smithii*) (Plate 4-7, Appendix 1). Ground Asparagus (*Asparagus aethiopicus*), a Weed of National Significance, is present within the subject site in sparse patches.

Figure 3 Plant Community Types and Threatened Ecological Communities recorded within, and adjacent to, the dog off-leash access area.

6.2 Threatened species and ecological communities

This section has been informed by desktop analysis (including databases searches of BioNet, Birdlife Australia's *Birdata*, the EPBC Protected Matters Search Tool and Council's GIS Enquiry), consultation with relevant agencies including NPWS (detailed in Section 7), and a site inspection conducted on 12 October 2022 by Council's Biodiversity Project Officer.

The likelihood of occurrence for threatened fauna and flora listed under the BC Act and/or EPBC Act recorded within the locality (10 kilometres of the subject site) were identified from a database search and site visit. The likelihood of occurrence was assessed as high, medium or low based on species records and habitat features and are shown in Appendix 2, along with consideration of all species listed that have potential to occur within the subject site.

6.2.1 Threatened fauna

Based on the habitat present within the subject site, BC Act listed threatened fauna species that have the potential to occur at the subject site are:

- Birds
  - Gang-gang Cockatoo *Callocephalon fimbriatum*
  - Glossy Black Cockatoo *Calyptorhynchus lathami*
  - White-bellied Sea Eagle *Haliaeetus leucogaster*
  - Square-tailed Kite *Lophoictinia isura*
- Mammals
  - Grey-headed Flying-fox *Pteropus poliocephalus*

The Gang-gang Cockatoo, Glossy Black Cockatoo and Grey-headed Flying-fox are also listed as (MNES) under the EPBC Act.

No threatened species were observed within the subject site during the site inspection in preparation for this REF.

An assessment of potential impact on threatened fauna based on the above findings is provided in Section 8.1.1.

6.2.2 Threatened flora

There is no threatened flora that occur within the subject site.

6.2.3 Threatened ecological communities

Ground-truthing of vegetation confirmed that the TEC mapped to occur within the subject site and study area *Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner Bioregions*) is present, confirming Council's GIS mapping (Figure 3).

An assessment of potential impact on this TEC based on the above findings is provided in Section 8.1.2.

6.3 Heritage

6.3.1 Indigenous

Under Section 86 of the NPW Act, it is an offence to disturb, damage, or destroy any Aboriginal heritage object without an Aboriginal Heritage Impact Permit (AHIP). The NPW Act provides that if a person who exercises 'due diligence' in determining that their actions will not harm Aboriginal objects has a defence against prosecution if they later unknowingly harm an object without an AHIP (Section 87(2) of the NPW Act). To affect this, the NSW DPE have published the Due Diligence

Code of Practice for the Protection of Aboriginal Objects in New South Wales (hereafter referred to as 'Due Diligence Code') to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for an AHIP.

Step 1 of the Due Diligence Code does not apply to the proposed activity as disturbance to the ground surface is negligible.

In accordance with Step 2a of the Due Diligence Code, a search on AHIMS indicated that there were no recorded Aboriginal heritage sites within the subject site.

Step 2b of the Due Diligence Code then requires a consideration of whether Aboriginal objects are likely to be in the area of the proposed activity with consideration to certain landscape features listed in the Code to have higher propensity for objects, *i.e.:*

- within 200 metres of waters; or
- located in a sand dune system; or
- located on a ridge top, ridge line or headland; or
- located within 200 metres below or above a cliff face; or
- within 20 metres of or in a cave, rock shelter, or cave mouth.

The proposed activity area does comprise such landforms (within 200 metres of waters and sand dune).

A literature search was also conducted utilising Council's document archive. No Aboriginal cultural heritage sites were found within the subject site.

The parkland environment of the subject site could also be described as 'disturbed land' as defined by the Due Diligence Code), i.e.:

> *Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as stormwater drainage and other similar infrastructure) and construction of earthworks.*

The proposed activity is within disturbed land as the lands have been substantially modified and used as parkland. The Due Diligence Code states that if the subject site does contain one of the above listed features and is on land that is not disturbed, then Step 3 must occur. As the proposed activity is within disturbed land, and there are no known Aboriginal objects within the subject site, the activity can proceed with caution and Step 3 is not required.

In the context of this environmental assessment the area to be affected by the proposed activity:

- is Council owned land and therefore not subject to Aboriginal Land Claims.
- is not an Aboriginal Place in the context of the NPW Act.

In consideration of the above, it is reasonable to conclude that there is a low probability of Aboriginal objects being impacted on by the proposed activity. As a result, an AHIP is not required, and the proposed activity can proceed.

6.3.2 Non-Indigenous

The proposed activity would not involve, or be close to, items of local heritage significance and any items on the state heritage list or the SLEP 2014. No further consideration is warranted.

7 Consultation

This REF was prepared in consultation with internal and external stakeholders. This section reports on the stakeholders involved and the submissions received in relation to the proposed activity.

7.1 Department of Primary Industries (NSW Fisheries)

No dredging or impact on fish habitat, consultation is not required.

7.2 Department of Planning and Environment (DPE)

The NPWS Shorebird Ranger for the Shoalhaven region was consulted during the development of this REF. Corroborating evidence of threatened and migratory shorebird nesting locations was provided. In addition, recommendations were made in relation to mitigative measures including Council Ranger presence to encourage compliance, and educational signage regarding threatened shorebirds in the area.

7.3 Council departments

This REF has been prepared by Council's Environmental Services Department in consultation with Council's Department of Ranger Services and Social Infrastructure Planning Team.

Ranger Services have confirmed a monitoring presence will continue at Bill Andriske Oval. Other internal representatives from various council teams were also consulted and attended internal workshops, including Shoalhaven Animal Shelter, Tourism, Community Engagement, and Property.

7.4 Community

Council undertook a comprehensive review of Access Areas for Dogs Policy in 2021, which involved community and stakeholder engagement. The Council provided workshops, drop-in sessions, online surveys, and Council submissions to allow community members and relevant stakeholders to share their views on dog off-leash access areas in the Shoalhaven LGA. The Community Engagement Summary Report released on 7 December 2021 revealed that external stakeholder input included:

- Jervis Bay Marine Park/Department of Primary Industries
- DPE
- NPWS
- Destination NSW
- Destination Sydney Surrounds South
- Shoalhaven Tourism Advisory Group

There were 123 community working group members engaged in the consultation which included a range of demographics reflecting the Shoalhaven community, including both dog and non-dog owners, dog trainers, members of Community Consultative Bodies (CCB), business operators, people living with disabilities and shorebird rescue. There were 1396 survey respondents (80.6% were residents, 14.6% ratepayers (but not full-time residents) and 4.8% visitors) and 216 community members engaged in five public drop-in sessions located at Plantation Point Reserve in Vincentia, Mollymook Beach in Mollymook, Broughton Court in Berry, Jellybean Park in Nowra and outside Ulladulla Civic Centre. Council also received 108 submissions from residents, visitors and community groups.

The various submissions received both supported and raised concerns with the proposed activity, including issues such as:

- Signage – confusion regarding the boundaries of off-leash, on-leash and prohibited dog areas, inconsistent and confusing messaging, a lack of signage at access points, non-visual signs making it difficult for other language groups, no indication of offences on signs.
- Compliance – Council Ranger presence, dog off-leash activity outside of designated hours, and people not picking up after their dogs.
- User conflict and safety – conflict between reserve-users with and without dogs, and conflict between dogs and native fauna.

The mitigation measures in Section 9 have been developed in accordance with the consultation undertaken, notably:

- Increased Ranger presence.
- Increased and improved signage that is clear and consistent across the Shoalhaven.
- Off-peak time restrictions to reduce conflict with other recreational users.
- Liaison with NPWS South Coast Shorebird Recovery Program Coordinator.

Council's Access Areas for Dogs Policy and associated Dog Off-leash Guide provides dog owners with public domain conduct guidelines as well as defining dog off-leash, on-leash and prohibited areas within the ownership, management, care, and control of Council.

Signage and supporting infrastructure will need to be erected to ensure community awareness, and compliance with the CA Act and Council's Access Areas for Dogs Policy.

8 Impact assessment

This section reports on the potential for impacts in relation to the environmental factors identified in Section 6 associated with the proposed activity, to comply with relevant legislation identified in Section 4.

Consultation referred to in Section 7 was considered in the assessment of impacts on threatened fauna, flora and threatened ecological communities.

Many of the mitigation measures provided in Section 9 are informed through these assessments.

8.1 Potential impacts

Section 1.7 of the EP&A Act applies the provisions of Part 7 of the BC Act that relate to the operation of the Act in connection with the terrestrial and aquatic environment.

8.1.1 Threatened fauna

The impact of dog off-leash access on the species listed in Section 6.2.1 have been assessed in this section.

A Test of Significance has been undertaken for the relevant species (Appendix 3). These determined that the impact of the proposed activity on BC Act listed threatened species that have the potential to occur at the subject site is negligible.

The Gang-gang Cockatoo, Glossy Black Cockatoo and Grey-headed Flying-fox are also listed as Matters of National Environmental Significance (MNES) under the EPBC Act, with the Gang-gang Cockatoo listed as Endangered and the Glossy Black Cockatoo and Grey-headed Flying-fox listed as Vulnerable.

Assessments in accordance with the Commonwealth Significant Impact Guidelines 1.1 have been undertaken for the above MNES in Appendix 4. The assessment against the Significant Impact Criteria determined that the impact of the proposed activity on MNES that have the potential to occur at the subject site is negligible.

8.1.2 Threatened flora and ecological communities

The impact of dog off-leash access on the TEC listed in Section 6.2.3 have been assessed in this section.

A Test of Significance has been undertaken for the listed TEC *Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner Bioregions*) in Appendix 3. This determined that the impact of the proposed activity on this BC Act listed TEC at the subject site is negligible.

9 Impact mitigation

Mitigation hierarchy provides a multi-step approach to limit the amount of harm an action will have. Avoidance is the primary and preferential level of the hierarchy, resulting in no harm. This is followed by minimisation measures that aim to reduce the duration, intensity and/or extent of the impacts that are unable to be completely avoided. Offsetting is typically the final level of the hierarchy whereby unavoidable harm is compensated for elsewhere.

An adaptive management framework has been established for the subject site for the proposed activity. The implementation of management actions can be adjusted based on monitoring to ensure required outcomes are met.

Following the detailed assessment of environmental factors relating to the proposed activity in Section 6, consultation outcomes in Section 7 and the assessment of potential impact in Section 8, the following safeguards are required to mitigate potential impacts of the proposed activity on the community and the environment:

- Signage clearly detailing the off-leash area and on-leash areas will ensure dog owners/walkers are aware of these restrictions.
- Regular monitoring by Council Rangers will occur to enforce compliance, including monitoring for the presence of off-leash dogs in adjacent on-leash areas. The presence of Council Rangers will also enable the provision of education to the community.
- A penalty infringement notice will be issued, following an initial caution, for any repeat offenders observed during regular inspections.
- An adaptive management approach will be incorporated into the ongoing monitoring and maintenance of the subject site, which will respond to changes including threatened species distribution, human behaviour and resulting from ongoing and regular assurance activities with stakeholders.
- New signage will utilise existing posts where possible.

The above-listed mitigation measures address the key environmental factors assessed in Section 6 of this REF. All potential impacts from the proposed activity have been considered and mitigation measures required to minimise these have been listed in Appendix 5.

10 Determination

This REF has assessed the likely environmental impacts, in the context of Part 5 of the EP&A Act of a proposed activity by Shoalhaven City Council to permit dogs on a timed off-leash area within Bill Andriske Oval, including the associated signage installation.

Shoalhaven City Council has considered the potential environmental effects of the proposed activity and the effectiveness and feasibility of measures for reducing or preventing detrimental effects. It is determined that:

- The proposed safeguards identified in the report (Section 9 and Appendix 5) shall be adopted and adaptive management of the subject site will be implemented.
- It is unlikely that there will be any significant environmental impact in response to the proposed activity and an Environmental Impact Statement is not required for the proposed activity.
- The proposed activity is not likely to significantly affect threatened species or ecological communities, or their habitats and entry into the Biodiversity Offset Scheme or preparation of a Species Impact Statement is not required.
- The proposed activity is not a 'controlled action' for the purposes of the EPBC Act and referral to the Commonwealth Environment Minister is not required.

Dr Michael Roberts

Dr Michael Roberts **Date: 12 August 2023**
Manager, Environmental Services
Shoalhaven City Council

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Appendix 1: Photographs of the subject site

Plate 1: Existing dog signage at Bill Andriske Oval to delineate where on leash activities occur.

Plate 2**:** Existing shed infrastructure within the dog off-leash access area.

Plate 3: Existing signage near the dog off-leash access area at Bill Andriske Oval.

Plate 4: Looking east within the dog off-leash access area at Bill Andriske Oval.

Plate 5: Looking south within the dog off-leash access area at Bill Andriske Oval.

Plate 6: Looking west towards Carroll Avenue within the dog off-leash access area at Bill Andriske Oval.

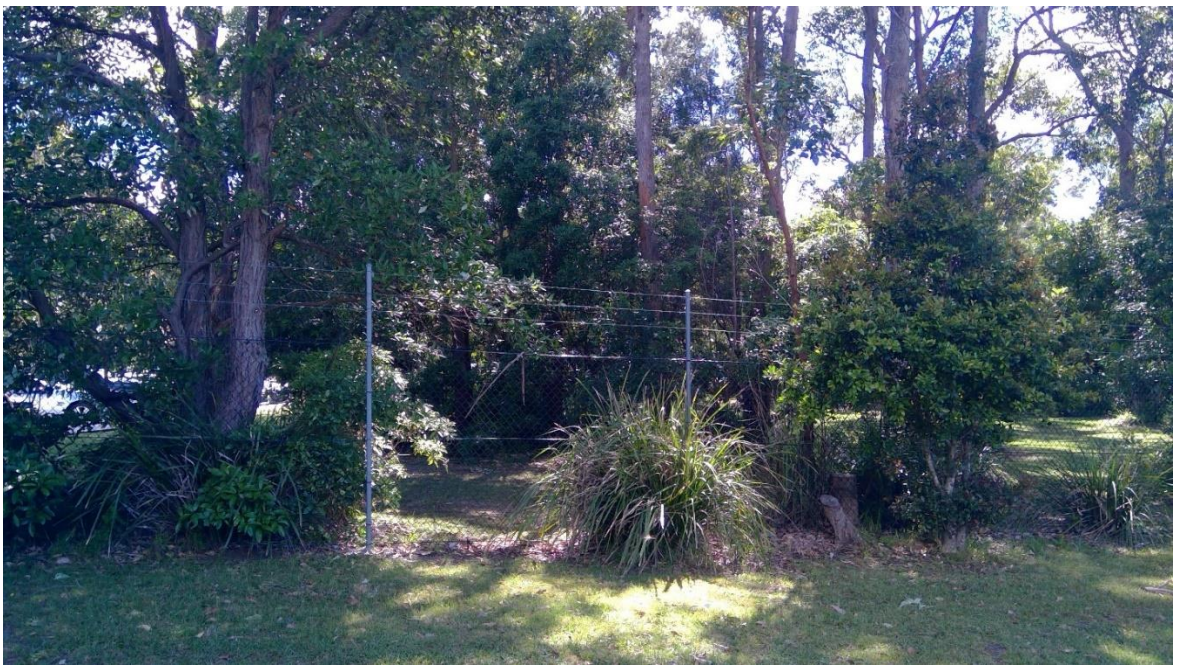

Plate 7: Looking north from within the dog-off leash access area at Bill Andriske Oval, showing barbed-wire perimeter fencing.

Appendix 2: Threatened species listed under BC Act and EPBC Act

An assessment of likelihood of occurrence was made for threatened and migratory species identified from database searches (Council's GIS Enquiry, Birdata and BioNet) and site visit (Table 3). Likelihood of occurrence was assessed for the species listed under BC Act and EPBC Act and recorded for the subject site/study area or locality.

For threatened species listed under the BC Act, a Test of Significance (ToS) under section 7.3 of the BC Act has been conducted (Appendix 3).

For threatened species listed under the EPBC Act, an assessment against Significant Impact Criteria (SIC), in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance, has been conducted (Appendix 4).

The terms for likelihood of occurrence (Table 3) are defined as:

- High – the species was or has been observed/recorded on the site, and/or the site provides important habitat known to the species.
- Medium – the species was or has been observed/recorded on the site, and/or suitable habitat is located on the site, and/or the species is known to occupy the site habitat occasionally.
- Low – the species was or has been observed/recorded near the site; however, the sites habitat is considered unsuitable or unlikely for species to occur to the extent their life cycle would be impacted.

The following abbreviations are used to indicate the State and Commonwealth Status of species:

- CE = critically endangered
- E = endangered
- V = vulnerable
- M = migratory

Table 3 Likelihood of occurrence of threatened species listed under the BC Act and the EPBC Act that may occur at the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Birds						
Arctic Jaeger	*Stercorarius parasiticus*		M	Migratory. When not breeding, found in open ocean. Occasionally found on the coast and by large rivers, bordered by grassland and moorland.	Low	No – suitable habitat is absent from the subject site.
Beach Stone Curlew	*Esacus magnirostris*	CE		Beach Stone-curlews are found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves. They forage in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Beach Stone-curlews breed above the littoral zone, at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees, and also among open mangroves.	Low	No – species records indicate presence is uncommon in the locality and the species is unlikely to be reliant on vegetation communities and habitat located within the subject site, being not directly on the coast and more terrestrial in nature.
Black-browed Albatross	*Thalassarche melanophris*	V	V, M	Inhabits Antarctic, subantarctic, subtropical marine and coastal waters over upwellings and	Low	No – Species typically occur at sea.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				boundaries of currents. These birds spend most of their time at sea and can often forage in flocks with other seabirds.		
Crested Tern	*Thalasseus bergii*		M	Coastal areas including open shores, low-lying sandy, rocky or coral islands and sometimes shrubland.	Low	No – the species has been recorded near the subject site at Mollymook Beach and adjacent rock platforms. However, the species is unlikely to occur at the subject site as it is not directly on the coast.
Dusky Woodswallow	*Artamus cyanopterus*	V		Primarily inhabits dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and groundcover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	Low	No – species records indicate that presence is unlikely at the subject site.
Eastern Curlew	*Numenius madagascariensis*		CE, M	Generally, occupies coastal lakes, inlets, bays, estuarine habitats including intertidal mudflats and	Low	No - species records indicate presence is unlikely and the subject site does not provide the

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				saltmarsh of sheltered coasts. Has been recorded on open beaches (often near estuaries, and coral reefs and rocky platforms).		coastal habitats necessary for the species.
Eastern Ground Parrot	*Pezoporus wallicus wallicus*	V		Occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities. It spends most of its time on or near the ground.	Low	No – species records indicate presence is unlikely and there is no suitable habitat within the subject site.
Eastern Hooded-Dotterel	*Thinornis cucullatus cucullatus*	CE	V	Sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, beach cast seaweed, and backed by sparsely vegetated sand-dunes for shelter and nesting. Occasionally found on tidal bays, estuaries, rock platforms and sandy/rocky covered reefs near sandy beaches.	Low	No – the species has been recorded near the subject site at nearby open-coast sand beaches. However, the species generally does not occupy grassed/treed reserves that occur in the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Eastern Osprey	*Pandion cristatus*	V		Coastal areas, especially the mouths of large rivers, lagoons and lakes.	Low	No – the species has been recorded at Mollymook Beach, but there is no suitable habitat within the subject site.
Gang-gang Cockatoo	*Callocephalon fimbriatum*	V	E	In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas.	Medium	**Yes** – (ToS Appendix 3, SIC Appendix 4) The species has been recorded near the subject site and suitable habitat is present.
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	V	V	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she oak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foraging resources.	Medium	**Yes** – (ToS Appendix 3, SIC Appendix 4) The species has been recorded near the subject site and suitable habitat or feed trees may be located in the adjoining bushland within the study area.
Little Tern	*Sternula albifrons*	E		Occupies coastal sheltered environments, however, birds may occur several kilometres from the	Low	No - species records indicate that presence is unlikely and there is

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records).		no suitable habitat within the subject site.
Masked Owl	*Tyto novaehollandiae*	V		Dry eucalypt forests and woodlands from sea level to 1100 metres.	Low	No – species records indicate presence is unlikely and only small amounts of marginal habitat occurs within the subject site.
Nunivak Bar-tailed Godwit	*Limosa lapponica baueri*		V	Coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Less frequently it occurs in salt lakes and brackish wetlands, sandy ocean beaches and rock platforms. It often occurs around beds of seagrass, and sometimes in nearby saltmarsh or the outer margins of mangrove area.	Low	No - species records indicate that presence is unlikely, and the subject site does not provide coastal habitats necessary for the species.
Pectoral Sandpiper	*Calidris melanotos*		M	Found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	No	No – species records indicate presence is unlikely and the subject site does not provide the coastal habitats necessary for the species.
Pied Oystercatcher	*Haematopus longirostris*	E		Favours intertidal flats of inlets and bays, open beaches and	Low	No – The species has been recorded in the locality, but there

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				sandbanks. Coastal or estuarine beaches.		is no suitable habitat located within the subject site.
Powerful Owl	*Ninox strenua*	V		Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. Requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. Powerful Owl nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old. While the female and young are in the nest hollow, the male Powerful Owl roosts nearby (10-200 m) guarding them, often choosing a dense grove of trees that provide concealment from other birds that may harass him.	Low	No – The species has been recorded in the locality, but there is no suitable habitat located within the subject site.
Regent Honeyeater	*Anthochaera phrygia*	E	CE	Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. These woodlands have significantly large numbers of mature trees, high	Low	No – species records indicate presence is unlikely at subject site. No breeding habitat for the species occurs in the Shoalhaven.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				canopy cover and abundance of mistletoes.		
Scarlet Robin	*Petroica boodang*	V		Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. The habitat usually contains abundant logs and fallen timber: these are important components of its habitat	Low	No – species records indicate that presence is unlikely at the subject site.
Short-tailed Shearwater	*Ardenna tenuirostris*		M	Pelagic species. Coastal areas including open shores, low lying sandy, rocky, or coral island, low-lying sandy, rocky or coral islands and sometimes shrubland.	Low	No – the species has been recorded near the subject site. However, the subject site does not provide the coastal habitats necessary for the species.
Shy Albatross	*Thalassarche cauta*	V	E, M	Mostly at sea. Occasionally occurs in continental shelf waters, in bays or harbours.	Low	No - species records indicate that presence is unlikely at the subject site and the species is typically found at sea, not a grassed/treed public reserve in a suburban area.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Sooty Owl	*Tyto tenebricosa*	V		Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	Low	No – species records indicate presence is unlikely in the subject site and there is no suitable habitat within the subject site.
Sooty Oystercatcher	*Haematopus fuliginosus*	V		Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries	Low	No – the species has been recorded nearby but the subject site does not provide the coastal habitats necessary for the species.
Southern Giant Petrel	*Macronectes giganteus*	E	E, M	Nests over summer. Nest in ice-free coastal areas, rocky bluffs, open flats, edges of plateaux or offshore rocks. Otherwise occurs in open waters or along coastlines.	Low	No – species records indicate that presence is unlikely at the subject site and there is no suitable habitat within the subject site.
Square-tailed Kite	*Lophoictinia isura*	V		Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses.	Medium	**Yes** – (ToS Appendix 3) There are records of the species along Racecourse Creek to the south and species may forage within and adjacent to the subject site on occasion.
Superb Fruit Dove	*Ptilinopus superbus*	V		Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia	Low	No – species records indicate that presence is unlikely and there is no suitable habitat within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				woodland where there are fruit-bearing trees.		
Swift Parrot	*Lathamus discolor*	E	CE	Occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis,* Mugga Ironbark *E. sideroxylon,* and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa,* Grey Box *E. moluccana,* Blackbutt *E. pilularis*, and Yellow Box *E. melliodora*	Low	No – species records indicate that presence is unlikely at the subject site. No breeding habitat for the species occurs in the Shoalhaven.
Varied Sittella	*Daphoenositta chrysoptera*	V		Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums	Low	No – species records indicate that presence is unlikely at the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				with dead branches, mallee and Acacia woodland.		
Wedge-tailed Shearwater	*Ardenna pacifica*		M	Mostly a pelagic, marine species. Found along inshore and offshore water masses.	Low	No – species records indicate that presence is unlikely in the locality and the species typically occurs at sea, not a grassed/treed public reserve in a suburban area.
Whimbrel	*Numenius phaeopus*		M	Intertidal mudflats, along muddy banks of estuaries and in coastal lagoons, either in open unvegetated areas or mangroves. Occasionally in harbours, lagoons, estuaries, rivers or sandy and rocky beaches, platforms or reefs.	Low	No – records of the species are associated with Narrawallee Inlet. There is no suitable habitat within the subject site.
White-bellied Sea Eagle	*Haliaeetus leucogaster*	V		Occurs at large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats,	Medium	**Yes** – (ToS Appendix 3) The species has been recorded near the subject site and suitable habitat is nearby within the study area.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				grassland, heathland, woodland, and forest, including rainforest.		
White-fronted Chat	*Epthianura albifrons*	V		Usually found foraging on bare or grassy ground in wetland areas.	Low	No – species records indicate that presence is unlikely and there is no suitable habitat within the subject site.
White-throated Needletail	*Hirundapus caudacutus*		V, M	Mostly found in coastal areas, in most vegetation and habitat types including forested wetlands, freshwater wetlands, grasslands, saline wetlands, and coastal beaches and estuaries.	Low	No – species is exclusively aerial, therefore, may forage above the subject site but would not utilise vegetation and habitat within the subject site.
Frogs						
Giant Burrowing Frog	*Heleioporus australiacus*	V	V	Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	Low	No – there is no suitable habitat within the subject site.
Green and Golden Bell Frog	*Litoria aurea*	E	V	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spike-rushes (*Eleocharis* spp.). Optimum habitat includes waterbodies that are unshaded, free of predatory fish such as Plague Minnow (*Gambusia*	Low	No – there is no suitable habitat within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				holbrooki), have a grassy area nearby and diurnal sheltering sites available.		
Stuttering Frog	*Mixophyes balbus*	E	V	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range	Low	No – there is no suitable habitat within the subject site.
Reptiles						
Green Turtle	*Chelonia mydas*	V	V	Ocean-dwelling species spending most of its life at sea.	Low	No – species occurs at sea.
Hawksbill Turtle	*Eretmochelys imbricata*		V	Ocean-dwelling species spending most of its life at sea.	Low	No – species occurs at sea.
Loggerhead Turtle	*Caretta caretta*	E	E	Ocean-dwellers, foraging in deeper water for fish, jellyfish and bottom-dwelling animals.	Low	No – species occurs at sea.
Mammals						
Australian Fur-seal	*Arctocephalus pusillus doriferus*	V		Occurs in inshore and offshore marine waters.	Low	No – there is no suitable habitat within the subject site as the species typically occurs at sea.
Eastern Coastal Free-tailed Bat	*Micronomus norfolkensis*	V		Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests.	Low	No – species records indicate that presence is unlikely and the condition of the habitat of the subject site is considered unsuitable for the species.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	V		Prefers moist habitats, with trees taller than 20 metres. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Low	No – species records indicate presence is unlikely and the condition of the habitat of the subject site is considered unsuitable for the species.
Golden-tipped Bat	*Phoniscus papuensis*	V		Found in rainforest and adjacent wet and dry sclerophyll forest up to 1000 metres altitude. Also recorded in tall open forest, *Casuarina*-dominated riparian forest and coastal *Melaleuca* forests.	Low	No – species records indicate that presence is unlikely and the condition of the habitat of the subject site is considered unsuitable for the species.
Greater Broad-nosed Bat	*Scoteanax rueppellii*	V		Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Low	No – species records indicate that presence is unlikely and the condition of the habitat at the subject site is considered unsuitable for the species.
Greater Glider	*Petauroides volans*		E	Can be found in dry or wet sclerophyll forests, heathlands and temperate rainforests.	Low	No – species records indicate that presence is unlikely at the subject site.
Grey-headed Flying-fox	*Pteropus poliocephalus*	V	V	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Medium	**Yes** – (ToS Appendix 3, SIA Appendix 4). The species has been recorded near the subject site and suitable foraging habitat is located at the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Koala	*Phascolarctos cinereus*	E	E	Inhabits eucalypt woodlands and forests.	Low	No – there is no suitable habitat within the subject site. The known population in the Shoalhaven is in the west of the LGA, near Sassafras.
Large Bent-winged Bat	*Miniopterus orianae oceanensis*	V		Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	Low	No – species records indicate that presence is unlikely, and the habitat of the subject site is in poor condition for the species.
Large-eared Pied Bat	*Chalinolobus dwyeri*	V	V	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. Found in well-timbered areas containing gullies.	Low	No – species records indicate presence is unlikely and the habitat of the subject site is considered unsuitable for the species.
New Zealand Fur-seal	*Arctocephalus forsteri*	V		Prefers rocky parts of islands with jumbled terrain and boulders. Mainly found in the ocean.	Low	No – the subject site is a terrestrial public reserve in a suburban area. No suitable habitat is present for the species.
Southern Brown Bandicoot (eastern)	*Isoodon obesulus*	E	E	Generally, only found in heath or open forest with a heathy	Low	No – species records indicate that presence is unlikely, and the

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
				understorey on sandy or friable soils.		habitat of the subject site is unsuitable for the species.
Southern Greater Glider	*Petauroides volans*	E	E	Inhabits eucalypt forests and woodlands. Feeds exclusively on eucalypt leaves, buds. Flowers and mistletoe. Shelters during the day in tree hollows within their home range, which is typically 1 to 3 ha.	Low	No – species records indicate that presence is unlikely, and the habitat of the subject site is unsuitable.
Southern Myotis	*Myotis macropus*	V		Typically roosts close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Low	No – species records indicate that presence is unlikely, and the habitat of the subject site is considered unsuitable for the species.
Southern Right Whale	*Eubalaena australis*	E	E	Migrate between summer feeding grounds in Antarctica and winter breeding grounds around the coasts of southern Australia, New Zealand, South Africa and South America. They feed in the open ocean in summer.	Low	No – ocean-going species.
Sperm Whale	*Physeter macrocephalus*	V		Ocean-dwelling species. Concentrations of Sperm Whales tend to occur where the seabed rises steeply from a greater depth, beyond the continental shelf.	Low	No – ocean-going species.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Spotted-tailed Quoll	*Dasyurus maculatus*	V	E	Range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites.	Low	No – species records indicate that presence is unlikely and the condition of the habitat of the subject site is considered unsuitable for the species.
Plants						
Austral Toadflax	*Thesium australe*	V	V	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (*Themeda australis*).	Low	No – there is no suitable habitat within the subject site.
Leafless Tongue Orchid	*Cryptostylis hunteriana*	V	V	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland.	Low	No – the understorey is highly disturbed in the subject site and study area. Not observed within the subject site during the field inspection. Unlikely to occur within the subject site.
Magenta Lilly Pilly	*Syzygium paniculatum*	E	V	Occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	Low	No – species records indicate that presence is unlikely in the subject site. No plants were observed during field inspections.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3/4)?
		BC Act	EPBC Act			
Scrub Turpentine	*Rhodamnia rubescens*	E	CE	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Low	No – species records indicate that presence is unlikely in the subject site. No plants were observed during field inspections.
Thick Lip Spider Orchid	*Caladenia tessellata*	E	V	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	Low	No – understorey is highly disturbed in the subject site and study area offering little to no suitable habitat conditions for the species.

Appendix 3: Test of Significance (BC Act)

Following the analysis of Likelihood of Occurrence (Appendix 2), the BC ACT Test of Significance was applied to:

Fauna

- Gang-gang Cockatoo
- Glossy Black Cockatoo
- Square-tailed Kite
- White-bellied Sea Eagle
- Grey-headed Flying-fox

Ecological Communities

- Swamp Sclerophyll Forest

a) In the case of a threatened species, where the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is to be placed at risk of extinction.

Threatened Birds – Gang-gang Cockatoo, Glossy Black Cockatoo, Square-tailed Kite, White-bellied Sea Eagle.

Gang-gang Cockatoo are generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests in spring and summer and move to lower altitudes to drier open eucalyptus forests in autumn and winter. They typically favour old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7 cm in diameter or larger in eucalypts and 3 m above ground. No suitable habitat for the Gang-gang Cockatoo is located at the subject site, including appropriate hollow-bearing trees required for nesting.

Glossy Black Cockatoo inhabit open forest woodlands of the coast where she-oak occurs. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods for this species. Glossy Black Cockatoo are dependent on hollow-bearing eucalyptus for nest sites. Glossy Black Cockatoos have not been recorded nesting within the proximity of the subject site. Hollow-bearing trees are not located within the subject site. Foraging may occur at the subject site. However, as dog off-leash exercise is a ground activity, the species will remain unaffected.

The Square-tailed Kite species mainly inhabit open eucalyptus forests and woodlands, often dominated by stringybarks, peppermints or box–ironbark eucalypts. They will also utilise habitats dominated by Woollybutt, Spotted Gum, Manna Gum, Messmate, River Red Gums, as well as other trees such as Angophora, cypress-pines and casuarinas. It also occurs along the edges of dense forest and along road verges with remnant or planted trees, and in clearings within forest or in areas of regrowth, up to 4 years after the area has been devoid of vegetation. The species typically nests along or near watercourses, in a fork of a tree, or on large horizontal lead branches. Critical habitat needed for the survival of Square-tailed Kite is not located within the subject site and is therefore not considered to be affected by the proposed activity.

The White-bellied Sea Eagle species has been recorded in terrestrial habitats including coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as ‘guard roosts’. This species has also been recorded

to construct nests on a cliff edge, on a telegraph pole, and in some cases, on the ground or on rocks (where there are no suitable 30 metre or greater elevations). White-bellied Sea Eagles have not been recorded nesting in the study area. However, if nesting was to occur, the species would be unaffected due to the nature and location of preferred potential nesting locations being outside the subject site.

Mitigation measures detailed in Section 9 are expected to avoid impacts to areas of foraging and breeding habitat. As such, the proposed activity is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is to be placed at risk of extinction. A species impact statement (SIS) or entry into the BOS is not required.

Threatened mammals – Grey-headed Flying-fox

Grey-headed Flying-fox occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Grey-headed Flying-fox roosts in camps, generally located within 20 kilometres from a regular food source, and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. The Grey-headed Flying-fox feed on nectar and pollen of native trees, in particular *Eucalyptus, Melaleuca* and *Banksia*, and fruits of rainforest trees and vines. The Grey-headed Flying-fox are unlikely to occur at the subject site to the extent that dog presence would affect their lifecycle. No camps are located at the subject site, and appropriate food sources are limited.

b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

The vegetation within a part of the subject site does comprise the TEC *Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner Bioregions*) (Figure 3). During the vegetation survey of the subject site, it was determined that while the vegetation surveyed is highly modified by regular mowing and is fragmented by adjacent urban land use, the flora species recorded and position in the landscape align with the description provided in the NSW Scientific Committee - final determination. The patch of vegetation surveyed within the subject site adjoins a larger area of bushland surrounding the oval, including the riparian habitat at Mollymoke Creek. The vegetation within these adjoining areas includes similar canopy species with a more intact structure throughout the understorey, as the area is not mown or otherwise disturbed. As the proposed activity is located within the highly modified vegetation, there will be no adverse impact on, or modification of, the ecological community.

The ancillary works associated with the proposed activity within this community, such as signage installation, will also not have an adverse effect on the extent of the TEC or substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

c) In relation to the habitat of a threatened species or ecological community:

(i) The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.

No habitat of a threatened species or ecological community will to be removed/modified or become fragmented or isolated from other areas of habitat as a result of this proposed activity.

d) Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).

No areas of outstanding biodiversity value have been declared in the City of Shoalhaven.

e) Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposed activity will not contribute to any key threatening process listed under the BC Act.

Conclusion

The Test of Significance concludes that the proposed activity would not have a significant impact on threatened species. As such, a Species Impact Statement and entry into the Biodiversity Offset Scheme are not required.

Appendix 4: Significant Impact Criteria for EPBC Act Listed Threatened Species

The Commonwealth Significant Impact Guidelines 1.1 details criteria to assess whether the proposed activity is likely to have a significant impact to matters of national environmental significance (MNES), and whether referral to the Commonwealth Department for further assessment and approval is required.

The Significant Impact Guidelines provide varying criteria depending on the conservation status. The relevant criteria for threatened species as per their commonwealth status is outlined in Appendix 4.

The following terminology is used throughout the Significant Impact Criteria (SIC) assessment and is defined below:

- **Population of a species:** an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:
  - a geographically distinct regional population, or collection of local populations, or
  - a population, or collection of local populations, which occurs within a particular bioregion.
- **Important population of a species:** a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:
  - key source populations either for breeding or dispersal
  - populations that are necessary for maintaining genetic diversity, and/or
  - populations that are near the limit of the species range.
- **Invasive species:** an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources, or which is a predator of native species.
- **Habitat critical for the survival of a species.** Refers to areas that are necessary:
  - for activities such as foraging, breeding, roosting, or dispersal
  - for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
  - to maintain genetic diversity and long-term evolutionary development, or
  - for the reintroduction of populations or recovery of the species or ecological community.
- **Important habitat for migratory species:**
  - habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or
  - habitat that is of critical importance to the species at particular life-cycle stages, and/or
  - habitat utilised by a migratory species which is at the limit of the species range, and/or

- habitat within an area where the species is declining.

Following the analysis of Likelihood of Occurrence (Appendix 2), the EPBC Act Significant Impact Criteria were tested for the following taxa:

Endangered Fauna

- Gang-gang Cockatoo

Vulnerable Fauna

- Glossy Black Cockatoo
- Grey-headed Flying-fox

Endangered Species

- **Gang-gang Cockatoo *Callocephalon fimbriatum***

Each significant impact criterion has been assessed below:

Lead to a long-term decrease in the size of a population

The subject site does not support key source populations for breeding or dispersal, populations necessary for maintaining genetic diversity, or populations near the limit of the species range. No direct impact on individual Gang-gang Cockatoos or their habitat would occur in response to the proposed activity. Gang-gang Cockatoos forage in tree canopies, so there would not be an increased risk associated with being attacked by dogs utilising the dog off-leash access area. The proposed activity would therefore not lead to a long-term decrease in the size of a population.

Reduce the area of occupancy of the species.

No, the area of occupancy for the Gang-gang Cockatoo will not be reduced.

Fragment an existing population into two or more populations.

No, since the proposed activity does not involve vegetation clearing or is likely to lead to an increased predation risk.

Adversely affect habitat critical to the survival of a species

No. Gang-gang Cockatoos are generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests in spring and summer and move to lower altitudes to drier open eucalyptus forests in autumn and winter. They typically favour old growth forest and woodland attributes for nesting and roosting. No such habitat is located within the subject site. Therefore, habitat critical to the survival of the species will not be affected by the proposed activity.

Disrupt the breeding cycle of a population.

Gang-gang Cockatoos typically favour old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7 cm in diameter or larger in eucalypts and 3 m above ground. No suitable breeding habitat for the Gang-gang Cockatoo is located at the subject site, so collectively there would not be an increased risk of the breeding cycle being impacted on by the proposed activity.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

No. Since there is no optimal foraging habitat, and an absence of nesting habitat, within the subject site, the proposed activity will not modify, destroy, remove, isolate or decrease the availability or quality of habitat such that the Gang-gang Cockatoo species is likely to decline.

Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.

No invasive species will be introduced.

Introduce disease that may cause the species to decline, or

No disease is likely to be introduced.

Interfere with the recovery of the species.

No, the proposed activity will not impact on the potential recovery of the species**.**

Conclusion

It is considered unlikely that the Gang-gang Cockatoo would be impacted on by the proposed activity and further assessment and referral to the Commonwealth is therefore not required.

Vulnerable species

- **Grey-headed Flying-fox *Pteropus poliocephalus***

Each significant impact criterion is addressed below:

Lead to a long-term decrease in the size of an important population of a species

The subject site and study area does not support an important population of the Grey-headed Flying-fox as it is not known to provide habitat for a key source population for breeding or dispersal, to maintain genetic diversity or it is not located near the limit of the species range. Furthermore, no direct impact on individual Grey-headed Flying-fox or habitat would occur in response to the proposed activity. Any feeding on trees located within the study area by the Grey-headed Flying-fox would occur during nocturnal foraging periods, when use of the dog off-leash access area is less likely. This species forages in tree canopies, so an increased risk of being attacked by dogs utilising the dog off-leash access area is unlikely to occur. Consequently, the proposed activity would therefore not impact on a population of this species.

Reduce the area of occupancy of an important population.

The subject site and study area does not support an important population of the Grey-headed Flying-fox. Furthermore, the proposed activity will not reduce the area of occupancy for the Grey-headed Flying-fox in the locality.

Fragment an existing important population into two or more populations.

The subject site and study area does not support an important population of the Grey-headed Flying-fox. Furthermore, the proposed activity will not lead to fragmentation of Grey-headed Flying-fox populations in the locality.

Adversely affect habitat critical to the survival of a species

The Grey-headed Flying-fox is unlikely to rely on foraging and roosting habitats within the subject site and study area given the presence of better-quality habitat in the locality, as well as their highly mobile dispersal patterns. As such, the proposed activity is considered unlikely to adversely affect habitat critical to the survival of the Grey-headed Flying-fox.

Disrupt the breeding cycle of an important population.

The subject site and study area does not support an important population of the Grey-headed Flying-fox.

While the subject site does provide potential foraging and roosting habitat for the Grey-headed Flying-fox, it is not known to support a flying-fox camp. As such, the proposed activity is considered unlikely to disrupt the breeding cycle of this species.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Although the subject site does provide potential foraging and roosting habitat for the Grey-headed Flying-fox, since it is not core habitat, the proposed activity is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the Grey-headed Flying-fox is likely to decline.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

The proposed activity is unlikely to result in the establishment of an invasive species that is harmful to the Grey-headed Flying-fox.

Introduce disease that may cause the species to decline, or

The proposed activity is unlikely to result in the introduction of a disease that is harmful to the Grey-headed Flying-fox.

Interfere substantially with the recovery of the species.

No, the proposed activity will not impact on the potential recovery of the Grey-headed Flying-fox.

Conclusion

It is considered unlikely that the Grey-headed Flying-fox species would be impacted on by the proposed activity and further assessment and referral to the Commonwealth is therefore not required.

- **Glossy Black Cockatoo *Calyptorhynchus lathami lathami***

Each significant impact criterion has been assessed below:

Lead to a long-term decrease in the size of an important population of a species

No important populations have been recorded within the subject site or study area. The subject site does not provide habitat that would support key source populations for breeding or dispersal or populations necessary for maintaining genetic diversity. The surrounding bushland may contain suitable habitat for the Glossy Black Cockatoo, including feed trees. However, this area is unlikely to be impacted on by the proposed activity to the extent that would lead to long-term decrease in the size of a population.

Reduce the area of occupancy of an important population.

No important populations have been recorded within the subject site or study area and the potential area of occupancy by Glossy Black Cockatoo will not be reduced.

Fragment an existing important population into two or more populations.

No important populations have been recorded within the subject site or study area. In addition, there is no existing population that occurs at the subject site. Individual species may occur periodically within the subject site as a transient species. However, the proposed activity will not result in fragmentation of the population.

Adversely affect habitat critical to the survival of a species.

Habitat critical for the survival of the Glossy-black Cockatoo is not located within the subject site or study area. Furthermore, the proposed activity will not impact on habitat that may be utilised by transients of this species from time to time.

Disrupt the breeding cycle of an important population.

No important populations have been recorded within the subject site or study area. This species is dependent on large hollow-bearing eucalyptus for nest sites. The vegetation within the subject site and study area does not support habitat critical for the breeding cycle of the species. Therefore, the proposed activity is not considered to disrupt the breeding cycle of the Glossy Black Cockatoo.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Since the subject site and study area does not support optimal foraging and breeding habitat for the Glossy-black Cockatoo, and the proposed activity will not impact on vegetation or Glossy-black Cockatoo behaviours, it is considered unlikely that it will not modify, destroy, remove, isolate or decrease the availability or quality of habitat for the species.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

The proposed activity is unlikely to result in the establishment of an invasive species that is harmful to Glossy Black Cockatoo.

Introduce disease that may cause the species to decline, or

The proposed activity is unlikely to result in the introduction of a disease that is harmful to the Glossy Black Cockatoo.

Interfere substantially with the recovery of the species.

Considering the above factors, the proposed activity will not interfere substantially with the recovery of the species.

Conclusion

It is considered unlikely that the Glossy Black Cockatoo would be impacted on by the proposed activity and further assessment and referral to the Commonwealth is therefore not required.

Appendix 5: Impact mitigation measures

Table 4 Environmental safeguard and mitigation table for potential impacts on the community and environment in response to the proposed activity

Category	Type of Impact	Safeguard/Mitigation Measure
Flora and Fauna	Loss of threatened species and associated habitat	An adaptive management approach will be incorporated into the ongoing monitoring and maintenance of the site, which will respond to changes including threatened species distribution, human behaviour and resulting from ongoing and regular assurance activities with stakeholders
		No trees or vegetation will be removed by the proposed activity.
	Vegetation clearing	Signage installation will utilise existing posts where possible.
	Trail proliferation and vegetation trampling	Existing access routes will be utilised to ensure surrounding vegetation remains undisturbed.
		If the vegetation surrounding the access areas become disturbed or degraded, fencing will be installed to confine the public and their dogs to open areas only.
	Invasive species	Equipment used for signage installation and ancillary works will be cleaned prior to entering and leaving the subject site to ensure invasive species are not transported.
Water	Water pollution – dog waste	Dog owners/walkers are required to clean up dog faeces under the CA Act. Compliance activities will help to enforce this obligation.
Heritage items	Aboriginal heritage – unexpected finds of heritage items	If Aboriginal heritage items are uncovered during signage installation and ancillary works, all works will cease and the steps under the NSW Department of Planning and Environment Due Diligence Code of Practice for the Protection of Aboriginal Objects will be followed.
	Non-indigenous heritage – unexpected finds of heritage items	If heritage items listed under the *Shoalhaven Local Environmental Plan 2014* or the State Heritage List are uncovered during signage installation and ancillary works, all works will cease, and a statement of heritage impact will be prepared.
	Noise during dog off-leash	Reports and submissions regarding noise will be monitored and adaptive management will

Category	Type of Impact	Safeguard/Mitigation Measure
Noise	hours	be implemented.
		The works involved in signage installation would be very short term and the noise generated will occur during normal working hours. There are no sensitive receivers in the vicinity of the proposed works.
Social	Impact to the public utilising the public reserve for recreational and social activities	The off-leash dog area is time restricted to limit impacts on other users of the reserve.
		Off-leash dog access at Bill Andriske Oval has restricted time periods. If the oval is being used for sporting events, dog off-leash access is not permitted.
		Dog owners/walkers are required to have control of their dogs at all times and are responsible for waste disposal from dog faeces under the CA Act. Compliance activities will help to enforce this obligation.
		Signage clearly detailing the dog off-leash and on-leash areas will ensure dog owners are aware of dog access restrictions.
		Council Rangers will monitor the subject site and adjacent areas regularly, to raise awareness of the responsibilities of dog owners/walkers and to enforce compliance.
		A penalty infringement notice will be issued, following an initial caution, for any repeat offenders observed during regular inspections.
		An adaptive management approach will be incorporated into the ongoing monitoring and maintenance of the site, which will respond to changes including threatened species distribution, human behaviour and resulting from ongoing and regular assurance activities with stakeholders.
Waste minimisation and management	Amenity and pollution	Garbage bins are located at main access points to the off-leash zone to promote compliance.