

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

Narrawallee Beach, Narrawallee



Assessment and approvals overview


Item		Details	
Assessment Type		Division 5.1 <i>Environmental Planning and Assessment Act 1979</i> (NSW) - REF	
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Prepared by		Ecoplanning Pty Ltd on behalf of Shoalhaven City Council	
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Document Review			
	Name	Signature	Date
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1 Introduction

1.1 Background

This document provides the environmental assessment for a dog off-leash area and associated ancillary works at Narrawallee Beach, in line with the 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).

The Shoalhaven City Council (SCC) revised Access Areas for Dogs Policy and Access Areas for Dogs Policy Implementation Plan were adopted in December 2023 (CL23.463). The Policy and Plan are consistent with section 13(6) of the *Companion Animals Act 1998* (CA Act), which states:

'A local authority can by order declare a public place to be an off-leash area. Such a declaration can be limited so as to apply during a particular period or periods of the day or to different periods of different days. However, there must at all times be at least one public place in the area of a local authority that is an off-leash area.'

The objectives of the Access Areas for Dogs Policy are to:

- Provide clear and accessible designations for 'dog off-leash' and 'dog-prohibited' areas within Shoalhaven local government area (LGA) to ensure population health and wellbeing benefits associated with dog ownership are achieved in balance with the protection of biodiversity and maintenance of ecosystem health.
- Protect flora and fauna from the adverse impacts of dogs and, more generally, to limit the impact of dogs on biodiversity and the natural environment.
- Support a risk-based approach to the designation and management of dog control areas to balance social and environmental needs in accordance with legislation.
- Provide clarity to all users with respect to areas where dogs are restricted or prohibited and to ensure a range of public places remain dog-free, and therefore accessible, to a wide spectrum of users across the Shoalhaven.
- Outline expectations regarding the safe shared-use of public places in the Shoalhaven for dog owners and other users.
- Direct efforts to develop educational resources that promote responsible dog ownership and positive interactions with companion dogs within public places.
- Provide a framework for ongoing review and adaptive management (of the policy and dog-related matters in Shoalhaven).
- Promote compliance with all relevant legislation governing dog ownership in New South Wales.
- Enable effective enforcement (of the policy).

The policy recognises in accordance with the CA Act that 'all dogs within designated off-leash areas must be under effective control at all times and be able to be recalled immediately and

controlled by means other than a leash. Dogs must not rush at, or provide unwanted attention to, other people or dogs’.

1.2 Purpose of this Review of Environmental Factors

This Review of Environmental Factors (REF) is one of several REFs that assesses the suitability and permissibility of formal dog off-leash areas in the Shoalhaven LGA. This REF is a reviewed and updated version of the *Dog Off-leash Access Narrawallee Beach, Narrawallee* (SCC 2022), as well as the resulting culmination of the history and decision making as outlined in Section 2.3 and Appendix 5.

In November 2023, the following Council resolution (MIN23.661) was derived in relation to the REF:

- Update the REF for Narrawallee Beach off-leash area and exhibit the revised REF for information only.
- To submit a report on the REF findings for Narrawallee Beach off-leash area, results of consultation activities, and recommendations for the designation of dog off-leash and dog-prohibited areas at Narrawallee Beach to a future Council Ordinary Meeting for final determination.

Appendix 5 provides the chronological history of Council resolutions pertaining to dog off-leash access at Narrawallee Beach. Designating a dog off-leash area constitutes an ‘activity’ under Part 5 of the EP&A Act. Proposed activities must examine, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity. Consideration must be given to the environmental factors listed in section 171 of the EP&A Regulation.

This REF assesses potential environmental impacts of a proposed dog off-leash area and associated ancillary works along Narrawallee Beach. Boundaries to the dog off-leash area that minimise environmental and social impacts in response to the proposed activity are recommended.

The REF describes the proposed activity and legislative context, assesses potential environmental impacts and recommends mitigation measures based on existing measures to satisfy Council’s due diligence and statutory responsibilities. Information obtained through stakeholder consultation, including with the NSW National Parks and Wildlife Service (NPWS) and broader community, was considered in the preparation of this assessment.

1.3 Proposed activity

The proposed activity comprises a dog off-leash area along the entirety of Narrawallee Beach and is referred to as the subject site in this REF (Figure 1.). The sandy beach, immediately below the vegetated incipient dune, is considered the landward boundary of the subject site. This includes the area of potential direct impact on the community and the environment from the proposed activity. 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.



Figure 1 Narrawallee Beach, and the subject site and study area.

The proposed activity includes the provision of a dog off-leash area within the subject site during the following times:

- Australian Eastern Daylight Savings Time – off leash from 4 pm to 8 am.
- Australian Eastern Standard Time - off leash from 3 pm to 10 am.

Ancillary works associated with this proposed activity will include the installation of signage. The installation of signage as part of the proposed activity will primarily include replacing signs on existing posts (e.g., Appendix 1, Plate 1).

Accordingly, the REF assesses the direct and indirect community and environmental impacts associated with the proposed activity (inclusive of ancillary works) within the subject site and study area.

1.4 Sources of information

This REF has been informed by:

- Database searches:
 - NSW BioNet (accessed on 6 September 2022, 13 June 2023, 1 November 2023, 24 January 2024 and 24 April 2024).
 - Birddata (including Birdlife Australia's shorebird monitoring program survey data) (accessed on 6 September 2022, 1 November 2023 and 24 January 2024).
 - Council's GIS Enquiry (various data layers from September 2022 to May 2024). This contains GIS layers with data sourced under licence, including sensitive data locations and records of threatened species, as well as Birddata.
 - Aboriginal Heritage Information Management System (AHIMS) (accessed on 30 April 2024).
 - Council records and archives (February 2024).
- Consultation with NPWS, including consultation with the NPWS Shorebird Ranger and records sourced 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.
- Correspondence received from members of the public or from community organisations.
- An on-site survey conducted by SCC staff for the presence of Aboriginal objects on 1 May 2024.
- A site inspection was conducted by SCC and Ecoplanning on 14 November 2023 to assess the environmental factors required to be considered.
- A site inspection by SCC staff to assess social aspects of the assessment between December 2023 and January 2024 and on 9 March 2024.
- A site inspection by SCC staff to inspect beach accessway signage on 16 April 2024.

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 (hereafter referred to 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 historical context

2.1 Location

Narrawallee Beach is an open-coast beach in the township of Narrawallee, 3 kilometres north of Ulladulla. The beach is approximately 1.4 kilometres in length. Narrawallee Creek Nature Reserve and Narrawallee Creek Inlet are located to the north of the study area (Figure 2).

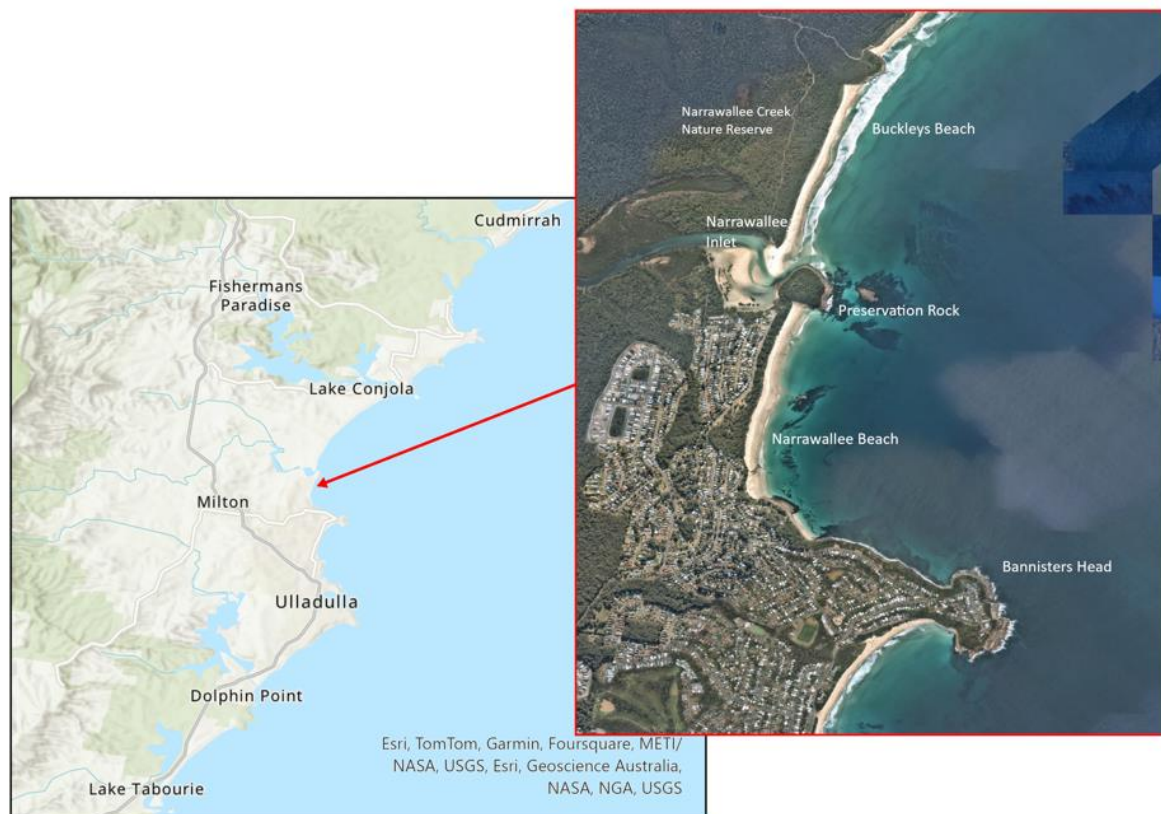


Figure 2 Location of Narrawallee Beach, on the south coast of NSW.

2.2 Land ownership and management.

The Narrawallee Beach foreshore (Lot 7009 DP 1116370) is Crown Land managed under the *Crown Land Management Act 2016* (NSW) (CLM Act), with SCC being the delegated land manager. The purpose of this Crown Land reserve was deemed to be for 'public recreation', published in the NSW Government Gazette on 8 September 1978. SCC was appointed Trust Manager, notified in the NSW Government Gazette No. 41 (dated 23 February 2001).

Under the CLM Act, dedicated or reserved Crown Land managed by Council is assigned categories in accordance with section 3.23 of the CLM Act, whereby the land is managed as if it were community land under the *Local Government Act 1993* (NSW) (LG Act). Narrawallee Beach foreshore within the subject site was categorised as Community Land – Natural Area in 2020. The foreshore within the subject site is zoned as RE1 – Public recreation under the Shoalhaven Local Environmental Plan 2014 (SLEP).

2.3 Historical context

The dog off-leash access arrangements and the permissibility associated with these have changed several times for Narrawallee Beach (Appendix 5). Discussions around a dog off-leash area at Narrawallee Beach began in 2000, whereby the entirety of Narrawallee Foreshore Reserve and Beach was recommended for dog off-leash access before 8 am and after 6 pm (SCC 2022). Significant feedback was received that opposed the designation of Narrawallee Beach as a dog off-leash area, resulting in the proposed off-leash area being abandoned.

After community consultation, Council resolved in 2005 under the first Access Areas for Dogs Policy, to adopt a number of dog-prohibited areas, including Narrawallee Beach and the foreshore reserve from Narrawallee Inlet Creek to Surfers Avenue, excluding the area between Victor Avenue north to the unnamed island (colloquially known as Bernie's Rock). This area was not designated as a dog off-leash area and as such, was a dog on-leash area as per the CA Act.

From June 2015, a number of trials and changes occurred to the dog access areas at Narrawallee Beach. The most significant being the designation of an approximate 540 metre stretch of the beach as a dog off-leash area, from the unnamed island to the rocks at the Victor Avenue access point. Council resolved to 'Provide an appropriate on leash area for access to the trial area from the southern side of Victor Avenue steps during the trial period' (MIN15.368).

In August 2019, Council resolved a six-month trial for dog access to the off-leash area through the prohibited area from Surfers Avenue via the Shoalhaven Water sewage pumping station accessway, located at the time adjacent to the escarpment.

In December 2019, Council resolved to commence a twelve-month trial to designate a 10-metre-wide strip between the Surfers Avenue unformed beach access and the Victor Avenue stairs to the north for dog on-leash access to the off-leash area.

During the trial period (from December 2019 to December 2020), Council liaised with the local community and interest groups in relation to the trial. Council staff received correspondence from approximately 100 individuals and groups in relation to the trial (Section 7).

In February 2021, based on the trial and feedback received, Council resolved to reinstate the southern boundary of the off-leash area in line with Matron Porter Drive (BA3), retain the northern boundary opposite Parkinson Street (BA7), and provide new signage communicating these changes at 17 access points in the Narrawallee Beach and Inlet area. Council adopted the trial provisions with several time amendments regarding Australian Eastern Standard Times/ Daylight Saving Times.

In November 2021, Council resolved to reinstate the southern boundary of the dog off-leash area to be in line with the Victor Avenue steps, as well as retain the northern boundary (at BA7). Dog access from all beach access entry points in between and including Victor Avenue steps and Parkinson Street, Narrawallee Beach (BA2 to BA7) was also granted. It was also resolved to continue to allow on-leash access from Surfers Avenue to Victor Avenue steps via a transit zone (BA1 to BA2).

As of November 2023, as a result of legal proceedings, Council resolved to remove the 10-metre wide on-leash transit area from the Surfers Avenue steps to the Victor Avenue steps, and to make the area from Victor Avenue Steps (BA2) to the southern Matron Porter Drive

access (BA3) dog-prohibited (Figure 3). It was also resolved to update the REF and to submit a report on the REF findings for Narrawallee Beach off-leash area, results of consultation activities, and recommendations for the designation of dog off-leash and dog-prohibited areas at Narrawallee Beach to a future Ordinary Meeting of Council for final determination.

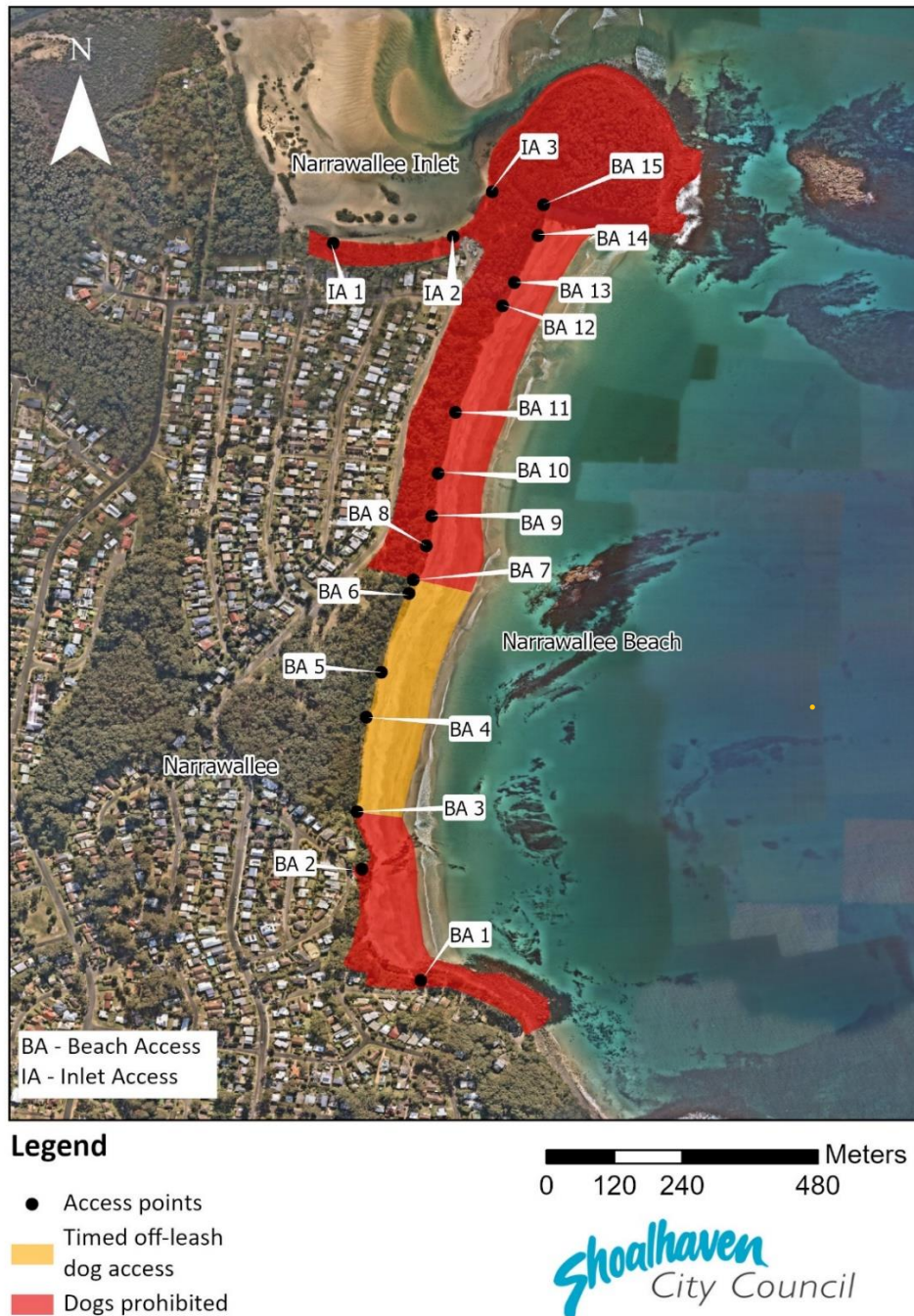


Figure 3 Current dog access area arrangements for Narrawallee Beach and immediate environs.

3 Existing environment

3.1 Community values

Many people have a strong affinity to the coast. Narrawallee Beach is valued for many reasons, including:

- Aesthetics – passive recreation undertaken to appreciate the aesthetic appeal.
- Cultural and spiritual values – water is particularly important for indigenous peoples.
- Aquatic ecosystems – respect for the health or integrity of the waterway's ecosystem(s).
- Exercise and active recreation - activities including walking, swimming, paddle boarding, kayaking, snorkelling, and fishing.

A shared user footpath and reserve area occurs to the west of the dune system extending along the length of the beach, with parkland at the northern end. Vehicle parking areas along the beach include a large carpark towards the southern end. There is another carpark at the northern end, with access to Narrawallee Beach and Narrawallee Creek Inlet, and a children's playground and amenities. These areas are heavily used by the public and visitors for social and recreational activities, as well as community events. Peak usage typically occurs during the holiday seasons. Narrawallee Beach Surf Life Saving Club (SLSC) members conduct patrols and set up flags in the southern portion of the beach – between the Surfers Avenue steps and the Victor Avenue steps, dependent upon beach and surf conditions. The lifeguards access the beach and during patrol, have a hut set up off the maintenance access road off Surfers Avenue and in close proximity to the Shoalhaven Water sewage pumping station (Appendix 6).

3.2 Landscape features.

Narrawallee Beach is an open-coast beach approximately 1.4 kilometres long. The beach is flanked by an intertidal rock platform at the southern end of the beach (Appendix 1 Plate 6). At the northern end of the beach there is a sandstone headland, a much smaller rocky formation separated from the headland called 'Preservation Rock', and Narrawallee Creek Inlet.

The study area is mapped as low risk for acid sulfate soils. High risk acid sulfate soils occur in the vicinity of Narrawallee Inlet and outside of the subject site and study area.

3.3 Biodiversity

In the context of this REF, the subject site and study area:

- is known to contain threatened and migratory species listed under the BC Act or the EPBC Act.
- Includes a small area to the north at Narrawallee Creek Inlet that is mapped under the Biodiversity Value Map (BV Map) as Protected Riparian Land. These are designated to be of high biodiversity value as defined by the *Biodiversity Conservation Regulation 2017* (NSW) (BC Regulation). The remaining parts of the study area and subject site is not mapped on the BV map.

- A habitat and vegetation overview is provided in Section 6.1 and a detailed assessment of threatened biodiversity is provided in Section 0.

Sandy beaches such as those within the subject site provide foraging and roosting habitat for threatened and migratory shorebirds and seabirds. The study area has records of these including Pied Oystercatcher, Little Tern and White-Bellied Sea Eagle. There have been 13 migratory shorebird species recorded within the locality. Shorebird breeding and foraging habitat is approximately 600 metres to the north of the subject site within the Narrawallee Creek Inlet intertidal zone and Narrawallee Creek Nature Reserve. The intertidal rock platform at the southern end of the beach (immediately south of BA1) (Plate 6) provides foraging habitat for threatened shorebirds, such as the Pied Oystercatcher and Sooty Oystercatcher.

3.4 Cultural Heritage

An AHIMS search was conducted on 30 April 2024 and indicated that there were eight recorded Aboriginal heritage sites adjacent to the subject site. There was one site recorded from within the study area, approximately 40 metres from Narrawallee Beach around 50 metres south of the headland to the north of Narrawallee Beach. This was a single silcrete artefact flake below the surface.

Four records are for Matron Porter Reserve, outside of the study area, were of silcrete stone artefacts. These included a substantial artefact scatter along Matron Porter Drive from the residential area to the turnoff into the park that was recorded by SCC staff and subject to approved harm (AHIP) for the construction of the shared users path. One of the sites is a repatriation site of hundreds of silcrete stone artefacts repatriated from the above sites, under permit.

One of the recorded sites is a midden located on the southern side of Narrawallee Creek Inlet, within the dog-prohibited area outside of the scope of the REF.

The remaining two sites are located more than 400 metres from the subject site in urban locations.

Narrawallee Beach and Inlet are identified as the local heritage area Silica Wharf and Tramway (remnants) under Schedule 5 of the SLEP 2014.

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 (Table 1) subject to the implementation of spatial limitations and recommended mitigation measures (Section 9).

Table 1 Summary of legislation and permissibility

NSW State Legislation
Environmental Planning and Assessment Act 1979 (EP&A Act)
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
<p>Section 4.1 (Development that does not need consent) of the EP&A Act states that:</p> <p><i>'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.'</i></p> <p>Designating a dog off-leash area constitutes an 'activity' (given activity also applies to 'use of the land'). Section 2.73(3) of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i> (NSW) (Transport & Infrastructure SEPP) provides that:</p> <p><i>'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 –</i></p> <p>(a) development for any of the following purposes –</p> <p style="padding-left: 40px;"><i>(ii) recreation areas and recreation facilities (outdoor), but not including grandstands</i></p> <p>Section 4.68(1) (Continuance of and limitations on other lawful uses) of the EP&A Act further states:</p> <p><i>'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.'</i></p> <p>The use of the land at Narrawallee Beach for a dog off-leash area constitutes 'continuing use' under section 4.68(1) of the EP&A Act. The use of the land at Narrawallee Beach for a dog off-leash area does not involve the enlargement, expansion or intensification for the purpose of a recreation area.</p> <p>Dog access on Narrawallee Beach constitutes an 'activity' as defined under Part 5 of the EP&A Act. Section 5.5 of the Act <i>Duty to consider environmental impact</i> requires Council to <i>examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity</i>. This REF assesses all potential impacts of the proposed activity. All aspects of the proposed activity are documented in Section 1.3. Section 5 includes an assessment against factors a) – p) in Section 171 of the <i>Environmental Planning and Assessment Regulation (2021)</i>. Potential impacts of the proposed activity are detailed in Section 8 and the spatial limitations of the proposed activity and other mitigation measures are provided in Section 9.</p> <p>Section 5.7 of the EP&A Act requires Council to examine and consider an Environmental Impact Statement (EIS) in respect of the activity. Specific assessments for threatened species listed under the <i>Biodiversity Conservation Act 2016</i> (NSW) (BC Act) and <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act) and migratory species listed under the EPBC Act are conducted in Appendix 3 and Appendix 4. These assessments conclude mitigation measures, listed in Section 9, are adequate to ensure the proposed activity does not constitute a significant impact to listed threatened or migratory species. As such, an EIS is not required for the proposed activity.</p>

NSW State Legislation
<i>Companion Animals Act 1998 (CA Act)</i>
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
<p>The principal object of this Act is to provide for the effective and responsible care and management of companion animals.</p> <p>Section 13(6) of the CA Act states that ‘a local authority can by order declare a public place to be an off-leash area. Such a declaration can be limited so as to apply during a particular period or periods of the day or to different periods of different days. However, there must at all times be at least one public place in the area of a local authority that is an off-leash area.’</p> <p>Section 14 of the CA Act states that ‘dogs are prohibited in the following places (whether or not they are leashed or otherwise controlled) -</p> <ul style="list-style-type: none"> (a) Children’s play areas (meaning any public place, or part of a public place, that is within 10 metres of any playing apparatus provided in that public place or part for the use of children). (b) Food preparation/consumption areas (meaning any public place, or part of a public place, that is within 10 metres of any apparatus provided in that public place or part for the preparation of food for human consumption or for the consumption of food by humans). (c) Recreation areas where dogs are prohibited (meaning any public place, or part of a public place, provided or set apart by a local authority for public recreation or the playing of organised games and in which the local authority has ordered that dogs are prohibited and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that dogs are prohibited in or on that public place or part). (d) Public bathing areas where dogs are prohibited (meaning any public place or any part of a public place that is used for or in conjunction with public bathing or public recreation (including a beach), in which the local authority has ordered that dogs are prohibited and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that dogs are prohibited in or on that public place). (e) School grounds (meaning any property occupied or used for a purpose connected with the conduct of a government school or non- government school under the Education Act 1990, other than any property used for a residence or the curtilage of a residence). (f) Child care centres (meaning any property occupied or used for a purpose connected with the conduct of an approved education and care service within the meaning of the Children (Education and Care Services) National Law (NSW) or the <i>Children (Education and Care Services) Supplementary Provisions Act 2011</i>, other than any property used for a residence or the curtilage of a residence). (g) Shopping areas where dogs are prohibited (meaning a shopping arcade or shopping complex, including any part of it that is used by the public for parking or access to shops, in which or part of which the local authority has ordered that dogs are prohibited and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that dogs are prohibited there). This paragraph does not apply to any shop or part of a shop. (h) Wildlife protection areas (meaning any public place or any part of a public place set apart by the local authority for the protection of wildlife and in which the local authority has ordered that dogs are prohibited for the purposes of the protection of wildlife and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that dogs are prohibited in or on that public place).’

NSW State Legislation
Crown Land Management Act 2016 (CLM Act)
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
<p>Council is the appointed Crown Land manager (CLM) of Narrawallee Beach (Crown Land reserve R91246 - Lot 7009 DP 1116370) under the CLM Act.</p> <p>Where a Plan of Management (PoM) exists for Crown Land, it may identify and authorise certain works that can be undertaken by a public authority and the pre-conditions (if any) for implementing those works.</p> <p>The PoM most pertaining to the subject site and study area is the <i>Generic Community Plan of Management – Natural Areas</i> https://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D16/208141.</p> <p>The Core Objectives for management of community land categorised as foreshore that are set out in the Act and the PoM are:</p> <ul style="list-style-type: none"> · <i>To maintain the foreshore as a transition area between the aquatic and the terrestrial environment, and to protect and enhance all functions associated with the foreshores’ role as a transition area, and</i> · <i>To facilitate the ecologically sustainable use of the foreshore, and to mitigate impact on the foreshore by community use.</i> <p>The proposed activity is in line with the first objective, as it (with the implementation of mitigation measures in Section 9) will not impact on the foreshores’ role as a transition area between the aquatic and terrestrial environment. The proposed activity also meets the second objective, in that dogs will continue to be excluded from the sensitive environment area at Narrawallee Creek Inlet, where threatened shorebirds are known to breed. The PoM, as well as Council’s Foreshore Reserves Policy (POL16/242) does not preclude the proposed activity.</p>
Coastal Management Act 2016 (CM Act)
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
<p>The CM Act establishes the framework and overarching objectives for coastal management in New South Wales. The purpose of the CM Act is to manage the use and development of the coastal environment in an ecologically sustainable way. The CM Act achieves this by designating ‘coastal management areas’ for the NSW coastal zone and assigning specific objectives for the management of these areas.</p> <p>Narrawallee Beach is designated as both Coastal Environment Area and Coastal Use Area. Under the CM Act, the management objectives for these areas includes the protection and enhancement of the coastal environment (including but not limited to ecosystem integrity, water quality, coastal and estuarine processes), as well as the protection and enhancement of the social and cultural values of the coast (including but not limited to access to public open space for recreational activities).</p> <p>The proposed activity (with the implementation of mitigation measures in Section 9) has been assessed to not contravene the management objectives of the CM Act.</p>
State Environmental Planning Policy (Resilience and Hazards SEPP) 2021
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
<p>Section 2.10 of Division 3 of the Resilience and Hazards SEPP Coastal environment area states that development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:</p>

NSW State Legislation

- (i) The integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,
- (j) Coastal environmental values and natural coastal processes,
- (k) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,
- (l) Marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,
- (m) Existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
- (n) Aboriginal cultural heritage, practices and places,
- (o) The use of the surf zone.

(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—

- (a) The development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or
- (b) If that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
- (c) If that impact cannot be minimised—the development will be managed to mitigate that impact.

The proposed activity is considered not to have an adverse effect on the above and is therefore permissible under Resilience and Hazards SEPP.

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 8 of the EP&A Regulation are required to be complied with. This REF, including section 171 Review of environmental factors, fulfils this requirement.

Protection of the Environment Operations Act 1997 (POEO Act)

Permissible Not permissible

The POEO Act regulates and controls pollution of land, air, water, and the emission of noise and provides for environment protection licenses, notices and offences.

The objectives of the POEO Act are as follows:

- (a) to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development,
- (b) to provide increased opportunities for public involvement and participation in environment protection,
- (c) to ensure that the community has access to relevant and meaningful information about pollution,
- (d) to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following—
 - (i) pollution prevention and cleaner production,

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<p>(ii) the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,</p> <p>(iii) the elimination of harmful wastes,</p> <p>(iv) the reduction in the use of materials and the re-use, recovery or recycling of materials,</p> <p>(v) the making of progressive environmental improvements, including the reduction of pollution at source,</p> <p>(vi) the monitoring and reporting of environmental quality on a regular basis,</p> <p>(vii) the proper environmental management of chemicals throughout their whole lifecycle,</p> <p>(e) to rationalise, simplify and strengthen the regulatory framework for environment protection,</p> <p>(f) to improve the efficiency of administration of the environment protection legislation,</p> <p>(g) to assist in the achievement of the objectives of the Waste Avoidance and Resource Recovery Act 2001.</p> <p>The proposed activity (with the implementation of mitigation measures in Section 9) is considered to align with the objects of the POEO Act as impacts associated with pollution or waste management are considered unlikely to occur.</p> <p>Furthermore, the proposed activity does not constitute a scheduled activity as listed in Schedule 1 of the POEO Act and does not require an environmental protection licence.</p>
National Parks and Wildlife Act 1974 (NPW Act)
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p> <p>The NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) administers the NPW Act, which manages:</p> <ul style="list-style-type: none"> · Conservation of nature · Conservation of objects, places and features of cultural value · Public appreciation, understanding and enjoyment of nature and cultural heritage. · Land reserved under this Act. <p>The NPW Act binds all activities and responsibilities of the Crown. DCCEEW must consider the objectives listed above, the public interest and appropriate management of the subject site. The NPW Act controls activities carried out in designated Parks, Reserves and Aboriginal areas. The NPW Act also requires consideration of impacts to all native birds, reptiles, amphibians and mammals protected under this Act.</p> <p>The proposed activity does not take place on any designated Parks, Reserves and Aboriginal areas; however, Narrawallee Creek Inlet Reserve is located to the north of the study area. Additional consideration is required for potential impacts to Aboriginal cultural heritage. Such impacts are adequately addressed in Section 6.3 to ensure that the proposed activity aligns with the NPW Act.</p>
Biodiversity Conservation Act 2016 (BC Act)
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p> <p>The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development, and in particular—</p> <p>(a) to conserve biodiversity at bioregional and state scales, and</p>

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- (b) to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations, and
- (c) to improve, share and use knowledge, including local and traditional Aboriginal ecological knowledge, about biodiversity conservation, and
- (d) to support biodiversity conservation in the context of a changing climate, and
- (e) to support collating and sharing data, and monitoring and reporting on the status of biodiversity and the effectiveness of conservation actions, and
- (f) to assess the extinction risk of species and ecological communities, and identify key threatening processes, through an independent and rigorous scientific process, and
- (g) to regulate human interactions with wildlife by applying a risk-based approach, and
- (h) to support conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature, and
- (i) to support and guide prioritised and strategic investment in biodiversity conservation, and
- (j) to encourage and enable landholders to enter into voluntary agreements over land for the conservation of biodiversity, and
- (k) to establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity, and
- (l) to establish a scientific method for assessing the likely impacts on biodiversity values of proposed development and land use change, for calculating measures to offset those impacts and for assessing improvements in biodiversity values, and
- (m) to establish market-based conservation mechanisms through which the biodiversity impacts of development and land use change can be offset at landscape and site scales, and
- (n) to support public consultation and participation in biodiversity conservation and decision-making about biodiversity conservation, and
- (o) to make expert advice and knowledge available to assist the Minister in the administration of this Act

A species is considered threatened if:

- there is a reduction in its population size
- it has a restricted geographical distribution, or
- there are few mature individuals.

A species may be listed under the BC Act as:

- vulnerable
- endangered
- critically endangered, or
- presumed extinct.

How threatened a species is in NSW depends on:

- the extent of its population reduction across NSW and over time
- the size of its geographical distribution, or
- the number of mature individuals.

Populations of species and ecological communities can also be listed as threatened.

Processes that threaten species may be listed as key threatening processes.

Habitat essential to the survival of endangered or critically endangered species, as well as populations of species or ecological communities can be declared as critical habitat.

The proposed activity is;

- Unlikely to have a significant impact on species and communities listed in the schedules of this Act (refer to Appendix 3).

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<ul style="list-style-type: none"> · Not within an area declared to be of ‘outstanding biodiversity value’ as defined in this Act. · Not considered to have a <i>serious and irreversible impacts on biodiversity values</i>. · Not likely to increase the role of any listed key threatening processes. <p>The proposed activity (with the implementation of mitigation measures in Section 9) is not deemed to be <i>likely to significantly affect threatened species</i> and a Biodiversity Development Assessment Report (BDAR) and entry into the Biodiversity Offset Scheme (BOS) is not required.</p>
Heritage Act 1977 (Heritage Act)
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
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 to non-Aboriginal heritage is given in Section 6.3.
Local Land Services Act 2013
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
No clearing of vegetation is proposed. No separate authorisation under this Act is required.
Water Management Act 2000
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
Local councils are exempt from section 91E(1) of this Act in relation to all controlled activities that they carry out in, on or under waterfront land (by virtue of section 41 of the <i>Water Management (General) Regulation 2018</i>).
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 <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
There are unresolved land claims on the subject site; however, the Act does not preclude the activity taking place on the subject site. The Crown reserve has lawfully been used as a recreational area prior to the lodgement of the land claim.
The proposed activity would not affect or complicate the assessment of the land claim as it is temporary in nature and would not diminish the size or nature of the land.
Therefore, despite the proposed activity, the land would remain as ‘claimable land’ as defined in this Act.
Commonwealth Legislation
Environment Protection and Biodiversity Conservation Act 1999 (EP&BC Act)
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>
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 Appendix 4). As such, the proposed activity does not require Commonwealth referral.
Native Title Act 1993
Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/>

Commonwealth Legislation

The *Native Title Act 1993* recognises traditional interests in land of Aboriginal and Torres Strait Islander people and provides an avenue for land title claims against Crown land.

The proposed activity can be undertaken as a valid act under Subdivision 24LA *Low Impact Future Acts* as the act does not consist of, authorise, or otherwise involve:

- a) The grant of a freehold estate
- b) The grant of a lease
- c) The conferral of a right of exclusive possession
- d) The excavation or clearing of any of the land or waters (see note below)
- e) mining
- f) The construction of placing on the land, or in the waters, of any building, structure, or other thing (other than fencing or a gate), that is a fixture, or
- g) The disposal or storing, on the land or in the waters, of any garbage or any poisonous, toxic or hazardous substance.

The non-extinguishment principle applies to this Act and no referral or request for comment to Native Title Service Provider for Aboriginal Traditional Owners (NTSCORP) is required.

5 Assessment of environmental factors

Section 171 of the EP&A Regulation lists the environmental 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. An assessment of the proposed activity against these environmental factors has been undertaken (Table 2).

Table 2 Assessment of section 171 (EP&A Regulation) environmental factors

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	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 spatial extent of dog off-leash access is required to be limited to a portion of Narrawallee Beach to reduce conflict between other recreational uses of the subject site and to meet the various community needs. Section 8.3 provides a full assessment.
b) the transformation of the locality	Negligible	The subject site is an open-coast beach in the township of Narrawallee, currently zoned as RE1 'Public recreation' (SLEP 2014). The locality will remain a beach and coastal foreshore reserve, maintaining the range of current beneficial uses. Thus, there will be no transformation of the locality in response to the proposed activity.
c) the environmental impact on the ecosystems of the locality	Negligible	The ecosystems in the locality range from aquatic, intertidal and terrestrial. 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 considered negligible given the assessments carried out and with the implementation of mitigative controls, including limiting the spatial extent of dog off-leash access. Refer to Sections 8.1 and 8.2 for further information on this analysis.
d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	Negligible/Positive	There would be minimal impact on the aesthetic, recreational, scientific or other environmental qualities or value of the locality. The subject site will remain a public reserve and recreation opportunities would not be diminished. Limiting the spatial extent of the dog off-leash area within the subject site has been done to ensure this outcome. Refer to

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		<p>Section 8.</p> <p>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 by the public.</p> <p>Dog disturbance will be minimal during dog off-leash times as dogs are required, under the 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 SCC website information.</p> <p>The proposed activity would not involve any direct impact on the natural attributes of the subject site. The beach and coastal foreshore reserve is regularly monitored for erosion and appropriate land management will be implemented at the subject site, if required.</p> <p>The continuation of the existing dog off-leash area may potentially result in the generation of noise (i.e., dog barking) during the designated off-leash times. The subject site is adjacent to existing public and recreational facilities, such as a children’s playground and barbeque picnic area, where noise is generated. In addition, the beach and foreshore reserve are used by the public for a diversity of activities. Therefore, noise levels from the dog off-leash area are within a normal range conducive to the existing public use of the beach. As a result, noise would not be considered to be at a disruptive level. Reports or complaints made to Council regarding noise will be monitored.</p>
<p>e) the effects on any locality, place or building that has –</p> <p>(i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or</p>	Negligible	<p>The subject site has no significant aesthetic, architectural, cultural, historical, scientific or social values likely to be impacted on by this activity.</p> <p>Narrawallee Beach and Inlet are identified as the local heritage area Silica Wharf and Tramway (remnants) under Schedule 5 of the</p>

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
(ii) other special value for present or future generations?		<p>SLEP 2014. The proposed activity is unlikely to affect this heritage listing.</p> <p>The subject site is not within an Aboriginal Place declared under the NPW Act.</p> <p>In accordance with the NSW DCCEE's Due Diligence Code of Practice, the proposed activity does not require an Aboriginal Heritage Impact Permit as the activity is unlikely to harm an Aboriginal artefact or harm Aboriginal heritage sites. Refer to Section 6.3 for details.</p>
f) the impact on the habitat of protected animals, within the meaning of the <i>Biodiversity Conservation Act 2016</i>)	Negligible	<p>The impact on protected animals listed under the BC Act, that have been recorded within the locality, have been considered in association with the proposed activity.</p> <p>No habitat will be removed or otherwise impacted on by the proposed activity. The Test of Significance (BC Act) detailed in Appendix 3 concludes that the proposed activity would not have a significant impact on threatened fauna and flora. This is particularly important in relation to threatened shorebirds and the spatial limitation and mitigation measures recommended to ensure the longevity of breeding and foraging habitat of these species.</p> <p>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.</p> <p>Refer to Section 6, Section 8, Section 9 and Appendix 3 for details.</p>
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	<p>The subject site is a beach and coastal foreshore reserve that contains limited animal, plant, or other form of life habitat. There are no species likely to rely on the subject site to the extent that any potential modification would result in further endangering of the species. The study area contains such habitat that is utilised by these forms of life. Accordingly, the spatial limitation and mitigation measures recommended for the proposed activity will ensure a negligible</p>

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		<p>impact on these species.</p> <p>The Tests of Significance assessments provided in Appendix 3 concludes that the proposed activity would not have a significant impact on threatened fauna and fauna.</p> <p>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 <i>Fisheries Management Act 1994</i> (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'.</p> <p>As the proposed activity is unlikely to have an impact on threatened species, populations or ecological communities, or their habitats listed under the FM Act, a 7 Part Test is not required.</p> <p>Refer to Section 6 and Section 8 for details.</p>
h) long term effects on the environment	Negligible	<p>The use of the subject site for the proposed activity will result in intermittent and ongoing use of the beach and foreshore reserve by the public. The implementation of the spatial limitations and mitigation measures will warrant that the proposed activity will not have long-term effects on the environment.</p> <p>The sign installation will improve understanding and awareness of dog access rules and inform the public of the threat from dog disturbance to threatened species. Furthermore, the continued analytical responses to monitoring information from complaints, observations and data will lead to the implementation of adaptive management to confirm that the proposed activity will not have a long-term effect on the environment into perpetuity.</p>
i) degradation of the quality of the environment	Negligible.	<p>The proposed activity involves ongoing and intermittent use of the beach and foreshore reserve by the public for the use of dog off-leash access.</p> <p>Dune stability will be managed in accordance with the NSW Coastal Dune Management Manual and the relevant Coastal</p>

<p>In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:</p>	<p>Assessment of impact</p>	<p>Reason</p>
		<p>Management Program (CMP). Beach accessways are established to minimise impacts on surrounding dune vegetation including the BC Act listed Threatened Ecological Community (TEC) – Bangalay Sand Forest (refer Appendix 3). No additional beach accessways are proposed.</p> <p>The proposed activity is unlikely to introduce priority weeds, vermin, or feral animals into the area or contaminate the substrate within the subject site.</p> <p>Long-term or long-lasting impact on aquatic ecosystems through the input of sediments or nutrients into the ecosystem is 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.</p> <p>The mitigation measures (refer Section 9) to be implemented will minimise impacts on, and risks to the quality of, the environment.</p>
<p>j) risk to the safety of the environment</p>	<p>Negligible.</p>	<p>The proposed activity would not increase the levels of risks to the safety of the environment that may occur in response to hazardous wastes, bushfire, flood, landslip or coastal hazard.</p>
<p>k) reduction in the range of beneficial uses of the environment</p>	<p>Positive,</p>	<p>The subject site has a variety of beach and ocean related recreational values. The recommended spatial limitation and prescribed mitigation measures (refer Section 9) provides for optimal shared and balanced use of the beach, and thus the proposed activity will not lead to a reduction in the range of beneficial uses of the local environment within the subject site.</p> <p>The dog off-leash area adds to the beneficial uses of the environment (corroborated by the results of community consultation).</p>
<p>l) pollution of the environment</p>	<p>Negligible</p>	<p>The proposed activity is not expected to result in pollution of the environment. It is unlikely that the activity (with the implementation of mitigation) would result in water, noise, or air pollution, spillages, dust, odours, vibration or radiation.</p>

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		<p>Dune stability will be constantly monitored through the implementation of the relevant CMP to ensure that recreational activities do not increase the erosion potential of these systems above natural levels.</p> <p>The proposed activity is not expected to result in the oxidation of acid sulfate soils and subsequent leaching back into the waterways. These are mapped to occur in and around Narrawallee Creek Inlet outside of the subject site and study area.</p> <p>With the requirement that dog owners clean up faeces, waste pollution from dogs is unlikely to have an impact on the natural environment. Garbage receptacles are located at main access points to the off-leash area to promote compliance. This will be monitored and enforced as a component of the implementation of mitigation measures (refer Section 9).</p>
m) environmental problems associated with the disposal of waste	Negligible	<p>The proposed activity would not result in the generation of trackable waste, hazardous waste, liquid waste, or restricted solid waste as described in the POEO Act.</p> <p>Under the requirement that dog owners clean up faeces, waste pollution from dogs is unlikely to have an impact on the natural environment. Garbage receptacles are located at main access points to the dog off-leash area to promote compliance and these are regularly serviced to prevent overburden. This will be monitored and enforced as a component of the implementation of mitigation measures (refer Section 9).</p>
n) increased demands on resources (natural or otherwise) which 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. Adaptive management will be utilised through the analysis of information

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		obtained from data, complaints and observations, as well as an assessment of any future activities, to ensure that the proposed activity does not have a cumulative effect.
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Negligible	<p>The proposed activity is not likely to have any impact on coastal processes or coastal hazards, including those projected under climate change conditions.</p> <p>The beach and coastal foreshore reserve is regularly monitored for coastal erosion through the implementation of the relevant CMP and appropriate dune management will be implemented at the subject site. Beach accessways are established to minimise impact on the surrounding dunes and vegetation. No additional accessways are proposed.</p>
q) Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	Negligible	The proposed activity is consistent with <u>Shoalhaven 2040 Our Strategic Land-use Planning Statement</u> (Shoalhaven City Council, 2020) or the <u>Illawarra Shoalhaven Regional Plan 2041 (NSW DPE, 2021)</u>
r) other relevant environmental factors	Negligible	There are no other relevant environmental factors pertaining to the proposed activity.

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 and heritage are included. Potential impacts of the proposed activity on these are assessed in Section 8.

6.1 Vegetation and habitat assessment

The subject site was assessed by the consultant ecologist from Ecoplanning on 14 November 2023. The assessment 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. Photographs from the assessment are represented as Plates within Appendix 1.

Within the study area, vegetation mapped as occurring in proximity to the subject site includes the BC Act listed TEC, *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions*. The TEC was identified in the Matron Porter Drive Reserve and along the Narrawallee Beach foreshore, confirming DPE 2023 mapping (Figure 4).

Other Plant Community Types (PCTs) mapped to occur within the subject site include PCT 3805 *Southern Sandplain Heath* and PCT 3410 *Spinifex Strandline Grassland* (Figure 5).

Scattered vegetation along the incipient dune includes Spinifex (*Spinifex sericeus*), Dune Thistle (*Actites megalocarpus*), Pigface (*Carpobrotus glaucescens*) and Native Geranium (*Pelargonium australe*).

Foredune species include Coast Teatree (*Gaudium laevigatum*), Coastal Wattle Tree (*Acacia longifolia* ssp. *sophorae*) and Coastal Beard-heath (*Leucopogon parviflorus*) scattered throughout. Ground-layer species include Spinifex (*Spinifex sericeus*), Spiny-headed Mat-rush (*Lomandra longifolia*), Common Bracken (*Pteridium esculentum*) and Kidney Weed (*Dichondra repens*). Exotic planted trees include Norfolk Island Pine (*Araucaria heterophylla*) and Monterey Pine (*Pinus radiata*).

Moving westward into the hind dune area, Bangalay (*Eucalyptus botryoides*), and Coast Banksia (*Banksia integrifolia*) dominate. This vegetation is representative of the TEC, *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions*. Vegetation further to the west comprises grassed parkland areas, a paved footpath that extends the length of the beach, with scattered eucalypts including *E. botryoides* and *E. robusta*.

With regard to fauna habitat, the northern extent of the study area includes the protected beach on the north side of Narrawallee Creek Inlet which provides known breeding habitat for threatened shorebirds. The Inlet and intertidal zone provide ideal foraging habitat and potential breeding habitat for threatened and migratory shorebirds. Narrawallee Beach, including the subject site, is disturbed by recreational beach use and provides some limited shorebird foraging habitat. The intertidal rock shelf at the south end of Narrawallee Beach provides foraging habitat for threatened shorebirds including Sooty Oystercatcher (*Haematopus fuliginosus*) and Pied Oystercatcher (*Haematopus longirostris*). It must be noted that both of these species occupy rocky or shingle coasts, with the Pied Oystercatcher demonstrating more of a preference for mudflats and sandbanks (refer to Section 6.2).

The woodland, shrubs and ground layer vegetation on the foredune and hind dune provide foraging resources for a range of fauna species including birds, arboreal mammals, and reptiles, as well as nesting and perching opportunities for common birds. There are no significant hollows and so limited breeding habitat for hollow dependent fauna species.



Figure 4 Threatened Ecological Community mapping (Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions; 2023) and Narrawallee Beach and Inlet access points (Ecoplanning 2024).

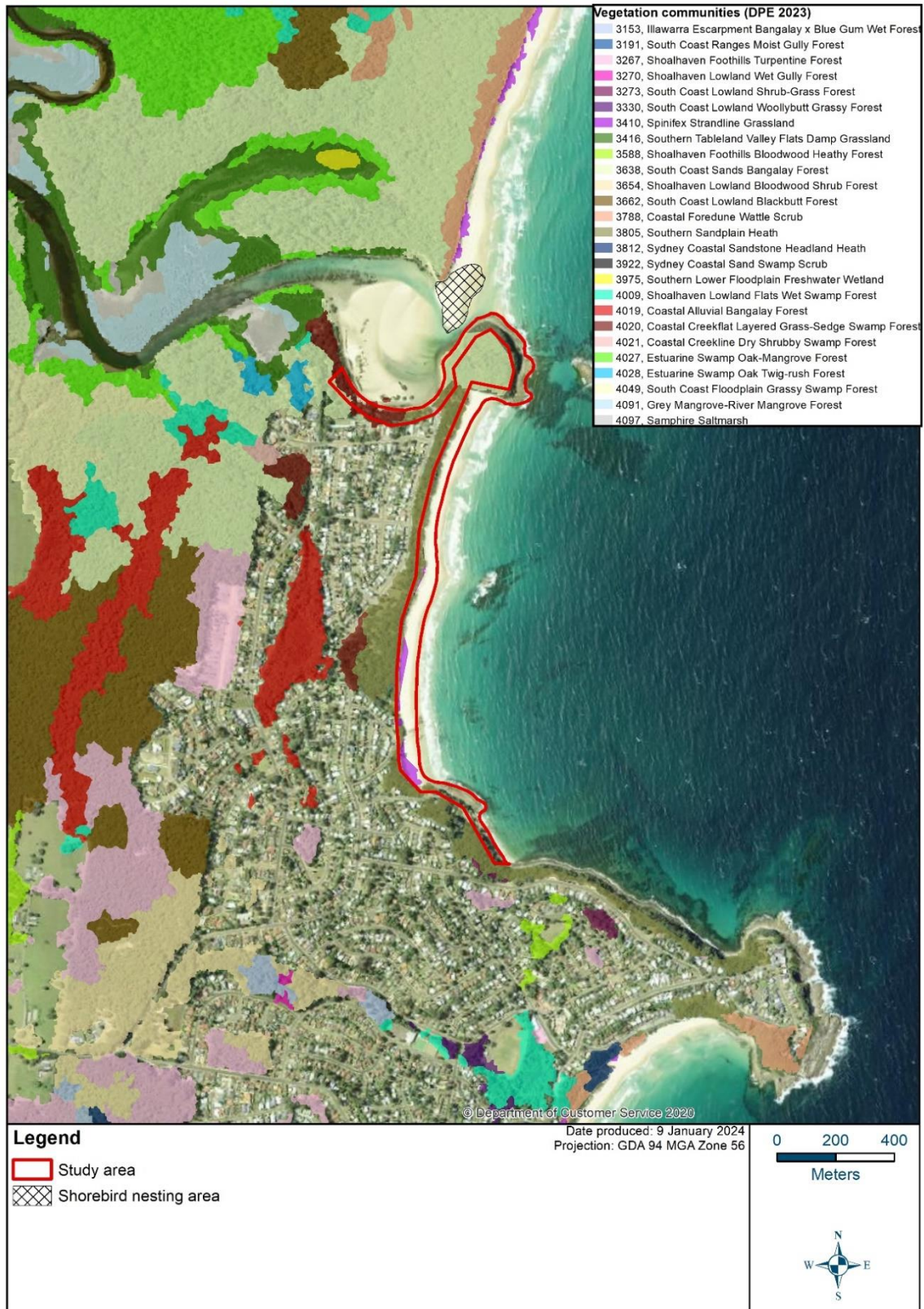


Figure 5 Plant Community Types (PCT) recorded within and adjacent to the dog off-leash area, as well as fenced off Narrawallee Creek Inlet shorebird nesting area (as observed on 14 November 2023 (Ecoplanning 2023; data sourced from DPE 2023).

6.2 Threatened species and ecological communities.

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 assessment. The likelihood of occurrence for each species was assessed as high, medium or low based on species records and habitat features. This assessment is presented in Appendix 2. All species determined as having a moderate or high likelihood of occurrence have potential to occur within the subject site and study area and the potential to be either directly or indirectly impacted on by the proposed activity.

All BC Act listed entities determined likely to occur within the subject site and study area have been assessed according to the Test of Significance as required by section 7.3 of the BC Act. This is presented in Appendix 3.

All EPBC Act listed matters determined likely to occur within the subject site and study area have been assessed according to Significant Impact Criteria as detailed in the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*. This is presented in Appendix 4.

The BC Act listed TEC, *Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions* was recorded on the hind dune, within the study area and the impact of the proposed activity on this TEC has been assessed using the Test of Significance (Appendix 3).

6.2.1 Fauna

The likelihood of occurrence assessment determined eleven (11) BC Act listed threatened fauna species are likely to occur within the subject site and study area (Appendix 2). These are:

Critically Endangered

- Eastern Hooded Dotterel (*Thinornis cucullatus cucullatus*)
- Beach Stone-curlew (*Esacus magnirostris*)

Endangered

- Pied Oystercatcher
- Little Tern (*Sternula albifrons*)

Vulnerable

- Sooty Oystercatcher
- Lesser Sand-plover (*Charadrius mongolus*)
- Greater Sand-plover (*Charadrius leschenaultia*)
- Masked Owl (*Tyto novaehollandiae*)
- Powerful Owl (*Ninox strenua*)
- Sooty Owl (*Tyto tenebricosa*)
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*)

Of these, species formally recorded within the study area include Eastern Hooded Dotterel, Little Tern, Pied Oystercatcher, Sooty Oystercatcher and White-bellied Sea-Eagle.

Shorebirds and potential impact on shorebird habitat within the subject site in response to the proposed activity provide a focus of this assessment regarding threatened fauna. Known shorebird

nesting sites are limited to Narrawallee Creek Inlet and Narrawallee Creek Nature Reserve to the north of the study area. Eastern Hooded Dotterel and Beach Stone-curlew have been recorded in this vicinity, in 2020 and 2022, respectively.

During the site inspection, four Pied Oystercatchers were observed foraging in the intertidal rock platform on the southern end of Narrawallee Beach, which provides optimal foraging habitat for threatened shorebirds. Birdlife Australia data from Surfers Avenue also includes Sooty Oystercatcher and Pied Oystercatcher records. A BioNet record for Little Tern (2022) also exists at Bannisters Head, a rocky headland approximately one kilometre to the south-east of this location.

North of this rock platform, the sandy beach environs of the subject site provide limited foraging resources for threatened shorebirds. The Little Tern has been previously recorded (2021) within the intertidal zone of the subject site.

It is important to note that records of threatened species listed under the BC Act occur within the subject site and study area, but the habitats contained within are not considered important for their long-term survival. An example of such a species is the Australian Fur Seal (*Arctocephalus pusillus doriferus*) whereby a record from 1995 was found within the subject site and in the proximity of the unnamed island. More records of this species occur in and around Narrawallee Creek Inlet to the north of the study area. Australian Fur Seals commonly occupy coastal waters and oceans and demonstrate a preference for rocky islands, which typically include boulder or pebble beaches and moderately sloping rocky ledges. Such habitat preferences are exhibited by this species for breeding and do not occur within the subject site and study area. Accordingly, no further assessments have been undertaken for this species, but the implementation of the mitigation measures (Section 9) will ensure that occasional visits by this species will not be compromised by the proposed activity.

EPBC Act listed species recorded or predicted to occur within the locality can be found in Appendix 2. Sixteen (16) EPBC listed matters were determined to be likely to occur within the subject site and study area. These are:

Critically Endangered

- Eastern Curlew (*Numenius madagascariensis*)
- Curlew Sandpiper (*Calidris ferruginea*)

Endangered

- Lesser Sand-plover (*Charadrius mongolus*)
- Red Knot (*Calidris canutus*)
- Common Greenshank (*Tringa nebularia*)

Vulnerable

- Eastern Hooded Dotterel
- Greater Sand-plover
- Great Knot (*Calidris tenuirostris*)

Migratory Birds

- Eastern Curlew

- Curlew Sandpiper
- Lesser Sand-plover
- Red Knot
- Common Greenshank
- Greater Sand-plover
- Great Knot
- Whimbrel (*Numenius phaeopus*)
- Bar-tailed Godwit (*Limosa lapponica*)
- Grey Plover (*Pluvialis squatarola*)
- Sanderling (*Calidris alba*)
- Red-necked Stint (*Calidris ruficollis*)
- Double-banded Plover (*Charadrius bicinctus*)
- Little Tern
- Crested Tern (*Thalasseus bergii*)

Of these species, Birdlife Australia data accessed for this assessment includes multiple records of Eastern Curlew at Narrawallee Creek Inlet, the most recent from 2015. Whimbrel and Crested Tern records occur immediately north-west of the study area and in the proximity Narrawallee Creek Inlet. Birdlife Australia data also contains records from Surfers Avenue for Grey Plover and Crested Tern.

Sooty Shearwater (*Ardenna grisea*) and Short-tailed Shearwater (*Ardenna tenuirostris*) records also occur within the subject site and study area. Some of these records have been sourced from 'Wildlife Rehabilitation Record' and they have often been reported deceased on beaches due to starvation occurring during migration. This was corroborated during site assessments undertaken that found deceased Shearwater species within the subject site. They are a predominantly pelagic species, and no important habitat occurs within the subject site and study area. Accordingly, no further assessments have been undertaken for these species.

The Eastern Hooded Dotterel, which is also BC Act listed, and Little Tern are required to be assessed with regard to breeding habitat. A majority of the remaining EPBC Act listed shorebirds are migratory, northern hemisphere breeding species. Foraging habitat within the intertidal areas of Narrawallee Creek Inlet is the primary habitat value within the study area for these migratory species.

Consideration has been given to threatened species likely to occur within the foredune and hind dune vegetation. There are habitat features including hollow-bearing trees occurring in close proximity to Narrawallee Beach within the study area. However, these will not be impacted on by the proposed activity as no habitat removal will be conducted and, as these are outside of the subject site, unlikely to be impacted on by the proposed activity.

No other threatened fauna or signs of threatened fauna were detected during surveys. Targeted nocturnal surveys were not undertaken since no potential threatened species roosting or nesting habitat (e.g., hollows) would be removed or otherwise impacted on as a result of the proposed activity. The effects of dog activity on hollow-residing fauna are considered negligible.

An assessment of potential impact on threatened fauna based on the above findings is provided in Section 8.1.

6.2.2 Threatened Flora and ecological communities.

This assessment has determined one (1) BC Act listed flora species and one (1) TEC likely to occur within the study area:

- Sand Spurge *Chamaesyce psammogeton* has not been recorded within the study area; however, the area is considered to provide potential habitat for this species.
- *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions* was recorded within the study area on the hind dune behind Narrawallee Beach. This is outside the subject site and unlikely to be impacted on either directly or indirectly by the proposed activity, given there are well established beach accessways (Figure 4).


An assessment of the potential impact on Sand Spurge and Bangalay Sand Forest in response to the proposed activity is provided in Section 8.1.

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, however, 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 effect this, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (hereafter referred to as 'Due Diligence Code') (DECCW 2010) was published 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.

In accordance with Step 1 of the Due Diligence Code, an AHIMS database search indicated that there were eight recorded Aboriginal heritage sites adjacent to the subject site and within the study area (Figure 6). An extensive AHIMS database search revealed that there was one site recorded from within the study area, approximately 40 metres from Narrawallee Beach around 50 metres south of the headland to the north of Narrawallee Beach. This was a single silcrete artefact flake below the surface. Four records are for Matron Porter Reserve, outside of the study area, were of silcrete stone artefacts. These included a substantial artefact scatter along Matron Porter Drive from the residential area to the turnoff into the park that was recorded by SCC staff and subject to approved harm (AHIP) for the construction of the shared users path. One of the sites is a repatriation site of hundreds of silcrete stone artefacts repatriated from the above sites, under permit. One of the recorded sites is a midden located on the southern side of Narrawallee Creek Inlet, within the dog-prohibited area outside of the scope of the REF. The remaining two sites are located more than 400 metres from the subject site in urban locations.



AHIMS Web Services (AWS)
Search Result


Your Ref/PO Number : Narrawallee OLA REF
Client Service ID : 888218

Shoalhaven City Council - Nowra Date: 30 April 2024
 PO Box 42 Bridge Rd
 Nowra New South Wales 2541
 Attention: Ben Coddington
 Email: ben.coddington@shoalhaven.nsw.gov.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat. Long From : -35.3273, 150.4506 - Lat. Long To : -35.297, 150.5123, conducted by Ben Coddington on 30 April 2024.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

8	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

Figure 6 AHIMS search results.

Step 2 of the Due Diligence Code then requires a consideration of whether Aboriginal objects are likely to be in the subject site and study area 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 subject site and study area does comprise such landforms (within 200 metres of waters and sand dune). Consequently, an on-site inspection of the area was conducted on 1 May 2024 to include a search for any surface artefacts or mounded areas that could comprise a shell midden, potential archaeological deposit, or a 'lens' of stratified cultural material within the exposed earth of the shoreline. This inspection did not identify any Aboriginal objects.

A literature search was conducted utilising Council's document archive and AHIMS. A report titled *Milton / Ulladulla Sewerage Scheme Augmentation EIS – Cultural Heritage Component* by Navin Officer Heritage Consultants in 2000 describes surveys undertaken in the vicinity of the nearby sewage pumping station and associated rising and gravity mains. No Aboriginal cultural heritage sites were recorded.

The beach environment 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."

Accordingly, the proposed activity is within disturbed land as the lands have been subjected to continued disturbance through active, natural coastal processes. 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, it can proceed with caution and Step 3 is not required.

The subject site and study area:

- is part of an undetermined Aboriginal Land Claim.
- 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 objects occurring in the subject site. As a result, an AHIP is not required for the proposed activity.

6.3.2 Non-indigenous heritage

Heritage items listed under Schedule 5 of the SLEP 2014 include one site:

- Item 324 Silica Wharf and Tramway

This heritage listing pertains to the remaining vestiges of the tramway built across the Narrawallee Creek Inlet to transport silica mined at Conjola. This is located outside the study area. As such, the proposed activity is unlikely to have a negative impact on this heritage item.

The proposed activity would not involve, or be close to, items on the state heritage list. 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 Climate Change, Energy, the Environment and Water (DCCEEW)

The NPWS Shorebird Ranger for the Shoalhaven region was consulted during the development of this REF. Recommendations made include Council Ranger presence to encourage compliance, and educational signage regarding threatened shorebirds in the area. These have been incorporated into the Environmental Safeguards and Measures to Minimise Impacts (Section 9).

7.3 Council Departments

This REF has been prepared in consultation with Council's Environmental Services Department, Ranger Services and Open Space and Recreation Planning Units. Ranger Services has confirmed a monitoring presence will continue at Narrawallee Beach, including a minimum of one inspection every two days, and can respond to any community concerns within one day. The mitigation measures in Section 9 have been developed in accordance with this consultation.

7.4 Community

Council has received correspondence from over 100 individuals and groups in relation to the Narrawallee Beach dog off-leash area. The Narrawallee Beach Environmental Group (NBEG) has conducted dog number surveys in December 2022 and January 2023, a dog defecation survey in June 2023 and shorebird surveys in various months/seasons dating back to 2020. Notably, these surveys have identified the presence of a pair of Eastern Hooded Dotterels foraging on Narrawallee Beach in January 2023, which have not been formally lodged on NSW BioNet or Birddata. However, these surveys have not been used in the formal assessment within this REF, being considered unvalidated data. The likelihood of occurrence process explained in Section 6 utilises previous threatened species records collected from database searches (under licence) and the presence of suitable habitats within the subject site and study area. This process enables further assessment for those species considered likely to occur to assess the impacts of the proposed activity.

On 6 November 2023, Council adopted temporary dog access arrangements at Narrawallee Beach (currently in place). This decision was made following a Land and Environment Court ruling, which deemed the prior dog access arrangements at Narrawallee Beach to be of no force and effect. The community was informed of this Council resolution. Council received unsolicited comments in relation to the Narrawallee Beach dog off-leash area, and from Paws4Shoalhaven and The Narrawallee Beach Environmental Group (NBEG) and comprised a mixture of support and opposition for the revised dog access arrangements. Comment themes included:

- 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 – requesting more Council Ranger presence, more bins, more responsible pet-ownership, including asking people to pick up after their dogs.
- User conflict and safety – conflict between beach-users with and without dogs, and conflict between dogs and native fauna.
- Access – Limited access points for both parking and walking, traffic congestion, concern about only one main access point.
- Safety – Congested pedestrian and dog access due to one main thorough fare for access, affecting the elderly and people with disabilities accessing the beach.
- Dog off-leash areas: size of, timing of, and access to this space.
- Concern for shorebirds welfare and understanding that dog off-leash areas reduce dog trespass into National Parks and vulnerable habitat areas.
- Both the environment and dog access being reasons why people visit and buy homes in Narrawallee. Both swimming and walking in the pristine and beautiful beach environment and enjoying the exercise with dogs are activities that residents value to support local people's physical health, social connections, and mental wellbeing.

The mitigation measures in Section 9 have also been developed in accordance with consultation previously undertaken. These include:

- Increased Council Ranger presence.
- Increased and improved signage that is clear and consistent within the subject site is to be installed immediately if changes are needed following exhibition of this REF. Consistency of signage across the Shoalhaven LGA is to be progressed.
- Maintenance of dog-prohibited buffers between the off-leash area and sensitive areas or areas of high biodiversity value or where there has been assessed to be recreational user conflict.
- The provision of garbage receptacles for dog faeces.
- 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 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

8.1 Threatened fauna.

The impact of the proposed activity on the species listed in Section 6 has been assessed in the Test of Significance (BC Act listed entities) presented in Appendix 3 and the Significant impact Criteria Assessment (EPBC listed matters) presented in Appendix 4. These assessments conclude the proposed activity will not have a significant impact on threatened fauna species, with the implementation of adequate geographic limitations and prescribed mitigation measures. Factors considered in this assessment are discussed further below. Impacts on threatened fauna species that have habitat preferences for those outside of the intertidal or beach habitat, and subject site, is expected to be negligible.

The presence of transient and mobile species is possible within the subject site and study area. Such species include the Eastern Osprey (*Pandion cristatus*) whereby records occur to the north and south of the study area. Although this species favours coastal areas, they demonstrate a preference for mouths of large rivers, lagoons and lakes and forage on fish over clear open water and will range further during non-breeding periods. This is verified by the location of previous records and the subject site is not considered useful or important core habitat for this species. Accordingly, any potential impact on such species is expected to be negligible.

This section focusses primarily on threatened shorebirds as these are the species assessed as likely to occur and have habitat that intersects with, or is potentially indirectly impacted on by, the proposed activity.

In a review of the impacts of dogs on nesting shorebirds, Maguire (2018) detailed the following impacts:

- Disturbance: 'chasing and the unpredictable movement, proximity and speed of unrestrained dogs' can lead to the prolonged absence of adult shorebirds from the nest.
- Egg predation.
- Egg crushing.
- Chick predation.

Maguire (2018) concluded that, while dog-free areas are the most effective at protecting shorebirds, this must be combined with alternative dog off-leash areas to promote greater compliance in more environmentally sensitive areas where dogs are prohibited, such as National Parks.

Long-term conservation programs for beach-nesting birds often focus on achieving coexistence between recreation and wildlife. In some management strategies, dog owners were requested to leash their dogs when approaching and passing vulnerable habitat areas. Maguire (2018) observed low compliance with leashing regulations and suggested that this is an ineffective approach. The alternative, which involves prohibiting dog access from these sensitive beaches, is typically met with conflict and division within the community as dog owners are faced with the risk of losing access (Johnston *et al.* 2013). A proposed solution to this issue is to provide a dog off-leash area in low-risk zones to divert users away from environmentally sensitive habitat areas, which remain dog-prohibited areas.

Section 6.2.1 documents the significance of breeding and foraging habitat for threatened and migratory shorebirds provided by the Narrawallee Creek Inlet to the north of the study area, as well as the optimal foraging habitat for threatened shorebirds provided by the intertidal rock shelf at the southern extent of the study area. The impact of the proposed activity on the habitat value of these

areas is mitigated by the buffers provided by the existing dog-prohibited areas (Figure 3). These buffers are 600 metres between BA7 and Narrawallee Creek Inlet to the north, and 270 metres from BA3 to the southern intertidal rock platform.

The Australian Government's former Department of Energy and Environment (DoEE 2017; Policy Statement 3.21) states '*Options for mitigating impacts from disturbance include the use of buffer zones around important areas for migratory shorebirds. Appropriate buffers will depend on local circumstances, including the species present, type of habitat (ephemeral or permanent), habitat use (roosting or foraging) and scale of disturbance. As a guide, studies have recommended buffer zones with widths ranging from 165 metres to 255 metres*'.

This guide has been applied in this assessment for shorebirds generally (not only migratory birds), as a precautionary guide, in the absence of more detailed local information. The buffer distances provided by the current dog-prohibited areas within the study area exceeds these recommendations. These distances are considered adequate to ensure these habitats are not impacted on by the proposed activity. Furthermore, it must be noted that SCC need to abide by these threatened shorebird buffer distances as a Crown Land licence holder for entrance interventions of Intermittently Closed and Open Lakes and Lagoons (ICOLLs) and river mouths. Such conditions are set and mandated by the NSW Government.

Noting that the records for threatened shorebird nesting sites are concentrated on the north side of Narrawallee Creek Inlet, the creek generally provides a further geographical barrier that prevents dog activity associated with the dog off-leash area impacting on this shorebird habitat.

A conservative approach is required given the conservation status of some of the species that occur and for the Hooded Dotterel that breed, at the Inlet.

At the time of writing the Scientific Determination for the species, the Hooded Dotterel has declined in abundance and distribution, becoming rare around Sydney by 1900, with the last records from there dating from the 1940s. The NSW population is extremely low and declining, being estimated at 62 birds in 1988, 19-25 pairs in 2003-04 (NSW FOC annual bird reports), and fewer than 20 pairs by 2007.

The determination states: 'large areas of the species' littoral and estuarine habitat in NSW have been and are continuing to be destroyed and degraded by coastal development and engineering works. Remaining habitat is at risk of disturbance by human activities (including recreational vehicles), **dogs**, and artificial opening of coastal lagoons. Other threats include egg or chick predation by foxes and artificially high Silver Gull populations, weed invasion, oil spills, harvesting of kelp wrack and trampling by livestock. 'Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)' is listed as a Key Threatening Process.

The presence of Critically Endangered species, such as the Beach Stone-Curlew and Eastern Curlew, and known nesting sites for Eastern Hooded Dotterel emphasise the significance of habitat provided by the Inlet within the northern extent of the study area. This is further demonstrated by the concentration of recent records of threatened species including Pied Oystercatcher, Sooty Oystercatcher, and Little Tern and other migratory species, within and adjacent to the inlet. Any potential impact on this nesting habitat for critically endangered species would equate to a significant impact when assessed further through the Test of Significance (BC Act) and/or Significant Impact Criteria (EPBC Act).

Records within the southern portion of the beach and rock shelf to the southern extent of the study area demonstrate the significance of this area as foraging habitat for threatened shorebirds. Along with the sighting of Pied Oystercatchers during the site assessment, BioNet and Birdlife Australia records include threatened species, Sooty Oystercatcher, Pied Oystercatcher and Little Tern, as well

as migratory species Grey Plover and Crested Tern. The intertidal zone of the rock platform provides foraging habitat for a range of species assessed as likely to occur within the subject site and study area. The presence of dog off-leash access adjacent to this area would significantly compromise this foraging resource. Although not contiguous with breeding habitat to the north of the Narrawallee Inlet, complementary foraging habitat is crucial to the long-term survival of these species and decreases the risk of further endangerment.

With regard to buffer distances between the proposed dog off-leash area and these areas of high biodiversity value, a distance of 270 metres to the rock platform in the southern extent of the study area is considered adequate to mitigate impacts as this would allow the recommended buffer of 165 to 255 metres (DoEE 2017) to be maintained. The buffer of 600 metres between the proposed off-leash area to the Inlet to the northern extent of the study area achieves an adequate buffer to the nesting habitat for Critically Endangered Eastern Hooded Dotterel, while allowing for some indirect impacts associated with dogs inevitably encroaching beyond the northern extent of the off-leash area on occasion. While it is expected dog owners will respect the boundaries of the dog off-leash area wherever possible, the significance of the nesting habitat and sensitivity of nesting birds to impacts from dogs requires a buffer greater than that recommended by the DoEE Guideline.

The foraging habitat provided by intertidal areas along Narrawallee Beach are demonstrated by recent records of the Endangered Little Tern from 2021. While foraging habitat for threatened shorebirds in this area is somewhat compromised by the current dog off-leash access and other uses of the beach, a balance is required to limit impacts to be achieved that minimises impacts on this habitat wherever possible. The current dog off-leash area comprises 35% of the length of Narrawallee beach. In addition to the sandy beach areas to the north of the inlet this is considered to be acceptable, and allowing suitable areas for foraging for the range of shorebirds that utilise this habitat (Section 6.2.1; Appendix 2). This assessment is also made with consideration that Narrawallee Beach has been used as a dog off-leash area for several years (Section 2.2) and that while foraging habitat is critical in the life cycle of shorebirds, the area proposed for continued dog off-leash access is not used for nesting or and does not provide primary foraging habitat for many shorebird species. While the dog-off leash access within the subject site will continue to reduce the foraging habitat value in this area, it is considered that this impact will be acceptable given recommended extents.

It is therefore recommended that the southern area continue to be dog-prohibited, given the recent sightings of Pied Oystercatcher on the southern rock platform and assessment of available data. It is also considered prudent that a proportion of the beach be available for foraging throughout the year for local threatened species, in particular Pied Oystercatcher, but also other threatened shorebirds that utilise the sandy beach intertidal zone (Appendix 2). The current buffer to the highest priority habitat for breeding and foraging – in and around Narrawallee Creek Inlet should also be maintained. The required mitigation measures are listed in Section 8 with assessment made in conjunction with other risks and their controls.

An independent review of the EPBC Act in October 2020 (Samuel 2020) has developed National Environmental Standards following consultation with science, indigenous, environmental and business stakeholders, and with input from technical experts. Specifically, Appendix B1 of this review identifies strategies for the protection, conservation and management of migratory species within Australia. These strategies are considered with regard to the migratory species that have a medium or high likelihood of occurring within the subject site and study area (Appendix 2) as follows:

- a. Maintaining and improving habitat and the conditions supporting ecologically significant proportions of the population of listed migratory species within Australia, including by ensuring that actions and decisions, at a minimum:

- i. avoid adverse impacts to important habitat for a listed migratory species,

The recommended dog-prohibited area and associated buffers will ensure that the proposed activity will not have a significant impact on migratory shorebird habitat provided by this area. Limiting the area of beach available to dogs to the current off-leash area also supports shorebird populations that forage within the intertidal areas of the beach.

- ii. avoid adverse impacts to the lifecycle (breeding, feeding, migratory pathways or resting behaviour) of an ecologically significant proportion of the population of a listed migratory species,

Migratory species present and predicted within the locality do not breed in the southern hemisphere, with the exception of the Little Tern. The proposed activity is unlikely to have an adverse effect on the breeding cycle of this species, given the proposed spatial limitation of prohibited areas and buffers and other mitigation measures. There are few records of migratory birds within the subject site, and the subject site is not part of a key migratory pathway or key resting area for these species. The majority of migratory species mostly occupy foraging habitats consisting of intertidal mudflats or sand flats, located near estuaries, lakes, lagoons, or harbours such as is present at Narrawallee Creek Inlet and further north at Lake Conjola.

- iii. ensure no net reduction in the population of a listed migratory species in Australia,

Although migratory species in Australia have occasionally been recorded on open-coast sandy beaches, no significant proportions of these migratory species populations are known to regularly occupy the subject site. As such, the proposed activity will not have an impact on breeding, feeding, migration or resting behaviour to the extent that it would seriously lead to a net reduction in the population of these migratory species.

- iv. ensure no net reduction in the habitat of a listed migratory species in Australia.

The proposed activity and mitigation measures including the continuation of existing dog-prohibited areas is in line with strategies identified in the EPBC review (Samuel 2020), to conserve migratory shorebird habitat in Australia.

8.2 Threatened flora and ecological communities.

The impact of the proposed dog off-leash access on the floral species and TEC listed in Section 6 have been assessed and are reported in this section.

A Test of Significance assessment the TEC *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions* and for Sand Spurge has determined that the proposed activity will not have a significant impact (Appendix 3).

Due to the character of the subject site, i.e., a sand beach, the impacts of the proposed activity on the TEC *Bangalay Sand Forest in the Sydney Basin and South East Corner* have been assessed as negligible. The main dog-access track to the beach through Matron Porter Drive (BA3) consists of a wide, well established sand track through the TEC. There are five other long-established access tracks (Figure 4). These are maintained as formal assets by Council, regardless of dog access. Given the nature of these tracks, it is unlikely that any additional impacts (direct or indirect) on the TEC in response to the proposed activity will occur.

The beach and frontal dune area of the subject site, where dogs are proposed to be permitted off-leash between BA3 and BA8, does not comprise this TEC. However, the proposed activity may include the installation of signage within the TEC. Such works will not have an adverse effect on the extent of the ecological community or substantially and adversely modify the composition of it such that its local occurrence is likely to be placed at risk of extinction. The signage will utilize existing posts where possible, and if new posts are required, these locations will be chosen where this TEC does not occur.

Sand Spurge is a herb that grows on dunes and sea strandline. Whilst no known populations of the species are located within the subject site or study area, habitat with the potential for this species to occur is present. However, it is also unlikely to be affected by the proposed activity as there is no vegetation removal or disturbance to the beach profile that will occur.

In summary, the proposed activity will not have a significant impact to communities and threatened floral species. As such a Species Impact Statement or entry into the Biodiversity Offset Scheme (BOS) is not required.

8.3 Social Impact

Community and social values of the subject site and study area are described in Section 3.1.

The subject site is located within Community Land and is frequently used as a public reserve for social and recreational activities.

SCC's Access Areas for Dogs Policy states as a goal: to 'support a risk-based approach to the designation and management of dog control areas to balance social and environmental needs in accordance with legislation.'

The proposed activity would not impact on views, community services and infrastructure such as water, waste management, educational, medical or social services.

The social risks that are associated with dog off-leash access include potential injury or death from dog attack, incompatibility between different groups of beach users, conflict between different groups of users, and broader social disharmony as the community is polarised by dog access preferences that have been dictated by environmental and social constraints.

It is recognised that there are two primary community groups that advocate on this issue for Narrawallee, being Paws4Shoalhaven and the Narrawallee Beach Environment Group. There are also other groups of beach users that may not be affiliated with these groups. These include individuals, family and friend groups that are beachgoers for a variety of reasons – walking, swimming, resting, and other recreational activities. Surfers are a significant group that use the beach on a daily basis.

Various surveys and unsolicited feedback received by SCC is described in Section 7.4 but consists of a range of views both for and against dog off-leash access.

To achieve a balanced shared use, and with consideration of other constraints (predominantly related to shorebirds – see Section 8.1), it is important to spatially limit the dog off-leash access area. It would not be appropriate to designate the entire subject site as a dog off-leash area.

Matron Porter Reserve provides extensive car-parking, open spaces for people to meet and numerous access points. These benefits are not as evident for both Surfers Avenue and Victor Avenue, which are located within urban streets.

The southern section of the beach (currently dog-prohibited area) hosts patrols by the Narrawallee

Beach Surf Life Saving Club (SLSC) over summer. Field observations by Council staff throughout summer months and early autumn indicated that there were many people on the beach and in the water. There is shade from mature trees overlooking the beach. The water is protected by a southern promontory and provides for a safe swimming location. Beach patrons of broad age range were present, and a 'great ambiance' was noted. Both the Surfers Avenue and Victor Avenue steps are used to access the beach at this location.

The Victor Avenue steps currently serve the 'without dogs' beach users as a separate access point to the beach. The steps link geographically with a rocky protrusion within the beach area, creating a small separate swimming area.

Observations made within the current off-leash area noted that there were no dogs on the beach prior to the 4 pm off-leash commencement. People were parking vehicles just prior to the beginning of the off-leash time, in preparedness to walk their dogs. Compliance with the dog access rules was high and people with dogs remained within the dog off-leash area. Social conflicts were negligible and there was no rubbish on the beach, including dog excrement.

At the northern end of Narrawallee Beach, it was observed that the current dog-prohibited zone was well-protected. This area was seen to attract surfers and swimmers. Some families were present. No dogs were observed.

To achieve a balanced outcome that aligns with the environmental needs, it is recommended that the southern boundary remain at the southern-most access from Matron Porter Reserve (BA3).

The northern boundary of the off-leash zone is recommended to be extended to the beach accessway BA8. This would provide a length of beach of 480 metres within the dog off-leash area. This equates to 35% of the entire beach length and aligns with the clear and obvious landmark, being the unnamed island. The dog-prohibited area to the north under this scenario is 605 metres (45%), and the dog-prohibited area to the south is 270 metres in length (20%).

There are no guidelines applicable with regard to the designation of proportions of a beach in such a way. This must be considered on a case-by-case basis. For Narrawallee Beach, one-third of the beach seems appropriate given the physical landscape of the beach and rocky features, and the various recreational activities that are undertaken to maintain the low social conflict.

The spatial limitation of the dog off-leash area (between BA3 to BA8 beach accessways) also makes use of the foreshore reserve as a vegetated buffer between the subject site and residential dwellings. This further reduces the likelihood of social conflict between dog walking activities and householders.

The current timed dog off-leash access was also assessed from a social impact perspective. These times are as follows:

- Australian Eastern Daylight Savings Time – off leash from 4 pm to 8 am.
- Australian Eastern Standard Time - off leash from 3 pm to 10 am.

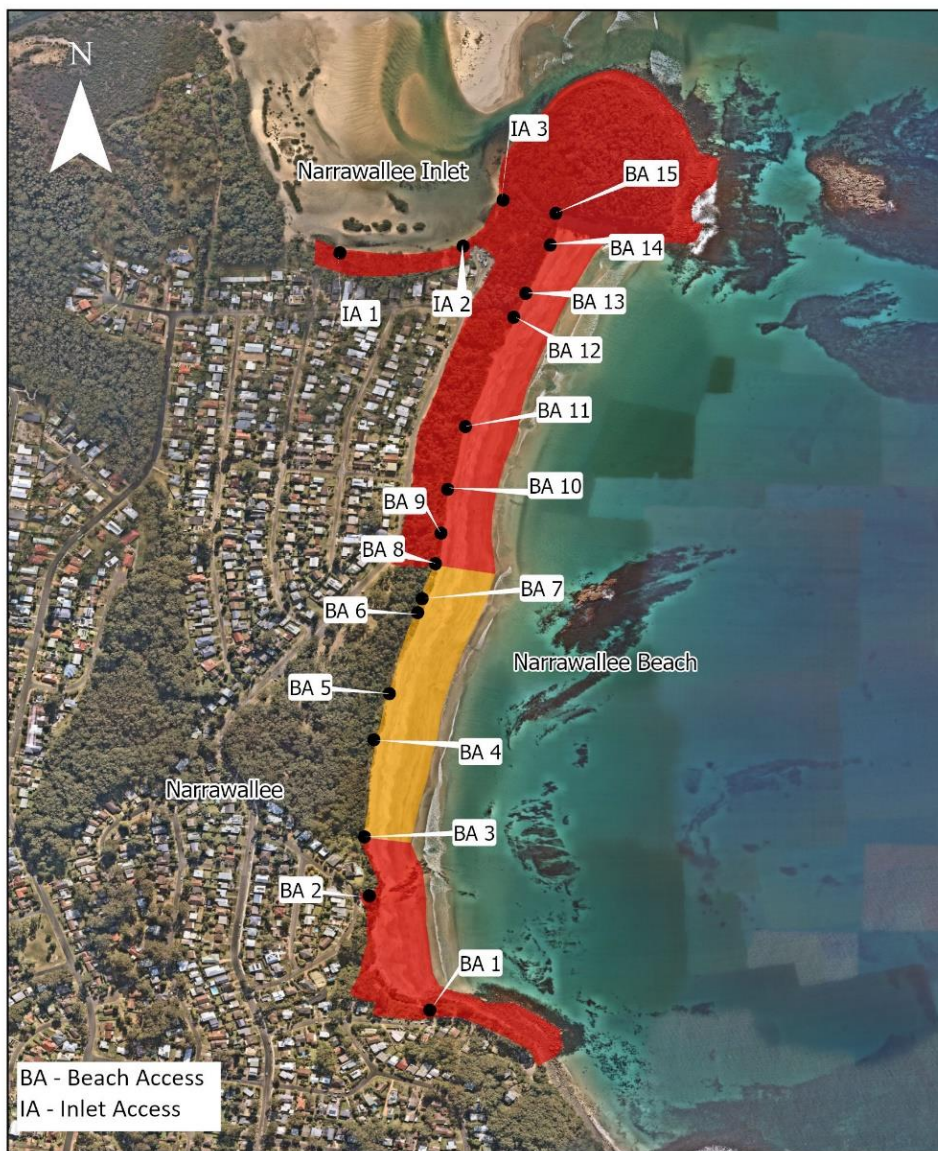
These time arrangements have been monitored by SCC's Ranger Services. Such monitoring has revealed a low incidence of social conflict. As such, these arrangements will remain in place and monitoring will continue and adjustments can be made in future years if the social conflicts between recreational user groups increase. This will be a feature of the adaptive management framework (refer Section 9) to continually achieve the balanced outcomes that have been assessed in this REF.

This preferred arrangement for Narrawallee Beach allows for distinct spatial separation, hence clear separation of distinct user groups and enabling more effective compliance.

9 Impact mitigation

Section 8 provided a detailed impact assessment of the proposed activity. It assessed environmental and social impacts and determined spatial limitations for dog off-leash access to the subject site. Figure 7 provides the desired layout and delineation of prohibited areas and timed dog off-leash areas.

Under the CA Act, dogs are required to be on-leash when in a public place in Shoalhaven unless in a designated off-leash area. Dogs are not permitted within designated dog-prohibited areas (whether or not they are leashed or otherwise controlled).



Legend

- Access points
- Timed off-leash dog access
- Dogs prohibited

0 120 240 480 Meters

Figure 7 Optimal dog off-leash and dog-prohibited areas determined under this REF.

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.

Mitigation measures are as shown in Table 3 below:

Table 3 Environmental safeguard and mitigation measures for potential impacts on the community and the environment in response to the proposed activity

Category	Type of Impact	Safeguard/Mitigation Measure
Flora and Fauna	Loss of threatened species and associated habitats	<p>A buffer of 600 metres within the northern dog-prohibited zone between the off-leash area ending at BA8 and the Narrawallee Creek Inlet north of IA1 - IA3 is to be maintained. This buffer also includes Narrawallee Creek which acts as a geographical barrier providing additional protection, especially for nesting shorebirds.</p> <p>South of Matron Porter Drive will also remain dog-prohibited, providing a conservative buffer of approximately 270 metres between the dog off-leash area and the rock platform, in line with current recommendations. This spatial limitation also provides for foraging opportunity for threatened shorebirds along the beach, outside of the dog off-leash area.</p>
		<p>Educational signage regarding the presence of and threat of dogs on threatened shorebirds will be installed at priority access points to clearly delineated dog-prohibited areas including access points to the adjacent Narrawallee Creek Inlet and Narrawallee Creek Nature Reserve and Victor Avenue and Surfers Avenue access points.</p>
		<p>Council’s Environmental Services Department will liaise with NPWS South Coast Shorebird Recovery Program Coordinator on a regular basis, including key breeding of threatened shorebird season times. This will enable the provision of further subject matter expertise and a regulatory and collaborative influence from NPWS, to inform adaptive management of controls. Additional measures to be considered may include, reducing the boundary of the off-leash area in response to seasonal shorebird nesting sites, increased presence of Council Rangers at key times, and fencing nest sites to clearly demarcate the presence of nesting shorebirds.</p>

Category	Type of Impact	Safeguard/Mitigation Measure
		<p>If a nest or nesting birds are detected within or immediately adjacent to the subject site, mitigation measures will be adapted in consultation with the NPWS Shorebird Recovery Coordinator (or similar expert), to minimise risk of disturbance to the birds and ensure their protection.</p>
		<p>Adaptive management of the subject site will be implemented. Mitigation measures will be revised, as required, to ensure threatened and migratory shorebirds are adequately protected. Council will collaborate with the NPWS South Coast Shorebird Recovery Program Coordinator regarding any revised mitigation measures.</p>
	Vegetation clearing for signage installation	<p>Signage installation will utilise existing posts where possible. No vegetation clearing will be necessary for the installation of additional signage / maintenance of access tracks. Where new posts may be required this will be positioned to avoid the need to remove native vegetation. Council's Land Management Unit will advise on timing of installation and locations of new posts to ensure threatened shorebird nesting and foraging habitat is not impacted on.</p>
	Trail proliferation and trampling	<p>Only existing access tracks will be utilised to ensure surrounding vegetation remains undisturbed.</p> <p>If the vegetation surrounding the access tracks become disturbed or degraded, fencing will be installed to confine beach users to the access tracks only.</p>
	Invasive plant species	<p>Equipment used for signage installation and ancillary works will be washed prior to entering and leaving the subject site to ensure invasive plant species are not introduced or transported.</p>

Category	Type of Impact	Safeguard/Mitigation Measure
Water	Water pollution – dog waste	Dog owners/walkers are required to clean up dog faeces under the CA Act. The provision of bins as well as compliance activities will help to facilitate appropriate waste disposal and enforce this obligation as required.
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 Climate Change, Energy, the Environment and Water’s 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 <i>Shoalhaven Local Environmental Plan 2014</i> 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	Noise during dog off-leash hours and sign installation	Reports or complaints made to Council regarding noise will be monitored.
		The works involved in signage installation will 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 activity.
Social	Impact on other beach users	The timed dog off-leash area, where dogs can be off-leash during off-peak times (4pm-8am Australian Eastern Daylight-Saving Time, 3pm-10am Australian Eastern Standard Time) has been prescribed to limit impacts on other beach users.
		Dog owners/walkers are required to always have control of their dogs and are responsible for waste disposal from dog faeces under the CA Act. Compliance activities will help to enforce this obligation.

Category	Type of Impact	Safeguard/Mitigation Measure
		<p>The area south of BA3 at the south end of Narrawallee Beach will be dog-prohibited to mitigate the impact of dog users on members of the public using this popular part of the beach. This part of the beach is commonly used by families with young children and also operates as a patrolled beach (Narrawallee SLSC) during the summer holiday period. The beach area to the north of BA8 also provides recreational opportunities for other beach users free of dogs.</p> <p>Signage clearly detailing the off-leash area and dog-prohibited areas will ensure dog owners are aware of these as per the CA Act (Section 14(1)(d)).</p> <p>Regular monitoring by Council Rangers to enforce compliance, and to provide additional assurance especially to monitor for the presence of dogs in the prohibited area at Narrawallee Creek Inlet and the southern intertidal rocky platform. The presence of Council Rangers will enable the provision of education to the community.</p> <p>A penalty infringement notice will be issued, following an initial caution, for any repeat offenders observed in relation to non-compliance with the CA Act.</p> <p>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 and resulting from ongoing and regular assurance activities with stakeholders.</p>
Waste minimisation and management	Amenity and pollution	Garbage bins are located at main access points to the off-leash zone to promote compliance.

10 Determination

This Review of Environmental Factors has assessed the likely environmental impacts, in the context of Part 5 of the NSW *Environmental Planning and Assessment Act 1979*, of a proposed activity by Shoalhaven City Council to permit dogs off-leash on a portion of Narrawallee Beach, including the associated sign installation.

The review has also considered the most suitable boundaries to the off-leash area in terms of minimising social and environmental impacts (Section 8 and Section 9). This has determined:

1. The area north of BA8 will be maintained as dog-prohibited, providing a buffer to the Narrawallee Creek Inlet which has extremely high biodiversity conservation value in relation to threatened and migratory shorebird populations.
2. The area south of BA3 shall be retained as dog-prohibited to ensure an adequate buffer distance is maintained to the rock shelf providing threatened shorebird foraging habitat in the southern extent of the study area. This will also mitigate potential social impacts of dog off-leash access on this high-use part of the beach.
3. The current dog off-leash access area (currently between BA3 and BA7) has increased north to BA8.

The above-listed determinations are shown in Figure 7 have been included within the mitigation safeguards included in Section 9.

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:

1. The proposed safeguards identified in the report (Section 9) shall be maintained/adopted and implemented.
2. It is unlikely that there will be any significant environmental impact from the proposed activity and an Environmental Impact Statement is not required for the proposed activity.
3. The proposed activity is not likely to significantly affect threatened species or ecological communities, or their habitats for the purposes of the NSW *Biodiversity Conservation Act 2016*, and entry into the Biodiversity Offset Scheme or preparation of a Species Impact Statement is not required.
4. The proposed activity is not a 'controlled action' for the purposes of the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* and referral to the Commonwealth Environment Minister is not required.

Michael Roberts

Dr Michael Roberts

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Shoalhaven City Council

Date: 2 May 2024

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Appendix 1 Photographs of the subject site



Plate 1: Current signage located toward southern end of Narrawallee Beach indicating the beginning of the current off-leash area (BA3).



Plate 2: Matron Porter Drive – BA3 accessway along Narrawallee Beach.



Plate 3: Example of an accessway at the northern end of Narrawallee Beach.



Plate 4: Southern aspect of Narrawallee Beach from BA1 looking north.



Plate 5: Middle of Narrawallee Beach adjacent to the unnamed island (BA8).



Plate 6: Southern intertidal rocky platform of Narrawallee south of BA1, within the southern Dog-prohibited Area. This rocky platform contains habitat for Sooty Oystercatcher and Pied Oystercatcher.



Plate 7: Vegetation along the middle portion of Narrawallee Beach showing PCT 3140 *Spinifex Strandline Grassland*, grading into PCT 3788 *Coastal Fore-dune Wattle Scrub* which then grades into PCT 3838 *South Coast Sands Bangalay Forest*.



Plate 8: Foredune vegetation along the middle section of Narrawallee Beach dominated by PCT 3140 Spinifex Strandline Grassland.

Appendix 2 Likelihood of occurrence assessment

An assessment of likelihood of occurrence was made for threatened and migratory species identified from database searches (Council's GIS Enquiry, Birddata, PMST and BioNet) and site visits (Table 4). Likelihood of occurrence was assessed for the species listed under BC Act and EPBC Act that have been previously recorded within the locality or are predicted to occur within locality.

For threatened species determined to have a medium or high likelihood of occurrence listed under the BC Act, a Test of Significance (ToS) pursuant to section 7.3 of the BC Act has been conducted (Appendix 3).

For those listed under the EPBC Act, a Significant Impact Assessment (SIA), in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance, has been conducted (Appendix 4).

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

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

Table 4 Threatened species listed under BC Act and EPBC Act, recorded in the subject site, study area or within the locality or predicted to occur within the locality (within ten kilometres)

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Birds						
Bar-tailed Godwit	<i>Limosa lapponica</i>		M	Inhabit estuarine mudflats, beaches and mangroves. Common in coastal areas around Australia.	Medium	Yes – (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Beach Stone-curlew	<i>Esacus magnirostris</i>	CE		Occurs on open, undisturbed beaches, islands, reefs, and estuarine intertidal sand and mudflats, preferring beaches with estuaries or mangroves nearby. Also frequents river mouths, offshore sandbars associated with coral atolls, reefs and rock platforms and coastal lagoons.	Medium	Yes – (ToS Appendix 3) Although species records indicate presence is uncommon in the locality, the species has been recorded within Narrawallee Creek Inlet Reserve north of IA1-3.
Common Sandpiper	<i>Actitis hypoleucos</i>		M	Utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats.	Low	No – very rare visitor to the Shoalhaven and important habitat characteristics including wetland environments are absent from the subject site.
Common Greenshank	<i>Tringa nebularia</i>		E, M	Common Greenshanks are found both on the coast and inland, in estuaries and mudflats, mangrove	Medium	Yes – (SIA, Appendix 4)

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops.		The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Crested Tern	<i>Thalasseus bergii</i>		M	Coastal areas including open shores, low-lying sandy, rocky or coral islands and sometimes shrubland. This species is known to shelter behind dunes, rocks and vegetation during storms.	Medium	Yes - - (SIA, Appendix 4) This species has been recorded in the subject site and study area, and sub-optimal occurs along the beach within the subject site.
Curlew Sandpiper	<i>Calidris ferruginea</i>		CE, M	The Curlew Sandpiper is mostly found on intertidal mudflats of estuaries, lagoons and mangroves, as well as beaches and rocky shores. It's breeding habitat is the lowland tundra of Siberia.	Medium	Yes - (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Double-banded Plover	<i>Charadrius bicinctus</i>		M	The Double-banded Plover is found on coastal beaches, mudflats, sewage farms, river banks, fields, dunes, upland tussock grasses and shingle.	Medium	Yes - (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Dusky Woodswallow	<i>Artamus cyanopterus</i>	V		Primarily inhabit 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	Low	No - species does not inhabit the sandy beach habitats present within the subject site. This species may inhabit vegetation within the study area, however the impacts of the proposed activity on this area is considered negligible.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.		
Eastern Curlew	<i>Numenius madagascariensis</i>		CE, M	Generally, occupies coastal lakes, inlets, bays, estuarine habitats including intertidal mudflats and saltmarsh of sheltered coasts. Has been recorded on open beaches often near estuaries, and coral reefs and rocky platforms.	Medium	Yes – (SIA, Appendix 4) Although species records indicate presence is uncommon in the locality, the species is known to use the habitats present at Narrawallee Creek Inlet north of IA1-3.
Eastern Hooded Dotterel	<i>Thinornis cucullatus cucullatus</i>	CE	V	Generally, prefers broad, flat, open sandy beaches with plenty of seaweed and backed by low sand dunes. Densities are lowest on narrow, steep beaches, where there are few or no dunes, and where human activities are most intensive. In the south-west, they also occur on inland salt lakes.	Medium	Yes – (ToS, Appendix 3) Although species records indicate presence is uncommon in the locality, the species has been recorded nesting 600 metres from the subject site and anecdotally, foraging within the subject site at Narrawallee beach.
Eastern Osprey	<i>Pandion cristatus</i>	V		Favour coastal areas, especially the mouths of large rivers, lagoons and lakes.	Low	No – species does not inhabit the sandy beach habitats present within the subject site.
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V	E	In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests.	Low	No – species does not inhabit the sandy beach habitats present within the subject site. This species may inhabit vegetation within the study area, however the impacts of the proposed

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				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.		activity on this area is considered negligible.
Gibson's Albatross	<i>Diomedea gibsoni</i>	V	V	On their breeding islands, Gibson's albatrosses' nest on moss terraces and in tussock grassland on or near ridges, slopes and plateaus where an exposed, windy position helps them take off. They often form loose colonies on the windward sides of the islands.	Low	No – species records indicate presence is uncommon in the locality, the species has never been recorded in the subject site.
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	V	V	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she oak occur. Black She oak (<i>Allocasuarina littoralis</i>) and Forest She oak (<i>A. torulosa</i>) are important foods.	Low	No – species does not inhabit the sandy beach habitats present within the subject site. This species may inhabit vegetation within the study area, however the impacts of the proposed activity on this area is considered negligible.
Greater Sand-plover	<i>Charadrius leschenaultii</i>	V	V, M	Usually coastal, on the beaches of sheltered bays, in harbours and estuaries with large intertidal sand flats or mudflats. Occasionally sighted on sandy ocean beaches; coral reefs, wave-cut rock platforms and rocky outcrops and sometimes in short saltmarsh or mangroves.	Medium	Yes – (ToS, Appendix 3, SAI, Appendix 4) Species is predicted to occur within the locality

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Grey Plover	<i>Pluvialis squatarola</i>		M	The Grey Plover is almost entirely coastal, being found mainly on marine shores, inlets, estuaries and lagoons with large tidal mudflats or sandflats for feeding, sandy beaches for roosting, and also on rocky coasts.	Medium	Yes – (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Great Knot	<i>Calidris tenuirostris</i>		V, M	Great Knots inhabit intertidal mudflats and sandflats in sheltered coasts, including bays, harbours and estuaries.	Medium	Yes – (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Latham's Snipe	<i>Gallinago hardwickii</i>		M	Occur in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby, or saline or brackish water, such as saltmarsh, mangrove creeks, around bays and beaches, and at tidal rivers.	Low	No – no habitat in the form of wetland areas is located within the subject site.
Lesser Sand-plover	<i>Charadrius mongolus</i>	V	E, M	Usually coastal, on the beaches of sheltered bays, in harbours and estuaries with large intertidal sand flats or mudflats. Occasionally sighted on sandy ocean beaches; coral reefs, wave-cut rock platforms and rocky outcrops and sometimes in short saltmarsh or mangroves.	Medium	Yes – (ToS, Appendix 3, SAI, Appendix 4) Species is predicted to occur within the locality.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Little Eagle	<i>Hieraetus morphnoides</i>	V		The Little Eagle occupies habitats rich in prey within open eucalypt forest, woodland or open woodland. She oak or acacia woodlands and riparian woodlands of interior NSW are also used. For nest sites, it requires a tall living tree within a remnant patch, where pairs build a large stick nest in winter and lay in early spring.	Low	Two individuals were observed within the locality in 2011 only. The species is not typically associated with beach environs.
Little Lorikeet	<i>Glossopsitta pusilla</i>	V		Forages primarily in the canopy of open Eucalypt Forest and woodland, yet also finds food in <i>Angophora</i> , <i>Melaleuca</i> and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Low	No – species does not inhabit the sandy beach habitats present within the subject site. This species may inhabit vegetation within the study area, however the impacts of the proposed activity on this area is considered negligible.
Little Tern	<i>Sternula albifrons</i>	E		The Little Tern is mainly coastal, being found on beaches, sheltered inlets, estuaries, lakes, sewage farms, lagoons, river mouths and deltas.	Medium	Yes – (ToS, Appendix 3) Species has been recorded near subject site and suitable habitat is located within the subject site.
Masked Owl	<i>Tyto novaehollandiae</i>	V		Dry eucalypt forests and woodlands from sea level to 1100 metres.	Medium	Yes – (ToS, Appendix 3) Species has been recorded near subject site and suitable habitat is located within the study area.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Pied Oystercatcher	<i>Haematopus longirostris</i>	E		Favours intertidal flats of inlets and bays, open beaches and sandbanks. Coastal or estuarine beaches.	High	Yes – (ToS, Appendix 3) Species has been recorded near subject site and suitable habitat is located within the subject site.
Powerful Owl	<i>Ninox strenua</i>	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.	Medium	Yes – (ToS, Appendix 3) Species has been recorded near subject site and suitable habitat is located within the study area.
Red Knot	<i>Calidris canutus</i>		E, M	Gathers in large flocks on the coast in sandy estuaries with tidal mudflats.	Medium	Yes – (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Red-necked Stint	<i>Calidris ruficollis</i>		M	Red-necked Stints are found on the coast, in sheltered inlets, bays, lagoons, estuaries, intertidal mudflats and protected sandy or coralline shores.	Medium	Yes – (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Regent honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Regent Honeyeater are found in eucalypt forests and woodlands, particularly in blossoming trees and mistletoe. The species are also seen in orchards and urban gardens.	Low	One observation made within the locality in 1999, away from the subject site. The species is not typically associated with beach environs.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Ruddy Turnstone	<i>Arenaria interpres</i>		M	Found along the coastline and occasionally inland on exposed rocks and reefs with shallow pools and on sandy beaches.	Low	No – species records indicate presence is uncommon in the locality, the species has never been recorded within the subject site.
Sanderling	<i>Calidris alba</i>		M	Sanderlings are found on open sandy beaches at the edge of the waves, on sandbars and spits. They roost on bare sand in the dunes or behind piles of kelp.	Medium	Yes – (SIA, Appendix 4) The species has been recorded within the locality, and habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
Short-tailed Shearwater	<i>Ardenna tenuirostris</i>		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 – can be seen as deceased individuals on the beach during migration, however it is a pelagic marine species with no important habitat present within the subject site.
Shy Albatross	<i>Thalassarche cauta</i>	E	E	The Shy albatross is unique to Tasmania, breeding exclusively on three offshore islands: Albatross Island in the north and Pedra Branca and the Mewstone in the south.	Low	No – species records indicate presence is uncommon in the locality, the species has never been recorded within the subject site.
Sooty Owl	<i>Tyto tenebricosa</i>	V		Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	Medium	Yes – (ToS, Appendix 3) Species has been recorded near subject site and suitable habitat is located within the study area.
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	V		Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	Medium	Yes – (ToS, Appendix 3) Species has been recorded at subject site and suitable habitat is located within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Sooty Shearwater	<i>Ardenna grisea</i>		M	The Sooty Shearwater mostly lives over deep ocean waters but is sometimes found in onshore areas in rough weather. It breeds mostly on subtropical and subantarctic islands around Australasia and also on the New Zealand mainland.	Low	No – can be seen as deceased individuals on the beach during migration, however it is a pelagic marine species foraging in open ocean, may forage inshore occasionally. No important habitat is present within the subject site.
Square-tailed Kite	<i>Lophoictinia isura</i>	V		Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses.	Low	No – species does not inhabit the sandy beach habitats present within the subject site. This species may inhabit vegetation within study area, however the impacts of the proposed activity in this area is considered negligible.
Swift Parrot	<i>Lathamus discolor</i>	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 <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Forest Red Gum <i>E. tereticornis</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> , Blackbutt <i>E. pilularis</i> , and Yellow Box <i>E. melliodora</i>	Low	No – species records and habitat assessment indicate the species is unlikely to occur in the subject site. No breeding habitat for the species occurs in the Shoalhaven.
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V		Inhabits eucalypt forests and woodlands, especially those	Low	No – this species does not inhabit the sandy beach habitats present within the

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.		subject site. This species may inhabit vegetation within the study area, however the impacts of the proposed activity in this area is considered negligible.
Wedge-tailed Shearwater	<i>Ardenna pacifica</i>		M	Mostly a pelagic, marine species. Found along inshore and offshore water masses.	Low	No – can be seen as deceased individuals on beach during migration, however it is a pelagic species with no important habitat present within the subject site.
Whimbrel	<i>Numenius phaeopus</i>		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.	Medium	Yes – (SIA, Appendix 4) Although species records indicate presence is uncommon in the locality, habitat for this species occurs at Narrawallee Creek Inlet Reserve north of IA1-3.
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	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, grassland, heathland, woodland, and forest (including rainforest). They can be observed to be perched high in trees	Low	Yes – (ToS, Appendix 3) Records of this species exist within the subject site, and although it is more likely to be observed soaring over these habitats this species may inhabit vegetation within the study area and rely upon foraging resources within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				or soaring over waterways in a transient way. 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 that are used as 'guard roosts'.		
White-throated Needletail	<i>Hirundapus caudacutus</i>		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 – typically aerial species that does not breed in Australia. May roost in trees, but unlikely to rely on the beach habitats within the subject site.
Frogs						
Green and Golden Bell Frog	<i>Litoria aurea</i>	E	V	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha</i> spp.) or spike rushes (<i>Eleocharis</i> spp.). Optimum habitat includes waterbodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>), have a grassy area nearby and diurnal sheltering sites available	Low	No – this species is unlikely to be reliant on the vegetation communities or habitats located within the subject site and study area.
Reptiles						
Green Turtle	<i>Chelonia mydas</i>	V	V	Ocean-dwelling species spending most of its life at sea	Low	No – marine reptile that does not breed on Shoalhaven beaches. This species is unlikely to be reliant on the vegetation

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
						communities or habitats located within the subject site.
Loggerhead Turtle		E	E	Ocean-dwelling species spending most of its life at sea	Low	No – marine reptile that does not breed on Shoalhaven beaches. This species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Hawksbill Turtle	<i>Eretmochelys imbricata</i>		V	Ocean-dwelling species spending most of its life at sea	Low	No – marine reptile that does not breed on Shoalhaven beaches. This species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Mammals						
Australian Fur-seal	<i>Arctocephalus pusillus doriferus</i>	V		Occurs in inshore and offshore marine waters	Low	No – records of this species occur around Narrawallee Inlet and one record occurs in the northern section of the subject site, but no important habitats are present within the subject site.
Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>	V		Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests	Low	No – likely to forage in the adjoining Narrawallee Creek Reserve at night however species is unlikely to be reliant on the beach habitats located within the subject site.
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V		Prefers moist habitats, with trees taller than 20 m. Generally, roosts in eucalypt hollows, but has also been	Low	No – likely to forage in the adjoining Narrawallee Creek Reserve at night however species is unlikely to be reliant

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				found under loose bark on trees or in buildings		on the beach habitats located within the subject site.
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	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 – likely to forage in the adjoining Narrawallee Creek Reserve at night however species is unlikely to be reliant on the beach habitats located within the subject site.
Southern Greater Glider	<i>Petauroides volans</i>	E	E	Can be found in dry or wet sclerophyll forests, heathlands and temperate rainforests	Low	No – this species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Golden-tipped Bat	<i>Phoniscus papuensis</i>			Roost in abandoned nests and tree hollows. Usually associated with rainforest, tall open forest, dry and wet sclerophyll forest and coastal Melaleuca Forest. Individuals have been recorded inside houses.	Low	No – this species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	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	Low	No – a camp occurs approximately 7 kilometres to the north of the subject site in Yatte Yattah Nature Reserve. This is well beyond the subject site. As such, this species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Koala	<i>Phascolarctos cinereus</i>	E	E	Inhabit eucalypt woodlands and forests.	Low	No – species records indicate presence is unlikely within the subject site.
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V		Caves are the primary roosting habitat, but also use derelict mines,	Low	No – likely to forage in the adjoining Narrawallee Creek Reserve at night.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
				storm-water tunnels, buildings and other man-made structures		However, the species is unlikely to be reliant on the beach habitats located within the subject site.
Large-eared Pied Bat	<i>Chalinobus dwyeri</i>	V	E	Large-eared Pied Bats roost in caves, mines and unused bird nests.	Low	No – likely to forage in the adjoining Narrawallee Creek Reserve at night however species is unlikely to be reliant on the beach habitats located within the subject site.
New Zealand Fur-seal	<i>Arctocephalus forsteri</i>	V		Prefers rocky parts of islands with jumbled terrain and boulders	Low	No – species records and habitat observations indicate the species is unlikely to occur within the subject site.
Southern Brown Bandicoot (eastern)	<i>Isoodon obesulus</i>	E	E	Generally, only found in heath or open forest with a heathy understorey on sandy or friable soils.	Low	No – species records and habitat observations indicate the species is unlikely to occur within the subject site.
Southern Myotis	<i>Myotis macropus</i>	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 – likely to forage and potentially roost in the adjoining Narrawallee Creek Reserve, however species is unlikely to be reliant on the beach habitats located within the subject site.
Southern Right Whale	<i>Eubalaena australis</i>	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.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 and/or 4)
		BC Act	EPBC Act			
Yellow-bellied Glider	<i>Petaurus australis</i>	V	V	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation, moist coastal gullies and creek flats to tall montane forests in the south.	Low	No – species has been recorded near subject site and suitable habitat is located nearby, however the species will not use the beach habitats within the subject site.
Plants						
Sand Spurge	<i>Chamaesyce psammogeton</i>	E		Grows on foredunes, pebbly strandlines and exposed headlands, often with Spinifex (<i>Spinifex sericeus</i>) and Prickly Couch (<i>Zoysia macrantha</i>)	Medium	Yes – (ToS, Appendix 3) Whilst no known populations of the species are located within the subject site or study area, habitat with the potential for this species to occur is present.
Scrub Turpentine	<i>Rhodamnia rubescens</i>	E	CE	Grows in warm and subtropical rainforest as well as wet sclerophyll forest and moist-dry sclerophyll woodlands, usually on enriched soils.	Low	No - no known populations of the species are located within the subject site or study area.

Appendix 3 Tests of Significance (BC Act)

Following the analysis of likelihood of occurrence (Appendix 2), the BC Act Test of Significance was applied to:

Fauna

- Sooty Oystercatcher
- Pied Oystercatcher
- Eastern Hooded Dotterel
- Beach Stone-curlew
- Little Tern
- Lesser Sand-plover
- Greater Sand-plover
- Masked Owl
- Powerful Owl
- Sooty Owl
- White-Bellied Sea-Eagle

Flora

- Sand Spurge

Ecological Communities

- Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions

a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Threatened shorebirds – Sooty Oystercatcher, Pied Oystercatcher, Eastern Hooded Dotterel, Beach Stone-curlew, Little Tern, Lesser Sand-plover, Greater Sand-plover.

Sooty Oystercatchers tend to breed on offshore islands, and occasionally on isolated promontories. This species breeds in spring and summer. The nest is a shallow scrape on the ground, or small mounds of pebbles, shells or seaweed when nesting among rocks. They tend to favour rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries. Such habitat occurs to the east of Narrawallee Inlet Reserve at Preservation Rock. Sections of the subject site and study area provide suitable habitat for foraging behaviour, which is necessary for the lifecycle of the species.

Pied Oystercatcher nesting mostly occurs on coastal or estuarine beaches although occasionally they may utilise saltmarsh or grassy areas. Nests are shallow scrapes in sand above the high tide mark, often amongst seaweed, shells and small stones. Two to three eggs are laid between August and January. Such habitat occurs within and surrounding Narrawallee Creek Inlet and southern end of Buckleys Beach. Pied Oystercatchers are known to utilise habitat associated with the intertidal rocky

platform at the southern end of the beach as it favours sandy beaches and intertidal flats, and forage on exposed sand, mud and rock at low tide.

Narrawallee Beach contains marginal foraging and breeding habitat for the Eastern Hooded Dotterel or Hooded Plover as they are known to be more partial to sandy ocean beaches, mainly those that are broad and flat, with a wide wave-wash zone for feeding, widespread beach cast seaweed, and supported by vegetated sand-dunes that is used for shelter and nesting. Eastern Hooded Dotterel are observed on tidal bays and estuaries, rock platforms and rocky or sand-covered reefs near sandy beaches, and small beaches in lines of cliffs. They frequently utilise coastal freshwater lakes and lagoons, containing saltmarsh. Eastern Hooded Dotterel breed from August to March in these habitats, in a narrow strip between the high-water mark and the base of the foredunes. They often nest within 6 metres of the foredune, mostly within 5 metres of the high-water mark, but occasionally among or behind dunes. The nest is a scrape in the sand near debris. A high degree of fidelity is demonstrated for previous nesting locations. Cudmirrah Beach has the largest group of inhabitant Eastern Hooded Dotterels in NSW. Eastern Hooded Dotterel forage in sand at all levels of the zone of wave-wash during low and mid-tide or among seaweed at high-tide, and occasionally in dune blowouts after rain. When on rocks they forage in crevices in the wave-wash or spray zone, avoiding elevated rocky areas and boulder fields.

Beach Stone-curlews breed above the littoral zone, above the tidal zone at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees, also among open mangroves. Clutches in NSW have been reported between October to March and nests consist of a shallow scrape in sand or gravel. Such habitat is more likely to occur in Narrawallee Creek Inlet and Narrawallee Inlet Reserve, as well as Protection Rock. This species forages in the intertidal zone of beaches and estuaries, on islands, flats, banks or spits of sand, mud gravel or rock or among mangroves heavily wading for crabs and other marine invertebrates. Such foraging habitat also occurs in the same location as preferred breeding habitat within the locality.

The Little Tern is a migratory or partly migratory seabird that are almost exclusively coastal. Migrating from eastern Asia, it breeds in spring and summer along the entire east coast from Tasmania to northern Queensland, and is observed until May, with only occasional birds seen in winter months. Nesting occurs in low dunes or on sandy beaches above the high-water mark near estuary entrances or adjacent to coastal lakes and islands. Foraging predominantly occurs for small fish, crustaceans, molluscs, worms and insects by plunging into shallow water of channels and estuaries, and in the surf of beaches. Both of the breeding and foraging habitats of this species are more represented in Narrawallee Creek Inlet, and more so, further to the north of the study area within the entrance of Lake Conjola.

Lesser Sand-plover and Greater Sand-plover are predicted to utilise Narrawallee Creek Inlet for foraging only. This species does not breed in the southern hemisphere and therefore the breeding cycle of this species will not be impacted by dog presence. Furthermore, these species have not been detected within the locality.

Narrawallee Beach has already been used as a dog off-leash area for several years. Threatened shorebirds are known to nest (Lesser Sand-plover and Greater Sand-plover) in the Narrawallee Creek Inlet area within the northern dog- prohibited zone, which includes a buffer of 600 metres from the northern end of the dog off-leash area. The maintained exclusion of dogs away from the Inlet will mean that the proposed activity will not have a significant impact on nesting threatened shorebirds. Maguire *et al.* (2018) note the positive impact of diverting dog walkers to specific areas, as dogs are then less likely to be present in more sensitive, prohibited areas. The disturbance to the species via dog presence is unlikely to have a significant impact on the survival of the species, given the 600-

metre buffer zone between the Inlet and dog off-leash area, as well as the Inlet itself acting as a hard barrier between dogs and threatened shorebirds.

Foraging habitat is also critical in the life cycle of shorebirds. Foraging habitat for shorebirds along Narrawallee Beach will be reduced by the presence of dogs within the recommended dog off-leash area. However, more optimal areas of foraging habitat to the north at the Inlet and nature reserve will be unaffected as will adjacent beach areas. It is also important that the dog-prohibited area continues with the buffer to the south (600 metres) to enable complementary foraging habitat in the subject site and study area. Dog access should continue to be prohibited south of Matron Porter Drive (BA3) to allow a buffer between dog users and foraging habitat (rocky outcrop on the southern end of the beach) to keep dog activity away from foraging habitat. Mitigation measures detailed in Section 9 are expected to avoid impacts on these optimal areas of foraging habitat.

The potential for impact on these threatened shorebird species during signage installation works is considered unlikely due to the following factors:

- Sign installation locations will be selected to avoid disturbance.
- a Council Officer or other suitably qualified person will survey the area prior to works commencing and if any of these species are detected in the vicinity, works will stop immediately and not resume until the bird species has vacated the site of its own accord.
- If a nest or nesting birds are detected, works will cease, and mitigation measures will be adapted in consultation with the NPWS Shorebird Recovery Coordinator (or similar expert), to minimise the risk of disturbance to the birds and ensure their protection. This may include, but not be limited to, delaying the works until the cessation of the breeding season.

As such, the proposed activity is unlikely to have an adverse effect on the life cycle of any threatened shorebirds such that a viable local population is placed at risk of extinction.

Threatened Owls – Masked Owl, Powerful Owl and Sooty Owl

Masked Owl, Powerful Owl and Sooty Owl have all been recorded in the locality and suitable habitat occurs for these species in the form of the threatened ecological community *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions* (within the study area). Disturbance to the species roosting behaviour via dog presence is unlikely to have a significant impact on the survival of the species given this vegetation (containing only marginal habitat for these species) is within transit areas only. Cleared and established beach accessways already exist in this vegetated area. These tracks are sign posted, clearly delineated and are to be utilised by dog owners to limit disturbance. Furthermore, these threatened Owls are hollow-dependant nocturnal species which means they are unlikely to be impacted on by the presence of dogs.

Accordingly, the proposed activity is unlikely to have an adverse effect on the life cycle of these threatened owl species such that a viable local population is placed at risk of extinction.

White-bellied Sea-Eagle

The White-bellied Sea-Eagle typically 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, 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 that are used as 'guard roosts'. Eggs are laid between June and September. Predation

activities exhibited by this species occurs from a perch or whilst in flight (usually 10-20 metres above the shore) and prey is typically carried to a feeding platform. Preying occurs by circling slowly, or by sailing along 10–20 metres above the shore.

Several records of White-bellied Sea-Eagle (*Haliaeetus leucogaster*) occur within the subject site and study area. These records are more likely attributable to the utilisation of foraging habitat or foraging to such areas in the search of prey. Marginal breeding habitat occurs further to the west of the study area, within the foreshore reserve, and to the north within Narrawallee Inlet Reserve. As such, the proposed activity is unlikely to have an adverse effect on the life cycle of the White-bellied Sea-Eagle such that a viable local population is placed at risk of extinction.

Sand Spurge

The threatened flora species, Sand Spurge (*Chamaesyce psammogeton*), has not been recorded within the subject site or study area, however the subject site is considered to provide potential habitat for this species.

Sand Spurge is a herb that grows on dunes and sea strandline and is also unlikely to be affected by the proposed activity given that cleared beach accessways already exist. These tracks are sign posted and clearly delineated and are to be utilised by dog owners to limit disturbance to dune vegetation.

As such, the proposed activity is unlikely to have an adverse effect on the life cycle of Sand Spurge such that a viable local population of the species is to be placed at risk of extinction.

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 beach and frontal dune area, where dogs are proposed to be permitted off-leash within the subject site, does not comprise of threatened ecological community. However, part of the vegetated area at Matron Porter Drive and Surfers Avenue where signage is proposed to be installed is classified as the *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions* (Figure 4). Existing signposts are proposed to be utilised, but where the installation of signposts is required within this community (ancillary action of the proposed activity) it will be undertaken in disturbed areas that are devoid of native and locally endemic vegetation. As such, the proposed activity will not have an adverse effect on the extent of the ecological community 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,

(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 is likely 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 Shoalhaven LGA (DPE 2021b).

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, based on the implementation of mitigation measures listed in Section 9 and the proposed delineation of dog off-leash and dog-prohibited areas, will not have a significant impact on threatened species or ecological communities. As such, a Species Impact Statement or entry into the Biodiversity Offset Scheme is not required.

Appendix 4 Significant Impact Criteria for EPBC Act Listed Threatened Species

The Commonwealth *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* details criteria to assess whether the proposed activity is likely to have a significant impact on a matter protected under national environment law — the EPBC Act, 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 this section.

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

- **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, that 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, the EPBC Act SIC were applied for the following taxa:

Critically Endangered

- Eastern Curlew
- Curlew Sandpiper

Endangered

- Lesser Sand-plover
- Red Knot
- Common Greenshank

Vulnerable

- Eastern Hooded Dotterel
- Greater Sand-plover
- Great Knot

Migratory Birds

- Eastern Curlew
- Curlew Sandpiper
- Lesser Sand-plover
- Red Knot
- Common Greenshank
- Greater Sand-plover
- Great Knot
- Whimbrel
- Bar-tailed Godwit
- Grey Plover
- Sanderling
- Red-necked Stint
- Double-banded Plover
- Little Tern
- Crested Tern

Critically Endangered

- Eastern Curlew (*Numenius madagascariensis*)
- Curlew Sandpiper (*Calidris ferruginea*)

Each significant impact criteria have been addressed 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 these species range. Thus, the proposed activity will not lead to a long-term decrease in the size of an Eastern Curlew or Curlew Sandpiper population.

Reduce the area of occupancy of the species.

The species does not occupy the subject site. Thus, the proposed activity will not reduce the area of occupancy for the Eastern Curlew and Curlew Sandpiper. Habitat for these species at Narrawallee Creek Inlet will remain protected, and an appropriate buffer (600 metres) will be maintained between the dog off-leash area and the dog-prohibited area to continue adequate protection for the Eastern Curlew and Curlew Sandpiper.

Fragment an existing population into two or more populations.

The dog-prohibited area at Narrawallee Creek Inlet provides potential foraging habitat for the Eastern Curlew and Curlew Sandpiper. As such, this designated area will provide protection for the species and the population will therefore remain unaffected and unfragmented.

Adversely affect habitat critical to the survival of a species

The Eastern Curlew and Curlew Sandpiper generally occupy coastal lakes, inlets, bays and estuarine habitats, and in New South Wales are mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. Occasionally, these species occur on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. Since foraging habitat is located within the dog-prohibited area at Narrawallee Creek Inlet, the proposed activity will not adversely affect habitat critical to the survival of these species.

Disrupt the breeding cycle of a population.

The Eastern Curlew and Curlew Sandpiper breed in Russia, Siberia, and north-eastern China but distribution is poorly known. As such, the proposed activity will not disrupt the breeding cycle of a population of these species.

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

The proposed activity will not destroy, remove, isolate, or decrease the availability or quality of habitat for these species, as the habitat for these species is more likely to occur within the designated dog-prohibited area (Narrawallee Creek Inlet).

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

The proposed activity will not result in the establishment of an invasive species.

Introduce disease that may cause the species to decline, or

The proposed activity will not result in the introduction of a disease that may cause the Eastern Curlew or Curlew Sandpiper species to decline.

Interfere with the recovery of the species.

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

Conclusion

The proposed activity is not considered to constitute a significant impact on the Eastern Curlew or Curlew Sandpiper and therefore a referral to the Commonwealth is not recommended.

Endangered Species

- Lesser Sand-plover
- Common Greenshank
- Red Knot

Each significant impact criteria have been assessed below:

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

Lesser Sand-plover, Common Greenshank and Red Knot are northern hemisphere breeding shorebirds that distributes widely to forage outside of breeding seasons around Australia and visits most continents (Birdlife Australia). Optimal foraging habitat for these species is restricted to the Narrawallee Creek Inlet and Narrawallee Creek Nature Reserve north of the study area. Mitigation measures, including maintaining a dog-prohibited area which includes a 600-metre buffer from the northern end of the dog off-leash area (BA8) are expected to avoid impacts from the proposed activity on these species.

No populations of either species have been recorded within the subject site. 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 these species' range. Accordingly, the proposed activity will not lead to a long-term decrease in the size of the Lesser Sand-plover, Common Greenshank or Red Knot population.

Reduce the area of occupancy of the species.

The species is not known to occupy the subject site. The species may use the subject site for foraging purposes. However, more optimal foraging habitat is located in Narrawallee Creek Inlet and Narrawallee Creek Nature Reserve, which is located above IA1 – IA3 well within the dog-prohibited Area.

Fragment an existing population into two or more populations.

There is no existing population of these species that occurs within the subject site. Individual species may occur periodically within the subject site. However, the proposed activity will not result in the fragmentation of the population of these species.

Adversely affect habitat critical to the survival of a species

Lesser Sand-plover, Common Greenshank and Red Knot are northern hemisphere breeding shorebirds that distributes widely to forage outside of breeding seasons around Australia and visits most continents (Birdlife Australia). Optimal foraging habitat for these species is restricted to the Narrawallee Creek Inlet and Narrawallee Creek Nature Reserve in the northern extent of the subject site. Mitigation measures, including maintaining a dog-prohibited area comprising a 600-metre buffer from the northern end of the dog off-leash area (BA8) is expected to avoid impacts from the proposed activity to these areas and to these species.

Disrupt the breeding cycle of a population.

Lesser Sand-plover, Common Greenshank and Red Knot are northern hemisphere breeding shorebirds that distributes widely to forage outside of breeding seasons around Australia and visits most continents (Birdlife Australia). Therefore, the breeding cycle of these populations will not be disrupted.

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

The proposed activity will not destroy, remove, isolate, or decrease the availability or quality of habitat for the Lesser Sand-plover, Common Greenshank and Red Knot since breeding and complementary foraging habitat is present outside the subject site.

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

The proposed activity will not result in the establishment of an invasive species.

Introduce disease that may cause the species to decline, or

The proposed activity will not result in the introduction of a disease that may cause the Lesser Sand-plover, Common Greenshank and Red Knot species to decline.

Interfere with the recovery of the species.

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

Conclusion

The proposed activity is not considered to constitute a significant impact on the Lesser Sand-plover, Common Greenshank and Red Knot and therefore a referral to the Commonwealth is not recommended.

Vulnerable Species

- Eastern Hooded Dotterel
- Greater Sand-plover
- Great Knot

Each significant impact criteria have been addressed below:

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

Eastern Hooded Dotterel is reported to be as rare as 64 individuals within New South Wales and 5,000 individuals as a total population across Australia (OEH Threatened Species Profile). The species' known northern limit is Jervis Bay, and an important population is known to occur at Cudmirrah Beach given the repeated records of this species to the north of the locality. However, any population of this species that occupies the subject site is significant in terms of proximity to the southern extent of the species distribution. Any impact leading to reduction in the population of this species would be significant. Notwithstanding, habitat for this species is more likely to occur at Narrawallee Creek Inlet and Narrawallee Inlet Reserve, to the north of the study area, and is not likely to be impacted on by the proposed activity.

Whilst Great Knot has never been recorded in the subject site or at Narrawallee Creek Nature Reserve, it has been recorded in the locality. Great Knot potential habitat is restricted to the

Narrawallee Creek Inlet and Narrawallee Creek Nature Reserve north of the study area and these areas are not expected to be impacted on by the proposed activity.

Greater Sand-plover has not been recorded within the subject site or locality and no important populations are known to the locale. This species is restricted to coastal areas, occurring mainly on sheltered sandy beaches or rocky shores. Such habitat is more likely to occur within Narrawallee Creek Inlet and Buckleys Beach, outside of the study area. These areas are unlikely to be impacted on by the proposed activity.

Reduce the area of occupancy of an important population.

No important Eastern Hooded Dotterel, Greater Sand-plover or Great Knot populations have been recorded within the subject site. Although the species may utilise the subject site and the study area for foraging purposes, more optimal foraging habitats is available outside the subject site at Narrawallee Creek Inlet. Potential complementary breeding habitat for the Hooded Dotterel occurs in this area as well. These are dog-prohibited areas. Accordingly, the proposed activity is not considered to reduce the area of occupancy for the Eastern Hooded Dotterel, Greater Sand-plover or Great Knot.

Fragment an existing important population into two or more populations.

No important Eastern Hooded Dotterel, Greater Sand-plover or Great Knot populations have been recorded within the subject site. Individuals of this species may only occur periodically within the subject site as transients. Therefore, the proposed activity will not result in the fragmentation of Eastern Hooded Dotterel, Greater Sand-plover or Great Knot populations.

Adversely affect habitat critical to the survival of a species

Although the species may utilise the subject site and the study area for foraging purposes, more optimal foraging habitats is available outside the subject site at Narrawallee Creek Inlet. Potential complementary breeding habitat for the Hooded Dotterel occurs in this area as well. These are dog-prohibited areas. Consequently, the proposed activity will not adversely affect habitat critical to the survival of these species.

Disrupt the breeding cycle of an important population.

No important Eastern Hooded Dotterel, Greater Sand-plover or Great Knot populations have been recorded within the subject site. Furthermore, the Greater Sand-plover and Great Knot breed in the northern hemisphere. Therefore, the proposed activity is not considered to disrupt the breeding cycle of these species.

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

The proposed activity will not destroy, remove, isolate or decrease the availability or quality of habitat for the Eastern Hooded Dotterel, Greater Sand-plover or Great Knot.

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

The proposed activity will not result in the establishment of an invasive species that is harmful to the Eastern Hooded Dotterel, Greater Sand-plover or Great Knot species.

Introduce disease that may cause the species to decline.

The proposed activity will not result in the introduction of a disease that will cause the Eastern Hooded Dotterel, Greater Sand-plover or Great Knot species to decline.

Interfere substantially with the recovery of the species.

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

Conclusion

The proposed activity is not considered to constitute a significant impact on the Eastern Hooded Dotterel, Greater Sand-plover or Great Knot and therefore a referral to the Commonwealth is not recommended.

Migratory Species

The following species are considered together as they occupy similar habitats upon migration to south-eastern Australia:

- Bar-tailed Godwit
- Whimbrel
- Grey Plover
- Sanderling
- Red-necked Stint
- Double-banded Plover
- Eastern Curlew
- Curlew Sandpiper
- Lesser Sand-plover
- Red Knot
- Common Greenshank
- Greater Sand-plover
- Great Knot
- Little Tern
- Crested Tern

Each significant impact criteria have been assessed below:

Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.

Thresholds for defining internationally and nationally important habitat for migratory shorebirds is detailed in the *EPBC Act Policy Statement 3.21 Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*. Birdlife Australia has mapped international and nationally important habitats based on these thresholds. This mapping includes habitat within the Shoalhaven River as the most southern nationally important habitat. Narrawallee Creek, including the Inlet, and Narrawallee Beach are not mapped as being of international or nationally important habitat. As such, the proposed activity is not considered to modify, destroy or isolate important migratory shorebird habitat.

Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species.

Important habitat for these species does not occur within the subject site or study area. The proposed activity will not result in the establishment of an invasive species that is harmful to the migratory species that visit or forage within the subject site or important habitat in other areas of the coastal zone.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Only two of these migratory species, Crested Tern and Little Tern, may breed to the north of the study area in Narrawallee Creek Inlet and immediately surrounding environs. The Crested Tern colony sizes are dictated by the abundance of pelagic fish prey. The nest is a shallow scrape in the sand on open, flat or occasionally sloping ground. It is often unlined, but sometimes includes stones or cuttlefish bones. Little Terns are almost exclusively coastal, preferring sheltered environments. They nest in small, scattered colonies in low dunes or on sandy beaches just above high tide near estuary mouths. Foraging occurs in shallow water of channels and estuaries. As such, the proposed activity will not impact on the breeding of these species.

A majority of the remaining migratory species breed in the northern hemisphere, with the exception of the Double-banded Plover that breeds in New Zealand. As such, the proposed activity will also not affect the breeding of these species.

Most of these species occupy similar foraging habitats consisting of intertidal mudflats or sand flats, located near estuaries, lakes, lagoons, or harbours. Such habitats will not be impacted on by the proposed activity.

On the basis of the location of previous records of the migratory species that have been recorded in the locality, resting habitat is not located near the dog-off leash area. Resting habitats will be maintained within the existing dog-prohibited areas.

Although these species have occasionally been recorded on open-coast sandy beaches, no significant proportions of these migratory species are known to occupy the subject site. As such, the proposed activity will not have an impact on breeding, feeding, migration or resting behaviour to the extent that it would seriously disrupt the lifecycle of these migratory species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the listed migratory species, and therefore a referral to the Commonwealth is not recommended.

Appendix 5 Timeline for Permitted Dog Access on Narrawallee

Table 5 Timeline for Permitted Dog Access on Narrawallee Beach (Prepared by SCC staff)

Date	Council Minute / Key documents	Decision	Access Area Arrangement
24/9/1979	Report of the City Health Surveyor	On 24 September 1979, a report of the City Health Surveyor to the meeting of the Confidential Policy & Resources Committee of SCC, which was submitted to the Ordinary Meeting of Council on 8 October 1979, records at item 50(a), a recommendation: 'That under Section 367(j) of the Local Government Act, 1919, dogs be prohibited at all times on ocean beach and lake reserve as listed below... Narrawallee Beach Reserve'	<p>Prohibited: Narrawallee Beach Reserve</p>
25/01/2005	MIN05.79 Policy No.: POL05/39	<p>First iteration of the Access Areas for Dogs Policy which superseded:</p> <ul style="list-style-type: none"> • Off-Leash Exercise Areas for Dogs (MIN03.954) • Animal Control Dogs - Council Caravan Parks and Public Beaches (MIN80.276) • Animal Control Dogs – Prohibited Specific Beaches and Areas (MIN96.613) • Camping Areas – Council Dog Control Caravan Parks & Camping Areas (MIN78.730) 	<p>Prohibited: 1. 'Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island'. 2. 'Narrawallee Beach and reserve from the northern end of Victor Avenue to Surfers Avenue'. Off-leash: No areas of Narrawallee Beach. On-Leash: Unnamed island to northern end of Victor Avenue</p>

Date	Council Minute / Key documents	Decision	Access Area Arrangement
24/06/2015	MIN15.368 D15/175104	<p>MIN15.368 resolved 'to implement a targeted 'one off' trial for off leash dogs at a designated and specially signed section of Narrawallee beach (the current on-leash area) for mid-July to mid-October months 2015, between the hours of 4 pm and 9 am'; and to</p> <p>'Provide an appropriate on leash area for access to the trial area from the southern side of Victor Street Steps during the trial period'.</p>	<p>Prohibited: 1. Narrawallee Beach and reserve from Narrawallee Creek to the un-named island. 2. During the trial became: Narrawallee Beach and reserve from the southern side of the Victor Avenue steps to Surfers Avenue.</p> <p>Off-Leash: TRIAL: Unnamed island to the northern end of Victor Avenue (Victor Avenue steps) (4 pm to 9 am).</p> <p>On-Leash: TRIAL: On-leash area for access to the off-leash area from the southern side of Victor Avenue steps during the trial period.</p>
27/10/2015	MIN15.652 MIN15.704 MIN15.706 MIN15.707 D15/325244 D15/325246	<p>Council resolved to extend the trial period to the (then) upcoming consultation and policy review. Summer off-leash times altered to between 6 pm and 8 am.</p> <p>(Subject to a rescission motion, that was subsequently lost)</p>	<p>Prohibited: 1. Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. 2. During the trial became as a result of: Narrawallee Beach and reserve from the southern side of the Victor Avenue steps to Surfers Avenue.</p> <p>Off-Leash: TRIAL: Unnamed island to northern end of Victor Avenue (Victor Avenue steps) (6 pm to 8 am).</p> <p>On-Leash: TRIAL: On-leash area for access to the trial off-leash area from the southern side of Victor Avenue steps during the trial period.</p>

Date	Council Minute / Key documents	Decision	Access Area Arrangement
19/07/2016	MIN16.541 Report: D16/215930. Policy No.: POL16/80	Council resolved to defer the Policy review; and finalise the trial at Narrawallee Beach and adopted dog off-leash access within the trial off-leash area with restricted times (6 pm – 8 am from 1 October – 30 April; and between 3 pm and 10 am from 1 May to 30 September).	Prohibited: 1. Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. 2. 'Narrawallee Beach and reserve from the northern end of Victor Avenue to Surfers Avenue'. Off-Leash (POL16/80): Beach access steps off Victor Avenue to the unnamed Island - 1 October – 30 April from 6 pm – 8 am. - 1 May to 30 September from 3 pm – 10 am. On-Leash: Surrounding areas.
27/08/2019	MIN19.578 Notice of Motion: D19/286036	'That Council conduct a six-month trial for dog walkers who desire to access Narrawallee Beach from Surfers Avenue. The trial period would mandate the following: 1. The trial access journey plan from Surfers Avenue is stipulated via the Shoalhaven Water thoroughfare to its end, then onto the rear of the beach keeping close to the escarpment, proceeding to the foot of the Victor Avenue stairs and then onto the designated "dog area" to the north. 2. In walking from Surfers Avenue to the Victor Avenue stairs all dogs must be kept on a lead. 3. The trial would not commence until all necessary signage was installed, access from the Shoal Water track to the beach was made good and around five bollards were put in place along the rear of the beach (base of escarpment) to the Victor Avenue stairs. Note that pictorial bollard signage directing dog walkers to keep to the escarpment side would be an essential element of the trial.'	Prohibited: <ul style="list-style-type: none"> • Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. • Narrawallee Beach and reserve from the most southern Narrawallee Inlet Reserve entrance to Surfers Avenue, with the exception of the trial 'transit area'. Off-Leash: Beach access steps off Victor Avenue to the unnamed Island - 1 October – 30 April from 6 pm – 8 am. - 1 May to 30 September from 3 pm – 10 am. On-Leash: From Surfers Avenue via the Shoalhaven Water thoroughfare to its end, then onto the rear of the beach keeping close to the escarpment, proceeding to the foot of the Victor Avenue stairs and then onto the designated off-leash area.

Date	Council Minute / Key documents	Decision	Access Area Arrangement
10/12/2019	MIN19.924 Report: D19/400331	Council resolved to: 1. Rescind MIN19.578 and approve a twelve-month trial to create a 10 m wide Dog On-leash strip passing from the Surfers Avenue unformed beach access area (Shoalhaven Water access road) 'to the commencement of the Dogs On-Leash (<i>sic</i>) area of the main Narrawallee Beach'. 2. Amend the existing Dog Off-leash Guide diagram for Narrawallee Beach, to alter the Dog-prohibited area by redesignating a 10 m wide strip between the Surfers Avenue unformed beach access and the Victor Avenue stairs to the north, as Dog On-leash. 3. Commence investigation of the feasibility of establishing an upgrade of the trial track west of the Dog-prohibited Area of the beach, to allow dog owners to walk their dogs between the Surfers Avenue stairs and the Victor Avenue stairs to avoid walking across the Dog-prohibited area. 4. Conduct the Dog Off-leash trial using the same times as those used in the 2015-16 trial (4 pm-8 am between 1 October and 30 April; and 3 pm -10 am between 1 May and 30 September) consistent with other Dog Off-leash locations in the Shoalhaven.	<p>Prohibited: Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. Narrawallee Beach and reserve from the northern end of Victor Avenue to Surfers Avenue with the exception of the 'transit area'.</p> <p>Off-Leash: Beach access steps off Victor Avenue to the un-named Island - 1 October – 30 April from 4 pm – 8 am. - 1 May to 30 September from 3 pm – 10 am.</p> <p>On-Leash: Between Surfers Ave unformed beach access and the Victor Ave stairs via a 10 m strip at the western edge of the beach.</p>
09/02/2021	MIN21.68 D20/548246 POL21/22	Council: Adopted the trial provisions, with the following amendments: a. Amend the dates from: i. 1 October to 30 April to Australian Eastern Daylight Savings Time, being 4pm–8am, and ii. 1 May to 30 September to Australian Eastern Standard Time, being 3pm–10am. b. Move the southern boundary of the off-leash area to immediately south of the most southern Narrawallee Inlet Reserve [i.e. Matron Porter Drive Reserve) entrance and prohibit access to the dog off-leash area on the southern part of Narrawallee Beach, including Victor Avenue stairs. c. Remove the 10 m wide access way from Surfers Avenue.	<p>Prohibited (POL21/22): 1. Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. 2. 'Narrawallee Beach and reserve from the northern end of Victor Avenue to Surfers Avenue'.</p> <p>Off-Leash (POL21/22): 'Beach access via Narrawallee Inlet Reserve (Matron Porter Drive Reserve) to the un-named Island Australian Eastern Daylight Savings Time – off leash from 4pm – 8am Australian Eastern Standard Time – off leash from 3pm – 10am'.</p>

Date	Council Minute / Key documents	Decision	Access Area Arrangement
09/03/2021	MIN21.120 D21/80012	<p>Council resolved to:</p> <ol style="list-style-type: none"> 1. Support the continuing access to the off-leash area at Narrawallee Beach from Surfers Ave as per the recent trial directions. 2. Develop appropriate signage directing people the right way to access the off-leash area in and around Narrawallee Beach especially at the Surfers Ave end. Clrs Proudfoot and White and available Councillors to assist in the development of the signage with staff. 3. Leave the access from Surfers Ave in place until consideration of this area in the review of the Access Areas for Dogs policy. 4. Issue enforcement penalty notices for persons not following the signage or walking with dogs directly across south end Narrawallee Beach between the steps and Victor Ave steps. 5. Request local residents, Paws4Shoalhaven and Rangers to assist with advising residents and visitors of the strict entry process from Surfers Ave to the off-leash area. 6. Undertake vegetation maintenance if required on mid beach access points as noted in Staff Signage Report 7. Contact Holiday Home owners via Rates Notices advising them of the changes and the role they play in sharing the foreshore and informing their tenants of the access arrangements for dogs. 8. Include on the new signage, information on shore bird habitats which is protected by No Dogs (access) areas. 9. Include on the signage that to access the beach via the track from Surfers Avenue at the back of the beach, dogs must be on leash. 	<p>Prohibited: Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. Narrawallee Beach and reserve from Matron Porter Reserve southern access to Surfers Avenue with the exception of the 'transit area'.</p> <p>Off-Leash: Beach access steps off Victor Avenue to the unnamed Island - 1 October – 30 April from 4 pm – 8 am. - 1 May to 30 September from 3 pm – 10 am.</p> <p>On-Leash: Between Surfers Ave unformed beach access and the Victor Ave stairs via a 10 m strip at the western edge of the beach.</p>

Date	Council Minute / Key documents	Decision	Access Area Arrangement
02/11/2021	MIN21.804 D21/423401 POL21/70	Council resolved to: <ol style="list-style-type: none"> 1. Reinstate the southern boundary of the dog off-leash area to be in line with the Victor Avenue steps (as per the Trial). (BA2 map) 2. Retain the northern boundary of the dog off-leash area to be in line with the beach entry point opposite Parkinson Street. (BA 7 map) 3. Allow dog access from all beach entry points in between and including Victor Avenue steps and Parkinson Street, Narrawallee Beach. (BA2 to BA7 map) 4. Continue to allow on leash access from Surfers Avenue to Victor Street Steps via a transit zone – (BA1 to BA2 map). 5. Provide new signage to the beach entry points at 17 locations from Surfers Avenue to Narrawallee Inlet, as per the attached signage. 6. Agree that this resolution will be an interim solution and will be considered for assessment as part of the dog policy review. 	Prohibited: <ul style="list-style-type: none"> • Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island. Off-Leash: <ul style="list-style-type: none"> • Beach access steps off Victor Avenue to the un-named Island <i>AEDT 4 pm – 8 am</i> <i>AEST 3 pm – 10 am</i> On-Leash <ul style="list-style-type: none"> • On-leash access to the off-leash area between Surfers Ave and Victor Ave.
28/3/2022	MIN22.202 D22/132180	Legal advice received - a Councillor Briefing called due to legal advice being received and then the matters be reported back to Council.	No change
26/4/2022	MIN22.278 D22/176348	Council decision to temporarily hold in place the current on-leash / off-leash provisions pending further investigation and the review of the Access Areas for Dogs Policy.	No change

Date	Council Minute / Key documents	Decision	Access Area Arrangement
6/11/2023 (Current)	MIN23.661 D23/454954	<p>Resolved that Council:</p> <ol style="list-style-type: none"> 1. Adopt the following in relation to dog access measures at Narrawallee Beach: <ol style="list-style-type: none"> a. Accept the interpretation of the 9 March 2021 resolution (ref. MIN 21.120), and implications of previous resolutions related to dog access at Narrawallee Beach, b. Remove the 10-metre wide on-leash transit area / access way from Surfers Avenue steps to the Victor Avenue steps. c. Leave the existing access to the Narrawallee Beach off-leash area in place via the Matron Porter Drive beach access track (as the sole point of access to the off-leash area). 2. As an interim measure, and until the outcome of Part 7 of the resolutions is known, designate that dogs are prohibited in the southern area of Narrawallee Beach, between the Surfers Avenue steps and Victor Avenue steps, under s14(1)(d) of the <i>Companion Animals Act 1998</i> (NSW). 3. Direct the CEO (Director – City Lifestyles) to amend the site-specific designated dog access area information listed in <i>Access Areas for Dogs</i> policy to read that: <ol style="list-style-type: none"> a. Dogs are prohibited on Narrawallee Beach and reserve from Narrawallee Creek to the unnamed island (in line with the intersection of Parkinson Street and Matron Porter Drive). b. Dogs are prohibited on Narrawallee Beach and reserve from the Matron Porter Drive beach access track to Surfers Avenue steps. c. Dogs are permitted to be off leash on Narrawallee Beach between the unnamed island (in line with the intersection of Parkinson Street and Matron Porter Drive) and the Matron Porter Drive beach access track during the following times: <ol style="list-style-type: none"> i. Australian Eastern Daylight Savings Time – off leash from 4 pm – 8 am. ii. Australian Eastern Standard Time - off leash from 3 pm – 10 am. 4. Coordinate the design, fabrication, and installation of temporary signage at Narrawallee Beach reflecting the interim dog access measures adopted. 5. Coordinate the design and implementation of a communications strategy to raise awareness around the interim dog access measures adopted. 6. Update the Review of Environmental Factors (REF) for Narrawallee Beach off-leash area and exhibit the revised REF for information only. 7. To submit a report on the REF findings for Narrawallee Beach off-leash area, results of consultation activities, and recommendations for the designation of dog off-leash and dog-prohibited areas at Narrawallee Beach to a future Council Ordinary Meeting for final determination. 8. To increase Ranger patrols and throughout the summer period at Narrawallee Beach dog on and off leash areas, and report back on enforcement statistics. 	<p>Prohibited:</p> <p>Narrawallee Beach and reserve from Narrawallee Creek to the unnamed Island.</p> <p>Dogs are prohibited on Narrawallee Beach and reserve from the Matron Porter Drive beach access track to Surfers Avenue steps.</p> <p>Off-Leash:</p> <p>Immediately south of the most southern Narrawallee Inlet Reserve entrance to the un-named island.</p> <p><i>AEDT 4 pm to 8 am</i> <i>AEST 3 pm to 10 am</i></p> <p>On-Leash:</p> <p>No areas.</p>

Appendix 6 Narrawallee Beach Surf Life Saving Club Patrolling Information (SCC 2024)

