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8May 2019

Our ref: 19 SUT - 12417

APP Corporation
Level 7, 116 Miller Street
North Sydney
NSW 2060

Attention: Anthony Murphy

Dear Anthony,

Ecological assessment of proposed Sydney Swans HQ and Community Centre

Introduction

This ecological assessment has been prepared on behalf of Sydney Swans Limited to accompany a State Significant Development (SSD) application for the proposed adaptive reuse of the Royal Hall of Industries for a high-performance sport and community facility. The facility will enable a range of land uses, including a new home for the Sydney Swans and NSW Swifts. It will accommodate a multi-purpose facility available for community uses, sporting, medical and rehabilitation areas, administration and office spaces, and associated plant and store rooms.

Site

The site is located at 1 Driver Avenue, Moore Park and comprises a portion of two separate lots, legally described as Lot 3, DP861843 and Lot 52 of DP1041134. The site is owned by the Centennial Park and Moore Park Trust and is leased to the Sydney Swans for the purposes of the development.

The proposed application will relate to the Royal Hall of Industries (RHI) building, and the associated courtyard area to the immediate south of the building. The development area is located in the south-western corner of the Entertainment Quarter precinct and has a direct frontage to Driver Avenue to the west, Lang Road to the south and Errol Flynn Boulevard to the east, an access road within the Entertainment Quarter precinct.

The RHI has in recent times been utilised as an exhibition space. The building has a rectilinear plan form with symmetrically placed entrances on all four sides, four to the east and west, and two to each of the north and south facades. The building has a gross floor area of approximately 5,700 sqm at ground level with basement toilets at the southern end of the building.

The courtyard to the south of the building currently accommodates loading and general plant services associated with the RHI building and storage sheds. The building and courtyard area is surrounded by a 6.95 m high brick wall. The total area of the subject site extends to approximately 1.9 ha and is illustrated in figure 1 below.

Figure 1: Site location

Regional context

The site is located within the southwestern corner of the Moore Park Showground Precinct, a major recreational area in the eastern suburbs of Sydney. Measuring approximately 28.7 ha in area, the precinct includes a range of passive and active recreational areas with a focus on cultural, entertainment, and sporting uses. Key land uses include the Entertainment Quarter, Centennial Parklands Equestrian Centre and Fox Studios.

The location of the site is strategically significant due to its proximity to a number of key land uses within Sydney, including:

- Royal Randwick Racecourse – 1.8 km
- UNSW and Prince of Wales Hospital – 3.7 km
- Sydney CBD – 4.5 km
- Sydney Airport – 11.9 km

Local context

The site is in the City of Sydney Local Government Area (LGA). The predominant character of the area is associated with entertainment, leisure and recreational land uses, with infrastructure changes associated with the CSELR (CBD and South East Light Rail) construction.

The site has a direct frontage to Driver Avenue to the west, Lang Road to the south and Errol Flynn Boulevard to the east, an internal access road within the Entertainment Quarter precinct. Mature fig trees are located along Lang Road, Driver Avenue and Anzac Parade.

The land uses in the immediate surrounding area comprise the following:

- The Hordern Pavilion is located to the immediate north of the site, which operates as a live music and entertainment venue with an associated pedestrianised forecourt area.
- The Entertainment Quarter, to the immediate east of the site, is an entertainment, dining and leisure precinct with cinemas, restaurants, bars and an outdoor sporting, performance and event space. A 2,000-space car park is also provided.
- To the immediate south of the site is the Centennial Parklands Sports Centre, comprising netball and tennis courts with a large area of open space.
- The SCG and Allianz Stadium is located further north of the site. Allianz Stadium is currently undergoing demolition associated with the construction of a new sports stadium on the site, expected to be completed by mid-2022.
- Moore Park is located on the west and east of Anzac Parade, and Centennial Park and Queens Park are located to the south-east of the site. Collectively known as the Centennial Parklands, the parks measure 360ha in area.

Overview of proposed development

This application seeks approval for the proposed adaptive reuse of the RHI for a high-performance sport and community facility. The development will maintain the structural integrity and façade of the RHI, whilst re-purposing the interior of the building to support a number of compatible uses and utilise the space effectively.

In addition to the repurposing of the RHI, an extension of the building will be constructed to the south of the building in the current service and courtyard area. The built form of the extension is consistent in height, scale and material with the RHI and will be largely concealed behind the existing courtyard wall.

The facility will include:

- Home of the Sydney Swans
- Home of the NSW Swifts
- Multi-purpose indoor facility available for community use and public events such as junior club nights, school graduations, functions
- An indoor netball court for the NSW Swifts Netball Team and netball community
- Facilities for a Swans team in the AFL National women's competition

- Player change areas, lockers and wet areas
- Wet recovery – pool and hot/cold hydrotherapy
- Go Foundation and Clontarf Foundation for indigenous education
- Australian Red Cross Blood Service Donation Centre
- Medical, rehabilitation and sport science areas
- Gymnasium, museum, media centre and auditorium
- Back of house offices and café/canteen
- Entry foyer and retail/shop units
- Plant and store rooms
- Sydney Swans Academy.

Seven trees (Spotted Gums (*Corymbia maculata*)) are proposed to be removed as part of this proposal.

Purpose of the ecological assessment

This ecological assessment has been undertaken to address Key Issue 10 of the SEARs, *'The EIS shall provide an assessment of the proposal's biodiversity impacts in accordance with the Biodiversity Conservation Act 2016, including the preparation of a Biodiversity Development Assessment Report where required under the Act'*.

Desktop assessment

Eco Logical Australia (ELA) examined aerial photography, the Biodiversity Values Map and searched available databases (Bionet and EPBC Act Protected Matters Tool) to determine threatened species, populations and communities likely to be in the area based on available habitat. The subject site was not identified on the Biodiversity Values Map. The Bionet and the Protected Matters Search Tool found that threatened species have been recorded in the broader area, and an assessment was undertaken for all these threatened species to determine the likelihood of occurrence within the subject site (Appendix A). A site inspection was also conducted to determine if there is potential threatened species habitat within or near the subject site.

Field assessment

Senior environmental consultant Kirsten Velthuis inspected the subject site on 4 March 2019 to search for threatened flora and fauna species, threatened ecological communities, hollow-bearing trees and potential for roosting microbats in structures.

As shown in Figure 1, the subject site comprises existing buildings and pavement. A small area of landscaped vegetation on the edge of the RHI building on the corner of Errol Flynn Boulevarde and Lang Road had a canopy of Mexican Fan Palm (*Washingtonia robusta*) and a shrub layer of Lilly Pilly (*Syzygium* sp.) and Glossy Abelia (*Abelia grandiflora*). The footpath along Errol Flynn Boulevard contained a strip of planted Spotted Gum (*Corymbia maculata*). Planted roadside vegetation on Lang Road included London Plane Tree (*Plantanus acerifolius*) and Jacaranda (*Jacaranda mimosifolia*).

The results of the ecological survey are as follows:

- No threatened flora or fauna species were identified in the subject site, although the trees fringing the site are likely to provide foraging habitat for Grey-headed Flying-fox (*Pteropus poliocephalus*)
- No threatened ecological communities were identified in the subject site
- No hollow bearing trees (HBT) were identified in the subject site
- No caves or structures with the potential to support Microchiropteran bats were identified in the subject site.

Impact assessment

The subject site is mostly hardstand and the ecological impact from the proposal is limited to seven immature Spotted Gums (*Corymbia maculata*) which have been planted along Errol Flynn Boulevarde. These trees are potential foraging habitat for the threatened Grey-headed Flying-fox. This species is listed as vulnerable under the *Biodiversity Conservation Act* 2016 (NSW) and the *Environmental Protection and Biodiversity Conservation Act* 1999 (Commonwealth). As such, an Assessment of Significance has been undertaken under both the state and federal legislation to assess the level of impact of the proposal on this species. These Assessments (Appendix B) found that the impact of the proposal on this species will not be significant.

Further ecological assessment or a BDAR will not be required.

Regards,

Beth Medway

Principal Consultant

Appendix A – Threatened species likelihood of occurrence tables

Flora

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Acacia gordonii		E1	E	Restricted to the north-west of Sydney, occurring in the lower Blue Mountains in the west, and in the Maroota/Glenorie area in the east.	Sclerophyll forest and heathlands amongst or within rock platforms on sandstone outcrops.	No
Acacia pubescens	Downy Wattle	V	V	Restricted to the Sydney region around the Bankstown-Fairfield-Rookwood and Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon.	Open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Occurs on alluviums, shales and at the intergrade between shales and sandstones.	No
Allocasuarina glareicola		E1	E	Primarily restricted to the Richmond (NW Cumberland Plain) district, but with an outlier population found at Voyager Point, Liverpool.	Castlereagh woodland on lateritic soil. Found in open woodland with *Eucalyptus parramattensis, Eucalyptus fibrosa, Angophora bakeri, Eucalyptus sclerophylla* and *Melaleuca decora.*	No
Amperea xiphoclada var. pedicellata		E4	X	Known only from the type specimen collected in 1892 from Sydney. Has not been observed since and is presumed extinct.	Heath, woodland and forest in low-fertility, sandy soils.	No
Asterolasia buxifolia		E1		Known from a single site at a granite outcrop in the riparian zone of the Lett River in the Lithgow area.	Restricted to dense riparian scrub along rocky watercourses with a granitic substrate.	No
Asterolasia elegans		E1	E	Occurs north of Sydney, in the Baulkham Hills, Hawkesbury and Hornsby local government areas. Also likely to occur in the western part of Gosford local government area.	Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Callistemon linearifolius	Netted Bottle Brush	V		Georges River to Hawkesbury River in the Sydney area (limited to the Hornsby Plateau area), and north to the Nelson Bay area of NSW. Also Coalcliff in the northern Illawarra.	Dry sclerophyll forest.	No
Cryptostylis hunteriana	Leafless Tongue Orchid	V	V	In NSW, recorded mainly on coastal and near coastal ranges north from Victoria to near Forster, with two isolated occurrences inland north-west of Grafton.	Coastal heathlands, margins of coastal swamps and sedgelands, coastal forest, dry woodland, and lowland forest.	No
Dichanthium setosum	Bluegrass	V	V	In NSW, found on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes.	Cleared woodland, grassy roadside remnants and highly disturbed pasture, on heavy basaltic black soils and red-brown loams with clay subsoil.	No
Diuris arenaria	Sand Doubletail	E1		Tomaree Peninsula near Newcastle.	Coastal heath and dry grassy eucalypt forest.	No
Doryanthes palmeri	Giant Spear Lily	V		In NSW, occurs on the coastal ranges that are part of the Mt Warning Caldera. Its southern distributional limit is Mount Billen.	Exposed rocky outcrops, cliff-tops and on steep cliff-faces in montane heath next to subtropical rainforest, warm temperate rainforest or wet eucalypt forest.	No
Eucalyptus camfieldii	Camfield's Stringybark	V	V	Narrow band from the Raymond Terrace area south to Waterfall.	Coastal heath on shallow sandy soils overlying Hawkesbury sandstone, mostly on exposed sandy ridges.	No
Eucalyptus fracta	Broken Back Ironbark	V		Restricted to the northern Broken Back Range near Cessnock, NSW.	Dry eucalypt woodland in shallow soils along the upper escarpment of a steep sandstone range.	No
Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	V	New England Tablelands from Nundle to north of Tenterfield.	Dry grassy woodland, on shallow soils of slopes and ridges.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Eucalyptus pulverulenta	Silver-leafed Gum	V	V	Two quite separate areas, the Lithgow to Bathurst area and the Monaro (Bredbo to Bombala).	Open forest typically dominated by *Eucalyptus mannifera* (Brittle Gum), *E. macrorhynca* (Red Stringybark), *E. dives* (Broad-leafed Peppermint), *E. sieberi* (Silvertop Ash) and *E. bridgesiana* (Apple Box), on shallow soils.	No
Eucalyptus scoparia	Wallangarra White Gum	E1	V	In NSW it is known from only three locations near Tenterfield.	Open eucalypt forest, woodland and heaths on well-drained granite/rhyolite hilltops, slopes and rocky outcrops, typically at high altitudes.	No
Genoplesium baueri	Bauer's Midge Orchid	E1	E	Has been recorded from locations between Nowra and Pittwater and may occur as far north as Port Stephens.	Dry sclerophyll forest and moss gardens over sandstone.	No
Grammitis stenophylla	Narrow-leaf Finger Fern	E1		In NSW it has been found on the south, central and north coasts and as far west as Mount Kaputar National Park near Narrabri.	Rainforest and moist eucalypt forest, usually near streams, on rocks or in trees.	No
Grevillea caleyi	Caley's Grevillea	E4A	E	Restricted to an 8 km square area around Terrey Hills, approximately 20 km north of Sydney.	Open forest, generally dominated by *Eucalyptus sieberi* and *E. gummifera* on a ridgetop, in association with laterite soils.	No
Hibbertia puberula		E1		Wollemi National Park south to Morton National Park and the south coast near Nowra.	Low heath, dry sclerophyll woodland, upland swamps, on sandy soils or clay.	No
Melaleuca biconvexa	Biconvex Paperbark	V	V	Only found in NSW, populations found in the Jervis Bay area in the south and the Gosford-Wyong area in the north.	Damp places, often near streams or low-lying areas on alluvial soils.	No
Melaleuca deanei	Deane's Paperbark	V	V	Ku-ring-gai/Berowra area, Holsworthy/Wedderburn area, Springwood (in the Blue Mountains), Wollemi National Park, Yalwal (west of Nowra) and Central Coast (Hawkesbury River) areas.	Heath on sandstone.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Pimelea spicata	Spiked Rice-flower	E1	E	Two disjunct areas; the Cumberland Plain (Marayong and Prospect Reservoir south to Narellan and Douglas Park) and the Illawarra (Landsdowne to Shellharbour to northern Kiama).	Well-structured clay soils. *Eucalyptus moluccana* (Grey Box) communities and in areas of ironbark on the Cumberland Plain. Coast Banksia open woodland or coastal grassland in the Illawarra.	No
Prasophyllum fuscum	Slaty Leek Orchid	E4A	V	Believed to be confined to the Blue Mountains area. Some authorities believe it is identical to *P. uroglossum* which occurs in the Wingecarribee area.	Moist heath, often along seepage lines	No
Prostanthera marifolia	Seaforth Mintbush	E4A	CE	Only known from the northern Sydney suburb of Seaforth.	In or in close proximity to the endangered Duffys Forest ecological community, on deeply weathered clay-loam soils associated with ironstone and scattered shale lenses.	No
Tetratheca glandulosa		V		Found from Sampons Pass (Yengo NP) in the north to West Pymble (Lane Cove NP) in the south. The eastern limit is at Ingleside (Pittwater LGA) and the western limit is at East Kurrajong (Wollemi NP).	Heath, scrub, woodlands and open forest on upper-slopes and mid-slope sandstone benches. Soils generally shallow, consisting of a yellow, clayey/sandy loam.	No
Tetratheca juncea	Black-eyed Susan	V	V	Confined to the northern Sydney Basin bioregion and the southern North Coast bioregion in the local government areas of Wyong, Lake Macquarie, Newcastle, Port Stephens, Great Lakes and Cessnock.	Low open forest/woodland, heathland and moist forest, mainly on low nutrient soils associated with the Awaba Soil Landscape.	No
Triplarina imbricata	Creek Triplarina	E1	E	A few locations in the ranges south-west of Glenreagh and near Tabulam in north-east NSW.	Along watercourses in low open forest with *Tristaniopsis laurina* (Water Gum).	No

Fauna

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Aepyprymnus rufescens	Rufous Bettong	V		Distribution extends south to Mt Royal National Park in north-eastern NSW. There are also sporadic, unconfirmed records inland from the Pilliga and Torrington districts.	From tall wet sclerophyll forests on the coast to the dry forests and open woodlands west of the Great Dividing Range.	No
Anseranas semipalmata	Magpie Goose	V		In NSW, found in central and northern parts of the state, with vagrants as far as south-eastern NSW.	Shallow wetlands, floodplains, grasslands, pastures, dams and crops.	No
Anthochaera phrygia	Regent Honeyeater	E4A	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions.	Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of *Casuarina cunninghamiana (*River Oak).	No
Arctocephalus forsteri	New Zealand Fur-seal	V		Reports of non-breeding animals along southern NSW coast particularly on Montague Island, but also at other isolated locations to north of Sydney.	Prefers rocky parts of islands with jumbled terrain and boulders.	No
Arctocephalus pusillus doriferus	Australian Fur-seal	V		Reported to have bred at Seal Rocks, near Port Stephens and Montague Island in southern NSW. Haul outs are observed at isolated places along the NSW coast.	Rocky parts of islands with flat, open terrain.	No
Ardenna carneipes	Flesh-footed Shearwater	V	M	Recorded in NSW coastal waters. Breeds on Lord Howe Island.	Marine.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Balaenoptera musculus	Blue Whale	E1	E, M	Between 20 degrees to 70 degrees South including NSW waters.	Marine.	No
Burhinus grallarius	Bush Stone-curlew	E1		In NSW, found sporadically in coastal areas, and west of the divide throughout the sheep-wheat belt.	In NSW, it occurs in lowland grassy woodland and open forest.	No
Calidris canutus	Red Knot		E, M	Summer migrant to Australia. In NSW, widespread in suitable habitat along the coast. Occasionally recorded inland in all regions.	Intertidal mudflats, sandflats sheltered sandy beaches, estuaries, bays, inlets, lagoons, harbours, sandy ocean beaches, rock platforms, coral reefs, terrestrial saline wetlands near the coast, sewage ponds and saltworks. Rarely inland lakes or swamps.	No
Calidris ferruginea	Curlew Sandpiper	E1	CE, M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin.	Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	No
Calidris tenuirostris	Great Knot	V	CE, M	In NSW, recorded at scattered sites along the coast down to about Narooma. It has also been observed inland at Tullakool, Armidale, Gilgandra and Griffith.	Intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons.	No
Calyptorhynchus lathami	Glossy Black-Cockatoo, Riverina population	E2,V		Within the Narrandera Range and to the north-west in the Brobenah Hills, McPhersons Range, Cocoparra Range, Lachlan Range and Jimberoo State Forests, and the Naradhan Range.	Largely restricted to hills and low ridges where suitable stands of its food plant *Allocasuarina verticillata* (Drooping Sheoak) remain.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina.	Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.	No
Caretta caretta	Loggerhead Turtle	E1	E, M	In NSW, seen in coastal waters as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney.	Marine. Nesting occurs on beaches.	No
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes.	Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	Unlikely
Charadrius leschenaultii	Greater Sand-plover	V	V, M	In NSW, recorded between the northern rivers and the Illawarra, with most records coming from the Clarence and Richmond estuaries.	Almost entirely restricted to coastal areas in NSW, mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	No
Charadrius mongolus	Lesser Sand-plover	V	E, M	Summer migrant to Australia. Found around the entire coast but in NSW most common on north coast. Rarely recorded south of the Shoalhaven estuary, and there are few inland records.	Almost entirely coastal in NSW, using sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats, sandy beaches, coral reefs and rock platforms.	No
Chelonia mydas	Green Turtle	V	V, M	Occurs in coastal waters of NSW, generally on the north or central coast, with occasional records from the south coast. Scattered nesting records along the NSW coast.	Marine. Nesting occurs on beaches.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Dasyornis brachypterus	Eastern Bristlebird	E1	E	There are three main populations: Northern - southern Qld/northern NSW, Central - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern - Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border.	Central and southern populations inhabit heath and open woodland with a heathy understorey. In northern NSW, habitat comprises open forest with dense tussocky grass understorey.	No
Dasyurus maculatus maculatus (SE mainland population)	Spotted-tailed Quoll	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld.	Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	No
Diomedea antipodensis	Antipodean Albatross	V	V	Regularly occurs off the NSW south coast from Green Cape to Newcastle during winter.	Marine.	No
Diomedea antipodensis gibsoni	Antipodean Albatross	V	V	Regularly occurs off the NSW south coast from Green Cape to Newcastle during winter.	Marine.	No
Dugong dugon	Dugong	E1	M	Extends south to northern NSW, where its known from incidental records only.	Wide shallow protected bays, wide shallow mangrove channels and in the lee of large inshore islands. Will also occupy deeper waters.	No
Erythrotriorchis radiatus	Red Goshawk	E4A	V	In NSW, extends to ~30°S. Recent records confined to the Northern Rivers region north of the Clarence River.	Open woodland and forest, often along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, *Melaleuca* swamp forest and coastal riparian *Eucalyptus* forest.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Fregetta grallaria grallaria	White-bellied Storm-Petrel	V	V	Vagrant birds occur in coastal NSW waters, particularly after storm events.	Marine.	No
Glossopsitta pusilla	Little Lorikeet	V		In NSW, found from the coast westward as far as Dubbo and Albury.	Dry, open eucalypt forests and woodlands, including remnant woodland patches and roadside vegetation.	No
Grantiella picta	Painted Honeyeater	V	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas.	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	No
Haematopus fuliginosus	Sooty Oystercatcher	V		Distributed along the entire NSW coast.	Rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	No
Haematopus longirostris	Pied Oystercatcher	E1		Thinly scattered along the entire NSW coast.	Intertidal flats of inlets and bays, open beaches and sandbanks.	No
Haliaeetus leucogaster	White-bellied Sea-Eagle	V		Distributed along the coastline of mainland Australia and Tasmania, extending inland along some of the larger waterways, especially in eastern Australia.	Freshwater swamps, rivers, lakes, reservoirs, billabongs, saltmarsh and sewage ponds and coastal waters. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest and urban areas.	No
Heleioporus australiacus	Giant Burrowing Frog	V	V	South eastern NSW and Victoria, in two distinct populations: a northern population in the sandstone geology of the Sydney Basin as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria.	Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Hieraaetus morphnoides	Little Eagle	V		Throughout the Australian mainland, with the exception of the most densely-forested parts of the Dividing Range escarpment.	Open eucalypt forest, woodland or open woodland, including sheoak or *Acacia* woodlands and riparian woodlands of interior NSW.	No
Hoplocephalus bungaroides	Broad-headed Snake	E1	V	Largely confined to Triassic and Permian sandstones within the coast and ranges in an area within approximately 250 km of Sydney.	Dry and wet sclerophyll forests, riverine forests, coastal heath swamps, rocky outcrops, heaths, grassy woodlands.	No
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E1	E	Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River.	Heath or open forest with a heathy understorey on sandy or friable soils.	No
Lophoictinia isura	Square-tailed Kite	V		In NSW, it is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast.	Timbered habitats including dry woodlands and open forests, particularly timbered watercourses.	No
Macronectes giganteus	Southern Giant Petrel	E1	E, M	Common visitor off the coast of NSW.	Marine.	No
Macronectes halli	Northern Giant-Petrel	V	V, M	Common visitor in NSW waters, predominantly along the south-east coast during winter and autumn.	Marine.	No
Megaptera novaeangliae	Humpback Whale	V	V, M	Regularly observed in NSW waters in June and July, on northward migration from Subantarctic waters, and in October and November, on southward migration.	Marine.	No
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V		In NSW it occurs on both sides of the Great Dividing Range, from the coast inland to Moree, Dubbo and Wagga Wagga.	Rainforest, wet and dry sclerophyll forest, monsoon forest, open woodland, paperbark forests and open grassland.	Unlikely

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Mormopterus norfolkensis	Eastern Freetail-bat	V		Found along the east coast from south Qld to southern NSW.	Dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range.	Unlikely
Myotis macropus	Southern Myotis	V		In NSW, found in the coastal band. It is rarely found more than 100 km inland, except along major rivers.	Foraging habitat is waterbodies (including streams, or lakes or reservoirs) and fringing areas of vegetation up to 20m.	No
Neophema chrysogaster	Orange-bellied Parrot	E4A	CE	Breeds in Tasmania and migrates in autumn to spend the winter on the mainland coast of south-eastern SA and southern Victoria. Occasional reports from NSW, most recently Shellharbour and Maroubra in May 2003.	Winter habitat is mostly within 3 km of the coast in sheltered bays, lagoons, estuaries, coastal dunes and saltmarshes. Also small islands and peninsulas, saltworks, golf courses, low samphire herbland and taller coastal shrubland.	No
Ninox strenua	Powerful Owl	V		In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains.	Woodland, open sclerophyll forest, tall open wet forest and rainforest.	No
Numenius madagascariensis	Eastern Curlew		CE, M	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records.	Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms.	No
Onychoprion fuscata	Sooty Tern	V		In NSW only known to breed at Lord Howe Island. Occasionally seen along coastal NSW, especially after cyclones.	Marine.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Petalura gigantea	Giant Dragonfly	E1		Found along the east coast of NSW from the Victorian border to northern NSW. Not found west of the Great Dividing Range.	Permanent swamps and bogs with some free water and open vegetation.	No
Petaurus norfolcensis	Squirrel Glider in the Wagga Wagga Local Government Area	E2,V		The extent of the endangered population is legally defined by the boundaries of the Wagga Wagga LGA.	Open forest, woodland and riverine forest habitats.	No
Petaurus norfolcensis	Squirrel Glider on Barrenjoey Peninsula, north of Bushrangers Hill	E2,V		The endangered population is within the Pittwater Local Government Area on the Barrenjoey Peninsula, north of Bushrangers Hill.	In NSW, occurs in a range of coastal habitats from low scrubby eucalypt woodlands and banksia thickets to tall, wet eucalypt forests bordering on rainforest.	No
Petaurus norfolcensis	Squirrel Glider	V		Widely though sparsely distributed on both sides of the Great Dividing Range in eastern Australia, from northern Qld to western Victoria.	Mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas.	No
Petrogale penicillata	Brush-tailed Rock-wallaby	E1	V	In NSW they occur from the Qld border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit.	Rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges.	No
Petroica boodang	Scarlet Robin	V		In NSW, it occurs from the coast to the inland slopes.	Dry eucalypt forests and woodlands, and occasionally in mallee, wet forest, wetlands and tea-tree swamps.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Phascolarctos cinereus	Koala, Hawks Nest and Tea Gardens population	E2,V	V	Known from, and in the immediate vicinity of, the towns of Hawks Nest and Tea Gardens in the Great Lakes Local Government Area.	Eucalypt forest and woodland communities, including coastal forests, rainforest, riparian areas, swamp sclerophyll forests, heathland and shrubland.	No
Phascolarctos cinereus	Koala in the Pittwater Local Government Area	E2,V	V	The endangered population occurs within the Pittwater Local Government Area, with most recent records occurring on the Barrenjoey Peninsula.	Eucalypt forests and woodlands. Key likely habitats within Pittwater Council are: Swamp Mahogany Forest, ecotone between Spotted Gum Forest & Hawkesbury Sandstone Open-Forest, Northern form of Coastal Sandstone Woodland at Whale Beach, Red Bloodwood - Scribbly Gum Woodland, Bilgola Plateau Forest and the Grey Ironbark - Grey Gum form of the Newport Bangalay Woodland.	No
Phascolarctos cinereus	Koala	V	V	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. There are sparse and possibly disjunct populations in the Bega District, and at several sites on the southern tablelands.	Eucalypt woodlands and forests.	No
Phoebetria fusca	Sooty Albatross	V	V, M	There are occasional sightings off the NSW coast, north of Grafton.	Marine.	No
Pseudomys novaehollandiae	New Holland Mouse		V	Fragmented distribution across eastern NSW.	Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Pseudophryne australis	Red-crowned Toadlet	V		Confined to the Sydney Basin, from Pokolbin in the north, the Nowra area to the south, and west to Mt Victoria in the Blue Mountains.	Open forests, mostly on Hawkesbury and Narrabeen Sandstones. Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings.	No
Pterodroma leucoptera leucoptera	Gould's Petrel	V	E	Recorded off NSW coast. Breeds on Cabbage Tree Island offshore from Port Stephens, and on nearby Boondelbah island.	Marine. Nesting habitat is located within steeply sloping rock scree gullies with a canopy of Cabbage Tree Palms.	No
Pterodroma neglecta neglecta	Kermadec Petrel (west Pacific subspecies)	V	V	Vagrant birds occur in coastal NSW waters, particularly after storm events. Breeds on Balls Pyramid (near Lord Howe Island) and Phillip Island (near Norfolk Island).	Marine.	No
Pteropus poliocephalus	Grey-headed Flying-foxes	V	V	Generally found within 200 km of the eastern coast of Australia. In times of natural resource shortages they may be found in unusual locations	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops	Likely foraging habitat
Ptilinopus superbus	Superb Fruit-Dove	V		Principally from north-eastern Qld to north-eastern NSW. Further south, it is confined to pockets of suitable habitat, and occurs as far south as Moruya.	Rainforest and closed forests. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	No
Rostratula australis	Australian Painted Snipe	E1	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys.	Swamps, dams and nearby marshy areas.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V		There are scattered records of this species across the New England Tablelands and North West Slopes. Rare visitor in late summer and autumn to south-western NSW.	Almost all habitats, including wet and dry sclerophyll forest, open woodland, open country, mallee, rainforests, heathland and waterbodies.	Unlikely
Stagonopleura guttata	Diamond Firetail	V		Widely distributed in NSW, mainly recorded in the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina, and less commonly found in coastal areas and further inland.	Grassy eucalypt woodlands, open forest, mallee, Natural Temperate Grassland, secondary derived grassland, riparian areas and lightly wooded farmland.	No
Sternula albifrons	Little Tern	E1	M	In NSW, it arrives from September to November, occurring mainly north of Sydney, with smaller numbers found south to Victoria.	Sheltered coastal environments, harbours, inlets and rivers.	No
Stictonetta naevosa	Freckled Duck	V		Inland river systems, occurring as far as coastal NSW in times of drought.	Freshwater swamps and creeks, lakes, reservoirs, farm dams and sewage ponds.	No
Thalassarche cauta cauta	Shy Albatross	V	V	Occurs along the east coast south from Stradbroke Island and across the south coast to Carnarvon in WA. It is commonly recorded off southeast NSW, though rarely north of Sydney.	Marine.	No
Thalassarche chrysostoma	Grey-headed Albatross		E	Occurs only as a vagrant in NSW; mainly recorded off Tasmania.	Marine.	No
Thalassarche melanophris	Black-browed Albatross	V	V	Regularly recorded off the NSW coast during May-November.	Marine.	No

Appendix B Assessments of Significance

Environment Protection and Biodiversity Conservation Act 1999- Assessment of Significance

This assessment has been prepared in accordance with the EPBC Act Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE 2013). These guidelines have been established to assist proponents to determine whether a proposed action is likely to result in a significant impact on a matter of national environmental significance.

Pteropus poliocephalus (Grey-headed Flying-fox, GHFF) utilises a wide variety of habitats (including disturbed areas) for foraging and are recorded as travelling long distances on feeding forays. Fruits and flowering plants of a wide variety of species are the main food source. The species roosts in large 'camps' of up to 200,000 individuals. Camps are usually formed close to water and along gullies however the species has been known to form camps in urban areas. This species was not recorded on site during the survey but has been recorded within 10 km of the site. The closest Nationally Important Flying-fox Camp is located approximately 1.3 km away at Centennial Park, and the second closes is 7.7 km away at Wolli Creek.

Assessment of Significance for Vulnerable Species

Criterion	Question	Response
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility of the following:		
1)	will the action lead to a long-term decrease in the size of a population	No. An important population is defined as a population that is necessary for a species' long-term survival and recovery. The GHFF is considered to be one population that intermixes up and down the east coast, therefore any bat population is a meta-population of this one "important population". The proposed development will remove seven juvenile *Corymbia maculata* (Spotted Gum). Given the proximity of more suitable habitat to the site, the removal of this potential foraging habitat would not lead to the long-term decrease in the size of an important population of GHFF.
2)	will the action reduce the area of occupancy of the species	No. The distribution of the GHFF extends from Bundaberg in Queensland to Melbourne, Victoria and from the coast inland to the western slopes of New South Wales. The removal of potential foraging habitat from the study area would not reduce the area of

Criterion	Question	Response
		occupancy of an important population of GHFF. The GHFF is not known to occupy the study site but may occasionally forage within the study area.
3)	will the action fragment an existing population into two or more populations	No. The GHFF is a highly mobile species and forms one large intermixing population along the east Australian coast. No roosting habitat will be impacted and large areas of foraging habitat are present in the region. The proposed action will not fragment an existing important population into two or more populations.
4)	will the action adversely affect habitat critical to the survival of a species	No. The potential foraging habitat impacted by the proposed development does not meet the criteria of habitat critical to survival, or essential habitat, for GHFF as described in the Draft Recovery Plan for the GHFF 2009. Furthermore, there are two Nationally Important Flying-fox Camps within 50 km of the study area.
5)	will the action disrupt the breeding cycle of a population	No. The proposed action will not disrupt the breeding cycle of the GHFF given that the impacted vegetation is likely to be potential foraging habitat.
6) i	will the action modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. GHFF camps would not be removed or disturbed, and extensive foraging habitat exists in the region within large conservation areas and in urban areas. The proposed works will not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
7)	result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. The site is already disturbed and modified and the proposed works will not result in the establishment of an invasive species that is harmful to the GHFF.
8)	will the action introduce disease that may cause the species to decline	No. GHFF are reservoirs for the Australian bat lyssavirus and can cause clinical disease and mortality in GHFF. The proposed action would not increase the incidence of this disease.
9)	will the action interfere with the recovery of the species	No. A Draft National Recovery Plan for the GHFF was developed in 2009. The relatively small amount of foraging habitat to be removed is unlikely to substantially interfere with the recovery of this species.
Conclusion	Is there likely to be a significant impact?	No

***Biodiversity Conservation Act* 2016 Test of Significance**

Section 7.3 of the BC Act 2016 requires a number of factors to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. These factors are addressed below for the species likely to be impacted.

Pteropus poliocephalus (Grey-headed Flying-fox, GHFF) utilises a wide variety of habitats (including disturbed areas) for foraging and are recorded as travelling long distances on feeding forays. Fruits and flowering plants of a wide variety of species are the main food source. The species roosts in large 'camps' of up to 200,000 individuals. Camps are usually formed close to water and along gullies however the species has been known to form camps in urban areas. This species was not recorded on site during the survey but has been recorded within 10 km of the site. The closest Nationally Important Flying-fox Camp is located approximately 1.3 km away at Centennial Park, and the second closes is 7.7 km away at Wolli Creek.

Test of Significance for Threatened Species

BC Act	Question	Response
7.3.1 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	The GHFF is considered to be one population that intermixes up and down the east coast of Australia, therefore any bat population is a meta-population of this one population. Impacts to GHFF that are likely to place this population at risk of extinction would include widespread loss of foraging habitat or disturbance of roosting sites. The proposed development will remove seven juvenile *Corymbia maculata* (Spotted Gum). Given the proximity of more suitable habitat to the site, this loss of vegetation is unlikely to adversely affect GHFF such that its population will be placed at risk of extinction.
7.3.1 b) i	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: 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	Not applicable.
7.3.1 b) ii	In the case of an endangered ecological community or critically endangered ecological community:	Not applicable.

BC Act	Question	Response
	Whether the proposed development or activity 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.	
7.3.1 c) i	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity	The vegetation being removed and modified as part of the proposed development represents potential foraging habitat for the GHFF. However, given that potential foraging habitat is available in the area surrounding the proposed development, this impact is minor.
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community: 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	The study area is not part of a wildlife corridor due to its use within a highly urbanised area. Trees and shrubs are scattered throughout the study area and surrounding land, including planted street trees. The proposed development will not have an adverse impact on habitat connectivity. GHFF is a highly mobile species and will continue to use the study area and surrounds for foraging.
7.3.1 c) iii	In relation to the habitat of a threatened species or ecological community: 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.	The habitat to be removed is a minor amount of marginal foraging habitat for GHFF and is not important for the long-term survival of the GHFF in the locality.
7.3.1 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).	The proposed development will not directly or indirectly impact any declared area of outstanding biodiversity value.
7.3.1 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.	One key threatening process, “clearing of native vegetation”, is relevant to this proposal. However, with respect to the GHFF, the proposed development involves a minimal impact to potential foraging habitat.
Conclusion	Is there likely to be a significant impact?	No