293 Old South Road Mittagong Flora and Fauna Assessment

Chalak Investments Pty Ltd

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Template 2.8.1

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Abbreviations

Abbreviation	Description
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BC Regulation	Biodiversity Conservation Regulation 2017
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offset Scheme
DAWE	Commonwealth Department of Agriculture, Water and Environment
DPIE	NSW Department of Planning, Industry and Environment
ELA	Eco Logical Australia
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
FFA	Flora and Fauna Assessment
GIS	Geographic Information System
GPS	Global Positioning System
KFH	Key Fish Habitat
MNES	Matters of National Environmental Significance
NRAR	Natural Resources Access Regulator
PCT	Plant Community Type
SAII	Serious and Irreversible Impact
SEPP	State Environmental Planning Policy
TEC	Threatened Ecological Community

Executive Summary

Eco Logical Australia (ELA) was engaged by Chalak Investments to conduct a Flora and Fauna Assessment (FFA) for a proposed low-density residential dwelling at 293 Old South Road, Mittagong. The proposed development will require the clearance of 0.14 ha of vegetation. The FFA has been prepared to assess the likelihood that the proposed development would significantly impact threatened species, populations or communities.

A desktop and field survey were conducted in February 2021 to determine the vegetation community present on site and the presence of threatened fauna and flora. Although several threatened flora, fauna and ecological communities have been recorded in the surrounding area, none have previously been recorded within the development area and none were observed during the field survey. The site is degraded, having mostly been cleared with no mid-storey vegetation and the ground cover is dominated by exotic species. The vegetation represents PCT 1086 Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest of the southern Blue Mountains, Sydney Basin Bioregion in poor condition.

The site is dominated by *Eucalyptus globoidea*, a key feed species for Koala, who have been recorded near the site. This species is listed as vulnerable under the NSW *Biodiversity Conservation Act 2016* (BC Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), with the State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2020 applying to this site. The proposed development will remove 0.14 ha of potential Koala feed trees. However, this is relatively small in comparison to the high quality, unfragmented habitat adjacent to the site. The site occurs adjacent to the Upper Nepean State Conservation Area, which likely provides much more suitable habitat which this mobile species would likely move to, if present on site. As such, the proposed vegetation clearance is unlikely to have a significant impact on the Koala, as it would not cause significant fragmentation to the local population nor significantly reduce the available habitat for feeding or breeding.

No other threatened ecological communities, fauna or flora species were found to occur on site or are likely to occur. As such, the removal of vegetation on this site is unlikely to have a significant impact on any threatened flora and fauna species or populations listed under the BC Act or EPBC Act. The Biodiversity Offset Scheme is not triggered by this proposal.

1. Introduction

1.1 Purpose of this report

Eco Logical Australia Pty Ltd was engaged by Chalak Investments Pty Ltd to prepare a Flora and Fauna Assessment (FFA) for the proposed construction of a residential dwelling at 293 Old South Road Mittagong. This FFA will be submitted with a Development Application (DA) to Wingecarribee Shire Council for consideration under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This report describes the potential impacts to native vegetation, threatened species, populations and communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The report is based on information gathered from database searches and field investigation, and it sets out the legislative context, methods used, ecological impacts, and recommendations to avoid or mitigate these impacts.

1.2 Subject site and subject site

For the purposes of this assessment, the following terms have been defined:

- **Subject site** – the area being directly impacted by the proposed activity (i.e. the construction footprint). The subject site is on private land.
- **Study area** – The area outside of the subject site that may be indirectly impacted by the proposed activity (a 5 km radius from the subject site).

1.3 Proposed work

The proposed work will involve the construction of a new residential dwelling and access (Figure 1). The works will require removal of some vegetation within subject site. The 0.40 ha subject site contains a total of 0.14 ha of vegetation. The remainder of the subject site is cleared, consisting of exotic and some native grasses (0.26 ha).

1.4 Impact assessment

The assessment of impacts of the proposed works on threatened species and communities was undertaken in accordance with the following steps:

- Identification of known or potential habitat for threatened species and communities within the subject site and subject site
- Assessment of the likely impact of the proposed works to any threatened species or communities
- Identification of any additional controls or mitigation measures to reduce impacts.

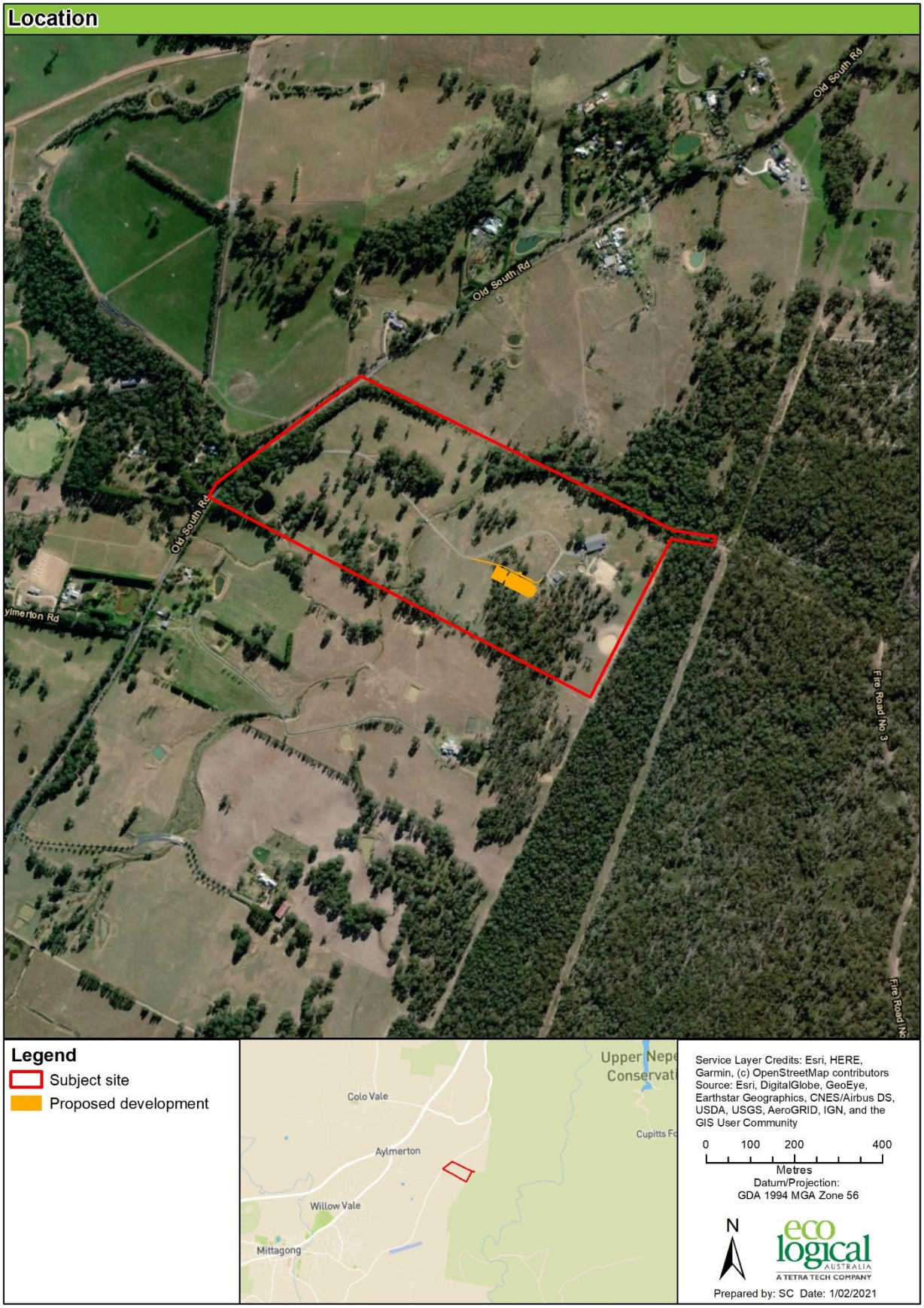

Figure 1: Subject site location and surrounding area

2. Legislative context

Table 1: Legislative context of the proposed development

Name	Relevance to the project
Commonwealth	
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act aims to protect Matters of National Environmental Significance (MNES), including vegetation communities and species listed under the EPBC Act. If a development is likely to have a significant impact on MNES, it is likely to be considered a 'Controlled Action' by the Commonwealth and requires assessment and approval by the Commonwealth in order to proceed. The MNES that have been considered during this assessment are: • Listed threatened species and communities • Listed migratory species
State	
Environmental Planning and Assessment Act 1979 (EP&A Act)	The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of development proposals. The proposed works are being assessed under Part 4 of the EP&A Act.
Biodiversity Conservation Act 2016 (BC Act)	The overall purpose of the BC Act is to provide the legislative framework 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. Among other things, the BC Act outlines the assessment requirements to determine whether a proposed development (Part 4 of the EP&A Act) is likely to significantly affect threatened species or ecological communities, or their habitats under section 7.3 of the Act, and whether the Biodiversity Offsets Scheme (BOS) will be triggered. If thresholds for the BOS and application of the Biodiversity Assessment Method (BAM) are triggered, a Biodiversity Development Assessment Report (BDAR) would be required. Triggers for the BOS and BAM are as follows: • Exceeding a native vegetation area clearance threshold relative to minimum lot size; or • Clearing of native vegetation identified on the NSW Government Biodiversity Values (BV) Map; or • A significant impact on a threatened species or ecological community (as assessed by a qualified ecologist). The BC Act also introduces the principle of Serious and Irreversible Impacts (SAII). SAII's are not a threshold trigger for the BOS however they must be addressed if a BDAR is required to be prepared. The BC Act requires a local council to reject a local development (under Part 4 of the EP&A Act) if an action is likely to have a serious and irreversible impact on biodiversity values. This report documents that clearing of native vegetation does not exceed the clearance threshold relative to minimum lot size; the study area is not mapped on the BV Map; it assesses the likelihood of threatened species and concludes that the development is not likely to have a significant impact on threatened species or their habitats; and as a result the BOS is not triggered by the development.
Planning Instruments	
State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2020	The Wingecarribee Shire Council local government area (LGA) is a listed LGA for which the State Environmental Planning Policy (Koala Habitat Protection) 2020 applies.
Local	
Wingecarribee Local Environmental Plan (LEP) 2010	The subject site is not mapped on land that is located on the 'Natural resources sensitivity – biodiversity' layer of the Wingecarribee LEP.

3. Methodology

3.1 Literature review and database search

A review of readily available databases pertaining to the ecology and environmental features of the subject site and study area, including existing vegetation mapping, was conducted to identify records of threatened species, populations and communities and their potential habitat. Databases and vegetation mapping that were reviewed included:

- BioNet (Atlas of NSW Wildlife) database search (5 km) threatened species, populations and ecological communities listed under the BC Act (accessed 22 January 2021).
- EPBC Act Protected Matters Search Tool (5 km) for threatened and migratory species, populations and ecological communities listed under the Commonwealth EPBC Act 1999 (accessed 22 January 2021).
- Compilation of Biometic Vegetation Mapping, prepared for South East Local Land Services (ELA 2015)
- Aerial mapping and vegetation mapping to assess the extent of vegetation including mapped TECs listed under the BC Act and / or EPBC Act.
-

Aerial photography (Google Maps and SIX Maps) of the subject site and surrounds were also used to investigate the extent of vegetation cover and landscape features. In addition, relevant Geographic Information System (GIS) datasets (soil, geology, drainage) were reviewed.

Species from both the Atlas of NSW Wildlife and Protected Matters Search Tool were combined to produce a list of threatened species, populations and communities that may occur within the subject site (Appendix A).

3.2 Field survey

A field survey was conducted on 26 January 2021 by ELA ecologist Julia Ryeland. The field survey took approximately three hours. Conditions during the survey were calm and sunny (29 °C). The field survey aimed to complete the following:

- Determine best-fit Plant Community Type (PCT), condition and extent.
- Threatened flora and fauna habitat assessment.
- Hollow bearing tree search.
- Opportunistic fauna sightings.

3.2.1 Vegetation communities

Rapid point assessments were used to identify what vegetation communities and species were present within the subject site.

3.2.2 Fauna survey

Any opportunistic fauna sightings were noted during the field survey. Habitat features, such as hollow-bearing trees, culverts and rock outcrops, were marked spatially using a handheld GPS unit.

3.2.3 Survey limitation

No additional targeted surveys for threatened flora and fauna species (other than those specified above) were conducted during the field survey. Instead, a habitat assessment was undertaken to determine the suitability of the subject site to provide habitat. Assessing the habitat features present was considered sufficient to assist in determining whether any threatened species are likely to be present and inform the potential requirements for impact assessments and pre-clearance surveys prior to works commencing.

4. Results

4.1 Literature review and database search

4.1.1 Vegetation communities

A review of the available vegetation mapping (ELA 2015) returned one previously mapped vegetation community within the subject site (Figure 2):

- Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest
-

The following vegetation communities were mapped in the study area:

- Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest
- Narrow-leaved Ironbark – Broad-leaved Ironbark – Grey Gum open forest
- Smooth-barked Apple – Red Bloodwood – Sydney Peppermint heathy open forest on slopes of dry sandstone
- Swamp Gum – Ribbon Gum woodland on poorly-drained flats, South Eastern Highlands Bioregion
- Sydney Peppermint – White Stringybark moist shrubby forest on elevated ridges

None of these vegetation community in the study area are associated with a Threatened Ecological Communities listed under the BC or EPBC Act. The study area has not previously been mapped to Plant Community Types (PCT).

4.1.2 Threatened species

The BioNet Atlas search and EPBC Protected Matters Search Tool returned a total of 27 fauna species, five flora species and six TECs as occurring, or having the potential to occur, within a 5 km radius of the subject site. No threatened species, communities or populations have been previously recorded within the subject site (Figure 3).

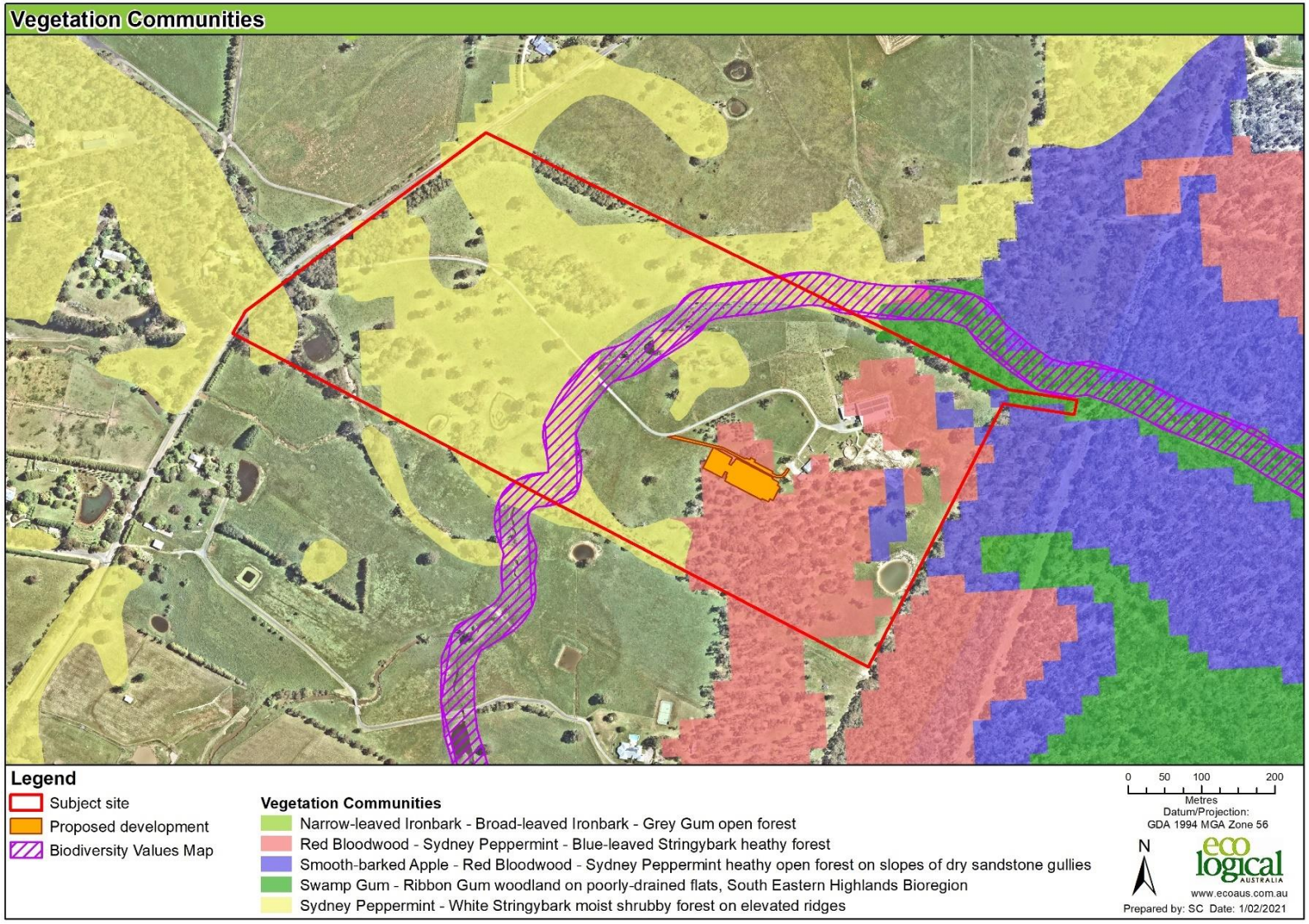

Figure 2: Previous vegetation mapping within the locality (ELA, 2015)

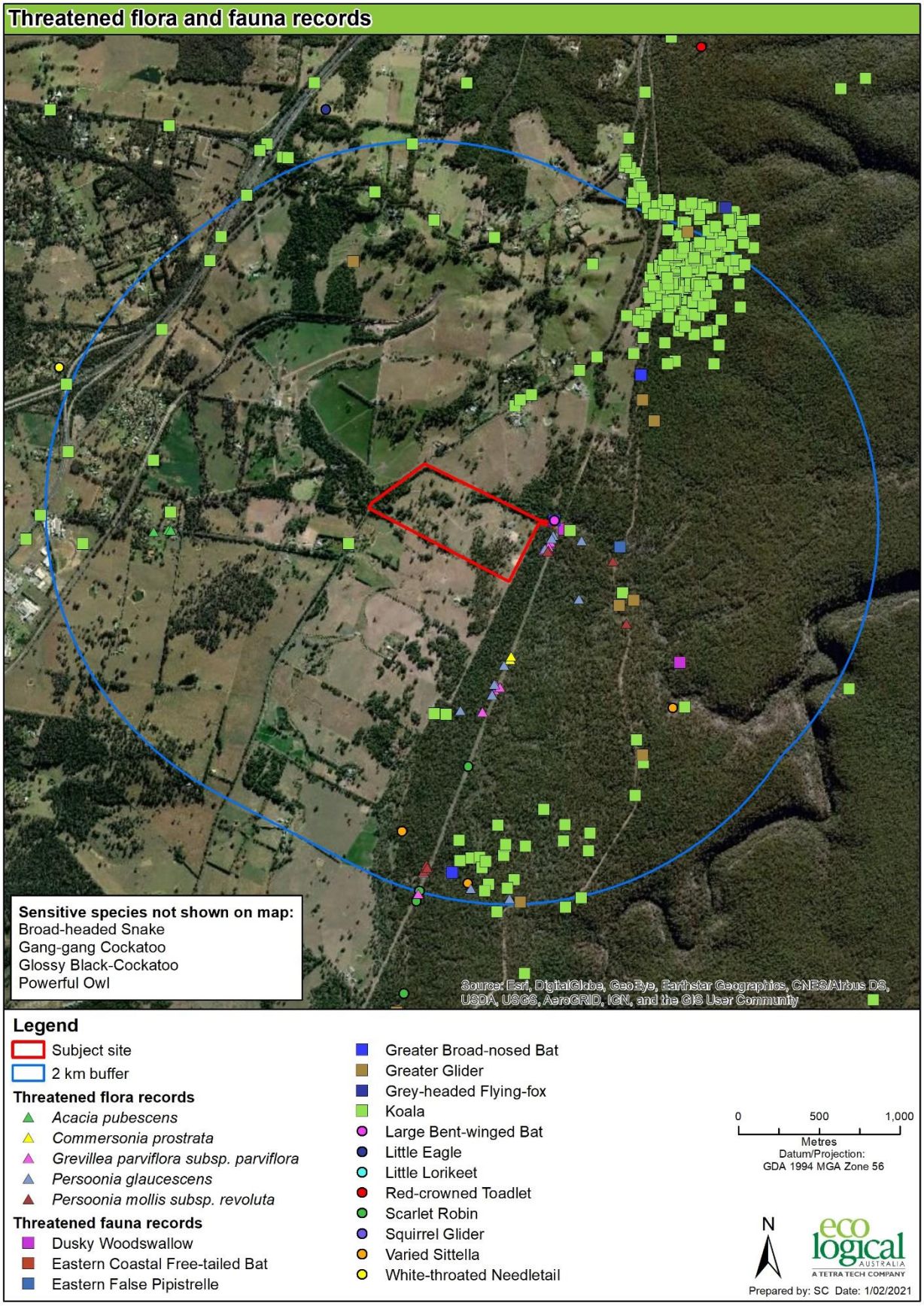

Figure 3: Threatened species previously recorded in the locality (BioNet 2021)

4.2 Field survey

4.2.1 Vegetation validation

The field survey confirmed the presence of the following vegetation communities (Figure 4):

- **PCT 1086:** Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest of the southern Blue Mountains, Sydney Basin Bioregion
- **Exotic/cleared** – cleared areas dominated by exotics or covered in gravel.

Below is a description of the vegetation identified during the field survey. The dominant vegetation on site, PCT 1086, is not a community that forms part of a listed Threatened Ecological Community (TEC).

4.2.1.1 PCT 1086: Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest of the southern Blue Mountains, Sydney Basin Bioregion

This vegetation zone was characterised as follows:

- Canopy cover dominated by *Eucalyptus globoidea* (White Stringybark), with two *Eucalyptus punctata* (Grey Gum)
- No mid-storey was present across the subject site
- Ground cover dominated by exotics, with some natives *i.e. Themeda triandra* (Kangaroo Grass) and *Austrostipa scabra* (Rough Speargrass)

4.2.1.2 Exotic/cleared

The site appeared to have been previously cleared, with no mid-storey vegetation present. The ground cover was dominated by exotics, mostly *Nessella neesiana* (Chilean Needle Grass) – a weed of National Significance (WoNS). Several small patches of *Rubus fruticosus aggregate* also occur within the subject area, which is also a WoNS. Other exotics observed on site include *Conyza bonariensis* (Fleebane), *Setaria parviflora* (Slender Pigeon Grass) and *Paspalum dilatatum* (Paspalum).

Figure 4: Validated vegetation communities within the subject site

Figure 5: Site photos of existing vegetation

4.2.2 Threatened species habitat

The subject site is surrounded predominantly by cleared farmland, with the eastern boundary near the Upper Nepean State Conservation Area. The site appears to have previously been cleared, with limited canopy diversity, no mid-storey vegetation and a ground cover dominated by exotics. The habitat lacks complexity and diversity with minimal midstory vegetation which would decrease the suitability for many species and the potential for threatened fauna to use the site for foraging, roosting or nesting. No threatened species were observed on site, nor have been observed on site historically.

Several mature *Eucalyptus sp.* were observed on site, which may provide foraging habitat for highly mobile species such as *Phascolarctos cinereus* (Koala), for which there are several records within 5 km of the subject site. Wingecarribee Shire Council local government area (LGA) is a listed LGA for which the State Environmental Planning Policy (Koala Habitat Protection) 2020 applies. Koala are known to utilise *E. globoidea* as feed trees, which is the dominant species on site. However, the trees proposed for removal are few in comparison to the connected patch, with the subject site situated adjacent to Upper Nepean State Conservation Area.

Most Koala records are situated within the Conservation Area, which includes 25,869 ha of continuous, protected habitat. The removal of the small number of trees proposed (approximately 30), are unlikely to have a significant impact on the local Koala population, with higher quality habitat occurring adjacent to the site. No Koalas have been recorded on site, and there was no evidence of usage (scats or claw marks on trees) during the field survey. Most previous records are found in two clusters within the Conservation Area.

Several Microchiropteran species were been observed in low numbers in the study area, including *Miniopterus orianae oceanensis* (Large bent-winged Bat), *Platyrrhinus vittatus* (Greater Broad-nosed Bat), *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) and *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat). No sightings have been recorded within the subject site and only one small stag was observed on site which could potentially be used for roosting by a small number of individuals. Other suitable roosts were not identified on site (hollow bearing trees, rock outcrops or caves). These are more likely to occur in the higher quality habitat in the Conservation Area adjacent to the site. Removal of the one stag would unlikely disturb a significant microbat population, with these species more likely to occur in the adjacent Conservation Area.

The site is used by common fauna species however, such as *Gymnorhina tibicen* (Australian Magpie) *Platycercus eximius* (Eastern Rosella) and *Manorina melanocephala* (Noisy Miner), observed during the field survey (including several old Magpie nests).

No threatened flora species were observed during the diurnal field survey and none are considered likely to occur given the subject site is degraded.

5. Impact assessment

5.1 Summary of impacts

5.1.1 Direct impacts

5.1.1.1 Vegetation communities

A summary of the extent of impacts to vegetation is provided in Table 2 below, and visually represented in Figure 4.

Table 2: Direct impact to vegetation within the subject site

Vegetation community	PCT	Direct Impact (ha)
Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest of the southern Blue Mountains, Sydney Basin Bioregion	PCT 1086	0.14
Exotic/cleared	N/A	0.26

The vegetation on site was predominantly Red Bloodwood – Sydney Peppermint – Blue-leaved Stringybark heathy forest of the southern Blue Mountains, Sydney Basin Bioregion, which is not part of a threatened ecological communities and a test of significance under the BC Act is not required. Similarly, it is not recognised under the EPBC Act. As such, the clearance of vegetation on site does not require consideration under the EPBC Act.

5.1.1.2 Threatened flora

No threatened flora species occur on site, and the proposed development will not have a direct or indirect impact on any local populations of threatened flora species.

5.1.1.3 Threatened fauna

One species, the Koala, has a low to moderate likelihood of occur on site. This species occurs in the study area, mostly within the Conservation Area adjacent to the site. A significance test was conducted for this species under the BC Act and EPBC Act. No significant impact was found based on the availability of extensive, high quality habitat in the surrounding area, which the species appears to use more frequently (with most records occurring in this area) and which individuals are likely to move to, if occurring on site. The small number of feed trees (0.14 ha) to be removed will not significantly reduce the availability of foraging or breeding habitat, given the conservation area spans 25,869 ha. The trees to be removed are on the fringe of this unfragmented patch, and their removal will not fragment the habitat of a significant population.

Only one small potential roosting feature was observed on site (a small stag) and no other habitat features (culverts, rock outcrops or caves) will be removed as a result of the development. The small stag is not in close proximity to permanent water sources or other habitat features. As such, the removal of vegetation on site, including one small stag, is unlikely to act as a significant roost for threatened microbats, and as such is unlikely have a significant impact on any threatened fauna in the surrounding area.

5.1.2 Indirect impacts

Indirect impacts are those that do not directly affect the habitat or species within the subject site but have the potential to interfere through indirect actions. Indirect impacts associated with the proposed activity are:

- Increased spread of exotic species due to increase in access to the subject site and as a result of earthwork.

The overall effect of this potential impact is considered to be negligible for any threatened fauna species which may occur within the study area.

5.2 NSW Biodiversity Conservation Act 2016 (BC Act)

In November 2016 the NSW parliament passed the BC Act, that replaced the *Threatened Species Conservation Act 1995*, and which took effect on 25 August 2017. Among other things, the BC Act introduces new requirements for biodiversity assessment (Biodiversity Assessment Methodology (BAM)) and requires proponents to offset certain biodiversity impacts through the purchase and retirement of biodiversity credits known as the Biodiversity Offset Scheme (BOS). For a local development under Part 4 of the *Environmental Planning and Assessment Act 1979*, the BOS and the BAM may be triggered by the following means:

- Exceeding the area of clearing threshold associated with the minimum lot size for the property (Table 3)
- The impacts occur on an area mapped on the NSW Government Biodiversity Values Map.

Table 3: Area clearing threshold

Minimum lot size associated with the property	Threshold for clearing native vegetation, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

5.2.1 Area clearing threshold

The subject property has a minimum lot size of 40 ha and so the threshold for clearing, above which the BAM and offsets scheme apply, is 1 ha. The proposed clearing for the development will remove 0.14 ha of native vegetation and therefore it does not meet the threshold trigger for the Biodiversity Offset Scheme under s7.3 of the BC Act.

5.2.2 Biodiversity Values Map

The BV Map identifies land considered to have high biodiversity value as defined by the Biodiversity Conservation Regulation 2017. Although there is a riparian corridor mapped on the BV map in the study area (accessed on 04 February 2021), this does not cross the subject site and therefore the BOS is not triggered based on clearance of a high biodiversity value area. The existing driveway to access the site crosses the riparian corridor and safeguards should be put into place to control sediment and erosion from machinery and vehicles accessing the site.

5.2.3 Key Threatening Processes

The Key Threatening Processes (KTPs) listed under the BC Act and / or EPBC Act that are likely to be relevant to the proposed development include:

- Clearing of native vegetation (BC Act) / land clearance (EPBC Act)

5.2.4 Test of Significance

5.2.4.1 Endangered Ecological Communities

No endangered ecological communities were present within the subject site; hence no further assessment is required under Section 7.3 of the BC Act for endangered ecological communities.

5.2.4.2 Threatened Flora

No threatened flora species were recorded within the study area during the survey. Furthermore, no suitable habitat was present for any threatened flora species due to the high level of vegetation modification and disturbance. Hence no further assessment is required under Section 7.3 of the BC Act for threatened flora species.

5.2.4.3 Threatened Fauna

One species was deemed potentially likely to occur on site – the Koala. As such, a test of significance was performed for this species.

Due to small number of trees to be removed, as well as the large, undisturbed patch in close proximity, the site is considered to be of low importance to the persistence of any Koala populations in the locality. Although Koalas have been recorded in relatively close proximity, these have not been recorded on site and mostly occur in the adjacent conservation area. The small number of trees within the subject that are proposed for removal (0.14 ha) are relatively few in comparison to the large, undisturbed conservation area adjacent to the site, and their removal will not fragment this habitat. The significant foraging habitat present within close proximity to the study area is much more likely to be used than the trees within the subject area which are on the fridge of the local patch. This is supported by the lack of any previous records of Koala on the subject site and no evidence of Koala usage found during the field survey.

The Tests of Significance under the BC and EPBC Act was undertaken for the Koala, with no significant impacts found.

5.3 Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. Under the Act, any action which "has, will have, or is likely to have a significant impact on a MNES" is defined as a controlled action and requires approval from the Commonwealth Department of Agriculture, Water and the Environment (DAWE) which is responsible for administering the EPBC Act.

No threatened ecological communities, flora or fauna species listed under the EPBC Act were recorded during the field surveys and based on habitat assessments, are unlikely to be adversely impacted by the proposal. It is noted that some threatened fauna species utilise the study area, though no threatened fauna have been observed on site. In particularly, a test of significance was undertaken for the Koala.

However, this species is highly mobile and the amount of habitat to be impacted is negligible in comparison to the availability of similar habitat in the adjacent landscape and locality.

Therefore, one Commonwealth test of significance was required for the koala, with no significant impact found. No test of significance was conducted for any threatened ecological communities or flora species.

5.4 State Environmental Planning Policy (Koala Habitat Protection) 2020

Wingecarribee Shire Council local government area (LGA) is a listed LGA for which the State Environmental Planning Policy (Koala Habitat Protection) 2020 applies. The dominant species on site was *E. globoidea* (> 15% of the total number of trees in the upper strata), which is a known feed species of the Koala (OEH 2018). As such, the site would be considered potential Koala habitat. Investigation was therefore undertaken to determine whether the site could be considered core Koala habitat. This is assessment is based on the protocol outlined in 2.1 of the SEPP, including:

- examine the presence of Koalas on the subject site and provide details on the extent and nature of identified populations, including: an estimate of population size; extent of tree use on the site and species utilised, (established by observing Koalas or their sign e.g. dung and scratch marks); evidence of breeding females (including females with young) and the presence of juveniles or sub-adults in the population
- provide a vegetation map of the site which identifies the components of the tree layer and a description of the shrub layer
- make use of other published or publicly available data relating to the fauna of the site. This could include sources such as previous fauna surveys and impact statements, plans of management for Koalas completed by the National Parks and Wildlife Service and the information available on Koala distribution in the Koala Habitat Atlas (Australian Koala Foundation)
- employ standard, reportable techniques of Koala survey, such as a properly designed on site survey using standard techniques or use of a community-based survey to determine location of koala populations.

Based on the above, the subject site was not considered core Koala habitat as no Koalas or signs (scats or scratch marks) of Koalas were found on site, despite vegetation mapping showing suitable habitat, the lack of any mid-storey vegetation and no prior records of Koalas on site.

6. Conclusion and recommendations

No threatened ecological communities were identified on site. No threatened flora or fauna have been recorded on site or were recorded during the field survey.

Marginal foraging habitat is available for Koalas which may utilise the subject site an occasional basis. However, the species is unlikely to rely on these limited foraging resources for survival given the high-quality habitat in the surrounding area (Upper Nepean State Conservation Area).

Several threatened microbat species have been recorded in the study area, but only one small stag and no hollow bearing trees or rocky outcrops that would be suitable for roosting for any microbat species were found. The vegetation on site may provide marginal foraging habitat, but its removal is unlikely to have a significant impact on any microbat species, with higher quality habitat available in the surrounding area. It is unlikely that any additional threatened fauna utilise the subject site, due to the lack of records within the subject site, the degraded nature of the vegetation, the small number of trees to be removed and the availability of larger high quality patches of vegetation located in the surrounding area.

The following recommendations have been made to reduce, eliminate or mitigate any detrimental effects that the proposed activities could have on fauna and flora:

- Prior to the works beginning
  - Identify no-go areas of nearby vegetation to be protected during works. Install physical barriers (e.g. temporary fences) or highly visible tape to delineate these areas and prevent any accidental damage to trees that are to be protected.
  - Install sediment and erosion controls to prevent sedimentation of the riparian corridor.
- During construction works
  - Maintain tree protection and sedimentation controls
  - Engage an Ecologist to undertake pre-clearance surveys and supervise clearance of habitat trees.
- Post construction
  - Remove temporary tree protection barriers and sedimentation controls.

7. References

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Office of Environment and Heritage (OEH) 2020. *Atlas of NSW Wildlife.* http://www.bionet.nsw.gov.au/ Accessed 01 February 2021.

Appendix A Likelihood of occurrence table

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the site inspection and professional judgement. Some Migratory or Marine species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. The terms for likelihood of occurrence are defined below:

- 'known' = the species was or has been observed on the site
- 'likely' = a medium to high probability that a species uses the site
- 'potential' = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- 'unlikely' = a very low to low probability that a species uses the site
- 'no' = habitat within the subject site and in the vicinity is unsuitable for the species

- Information provided in the habitat associations' column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database and the NSW Threatened Species Profiles. Species and communities that have the potential to occur, are likely to occur or are known to occur have been boldened in the below table

Community Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
Coastal Upland Swamps in the Sydney Basin Bioregion	E	E	Endemic to NSW and confined to the Sydney Basin Bioregion. It occurs in the eastern Sydney Basin from the Somersby district in the north (Somersby-Hornsby plateaux) to the Robertson district in the south (n the Woronora plateau). Occur primarily on impermeable sandstone plateaux with shallow groundwater aquifers in the headwaters and impeded drainage lines of streams, and on sandstone benches with abundant seepage moisture. Generally associated with acidic soils.	No - this community was not identified within the development site during field survey.	No
Robertson Rainforest in the Sydney Basin Bioregion	E		Restricted distribution in the eastern parts of the Southern Highlands of NSW. There are two main occurrences of the community within this distribution: on the Robertson Plateau around the town of Robertson and on the higher parts of the Cambewarra Range further to the south. Occurs almost exclusively on highly fertile soils derived from basalt and basanite. Appears to be restricted to the Robertson Basalt; no observations of the community have been recorded on the surrounding Wianamatta Shale. Found at altitudes of between 500 to 700 metres.	No - this community was not identified within the development site during field survey.	No
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	CE	CE	Occurs at the edges of the Cumberland Plain in western Sydney, most now occurs in the Hawkesbury, Baulkham Hills, Liverpool, Parramatta, Penrith, Campbelltown and Wollondilly local government areas. Intergrade between clay soils from the shale rock and earthy and sandy soils from sandstone, or where shale caps overlay sandstone.	No - this community was not identified within the development site during field survey.	No

Community Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
Southern Highlands Shale Forest and Woodland in the Sydney Basin Bioregion	E	CE	Confined to a small area in the Southern Highlands, within an area bounded approximately by the Illawarra Escarpment in the east, Burrawang and Bundanoon in the south, Canyonleigh in the west and Berrima and Colo Vale in the north. Restricted to clay soils derived from Wianamatta Shale. Occurs at elevations of between 600 to 800 m. Generally found on gently rolling hills, though sometimes on steeper slopes.	No - this community was not identified within the development site during field survey.	No
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion		E	Generally confined to the Sydney Basin bioregion, including the Moss Vale, Ettrema, Burragorang, Sydney Cataract, and Wollemi IBRA sub-regions. However, some patchesmay extend into in the Kanangra and Oberon IBRA sub-regions of the South Eastern Highlands bioregion. Found on igneous rock (predominately Tertiary basalt and microsyenite). Typically occurs at elevations between 650 and 1050 m above sea level.	No - this community was not identified within the development site during field survey.	No
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	E	CE	Occurs in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria. In NSW, it occurs in the Brigalow Belt South, Nandewar, New England Tableland, Sydney Basin, NSW North Coast, South Eastern Highlands, South East Corner, NSW South Western Slopes and Riverina Bioregions. Areas where rainfall is between 400 and 1200 mm per annum, on moderate to highly fertile soils at altitudes of 170 m to 1200 m.	No - this community was not identified within the development site during field survey.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
FAUNA						
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V		Widespread in NSW from coast to inland including the western slopes of the Great Dividing Range and farther west. Species have also been recorded in southern and southwestern Australia. Woodlands and dry open sclerophyll forest, usually eucalypts and mallee associations. Also have recordings in shrub and heathlands and various modified habitats, including regenerating forests. In western NSW, this species is primarily associated with River Red Gum/Black Box/Coolabah open forest/woodland and associated with larger river/creek systems.	Unlikely - suitable habitat not identified within the development site.	No
Callocephalon fimbriatum	Gang-gang Cockatoo population in the Hornsby and Ku-ring-gai Local Government Areas	E2,V		The population is believed to be largely confined to an area bounded by Thornleigh and Wahroonga in the north, Epping and North Epping in the south, Beecroft and Cheltenham in the west and Turramurra/South Turramurra to the east. Forest and woodland, urban fringes.	No - suitable habitat not identified within the development site.	No
Callocephalon fimbriatum	Gang-gang Cockatoo	V		In NSW, distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. Isolated records known from as far north as Coffs Harbour and as far west as Mudgee. Tall mountain forests and woodlands in summer; in winter, may occur at lower altitudes in open eucalypt forests and woodlands, and urban areas.	No - suitable habitat not identified within the development site.	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	Unlikely - suitable habitat not identified within the development site.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
				ridges where suitable stands of its food plant Allocasuarina verticillata (Drooping Sheoak) remain.		
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 - suitable habitat not identified within the development site.	No
Daphoenositta chrysoptera	Varied Sittella	V		Distribution in NSW is nearly continuous from the coast to the far west. Inhabits eucalypt forests and woodlands, mallee and Acacia woodland.	Unlikely - suitable habitat not identified within the development site.	No
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V		The Eastern Freetail-bat is found along the east coast from south Queensland to southern NSW. Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range.	Unlikely - suitable habitat not identified within the development site.	No
Miniopterus orianae oceanensis	Large Bent-winged Bat	V		Eastern Bentwing-bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	Likely - No roost identified but is likely to be transient in the area.	No
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		South-east coast and ranges of Australia, from southern Qld to Victoria and Tasmania. In NSW, records extend to the western slopes of the Great Dividing Range. Tall (greater than 20m) moist habitats.	Unlikely - suitable habitat not identified within the development site.	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.	Unlikely - suitable habitat not identified within the development site.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
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.	Unlikely - suitable habitat not identified within the development site. But may hunt in the area.	No
Hirundapus caudacutus	White-throated Needletail		M	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide. Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	Unlikely - suitable habitat not identified within the development site.	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.	Unlikely - suitable habitat not identified within the development site.	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.	Unlikely - suitable habitat not identified within the development site.	No
Petauroides volans	Greater Glider population in the Eurobodalla local government area	E2	V	This population on the south coast of NSW is bounded by the Moruya River to the north, Coila Lake to the south and the Princes Highway and cleared land exceeding 700 m in width to the west. Eucalypt forests and woodlands.	No - suitable habitat not identified within the development site.	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 - suitable habitat not identified within the development site.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
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 - suitable habitat not identified within the development site.	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.	Unlikely - suitable habitat not identified within the development site.	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.	Unlikely - suitable habitat not identified within the development site.	No
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 - suitable habitat not identified within the development site.	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	No - suitable habitat not identified within the development site.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
				Bloodwood - Scribbly Gum Woodland, Bilgola Plateau Forest and the Grey Ironbark - Grey Gum form of the Newport Bangalay Woodland.		
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.	Likely – known population nearby with sightings close to property boundary	Yes
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.	Unlikely - No roost identified with no known significant camps in the study area. Higher quality, interconnected habitat occurs in the surrounding area which is likely preferred. Only once occurrence has been recorded on the edge of the study area (~5km).	No
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	No - suitable habitat not identified within the development site.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
				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.		
Scoteanax rueppellii	Greater Broad-nosed Bat	V		Both sides of the great divide, from the Atherton Tableland in Qld to north-eastern Victoria, mainly along river systems and gullies. In NSW it is widespread on the New England Tablelands. Woodland, moist and dry eucalypt forest and rainforest.	Likely – known population nearby with sightings close to property boundary	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
FLORA						
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 - this community was not identified within the development site during field survey.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
Commersonia prostrata	Dwarf Kerrawang	E1	E	In NSW, found in the Southern Highlands and Southern Tablelands (Penrose State Forest, Tallong, near the Corang, and Rowes Lagoon), the Thirlmere Lakes area and on the North Coast (Tomago sandbeds north of Newcastle). Eucalyptus pauciflora (Snow Gum) Woodland; Ephemeral Wetland floor; *E. agglomerata* (Blue leaved Stringybark) Open Forest*; E. mannifera* (Brittle Gum) Low Open Woodland; *E. haemostoma* (Scribbly Gum)/ *E. robusta* (Swamp Mahogany) Ecotonal Forest.	No - this community was not identified within the development site during field survey.	No
Grevillea parviflora subsp. parviflora	Small-flower Grevillea	V	V	Sporadically distributed throughout the Sydney Basin and in the Hunter in the Cessnock - Kurri Kurri area. Also known from Putty to Wyong and Lake Macquarie on the Central Coast. Heath and shrubby woodland to open forest on sandy or light clay soils usually over thin shales.	No - this community was not identified within the development site during field survey.	No
Persoonia glaucescens	Mittagong Geebung	E1	V	Recent surveys place the present southern limit near Berrima and the northern limit near Buxton. Woodland to dry sclerophyll forest on clayey and gravely laterite.	No - this community was not identified within the development site during field survey.	No
Persoonia mollis subsp. maxima		E1	E	Restricted to the Hornsby Heights-Mt Colah area north of Sydney. Dry to wet sclerophyll forest, in deep sheltered gullies or steep upper hillsides on Hawkesbury Sandstone.	No - this community was not identified within the development site during field survey.	No

Appendix B Biodiversity Conservation Act 2016 Test of Significance for the Koala

The Koala is listed as vulnerable under the BC Act. This species was not observed during field survey and has not been recording on the subject site. The construction of the low density residential dwelloign will remove 0.14 ha of native vegetation, which includes species that are potential foraging habitat for this species. A relatively large number of the species has been recorded in the study area, predominately in the adjacent Upper Nepean Conservation Area.

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 proposed clearance on the subject site would result in removal of 0.14 ha of vegetation, predominately of the species *Eucalyptus globoidea* – a key feed species of the Koala. However, a small number of mature trees (~30) are to be removed, with large areas of suitable habitat occurring adjacent to the site (25,969 ha of conservation reserve). No Koala have been observed on site previously or during the field survey, and as such, the site is unlikely to represent suitable breeding habitat. Given that the species is highly mobile, it is likely to move to the higher quality patch in the Upper Nepean State Conservation Area if present in the subject area.
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: 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.	Not applicable
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 proposed clearance of the subject site will result in the removal of 0.14 ha of native vegetation, most which is considered potential feeding habitat for the Koala (i.e. *E. globoidea*). However, the number of trees to be removed is very small and similar habitat is available adjacent to the site in the Upper Nepean State Conservation Area
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community:	Vegetation removal (0.14 ha) will be minimal, relative to the adjacent larger patches of high quality vegetation. The vegetation available closer to known

BC Act	Question	Response
	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	localities of Koala, is likely of higher quantity and would therefore be used preferentially by this highly mobile.
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 site is on the fringe of a larger intact native vegetation patch, with most surrounding areas having been already cleared. The disturbed nature of the site, which has likely previously been cleared with no mid-storey vegetation, means that the species is unlikely to be using the vegetation that is proposed to be removed in preference to the vegetation available within the Upper Nepean. This is supported by the lack of prior records on site.
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).	There are no areas of outstanding biodiversity within the subject site.
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, the removal of native vegetation, is relevant to this proposal. The proposed works are unlikely to contribute significantly to this process given that only 0.14 ha of natives are proposed to be removed.
Conclusion	Is there likely to be a significant impact?	The proposal is unlikely to constitute to a significant impact on the Koala given the following: • A low number of feed trees are to be removed with the current proposed development. • No individuals have been recorded previously on the site, and no evidence of use was overserved during the field survey. Most previous sightings are clustered within the adjacent Upper Nepean State Conservation Area, which is likely preferred being higher quality, undisturbed and unfragmented. • As a result, the proposed development will not trigger the Biodiversity Offset Scheme with respect to impacts to the Koala.

Appendix C Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significance for the Koala

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. Under the Act, any action which "has, will have, or is likely to have a significant impact on MNES" is defined as a "controlled action", and requires approval from the Commonwealth Department of Agriculture, Water and the Environment (DAWE), which is responsible for administering the EPBC Act.

The EPBC Act Significant Impact Criteria was applied to one species, *Phascolarctos cinereus* (Koala), which may occur in the subject site. Koala is listed as vulnerable under the EPBC Act.

Criterion	Question	Response
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1)	lead to a long-term decrease in the size of an important population of a species Note: An 'important population' is a population that is necessary for a species' long-term survival and recovery (DoAWE 2013).	Several significant clusters of Koala records occur in the study area, situated within the Upper Nepean State Conservation Area. However, despite the relatively close proximity of the site to these clusters (< 5km), no Koala records have been made on site, and no signs of Koalas were observed during the field survey. Given the abundance of suitable habitat in the local area, particularly in the conservation area, the removal of a small number (0.14 ha) of potential feed trees, is unlikely to lead to the long-term decrease in the size of these populations. The trees to be removed are at the fringe of this large intact patch, and this highly mobile species is likely to simply move to the conservation area if present onsite.
2)	reduce the area of occupancy of an important population	The Southern Highlands koala population is the largest population in NSW. The Upper Nepean State Conservation Area is likely a key strong hold for this population. However, the small number of trees to be removed on the boundary of this area (within private property) is unlikely to significant decrease the potential habitat available for this population, given the vast size (25,969 ha) and lack of fragmentation of this patch. No individuals have been recorded on the subject site, and few occur outside this conservation area.
3)	fragment an existing important population into two or more populations	The small number of trees to be removed (0.14 ha) occur on the fringe of suitable habitat for Koalas. Much of the surrounding area has already been cleared, and as such, most records occur within the in fact and undisturbed conservation area. As such, the removal of vegetation within the subject site will not fragment the nearby popuatlion.
4)	adversely affect habitat critical to the survival of a species Note: 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:	No individuals have been recorded within subject site, which occurs on the fringe of a larger, higher quality patch available to the species. This adjacent habitat (within the Upper Nepean State Conservation Reserve) is protected under state legislation and will therefore remain for the foreseeable future. The small number of trees to be

Criterion	Question	Response
	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.	removed on site will not have a significant impact on this important patch, and any individuals would likely move to within this patch if present on site.
5)	disrupt the breeding cycle of an important population	The proposed action will not disrupt the breeding cycle of the Koala given that no records occur on site and no evidence of Koala usage was recorded during the field survey. As such, the species is unlikely using this vegetation for breeding.
6)	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 action will remove/modify up to 0.14 ha of vegetation, occurring at the fringe of a much large, high quality patch. It is unlikely that the extent of this vegetation removal will cause the species to decline because suitable habitat is available nearby to the study area.
7)	result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The proposal would not result in invasive species, such as weeds, that would be harmful to Koala. It is unlikely that the proposed clearance of the subject site will result in a large increase in the number of weeds due to the current disturbed nature of the site, particularly if managed during development
8)	introduce disease that may cause the species to decline, or	The most significant disease in Koala populations is chlamydia, a highly infectious bacterial disease. This is transferred between individuals during mating and feeding of the young. As there is no evidence of a significant number of individuals using the site, removal of vegetation within the subject area is unlikely to drive significant movement in Koala populations, which may drive increased rates of transmission.
9)	interfere substantially with the recovery of the species.	The removal of a small number of foraging tree is unlikely to interfere substantially with the recovery of the species.
Conclusion	Is there likely to be a significant impact?	The proposal is unlikely to result in a significant impact on Koala. More suitable foraging and breeding habitat for this highly mobile species is available nearby to the study area.

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