13 October 2019

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Australian War Memorial underground carpark – Ecological Impact Assessment

Capital Ecology project no. 2890

Dear Mr Nash,

This letter provides an Ecological Impact Assessment (EIA) for a portion of Block 3, Section 39, Campbell, ACT (the 'study area'). Block 3 contains the eastern Australian War Memorial ('AWM') and associated development. The study area (0.98 ha) is located immediately to the east of Poppy's Café and currently contains an access road and an urban park with predominantly planted native vegetation. We understand that the AWM is proposing to develop the study area for an underground carpark (the 'proposed development', 0.36 ha).

Figure 1 shows the location of the study area. Figure 2 shows the study area and ecological values as described in this EIA, on 2018 aerial imagery.

The study area is located in the suburb of Campbell and is bordered:

- to the north by adjoining areas of the AWM land, beyond which is Mt Ainslie Nature Reserve;
- to the east by adjoining areas of the AWM land, beyond which is Treloar Crescent and then a patch of remnant Yellow Box – Red Gum Grassy Woodland within Block 18, Section 42, Campbell;
- to the south by Fairbairn Avenue and adjacent residential areas of Campbell; and
- to the west by the AWM, beyond which are the suburbs of Reid and Braddon.

The primary aim of this EIA is to determine and assess the impacts of the proposed development upon habitat for terrestrial flora and fauna species and ecological communities listed as threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As the proposed action will be carried out by the Commonwealth Government (i.e. the AWM) and will occur on Commonwealth/National land, the significance of the proposed action on the 'whole of environment'

must also be assessed. Accordingly, matters listed pursuant to the *ACT Nature Conservation Act 2014* (NC Act) or otherwise of currently recognised specific conservation significance in the ACT are also addressed.

This EIA has been prepared based on:

- information provided by Purdon Planning Pty Ltd, notably the location of the proposed development (GHD Pty Ltd 2019[1]);
- the results of database searches for the study area, including the EPBC Act Protected Matters Search Tool (PMST), ACTMAPi, and Canberra Nature Map;
- a review of relevant studies and other background information, including the surveys and sources referenced herein;
- a two-hour field survey on 19 June 2019, completed to record and assess the ecological values of the study area; and
- the knowledge of the authors regarding the biota of the locality, specifically the threatened ecological communities, flora, and fauna (and associated habitat) with the potential to occur in the lowland ecosystems of the region.

1. Background

No 'Significant Plants and Animals' are mapped within the study area on the ACT Government ACTMAPi online mapping tool. ACTMAPi identifies small areas to the east and south-east of the study area as NC Act listed Yellow Box – Red Gum Grassy Woodland (commonly known as Box-Gum Woodland).

The 'Territory Plan – Land Use Zone' of the study area is 'DES: DESIGNATED'.

The entire study area is a 'Designated Area' under the National Capital Plan (NCP). Within Designated Areas the National Capital Authority (NCA) has responsibility for determining detailed planning policy and for Works Approval (otherwise known as development assessment) under the *Australian Capital Territory (Planning and Land Management) Act 1988*.

As detailed in Appendix D (Likelihood of Occurrence Assessment), database searches returned 42 EPBC Act and/or NC Act listed threatened species and two EPBC Act and/or NC Act listed threatened ecological communities as having the potential to occur in the locality.

2. Current ecological values

2.1 Tree Assessment Methods

On 19 June 2019, Capital Ecology visited the study area and assessed the trees located within the study area. Each of the trees was identified to species and marked via hand-held GPS. Data collected for each tree included:

- tree number;
- species;

[1] GHD Pty Ltd (2019). *Poppy's Carpark Extension – General Arrangement – Ground Level Option 2*. Drawing SK0111 Revision A, 23 May 2019.

- remnant/planted;
- circumference (cm) and DBH (cm);
- height (m);
- presence of any hollows and the size of hollows; and
- presence of any other habitat values such as nests, mistletoe etc.

Note: the tree data collected by Capital Ecology were edited post survey to ensure consistency with the tree numbering and precise tree locations as presented in the Preliminary Arboricultural Report[2].

2.2 Vegetation Survey Methods

On 19 June 2019, Capital Ecology undertook a survey to identify, assess and map the current vegetation and habitat values within the study area. The first step of the vegetation survey involved identifying the Plant Community Type (PCT) of the study area (as defined in ACT Government 2015[3]). The PCT was identified by walking across and around the study area, reading the landscape, considering numerous landscape elements, such as the:

- presence, species, growth form and density of remnant canopy trees and/or stags or stumps of these;
- presence and species of midstorey shrubs and trees;
- floristic composition of the groundstorey; and
- the landscape position and other geographical features (elevation, aspect, soils, apparent hydrology etc.).

The study area was then assessed to identify polygons of vegetation which are currently in discernibly different condition and map these as vegetation zones.

2.3 Tree Assessment Results

The results of the tree habitat assessment are provided in Appendix A. Figure 2 shows the study area and assessed trees on 2018 aerial imagery.

In total, 76 live trees within the study area were assessed, one of which (Tree #37) was determined to be a naturally occurring remnant tree Yellow Box *eucalyptus melliodora* (refer Plate 1). All remaining trees are either planted locally occurring species or planted non-locally occurring species. Of the 76 trees, only one (Tree #28) currently contains a hollow and therefore provides a potential nesting/roosting habitat resource to hollow-dependant fauna (refer Appendix A). Given the location and the large number of pellets at the base of the tree, it is likely that the hollow recorded this tree is occupied by a Common Brushtail Possum *Trichosurus vulpecula*.

Note: the tree data collected by Capital Ecology were edited post survey to ensure consistency with the tree numbering and precise tree locations as presented in the Preliminary Arboricultural Report.

[2] Canopy Tree Experts Pty Ltd (2019). *Preliminary Arboricultural Report for part of Australian War Memorial, (Block 3 Section 39) Campbell, ACT, for Poppy's Car Park Extension*.
[3] ACT Government (2015). *ACT Vegetation Types Database – Attachment to the ACT Environmental Offsets Calculator Assessment Methodology.* 18 May 2015.

2.4 Vegetation Survey Results

The entire study area was found to contain a single PCT, namely 'PCT-ACT16 – *Eucalyptus melliodora* – *E. blakelyi* Tableland Grassy Woodland'. The species list compiled via by a random meander survey throughout the study area is presented in Appendix B.

As described in Section 2.3, Tree #37, an old Yellow Box, is the only remnant tree in the study area. While some of the other trees are PCT appropriate species (refer Figure 2), their age and size indicate that they have be planted. The non-remnant mature native trees were planted approximately 20 - 50 years ago and are predominately non-local species such as Blue Gum *Eucalyptus bicostata*.

The entire study area has been historically modified and is now characterised by a maintained recreational park with several benches, and a service road to Poppy's Café and the existing AWM underground carpark. As a result, the majority of the study area has been intensively landscaped and regularly mown over a long period of time (refer Plate 2). This has heavily modified the groundlayer, completely removed the midstorey, and encouraged the proliferation of exotic groundstorey species. The native non-grass species present in the groundstorey are primarily non-local native species of various provenance, all of which have been planted for landscaping purposes.

The study area contains a groundlayer dominated by exotic grasses and herbaceous weeds, notably Capeweed *Arctotheca calendula*, Chilean Needle Grass *Nassella neesiana*, and African Lovegrass *Eragrostis curvula,* Ribwort Plantain *Plantago lanceolata,* Flatweed *Hypochaeris radicata*, and Red-flowered Mallow *Modiola caroliniana* (Appendix B, Photo Plate 3). Some small, isolated patches contain native Windmill Grass *Chloris truncata*, however this species represents a small percentage of overall groundcover.

2.5 Threatened Ecological Communities

The following two threatened ecological communities (TECs) were identified on the EPBC Act PMST as potentially occurring within the study area. Their presence within the study area, based on EPBC Act and NC Act criteria, is assessed below.

Natural Temperate Grassland of the South Eastern Highlands.

Listed as:

- critically endangered pursuant to the EPBC Act; and
- endangered pursuant to the NC Act.

Description: The Natural Temperate Grassland TEC is characterised by grassy vegetation dominated by moderately tall (25–50 cm) to tall (50–100 cm), dense to open tussock grasses in the genera *Rytidosperma*, *Austrostipa*, *Bothriochloa*, *Poa* and *Themeda*, with good quality patches supporting a diversity of native forbs. The community may be treeless or contain up to 10% cover of trees, shrubs or sedges. Natural Temperate Grassland occurs within the biogeographical region of the South Eastern Highlands in valleys influenced by cold air drainage and in broad plains.

Potential for occurrence: None – as detailed above, the climax (i.e. pre-European) ecological community for the entire study area is 'PCT-ACT16 – *Eucalyptus melliodora – E. blakelyi* Tableland Grassy Woodland'. No part of the study area would have once supported a grassland PCT.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Listed as:

- critically endangered pursuant to the EPBC Act; and
- endangered pursuant to the NC Act.

Description: The White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs (where shrub cover comprises less than 30% cover), and a dominance or prior dominance of White Box and/or Yellow Box and/or Blakely's Red Gum trees. This TEC occurs along the western slopes and tablelands of the Great Dividing Range from southern Queensland through New South Wales and the Australian Capital Territory to Victoria.

Potential for occurrence (EPBC Act or NC Act): The vegetation within the study area has been assessed against the flowchart provided in the EPBC Act Box-Gum Woodland Policy Statement[4] and does not meet the criteria for Box-Gum Woodland as the groundstorey is predominantly exotic.

Potential for occurrence – NC Act:

Box-Gum Woodland meeting the NC Act listed community was defined in Action Plan 10 (ACT Government 1999[5]) and Action Plan 27 (ACT Government 2004[6]) as any polygon in which:

- *the proportion of crown cover contributed by either E. melliodora or E. blakelyi or both jointly is ≥ 40%; and*
- *understorey is not exotic pasture; and*
- *remnants are not isolated trees or clumps.*

Polygons within which most or all of the trees have been cleared (described as secondary grassland) also constitute the NC Act listed community, provided:

- *Yellow Box and/or Blakely's Red Gum are estimated to have previously been the dominant or co-dominant species; and*
- *the groundstorey is predominately native; and*
- *a moderate diversity of native groundstorey species is present.*

According to this definition, the vegetation within the study areas does not meet the criteria for this community as the groundstorey is predominantly exotic.

2.6 Likelihood of Occurrence Assessment

The Likelihood of Occurrence Assessment for threatened flora and fauna species is a categorisation used to determine the likelihood that the subject species occurs within a site. The results are based on the

[4] Commonwealth of Australia (2006). *Policy Statement 3.5: White Box – Yellow Box – Blakely's Red Gum grassy woodlands and derived native grasslands*.
[5] ACT Government (1999). *Yellow Box – Red Gum Grassy Woodland: An endangered ecological community. Action Plan No. 10.* Environment ACT, Canberra.
[6] ACT Government (2004). *Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy. Action Plan No. 27*. Environment ACT, Canberra.

findings of completed desktop studies and field surveys, expert opinion, and consideration of the species' currently recognised distribution and preferred habitat.

Threatened species and populations included in the Likelihood of Occurrence Assessment include all of those identified during the database and literature review as potentially occurring within 10 kilometres of the study area. Also included are threatened species listed pursuant to the NC Act alone and considered by Capital Ecology to have some potential to occur within the study area.

The likelihood of a species occurring within the study area is categorised as either negligible, low, moderate, or high. A species that has been identified within the study area during the surveys for this study or by other confirmed records is expressed as confirmed.

The completed Likelihood of Occurrence Assessment is provided as Appendix D.

2.7 Threatened Flora Occurrence

No threatened flora species were recorded within the study area during the survey, and as detailed in the Likelihood of Occurrence Assessment (refer Appendix D), no threatened flora species with the potential to occur in the locality are considered to have a moderate or higher likelihood of occurrence within the study area.

2.8 Fauna Habitat and Threatened Fauna Occurrence

Native birds recorded during the field survey include the Australian King-Parrot *Alisterus scapularis*, Little Raven *Corvus mellori*, Australian Magpie *Gymnorhina tibicen*, Noisy Miner *Manorina melanocephala,* Eastern Rosella *Platycercus eximius,* and the Rainbow Lorikeet *Trichoglossus haematodus.*

As recorded during the field survey, the study area supports the following fauna habitat features.

- One large mature remnant Yellow Box (refer Plate 1). This tree contains no hollows with a void which may be of habitat value to hollow dependant fauna. This tree has a gnarled form, split trunk structure, and is generally of poor form and condition.
- A variety of planted non-local mature eucalypt trees, consisting primarily of Blue Gum *Eucalyptus bicostata* (refer Plate 4). This species is commonly planted for native landscaping as it grows quickly and of high value aesthetically. Blue Gums do not occur naturally in the ACT region, and those within the study area were planted, likely during the development of the urban park. These trees would provide a nectar resource for numerous honeyeater species and other birds when in flower, however they are unlikely to provide important nesting habitat for native bird species.
- The study area supports a sparse understorey dominated by exotic species. Such areas are unlikely to be of value to threatened fauna species, but may be used by common native fauna (e.g. birds, kangaroos, reptiles, arthropods).
- As detailed in the Likelihood of Occurrence Assessment (refer Appendix D), several threatened woodland birds may visit the study area to forage. However, it is unlikely that the foraging resources present within the study area constitute an important proportion of those present within the locality for any threatened fauna species.
- The study area is unlikely to constitute important habitat for any EPBC Act listed migratory birds, although some migratory species may periodically forage within the study area.

The fauna habitat within study area is adjacent to high quality habitat to the north-east (Mt Ainslie Nature Reserve). Given that the study area is currently a manicured park-like area (refer Plate 5), it is unlikely that it constitutes a significant component of a wildlife movement corridor or is otherwise of high importance for fauna habitat connectivity. This is evident in the study area not being identified as a 'Local Link' or as possessing 'Regional Linkage Value' on ACTMAPi.

In summary, the fauna habitat within the study area has been substantially modified by the use of the land for recreational purposes, notably the associated intensive landscaping primarily with native planted eucalypts, mowing of open areas, and other ongoing management. As a result, the only remaining features of fauna habitat of value in the study area are the planted eucalypt trees (primarily comprising species not native to the area) and the single remnant Yellow Box. These are unlikely to provide important habitat for threatened species.

3. Avoidance, Minimisation and Mitigation Measures

In order to reduce potential impacts on the ecological values within the study area and adjoining land, a number of measures will be implemented during and following the proposed development. These are described below.

Weed Management

The weed management measures that will be implemented to prevent the introduction and/or spread of weeds include the following.

- Appropriate vehicle hygiene will be maintained. Vehicles and machinery entering the study area will be clean of weed seed or propagules.
- Only sterile materials such as hessian/jute or rice straw will be used for soil stabilisation or similar purposes.
- For 12 months following conclusion of the works, significant weeds will be controlled throughout the study area by a qualified and experienced weed control contractor.

A weed control program will be developed to prevent the establishment and spread of significant weeds and control other less significant exotic species (lawn/pasture grasses etc.) within road verges, landscaped areas, and other open space.

Recommendations for Landscaping

Local native species will be used for landscaping to the fullest extent practicable. Where practicable within open space areas, all strata will be re-established (i.e. groundcover, midstorey shrubs, and canopy trees) to create habitat complexity. This will discourage urban adapted species and encourage small woodland birds to visit the land. Open space plantings will comprise species appropriate for the applicable historical PCT (PCT-ACT16 Box-Gum Woodland).

Retention of Trees

The study area contains a single remnant Yellow Box *Eucalyptus melliodora* tree, which occurs approximately five metres to the east of the border of the proposed development site. The proposed development has been designed to retain this remnant tree. However, as noted in Section 2.8, given the age and generally poor form and condition of the tree, the suitability of retaining it in close proximity to the proposed development should be determined by a qualified arborist based on the assessment provided in the Preliminary Arboricultural Report.

The other trees in the study area are planted (i.e. non-remnant) native trees comprising a mix of locally occurring species and non-locally occurring species. As discussed in Sections 2.3 and 2.7, while these trees may provide some foraging habitat for native bird species, they are unlikely to constitute important habitat for any listed fauna species.

Considering the above, the removal of the trees in the proposed development site is unlikely to significantly impact native fauna in the locality. Therefore, whilst we recommend retaining the existing trees in the study area where possible, they should not be retained if this will constrain the proposed development.

4. Summary of Proposed Direct Impacts

As illustrated in Figure 2, the proposed development will result in the maximum clearance of a total area of 3,632 m^2 (0.36 ha) of vegetation, consisting of planted local and non-local native trees over an exotic groundstorey. The proposed development will not impact the single remnant tree in the study area, providing its retention is deemed appropriate by a qualified arborist. The proposed development will not impact a threatened ecological community or potentially important habitat for any threatened flora or fauna species.

5. Legislative Requirements

5.1 EPBC Act Referral

Matters of National Environmental Significance

The EPBC Act is the key Commonwealth Government legislation for the protection and conservation of Australia's environment and biodiversity. The EPBC Act provides the legislative framework for the assessment and approval mechanism requiring that proposed 'actions' to be assessed in terms of their potential to impact upon 'Matters of National Environmental Significance' (MNES). MNES currently listed under the EPBC Act are:

- listed threatened species and communities;
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

Where a potential impact on a MNES may occur as a result of a proposed action, the significance of that impact must be assessed. Guidelines for determining whether an impact is significant are provided by

the Department of the Environment (Commonwealth of Australia 2013[7]). If the proposed action will, or is likely to, have a significant impact on a MNES, it must be referred to the Commonwealth Minister for the Environment and Energy. The Department of the Environment and Energy will then consider the referred action and the Minister (or his/her Delegate) will make a decision regarding whether the action requires approval under the EPBC Act.

With respect to the above, the proposed development is unlikely to impact any MNES. As such, EPBC Act referral is unwarranted and is not recommended.

Whole of Environment

As the proposed action will be carried out by the Commonwealth Government (i.e. the AWM) and will occur on Commonwealth/National land, the significance of the proposed actions on the 'whole of environment' must also be assessed. Guidelines for determining whether an impact is significant are provided by the Department of the Environment (Commonwealth of Australia 2013[8]) and are addressed below. If the proposed action will, or is likely to, have a significant impact on the 'whole of environment', it must be referred to the Commonwealth Minister for the Environment and Energy. The Department of the Environment and Energy will then consider the referred action and the Minister (or his/her Delegate) will make a determination regarding whether the action requires approval under the EPBC Act.

In deciding whether or not the proposed action is likely to have a significant impact on the 'whole of environment', the following must be considered.

- The environmental context

  The study area has been historically disturbed and currently contains an urban park and an access road adjacent to Poppy's Cafe. As such, the majority of the study area has been landscaped (primarily with non-local native species) and regularly mown over a long period of time. This has heavily modified the groundlayer and midstorey and encouraged the proliferation of exotic species. As a result, the only notable ecological value within the study area is the single remnant Yellow Box (refer Figure 2).

  The study area is adjacent to high quality habitat to the north (Mt Ainslie Nature Reserve) and is bordered to the east by a small patch of EPBC Act and NC Act listed Box-Gum Woodland. Given the historic modification of the study area, it is unlikely that it constitutes a significant component of a wildlife movement corridor or is otherwise important for fauna habitat connectivity. This is evident in the study area not being identified as a 'Local Link' or as possessing 'Regional Linkage Value' on ACTMAPi.

- The potential impacts likely to be generated by the action, including indirect consequences of the action

  As discussed above, the only notable ecological value within the study area is the single remaining remnant Yellow Box. Given the historic modification of the study area and its long-term use as an urban park, it is unlikely that this tree (or any of the planted trees) constitute a

[7] Commonwealth of Australia (2013). *Matters of National Environmental Significance - Significant Impact Guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth Department of the Environment

[8] Commonwealth of Australia (2013). *Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies - Significant Impact Guidelines 1.2. Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth Department of the Environment

significant resource for fauna in the locality. Furthermore, the study area is adjacent to high quality habitat to the north (Mt Ainslie Nature Reserve) and is bordered to the east by a small patch of EPBC Act and NC Act listed Box-Gum Woodland, these areas contain many mature eucalypt trees and expanses of important habitat for native fauna. The trees in the study area comprise only a very small proportion of the trees present within a one-kilometre radius of the study area. The loss of such a small proportion of the local vegetation is unlikely to significantly impact the environment.

With respect to the above, it is highly unlikely that the removal of the eucalypt trees in the study area will significantly impact the environment, either directly or indirectly.

- Whether mitigation measures will avoid or reduce these impacts

  The study area currently contains an urban park adjacent to the highly modified and manicured grounds of the AWM. It contains infrastructure associated with the AWM and surrounding urban parkland areas (such as tables, bins, an access road). As a result, the majority of the study area has been intensively landscaped and regularly mown over a long period of time. This has modified the groundlayer and midstorey and encouraged the proliferation of exotic species. The selection of this site for the proposed development will largely avoid impacts on the environmental values of the locality.

  As discussed previously, the only notable ecological value within the study area is the single retained remnant Yellow Box. Given the age and generally poor form and condition of this tree, the suitability of retaining it in close proximity to the proposed development should be determined by a qualified arborist based on the assessment provided in the Preliminary Arboricultural Report.

  In combination, the mitigation measures outlined above substantially avoid and/or reduce impacts on the environment.

With respect to the above, and from an ecological values perspective, the proposed development is unlikely to significantly impact upon the 'whole of environment'. As such, EPBC Act referral is unwarranted and is not recommended.

I trust that this EIA provides the information, assessment, and advice required. If, however, you should have any questions relating to any of the matters discussed herein, please do not hesitate to contact me.

Yours sincerely,

Director / Principal Ecologist

Attachments:

Figure 1. Locality Plan

Figure 2. Study Area and Ecological Values

Appendix A. Tree Habitat Assessment

Appendix B. Vegetation Survey Results Table

Appendix C. Photo Plates

Appendix D. Threatened Species Likelihood of Occurrence Assessment

References

ACT Government (1999). *Yellow Box – Red Gum Grassy Woodland: An endangered ecological community. Action Plan No. 10.* Environment ACT, Canberra.

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Commonwealth of Australia (2013). *Matters of National Environmental Significance - Significant Impact Guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth Department of the Environment

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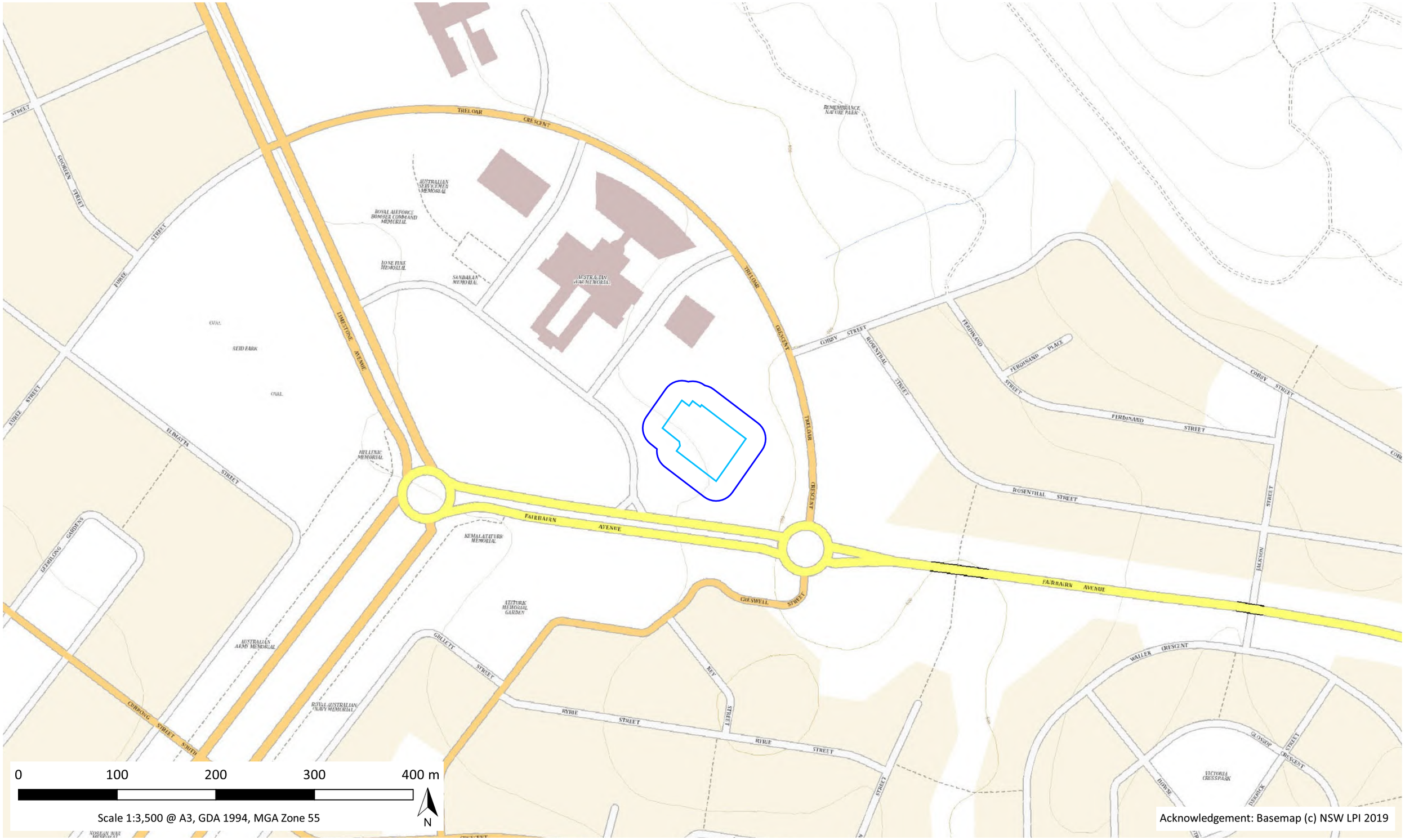

Figure 1. Locality Plan

Capital Ecology Project No: 2890
Drawn by: A. Vincent
Date: 26 June 2019

Legend

- Study Area
- Development Site

capital ecology

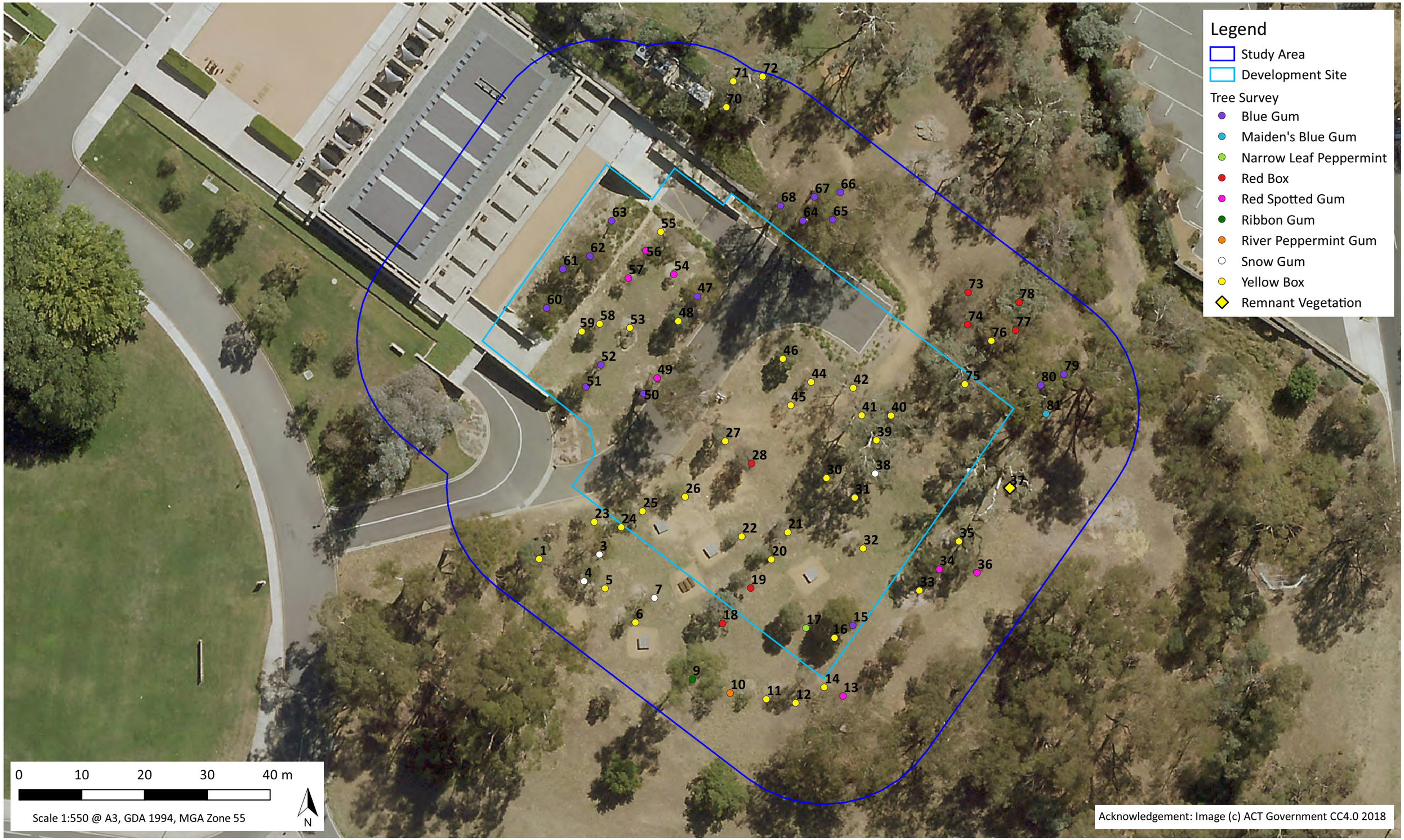

Figure 2. Study Area and Ecological Values

Capital Ecology Project No: 2890
Drawn by: R. Speirs
Date: 13 October 2019

Appendix A. Tree Habitat Assessment

Tree number	Species Name	Common Name	Remnant/ Planted	Circumference (cm)	DBH (cm)	Height (m)	Hollows (*)			
							S	M	L	XL
1	*Eucalyptus melliodora*	Yellow Box	Planted	70	22	9				
3	*Eucalyptus pauciflora*	Snow Gum	Planted	63	20	6				
4	*Eucalyptus pauciflora*	Snow Gum	Planted	54	17	5				
5	*Eucalyptus melliodora*	Yellow Box	Planted	28	9	4				
6	*Eucalyptus melliodora*	Yellow Box	Planted	34	11	4				
7	*Eucalyptus pauciflora*	Snow Gum	Planted	32	10	5				
9	*Eucalyptus viminalis*	Ribbon Gum	Planted	205	65	27				
10	*Eucalyptus elata*	River Peppermint Gum	Planted	35	11	5				
11	*Eucalyptus melliodora*	Yellow Box	Planted	30	10	3				
12	*Eucalyptus melliodora*	Yellow Box	Planted	35	11	3				
13	*Eucalyptus mannifera*	Red Spotted Gum	Planted	45	14	8				
14	*Eucalyptus melliodora*	Yellow Box	Planted	26	8	4				
15	*Eucalyptus bicostata*	Blue Gum	Planted	90	29	12				
16	*Eucalyptus melliodora*	Yellow Box	Planted	33	11	4				
17	*Eucalyptus nicholii*	Narrow Leaf Peppermint	Planted	67	21	8				
18	*Eucalyptus polyanthemos*	Red Box	Planted	76	24	8				
19	*Eucalyptus polyanthemos*	Red Box	Planted	64	20	7				
20	*Eucalyptus melliodora*	Yellow Box	Planted	36	11	4				
21	*Eucalyptus melliodora*	Yellow Box	Planted	44	14	6				
22	*Eucalyptus melliodora*	Yellow Box	Planted	26	8	3				
23	*Eucalyptus melliodora*	Yellow Box	Planted	42	13	4				
24	*Eucalyptus melliodora*	Yellow Box	Planted	47	15	7				
25	*Eucalyptus melliodora*	Yellow Box	Planted	44	14	4				
26	*Eucalyptus melliodora*	Yellow Box	Planted	41	13	4				

Tree number	Species Name	Common Name	Remnant/ Planted	Circumference (cm)	DBH (cm)	Height (m)	Hollows (*)			
							S	M	L	XL
27	*Eucalyptus melliodora*	Yellow Box	Planted	58	18	7				
28	*Eucalyptus polyanthemos*	Red Box	Planted	60	19	8				
30	*Eucalyptus melliodora*	Yellow Box	Planted	24	8	3				
31	*Eucalyptus melliodora*	Yellow Box	Planted	22	7	3				
32	*Eucalyptus melliodora*	Yellow Box	Planted	20	6	3				
33	*Eucalyptus melliodora*	Yellow Box	Planted	38	12	4				
34	*Eucalyptus mannifera*	Red Spotted Gum	Planted	65	21	5				
35	*Eucalyptus melliodora*	Yellow Box	Planted	30	10	2				
36	*Eucalyptus mannifera*	Red Spotted Gum	Planted	43	14	5				
37	***Eucalyptus melliodora***	**Yellow Box**	**Remnant**	**269**	**86**	**23**				
38	*Eucalyptus pauciflora*	Snow Gum	Planted	20	6	3				
39	*Eucalyptus melliodora*	Yellow Box	Planted	119	38	20				
40	*Eucalyptus melliodora*	Yellow Box	Planted	74	24	18				
41	*Eucalyptus melliodora*	Yellow Box	Planted	134	43	23				
42	*Eucalyptus melliodora*	Yellow Box	Planted	92	29	9				
44	*Eucalyptus melliodora*	Yellow Box	Planted	27	9	4				
45	*Eucalyptus melliodora*	Yellow Box	Planted	31	10	3				
46	*Eucalyptus melliodora*	Yellow Box	Planted	52	17	5				
47	*Eucalyptus bicostata*	Blue Gum	Planted	88	28	11				
48	*Eucalyptus melliodora*	Yellow Box	Planted	53	17	7				
49	*Eucalyptus mannifera*	Red Spotted Gum	Planted	35	11	5				
50	*Eucalyptus bicostata*	Blue Gum	Planted	253	81	23				
51	*Eucalyptus bicostata*	Blue Gum	Planted	70	22	7				
52	*Eucalyptus bicostata*	Blue Gum	Planted	29	9	5				
53	*Eucalyptus melliodora*	Yellow Box	Planted	31	10	4				
54	*Eucalyptus mannifera*	Red Spotted Gum	Planted	23	7	3				

Tree number	Species Name	Common Name	Remnant/ Planted	Circumference (cm)	DBH (cm)	Height (m)	Hollows (*)			
							S	M	L	XL
55	*Eucalyptus melliodora*	Yellow Box	Planted	55	18	5				
56	*Eucalyptus mannifera*	Red Spotted Gum	Planted	37	12	5				
57	*Eucalyptus mannifera*	Red Spotted Gum	Planted	31	10	4				
58	*Eucalyptus melliodora*	Yellow Box	Planted	43	14	5				
59	*Eucalyptus melliodora*	Yellow Box	Planted	34	11	3				
60	*Eucalyptus bicostata*	Blue Gum	Planted	89	28	8				
61	*Eucalyptus bicostata*	Blue Gum	Planted	60	19	9				
62	*Eucalyptus bicostata*	Blue Gum	Planted	170	54	14				
63	*Eucalyptus bicostata*	Blue Gum	Planted	57	18	11				
64	*Eucalyptus bicostata*	Blue Gum	Planted	205	65	28				
65	*Eucalyptus bicostata*	Blue Gum	Planted	149	47	28				
66	*Eucalyptus bicostata*	Blue Gum	Planted	196	62	28			1	
67	*Eucalyptus bicostata*	Blue Gum	Planted	166	53	28				
68	*Eucalyptus bicostata*	Blue Gum	Planted	192	61	28				
70	*Eucalyptus melliodora*	Yellow Box	Planted	89	28	14				
71	*Eucalyptus melliodora*	Yellow Box	Planted	154	49	18				
72	*Eucalyptus melliodora*	Yellow Box	Planted	122	39	22				
73	*Eucalyptus polyanthemos*	Red Box	Planted	80	25	8				
74	*Eucalyptus polyanthemos*	Red Box	Planted	87	28	11				
75	*Eucalyptus melliodora*	Yellow Box	Planted	137	44	14				
76	*Eucalyptus melliodora*	Yellow Box	Planted	116	37	14				
77	*Eucalyptus polyanthemos*	Red Box	Planted	87	28	12				
78	*Eucalyptus polyanthemos*	Red Box	Planted	140	45	13				
79	*Eucalyptus bicostata*	Blue Gum	Planted	54	17	8				
80	*Eucalyptus bicostata*	Blue Gum	Planted	150	48	16				
81	*Eucalyptus maidenii*	Maiden's Blue Gum	Planted	181	58	22				

*Estimated size class of each hollow based upon entrance diameter (i.e. Small <5 cm, Medium 5-15 cm, Large 15 – 25 cm and Extra Large >25 cm).

Appendix B. Flora and Fauna Species Inventories

Table 1. Flora Species Recorded

**denotes exotic species*

Common name	Scientific name	EPBC Act / NC Act status
Cape Weed*	*Arctotheca calendula*	-
Brome Grass*	*Bromus* sp.	-
Windmill Grass	*Chloris truncata*	-
Couch grass*	*Cynodon dactylon*	-
Panic Veldgrass*	*Ehrharta erecta*	-
Crab Grass*	*Eleusine tristachya*	-
African Lovegrass*	*Eragrostis curvula*	-
Stork's-bill*	*Erodium* sp.	-
Blue Gum (planted)	*Eucalyptus bicostata*	-
River Peppermint Gum (planted)	*Eucalyptus elata*	-
Maiden's Blue Gum (planted)	*Eucalyptus maidenii*	-
Red Spotted Gum (planted)	*Eucalyptus mannifera*	-
Yellow Box (1 remnant, remaining planted)	*Eucalyptus melliodora*	-
Narrow Leaf Peppermint (planted)	*Eucalyptus nicholii*	
Snow Gum (planted)	*Eucalyptus pauciflora*	-
Red Box (planted)	*Eucalyptus polyanthemos*	-
Ribbon Gum (planted)	*Eucalyptus viminalis*	-
Flatweed*	*Hypochaeris radicata*	-
Spiny-head Mat-rush (Planted)	*Lomandra longifolia*	-
Mallow*	*Malva* sp.	-
Red-flowered Mallow*	*Modiola caroliniana*	-
Chilean Needle Grass*	*Nassella neesiana*	-
Serrated Tussock*	*Nassella trichotoma*	-
Brazilian Whitlow*	*Paronychia brasiliana*	-
Plantain / Lamb's Tongue*	*Plantago lanceolata*	-
Milk/Sow Thistle*	*Sonchus* sp.	-
Clover*	*Trifolium* sp.	-

Table 2. Fauna Species Recorded

**denotes exotic species*

Class	Common name	Scientific name	EPBC Act status	NC Act status
Aves	Australian King-Parrot	*Alisterus scapularis*	-	Protected
Aves	Little Raven	*Corvus mellori*	-	Protected
Aves	Noisy Miner	*Manorina melanocephala*	-	Protected
Aves	Crimson Rosella	*Platycercus elegans*	-	Protected
Aves	Eastern Rosella	*Platycercus eximius*	-	Protected
Aves	Rainbow Lorikeet	*Trichoglossus haematodus*	-	Protected
Mammalia	European Rabbit*	*Oryctolagus cuniculus*	-	-
Mammalia	Common Brushtail Possum	*Trichosurus vulpecula*	-	Protected

Appendix C. Photo Plates

Plate 1 – Remnant Yellow Box *Eucalyptus Melliodora* (Tree #37)

Plate 2 – Landscaped non-local native plants.

Plate 3 – Exotic dominated groundlayer.

Plate 4 – Blue Gum *Eucalyptus bicostata*.

Plate 5 – Urban park in the study area.

Appendix D. Threatened Species Likelihood of Occurrence Assessment

Key for the below table:

1) Listed pursuant to the EPBC Act as Critically Endangered (CE), Endangered (E), or Vulnerable (V)

2) Listed pursuant to the NC Act as Endangered (E) or Vulnerable (V)

Note: The brief descriptions of species distribution and habitat are paraphrased from or based on information sourced from the threatened species profiles, recovery plans and listing determinations prepared for each species by the Commonwealth and ACT governments. These resources and their references can be found on the relevant government websites.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
Plants				
Caladenia actensis Canberra Spider Orchid	CE	E	This orchid is endemic to the ACT and is only known from two populations on the western lower slopes of Mount Ainslie and Mount Majura. It was previously recorded at Aranda and Campbell, but no longer exists at those locations. The Canberra Spider Orchid grows on shallow, gravelly, brown clay loam soils. The species occurs amongst a groundcover of grasses, forbs and low shrubs, often among rocks. It grows on the transition zone (ecotone) between grassy woodland and dry sclerophyll forest.	Negligible The study area is highly modified by landscaping and mowing. There is no potential habitat in the study area for the species.
Dodonaea procumbens Trailing Hop-bush	V	-	Trailing Hop-bush is found in the dry areas of the Monaro, between Michelago and Dalgety where it occurs mostly in Natural Temperate Grassland or Snow Gum *Eucalyptus pauciflora* Woodland. A single known population occurs at Lake Bathurst (the northern-most occurrence of the species) where it occurs adjacent to the lake bed in grassland dominated by Corkscrew Grass *Austrostipa scabra* and Curly Sedge *Carex bichenoviana*. The species grows on sandy-clay soils in open bare patches where there is little competition from other species. The species often occurs on roadside batters and does not persist in heavily grazed pastures.	Negligible There is no potential habitat in the study area for the species.
Eucalyptus aggregata Black Gum	V	-	Black Gum occurs on the central and southern tablelands of NSW, and in a small disjunct population in Victoria. In NSW, it occurs predominantly in the South Eastern Highlands Bioregion. The species is a small to medium-sized woodland tree which grows in grassy woodlands on alluvial soils in moist sites along creeks on broad, cold and poorly-drained flats and hollows. It commonly occurs with	Negligible The species is not present in the study area.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
			Candlebark *Eucalyptus rubida*, Ribbon Gum *E. viminalis*, and Snow Gum *E. pauciflora*, with a grassy understorey of River Tussock *Poa labillardieri*. Most populations are located on private land or road verges and travelling stock routes.	
Lepidium ginninderrense Ginninderra Peppercress	V	E	The species is known from two natural sites in northern ACT, both within Natural Temperate Grassland.	Negligible There is no potential habitat in the study area for the species.
Lepidium hyssopifolium Basalt Peppercress	E	-	This species is known from a few populations in NSW, Victoria and Tasmania. The Basalt Pepper-cress is known to establish on open, bare ground with limited competition from other plants. It was previously recorded from Eucalypt woodland with a grassy ground cover, low open Casuarina woodland with a grassy ground cover and tussock grassland. Recently recorded localities have predominantly been in weed-infested areas of heavy modification, high degradation and high soil disturbance such as road and rail verges, on the fringes of developed agricultural land or within small reserves in agricultural land. Many populations are now generally found amongst exotic pasture grasses and beneath exotic trees.	Negligible There is no potential habitat in the study area for the species.
Leucochrysum albicans var. *tricolor* Hoary Sunray	E	-	The Hoary Sunray occurs from Queensland to Victoria and in Tasmania. In the ACT the species can be seen in spring in abundance on the roadside along Fairbairn Avenue and into Mt Ainslie Nature Reserve, on the western slopes of Mt Majura and adjacent to the Federal Highway road easement. The species is usually found in ungrazed and lightly grazed areas, along roadsides in particular. It appears to be very sensitive to grazing but responds to disturbance as a coloniser and appears to tolerate mowing. Flowers spring to summer.	**Low** The study area is highly disturbed modified and has been substantially modified by landscaping and mowing. There is no potential habitat in the study area for the species.
Pelargonium sp. Striatellum Omeo Stork's-bill	E	-	An undescribed species of Pelargonium, Omeo Stork's Bill is a tufted perennial herb threatened by grazing, recreational activities, and exotic species. It is known to occur just above the high water level of ephemeral lakes in NSW and Victoria.	Negligible There is no potential habitat in the study area for the species.
Pomaderris pallida Pale Pomaderris	V	-	A compact perennial shrub, growing to 1.5 m high. It is found in the ACT, southern NSW and eastern Victoria. In the ACT it is scattered along the Cotter, Paddy's and Murrumbidgee Rivers and through the Molonglo Gorge. It is found along the plateau edge and very steep upper slopes and cliffs of river valleys, in shallow, pale brown sandy loam soil over granite rock. It grows in shrubland, surrounded by *Eucalyptus* or *Callitris* woodland. In the ACT, it is only found on the eastern banks of the rivers.	Negligible The species is not present in the study area.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
Prasophyllum petilum Tarengo Leek Orchid	E CE (listed as *Prasophyllum* sp. Wybong)	E	When first described in 1991, the Tarengo Leek Orchid was known only from the Hall Cemetery in the ACT. It has since been found at four sites in New South Wales: Captains Flat Cemetery, Ilford Cemetery, Steves Travelling Stock Route (TSR) at Delegate and the Tarengo TSR near Boorowa. The Tarengo Leek Orchid occurs on relatively fertile soils in grassy woodland or natural grassland. The three cemetery sites originally contained grassy woodland, dominated by Snow Gum *Eucalyptus pauciflora* and Black Gum *E. aggregata* at Captains Flat, and Blakely's Red Gum *E. blakelyi* and Yellow Box *E. melliodora* at Hall and Ilford. Both Tarengo TSR and Steves TSR are natural grasslands. The species is intolerant of grazing and this is considered to be the key reason it has been found only within cemeteries and TSRs, land from which grazing has been restricted.	Negligible The study area is highly disturbed and has been substantially modified by landscaping and mowing. There is no potential habitat in the study area for the species.
Rutidosis leptorrhynchoides Button Wrinklewort	E	E	In the ACT and NSW, Button Wrinklewort occurs in box-gum woodland, secondary grassland derived from box-gum woodland or in natural temperate grassland. It prefers open spaces where it does not have to compete for light. It is known from several sites in the ACT, NSW and Victoria, where it is threatened by habitat loss, grazing and weed encroachment.	Negligible The species is not present in the study area.
Swainsona recta Small Purple-pea	E	E	The Small Purple-pea occurs in the grassy understorey of woodlands and open forests dominated by Blakely's Red Gum, Yellow Box, Candlebark and Bundy. The species grows in association with understorey dominants that include Kangaroo Grass, Poa tussocks and Spear-grasses. Plants die back in summer, surviving as rootstocks until they shoot again in autumn. The species is intolerant of grazing but generally tolerant of fire, which also enhances germination by breaking the seed coat and reducing competition from other species.	Negligible The study area is highly disturbed and has been substantially modified by landscaping and mowing. There is no potential habitat in the study area for the species.
Thesium australe Austral Toadflax	V	-	Found in very small to large populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Austral Toadflax is a root parasite that takes water and some nutrients from other plants, especially Kangaroo Grass. It is often found in damp sites in association with Kangaroo Grass, but it is also found on other grass species at inland sites. Occurs on clay soils in grassy woodlands or coastal headlands.	Negligible The study area is highly disturbed and has been substantially modified by landscaping and mowing. There is no potential habitat in the study area for the species.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
Mammals				
Chalinolobus dwyeri Large-eared Pied Bat	V	-	The Large-eared Pied Bat is found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. The species roosts in caves, crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin *Petrochelidon ariel*. The species frequents low to mid-elevation dry open forest and woodland close to roosts and is often found in well-timbered areas containing gullies.	Low No potential roosting habitat is present in the study area or nearby. As the species is known to forage close to roost sites, it is unlikely to forage in the study area.
Dasyurus maculatus maculatus Spot-tailed Quoll (SE mainland population)	E	V	The Spot-tailed Quoll occurs along the east coast of Australia and the Great Dividing Range. The species uses a range of habitats including sclerophyll forests and woodlands, coastal heathlands and rainforests. Occasional sightings have been made in open country, grazing lands, rocky outcrops and other treeless areas. Habitat requirements include suitable den sites, including hollow logs, rock crevices and caves, an abundance of food and an area of intact vegetation in which to forage. Seventy per cent of the diet is medium-sized mammals, and also feeds on invertebrates, reptiles and birds. Individuals require large areas of relatively intact vegetation through which to forage. The home range of a female is between 180 and 1000ha, while males have larger home ranges of between 2000 and 5000ha. Breeding occurs from May to August.	Negligible The species is highly unlikely to occur within the study area.
Petauroides Volans Greater Glider	V	-	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria, with an elevational range from sea level to 1200 m above sea level. The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is primarily folivorous, and is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species	Negligible The study area is highly disturbed and has been substantially modified by landscaping and mowing. There is no potential habitat in the study area for the species.
Petrogale penicillate Brush-tailed Rock-wallaby	V	E	The Brush-tailed Rock-wallaby was once widespread in south-eastern Australia, but its range and numbers have contracted, particularly in Victoria and southern NSW. The last sighting of this species in the ACT was in Tidbinbilla Nature Reserve in 1959. Populations are comprised of small, isolated groups or 'colonies'. Each colony may occupy a territory of up to 35 ha. The species prefers rocky habitats/outcrops and steep slopes/cliffs, combined with dense arboreal cover.	Negligible The species is not known to occur in the lowland/urban areas of the ACT.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
			They are associated with rainforest, wet and dry sclerophyll forest, vine thicket, and open forest.	
Phascolarctos cinereus Koala (combined populations of Qld, NSW and the ACT)	V	-	In NSW, the Koala mainly occurs on the central and north coasts with some populations in the western region. Koalas feed almost exclusively on eucalypt foliage, and their preferences vary regionally. They are solitary with varying home ranges. In high quality habitat home ranges may be 1 -2 ha and overlap, while in semi-arid country they are usually discrete and around 100 ha.	Negligible The species is not known to occur in the lowland/urban areas of the ACT. The study area also does not contain potential habitat for the species.
Pteropus poliocephalus Grey-headed Flying Fox	V	-	The Grey-headed Flying Fox occurs in the coastal belt from Rockhampton in central Queensland to Melbourne in Victoria. Whilst Brisbane, Newcastle, Sydney and Melbourne are occupied continuously, the species is widespread throughout their range during summer. In autumn the species occupies coastal lowlands and is uncommon inland. In winter the species congregates in coastal lowlands north of the Hunter Valley and is occasionally found on the south coast of NSW and on the northwest slopes (associated with flowering eucalypts of these areas). The Grey-headed Flying-fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. The Grey-headed Flying-fox roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast. The roost at Commonwealth Park in Canberra is the only known roost in the ACT region.	Low The species may periodically forage within the study area on flowering eucalypts, however the study area is highly unlikely to contain habitat of significance to the species.
Birds				
Anthochaera phrygia Regent Honeyeater	E	E	A semi-nomadic species occurring in temperate eucalypt woodlands and open forests. Most records are from box-ironbark eucalypt forest associations and wet lowland coastal forests. Key eucalypt species include Mugga Ironbark, Yellow Box, Blakely's Red Gum, White Box and Swamp Mahogany. It also utilises a number of other eucalypt species. Nectar and fruit from the mistletoes *Amyema miquelii*, *A. pendula*, and *A. cambagei* are also eaten during the breeding season. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and sheoaks as well as within mistletoe haustoria (section of the root which connects with the host tree). An open cup-shaped nest is constructed by the female of bark, grass, twigs and wool.	Low The species may periodically visit the study area to forage, however it is not known to nest in the locality and the potential foraging habitat is not of potential importance to the species.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
Botaurus poiciloptilus Australasian Bittern	E	-	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes *Typha* spp. and spikerushes *Eleocharis* spp.. Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails.	Negligible There is no potential habitat in the study area for the species.
Calidris ferruginea Curlew Sandpiper	CE	-	The Curlew Sandpiper occurs around the coast of Australia, and are also widespread inland, albeit in smaller numbers. In the south-east they are occasionally recorded in the Tablelands and often in the Riverina. When inland, they are found around ephemeral and permanent lakes, dams, waterholes and bore drains. Curlew Sandpipers prey mainly on invertebrates, foraging on mudflats and at the edge of shallow pools, wading up to depths of 60 mm deep. They generally roost on dry shingle or sandy beaches, sandspits, and islets. Curlew Sandpipers are migratory and adults are found in Australia from August to April, juveniles are found year-round. This species does not breed in Australia.	Negligible There is no potential habitat in the study area for the species.
Daphoenositta chrysoptera Varied Sittella	-	V	In the ACT region, the Varied Sittella occurs in a wide variety of woodland and forest habitats, particularly in lowland areas. The species prefers areas with a dominance of rough barked trees, notably Red Stringybark at relatively high density. The species is rarely recorded in sparsely treed areas.	Low The species may periodically visit the study area to forage, however it is unlikely to nest in the study area.
Grantiella picta Painted Honeyeater	V	V	The Painted Honeyeater is found in Queensland and New South Wales west of the Great Dividing Range, through to northern Victoria. The species displays some migratory movement and is occasionally found in the Northern Territory and is a vagrant to South Australia and the ACT. The species frequents eucalypt forests and woodlands, particularly those that are infested heavily with mistletoes. In the ACT, the species' primary habitat is River Oak (*Casuarina cunninghamiana*) along river systems, especially the Murrumbidgee River.	Low The species may periodically visit the study area to forage, however it is unlikely to nest in the study area.
Hieraaetus morphnoides Little Eagle	-	V	The Little Eagle is distributed throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment and occupies habitats rich in prey within open eucalypt forest, woodland or open woodland. The species is sensitive to human disturbance.	Low The study area may be part of the range of an individual or pair of Little Eagles, but the species is unlikely to forage or nest in the study area.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
Lathamus discolor Swift Parrot	E	V	The Swift Parrot occurs in woodlands and forests of NSW (and occasionally the ACT) from May to August, where it feeds on eucalypt nectar, pollen and associated insects. The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW. This species is migratory, breeding in Tasmania and also nomadic, moving about in response to changing food availability.	Low The species may move through the study area during winter, however this is unlikely given the habitat present and the paucity of records of the species in the locality.
Limosa lapponica baueri Bar-tailed Godwit	V	-	The Bar-tailed Godwit is a large migratory shorebird. In Australia, the species has been recorded in the coastal areas of all Australian states. It usually forages near the edge of water or in shallow water, mainly in tidal estuaries and harbours. The Bar-tailed Godwit breeds in north-east Siberia and west Alaska. Potential habitat for the species in or nearby the ACT is limited to Jerrabomberra Wetlands and Lake George.	Negligible There is no potential habitat in the study area for the species.
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit	CE	-	The Northern Siberian Bar-tailed Godwit is a large migratory shorebird. In Australia, the species has been recorded in the coastal areas of all Australian states. It usually forages near the edge of water or in shallow water, mainly in tidal estuaries and harbours. The Northern Siberian Bar-tailed Godwit breeds in northern Siberia. Potential habitat for the species in or nearby the ACT is limited to Jerrabomberra Wetlands and Lake George.	Negligible There is no potential habitat in the study area for the species.
Numenius madagascariensis Eastern Curlew	CE	-	The eastern curlew is Australia's largest shorebird and a long-haul flyer. The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger.	Negligible There is no potential habitat in the study area for the species.
Melanodryas cucullata cucullata Hooded Robin (southeastern form)	-	V	The Hooded Robin occupies drier eucalypt forest, woodland and scrub, grasses and low shrubs, as well as cleared paddocks with regrowth or stumps. The species uses stumps, posts or fallen timber from which to locate prey on the ground. In the ACT region, the species is found in woodland, often with scattered Yellow Box and/or Blakely's Red Gum, with long grass and low shrubs, or fallen logs.	Low The species may periodically visit the study area to forage, however it is unlikely to nest in the study area.
Petroica boodang Scarlet Robin	-	V	The Scarlet Robin is found in south-eastern Australia (extreme south-east Queensland to Tasmania, western Victoria and south-east South Australia) and south-west Western Australia. In NSW it occupies open forests and woodlands	**Moderate** The species may periodically visit the study area to forage, however it is not known to nest in the locality and the

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
			from the coast to the inland slopes, breeding in drier eucalypt forests and temperate woodlands.	potential foraging habitat is not of potential importance to the species.
Polytelis swainsonii Superb Parrot	V	V	Found mainly in open, tall riparian River Red Gum forest or woodland. Often found in farmland including grazing land with patches of remnant vegetation. Breeds in hollow branches of tall eucalypt trees within 9 km of feeding areas.	**Moderate** The species may periodically visit the study area to forage, however it is not known to nest in the locality and the potential foraging habitat is not of potential importance to the species.
Rostratula australis Australian Painted Snipe	E	-	Usually found in shallow inland wetlands including farm dams, lakes, rice crops, swamps and waterlogged grassland. The species prefers freshwater wetlands, ephemeral or permanent, although it has been recorded in brackish waters.	Negligible There is no potential habitat in the study area for the species.
Amphibians				
Litoria aurea Green and Golden Bell Frog	V	-	The species is found in marshes, dams and stream sides, particularly those containing bullrushes or spikerushes. Preferred habitat contains water bodies that are unshaded, are free of predatory fish, have a grassy area nearby and have diurnal sheltering sites nearby such as vegetation or rocks, although the species has also been recorded from highly disturbed areas including disused industrial sites, brick pits, landfill areas and cleared land.	Negligible There is no potential habitat in the study area for the species.
Litoria booroolongensis Booroolong Frog	E	-	The Booroolong Frog is restricted to tablelands and slopes in NSW and north-east Victoria at 200–1300 m above sea level. The species is predominantly found along the western-flowing streams and their headwaters of the Great Dividing Range, and a small number of eastern-flowing streams in the north end of its range. The Booroolong Frog occurs along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. Adults occur on or near cobble banks and other rock structures within stream margins, or near slow-flowing connected or isolated pools that contain suitable rock habitats. Streams range from small slow-flowing creeks to large rivers in dissected mountainous country, tablelands, foothills and lowland plains. Primary habitat requirements for the Booroolong Frog are extensive rock bank structures along permanent rivers. The species can occur in cleared grazing land and pasture.	Negligible There is no potential habitat in the study area for the species.
Litoria castanea Yellow-spotted Tree Frog	E	-	The Yellow-spotted Tree Frog previously had a disjunct distribution, being recorded on the New England Tablelands and on the Southern Tablelands from	Negligible

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
			Lake George to Bombala. The species has only recently (2010) been rediscovered on the Southern Tablelands. Prior to this the species had not been recorded on the Southern Tablelands since the 1970s. Found in large permanent ponds, lakes and dams with an abundance of bulrushes and other emergent vegetation, it shelters during autumn and winter under fallen timber, rocks, other debris or thick vegetation.	There is no potential habitat in the study area for the species.
Reptiles				
Aprasia parapulchella Pink-tailed Worm-lizard	V	V	The Pink-tailed Worm-lizard is a fossorial species which lives beneath surface rocks and occupies ant burrows. It feed on ants, particularly their eggs and larvae. Thought to lay eggs within the ant nests under rocks that it uses as a source of food and shelter and for thermoregulation. Key habitat features are a cover of native grasses, particularly Kangaroo Grass, sparse or no tree cover, little or no leaf litter, and scattered small rock with shallow embedment in the soil surface.	Negligible There is no potential habitat in the study area for the species.
Delma impar Striped Legless Lizard	V	V	The Striped Legless Lizard is patchily distributed in grasslands of south-eastern NSW, the ACT, north-eastern, central and south-western Victoria, and south-eastern South Australia. In the ACT, the species is known to occur at four separate locations - in grassland areas of Gungahlin, Majura and Jerrabomberra Valleys, and Yarramundi. Unsuitable habitat, roads and urban development separate these sites. Most areas where the species persists are thought to have had low to moderate levels of agricultural disturbance in the past and it has been suggested that ploughing in particular may be incompatible with the survival of the species. Until recently, the species was thought to inhabit only native grasslands dominated by species such as Tall Speargrass and Kangaroo Grass. In recent years, surveys have revealed the Striped Legless Lizard in many sites dominated by exotic species such as Phalaris, Serrated Tussock and Flatweed (Biosis Research 2012). They have also been found in several secondary grassland sites, generally within two kilometres of primary grassland.	Negligible There is no potential habitat in the study area for the species.
Tympanocryptis pinguicolla Grassland Earless Dragon	E	E	In the Canberra-Monaro region the Grassland Earless Dragon is restricted to Natural Temperate Grassland that is dominated by perennial tussock-forming species. It is known to make use of grass tussocks as well as small holes in the ground that are also used by invertebrates such as wolf spiders and crickets. The species is known to occur in suitable native grassland habitat in the Majura and Jerrabomberra valleys in the ACT and at 'Letchworth' near Queanbeyan in NSW.	Negligible There is no potential habitat in the study area for the species.

Species Name	EPBC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence/Impact
Fish and Crustacea				
Maccullochella peelii Murray Cod	V	-	The Murray Cod's natural distribution extends throughout the Murray-Darling basin ranging west of the divide from south east Queensland, through NSW into Victoria and South Australia. The species is found in the waterways of the Murray–Darling Basin in a wide range of warm water habitats that range from clear, rocky streams to slow flowing turbid rivers, billabongs and large deep holes. Murray Cod is entirely a freshwater species and will not tolerate high salinity levels.	Negligible There is no potential habitat in the study area for the species.
Macquaria australasica Macquarie Perch	E	E	Macquarie Perch are found in the Murray-Darling Basin (particularly upstream reaches) of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW, including the Hawkesbury and Shoalhaven catchments. Macquarie perch are found in both river and lake habitats, especially the upper reaches of rivers and their substantial tributaries.	Negligible There is no potential habitat in the study area for the species.
Insects				
Perunga ochracea Perunga Grasshopper	-	V	The Perunga Grasshopper is usually recorded opportunistically by ecologists undertaking vegetation surveys or targeted surveys for other species. The species is generally a natural grassland specialist, and although some records occur in Box-Gum Woodland, such sites are usually nearby the historical ecotone between the two ecological communities.	Negligible There is no potential habitat in the study area for the species.
Synemon plana Golden Sun Moth	CE	E	The Golden Sun Moth's NSW populations are found in the area between Queanbeyan, Gunning, Young and Tumut and the species has been recorded at many sites in the lowland areas of the ACT. The species occurs in Natural Temperate Grasslands and Box-Gum Grassy Woodland in which the groundcover is dominated by Wallaby Grasses *Rytidosperma* spp. It is believed that the females lay up to 200 eggs at the base of the Wallaby Grass tussocks. After hatching, the larvae tunnel underground where they remain feeding on the roots of Wallaby Grass tussocks. The species is also known to feed on the introduced species (and Weed of National Significance), Chilean Needle Grass *Nassella neesiana*.	Negligible There is no potential habitat in the study area for the species.