

Lot 8, 175 Cranebrook Road, Cranebrook, Proposed New Dwelling

Ecological Assessment Report

Client : Peter and Charlene Adcock
Prepared by : Australian Wetlands Consulting Pty Ltd
Project # : 3-16778-1b
Date : October, 2017

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Project control

Project name: **175 Cranebrook Road, Cranebrook, Proposed New Dwelling**
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Job/report number: 3-16778-1b

Client: Peter & Charlene Adcock

Contact: Peter Adcock

Prepared by: Australian Wetlands Consulting Pty Ltd

8 George Street
Bangalow, NSW, 2479

P | (02) 6687 1550

E | byron@awconsult.com.au

Date:	Revision:	Prepared by:	Reviewed by:	Distributed to:
3.3.17	A	Damian McCann	Hannah Reid	Peter Adcock
23.10.17	B	Damian McCann	Damian McCann	Peter Adcock

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1 Introduction and Background

Australian Wetlands Consulting (AWC) have been commissioned by Peter and Charlene Adcock to prepare an ecological assessment in support of a development application for an additional dwelling at Lot 8 DP 31820, 175 Cranebrook Road, Cranebrook. The site currently operates as a wholesale nursery and the existing dwelling is used as office space. These activities are proposed to continue after the dwelling is completed.

1.1 Proposal

The applicant proposes to construct a single dwelling and studio on the northern end of the property including provision of onsite wastewater treatment, vehicle access and provision of services (water, power and electricity). The works will require clearing of native and non-native vegetation to enable construction and to ensure compliance with bushfire safety provisions. This report should be read in conjunction with the following documents prepared by AWC:

- 3-16778-2a – 175 Cranebrook Road, Cranebrook, Bushfire Assessment
- 3-16778-3a - 175 Cranebrook Road, Cranebrook, Contaminated land Assessment
- 3-16778-4b - 175 Cranebrook Road, Cranebrook, On-site Wastewater Management Strategy
- 3-16778-5b - 175 Cranebrook Road, Cranebrook, Landscape and Vegetation Management Plan.

1.2 The Study Area

The property is two hectares in size and has operated as a commercial and wholesale nursery for the past 35 years. All of the property has experienced some level of disturbance with the majority of vegetation present either non-remnant regrowth, non-endemic native landscaping and weed species. The southern portion of the block is dominated by driveways and car parking created for the retail nursery which is now closed.

The proposed dwelling location is predominantly cleared land (via a previous approval) surrounded by native re-growth vegetation dominated by Scribbly Gum (*Eucalyptus sclectorphylla*).

South of Cranebrook Road is the Wianamatta Nature Reserve and to the north east along The Northern Road is the Castlereagh Nature Reserve, while Agnes Bank Nature Reserve is approximately 1km north. Adjoining properties are rural residential land uses with mosaics of remnant and regrowth vegetation and open grasslands.

There are no watercourses running through the property.

The property is shown within Figure 1.1 below.



Figure 1.1 Subject property and indicative location of proposed dwelling. (Source: Nearmaps, 2016).

1.3 Statutory Considerations

Relevant permits and approvals required for the project are summarised at Table 1.1.

Table 1.1. Summary of permits/approvals required

Legislation	Applicable to	Details
Federal		
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	Matters of National Environmental Significance (MNES)	There are several MNES (Threatened & Migratory species) that have the potential to occur on site (Appendix C) Threatened: • Nodding Geebung; • Grey-headed Flying Fox; • Large-eared Pied Bat; and • Swift Parrot. Cumberland Plain Woodland in the Sydney Basin Bioregion is listed as critically endangered under the EPBC Act. The proposed works will not impact on and MNES and as such referral to the minister is not required.
State		
<i>Environmental Planning and Assessment Act, 1979</i>	Development applications in NSW	The development will be assessed under Part 4 of the Act.
	Section 5A	The <i>Threatened Species Conservation Amendment Act 2002</i> establishes the AoS (7-part test) in Section 5A of the <i>NSW EPA Act 1979</i> , Section 94 of the <i>TSC Act 1995</i> . Refer to TSC Act below.
<i>Threatened Species Conservation Act, 1995</i>	Protected flora and fauna species	The following species and ecological communities have records in the local area and are considered to have a potential chance to occur on the site: • <i>Dillwynia tenuifolia</i>; • <i>Grevillea juniperina</i>; • Little Eagle; • Square-tailed Kite; • Little Lorikeet; • Swift Parrot; • Speckled Warbler; • Eastern Freetail-bat; • Eastern False Pipistrelle; • Eastern Bentwing-bat; • Southern Myotis; • Greater Broad-nosed Bat; and • Cumberland Plain Land Snail. Completion of assessment of significance via 7-part test required. No significant impacts and as such a Species Impact Statement is not required for this proposal.
<i>Rural Fires Act, 1997</i>	Vegetation management	Bushfire safety planning including management of vegetation is required.
<i>Native Vegetation Conservation Act, 1997</i>	Vegetation clearing	The native vegetation present meets the definition of regrowth, and no remnant native vegetation will be cleared as part of the proposed works.
Local		

Legislation	Applicable to	Details
Penrith City Council Planning Scheme	LEP No. 201 (Rural Lands)	The land is zoned as 1(a) Rural under Council's LEP. The objectives for this zoning apply. Specifically: (a) to protect and enhance the scenic quality and rural character of the locality; (b) to ensure that development is compatible with the environmental capabilities of the land and to encourage the conservation and enhancement of natural resources by means of appropriate land management techniques.
	LEP No. 201 (Rural Lands) - Part C2 - Vegetation Management	In accordance with Clause 5.9 of Penrith LEP 2010, a person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation which is prescribed by this Plan without development consent, or a permit granted by Council. The prescribed trees or other vegetation that are protected include: a) In rural areas: - o Any indigenous tree or vegetation, not within 20m of a dwelling house.

2 Methods

2.1 Review of Information and Databases

Assessment of vegetation comprised a desktop assessment of background information and databases followed by field investigations to complete species list and confirm the distribution of vegetation communities.

2.1.1 Desktop

The following database extracts were gathered:

- Department of Environment and Energy (DEE) Protected Matters Database search for Matters of National Environmental Significance listed under the EPBC Act for a radius of 2km from the centre of the site;
- NSW Wildlife Atlas
- Penrith City Council Planning Scheme and Mapping.

The review included previous ecological reporting completed in 2005 by Australian Wetlands on behalf of Cranebrook Native Nursery in support of an application to Penrith City Council for vegetation clearing to enable expansion of the nursery.

2.1.2 Field Survey

The site was surveyed to determine the available potential habitats, and the support value of these habitats for threatened species. Habitats were defined according to parameters such as:

- Structural and floristic characteristics of the vegetation e.g. understorey type and development, crown depth, groundcover density, etc;
- Degree and extent of disturbance e.g. fire, logging, weed invasion, modification to structure and diversity, etc;
- Presence of water in any form e.g. dams, creeks, drainage lines, soaks;
- Size and abundance of hollows and fallen timber;
- Availability of shelter e.g. rocks, logs, hollows, undergrowth;
- Wildlife corridors, refuges and proximate habitat types; and
- Presence of mistletoe, nectar, gum, seed, sap, etc. sources.

2.1.3 Diurnal Searches

- Examination of debris to search for reptiles and frogs;
- Inspection of dense vegetation for bird nests;
- Observation of likely basking sites (ie reptiles and frogs);
- Searches for scats, tracks, digging and scratches (eg Koala, gliders, etc) over the site;
- Searches for scats, owl regurgitation pellets and guano deposits under trees; and
- Census and binocular inspection of tree hollows within the study area for signs of use eg worn edges.

3 Results

3.1 Flora

Database searches showed 10 listed flora species and 21 endangered ecological communities occurring within 10km of the property, with flora species listed in Table 3.1. Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion and Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion are confirmed to be present onsite (Figure 3.2).

The results of the latest site survey were broadly consistent with the findings of the 2005 report (AWC, 2005). Existing vegetation to the north is consistent with Castlereagh Scribbly Gum Woodland, with *Eucalyptus sclerophylla* and *Angophora bakeri* dominant, with a discontinuous shrub layer and ground layer comprising native herbs and grasses as well as weed species, notably African Love Grass (*Eragrostis curvula*) and Kikuyu (*Pennisetum clandestinum*) (Appendix F).

A total of 60 species were recorded (refer Appendix E) with two species listed as vulnerable under the TSC Act identified – consistent with the 2005 report, these being *Dillwynia tenuifolia* and *Grevillea juniperina*. These species occur as clusters around the farm dam within regrowth vegetation. It appears that the total number and distribution of these species may have increased with numerous juvenile species observed (Figure 3.1).

The Castlereagh Scribbly Gum Woodland is usually dominated by *Eucalyptus parramattensis*, *Angophora bakeri* and *E. sclerophylla*. A small tree stratum of *Melaleuca decora* is sometimes present and usually has a well-developed shrub stratum consisting of sclerophyllous species such as *Banksia spinulosa*, *Melaleuca nodosa*, *Hakea sericea* and *Hakea dactyloides*. The ground stratum usually contains a diverse range of herbs and grasses including *Themeda australis*, *Entolasia stricta*, *Cyathochaeta diandra*, *Dianella revoluta*, *Stylidium graminifolium*, *Platysace ericoides*, *Laxmannia gracilis* and *Aristida warburgii*.

The site contains some remnant species of the Castlereagh Scribbly Gum Woodland within regrowth with a number of the species listed above observed. The dam area has been previously cleared and contains regrowth woodland. A discontinuous shrub layer is present. The understorey is largely degraded, consisting of native and weed species. Weeds such as African Lovegrass, Kikuyu and other environmental weeds are prevalent.

There is a small patch of Cooks River/Castlereagh Ironbark Forest present in the form of several semi-mature tree species and disturbed understorey in the south-western corner of the site. The community is dominated by a canopy of Broad-leaved Ironbark (*Eucalyptus fibrosa*) and Paperbark (*Melaleuca decora*), with an understorey of Prickly-leaved Paperbark (*Melaleuca nodosa*) & a range of 'pea' flower shrubs and ground cover of exotic grasses such as African Love Grass.

All trees within the subject area are immature or semi-mature, with no hollows or other habitat features observed.

Table 3.1 Listed flora species recorded within 10km of the property [Source: NSW Wildlife Atlas, 2016].

Species	Status	Likelihood of Occurrence
<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>	E2	Unlikely. There is a recorded population approximately 5km to the south but no records in the immediate locality.
<i>Allocasuarina glareicola</i>	E1	Unlikely the species is found within Castlereagh Nature Reserve
<i>Dillwynia tenuifolia</i>	V	Present, AoS completed.
<i>Pultenaea parviflora</i>	E1	Not found.
<i>Acacia bynoeana</i>	E1	Not found
<i>Eucalyptus benthamii</i>	V	Habitat not suitable. Unlikely to occur.
<i>Micromyrtus minutiflora</i>	E1	Not found
<i>Grevillea juniperina</i> subsp. <i>juniperina</i>	V	Present, AoS completed.
<i>Persoonia hirsuta</i>	E1 (TSCA & EPBC)	Unlikely. Site geology not suitable.
<i>Persoonia nutans</i>	E1	Not found. Numerous records within locality (Wianamatta NR, Castlereagh NR, Agnes Bank NR and adjoining freehold land). Soil types on site are potentially unsuitable. Low potential to occur on site.



Scale at A4
1:1,800

Date: 03/03/2017
GDA 1994 MGA Zone 56
Date source:
Aerial - NearMap Pty Ltd 2016
Study Site - AWC

- Legend**
- Site
 - Development Footprint
 - Threatened Plant Records**
 - Dillwynia tenuifolia
 - Grevillea juniperina



Figure 3.1: Threatened Flora Records

3.2 Fauna

The site was visited twice through October and November, 2016, though conditions were not optimal for observing fauna with the weather cool and dry. A review of the results of fauna surveys from 2005 has also informed the current assessment. Database searches showed 35 listed species occurring within a 10km radius of the site, with results presented within Appendix B.

A total of 27 species were recorded during the current survey and 71 species during the previous survey. From the latest survey only bird species and common reptiles were observed, with no amphibians, bats, or mammals observed. Survey results are presented within Appendix E. While the scale of the wholesale nursery has increased since 2005, conditions for native fauna remain broadly the same and it is considered likely that the site is utilised by the same range of species including Sugar gliders (*Petaurus breviceps*), Common Ringtail Possum (*Pseudocheirus peregrinus*) and Common Brushtail Possum (*Trichosurus vulpecular*), with the property owner confirming that possums have been seen in the hollows of *Eucalyptus grandis* on the western boundary.

The property has potential roosting value for Grey-headed flying fox which has been observed flying over the site historically. Other species anecdotally observed by nursery staff include Red-bellied Black Snake (*Pseudechis porphyriacus*), Eastern Brown Snake (*Pseudonaja textilis*), and six species of frog including Eastern Common Froglet (*Crinia signifera*), Striped Marsh Frog (*Limnodynastes peronii*), Green Tree Frog (*Litoria caerulea*), Bleating Tree Frog (*Litoria dentata*), Eastern Dwarf Tree Frog (*Litoria fallax*) and Peron's Tree Frog (*Litoria peronii*).

On the basis of two records for Cumberland Land Snail (*Meridolum corneovirens*) from 2003 at 83 and 81 Cranebrook Road and within Wianamatta Nature Reserve, a targeted survey for the species was conducted around the base of 8 trees around the proposed dwelling site but with no snails or shell fragments found.

Introduced fauna observed during surveys and reported by nursery staff include House Sparrow (*Passer domesticus*), Indian Mynah (*Acridotheres tristis*), Common Starling (*Sturnus vulgaris*), House Mouse (*Mus musculus*), Black Rat (*Rattus rattus*) and Fox (*Vulpes vulpes*).

Connectivity: The site is part of a regional corridor that runs parallel to Penrith Lakes. The vegetation onsite facilitates the movement of moderate-highly mobile species to the north, however, Cranebrook Road creates a barrier for terrestrial and arboreal fauna species. Habitat links throughout the site are of moderate quality. Vegetation is degraded and in many sections the vegetation is under scrubbed or dominated by weeds. The site is highly fragmented to low mobile species.

3.2.1 Threatened Species

The following table (Table 3.2) is used as a summary to address threatened species in terms of potential occurrence, and likelihood of being significantly affected by the proposal, and hence requiring formal 7 Part Test assessments. Threatened species have been assessed if it is:

- Recorded on-site; or
- Not recorded on site, but recorded within a 10km radius (the locality), and may occur to some degree on-site or in the study area (land within 100m of site) due to potential habitat, key habitat component, etc.

The following species are considered to have a potential to occur on the site:

- Little Eagle;
- Square-tailed Kite;
- Little Lorikeet;
- Swift Parrot;
- Speckled Warbler;
- Eastern Freetail-bat;
- Eastern False Pipistrelle;
- Eastern Bentwing-bat;
- Southern Myotis;
- Greater Broad-nosed Bat; and
- Cumberland Plain Land Snail.

Table 3.2. Threatened Fauna Potential Occurrence (Source: NSW Wildlife Atlas, 2016).

Scientific Name	Common Name	Status	Records	Likelihood of Occurrence
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	TSC - V,P EPBC - V	1	No suitable habitat, unlikely.
<i>Stictonetta naevosa</i>	Freckled Duck	TSC - V,P	2	Vegetation around dam not dense enough, dam too small. Dam will not be affected. Unlikely to be affected by proposed works.
<i>Ixobrychus flavicollis</i>	Black Bittern	TSC - V,P	1	No suitable habitat, unlikely.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	TSC - V,P EPBC - C	3	No suitable habitat, unlikely.
<i>Hieraaetus morphnoides</i>	Little Eagle	TSC - V,P	5	May use site as small part of larger foraging range. No nesting/roosting habitat onsite. AoS completed.
<i>^Lophoictinia isura</i>	Square-tailed Kite	TSC - V,P,3	3	May use site as small part of larger foraging range. No nesting/roosting habitat onsite. AoS completed.
<i>Falco subniger</i>	Black Falcon	TSC - V,P	1	No suitable habitat, unlikely.
<i>^Calyptorhynchus latham</i>	Glossy Black-Cockatoo	TSC - V,P,2	2	No suitable habitat, unlikely.
<i>Glossopsitta pusilla</i>	Little Lorikeet	TSC - V,P	9	Site may make up a minute amount of larger foraging range. Too disturbed to be core habitat. Small amount of low quality habitat on site. AoS completed.
<i>^^Lathamus discolor</i>	Swift Parrot	TSC - E1,P,3 EPBC - CE	20	Site may make up a minute amount of larger foraging range. Too disturbed to be core habitat. Small amount of low quality habitat on site. AoS completed.
<i>^^Neophema pulchella</i>	Turquoise Parrot	TSC - V,P,3	1	No suitable habitat, unlikely.
<i>^^Ninox strenua</i>	Powerful Owl	TSC - V,P,3	2	No suitable habitat, unlikely.
<i>^^Tyto novaehollandiae</i>	Masked Owl	TSC - V,P,3	1	No suitable habitat, unlikely.
<i>^^Tyto tenebricosa</i>	Sooty Owl	TSC - V,P,3	1	No suitable habitat onsite. Unlikely.
<i>Chthonicola sagittata</i>	Speckled Warbler	TSC - V,P	11	Site may make up a minute amount of larger foraging range. Too disturbed to be core habitat. Small amount of low quality habitat on site. AoS completed.
<i>Anthochaera phrygia</i>	Regent Honeyeater	TSC - E4A,P EPBC - CE	3	Site may make up a minute amount of larger foraging range. Too disturbed to be core habitat. Unlikely.

Scientific Name	Common Name	Status	Records	Likelihood of Occurrence
<i>Grantiella picta</i>	Painted Honeyeater	TSC - V,P EPBC - V	1	No suitable habitat, unlikely.
<i>Melithreptus gularis</i>	Black-chinned Honeyeater (eastern subspecies)	TSC - V,P	3	No suitable habitat, unlikely.
<i>Daphoenositta chrysoptera</i>	Varied Sittella	TSC - V,P	30	Open vegetation is dominated by gregarious bird species such as lorikeets that would outcompete Varied Sittella. Unlikely to occur.
<i>Artamus cyanopterus</i>	Dusky Woodswallow	TSC - V,P	10	Low Quality habitat on site. Unlikely.
<i>Petroica boodang</i>	Scarlet Robin	TSC - V,P	10	Low Quality habitat on site. No records within 2.5km. Unlikely.
<i>Petroica phoenicea</i>	Flame Robin	TSC - V,P	2	No suitable habitat, unlikely.
<i>Petroica rodinogaster</i>	Pink Robin	TSC - V,P	1	No suitable habitat, unlikely.
<i>Stagonopleura guttata</i>	Diamond Firetail	TSC - V,P	1	No suitable habitat, unlikely.
<i>Phascolarctos cinereus</i>	Koala	TSC - V,P EPBC - V	2	No Koala food trees, unlikely.
<i>Petaurus australis</i>	Yellow-bellied Glider	TSC - V,P	1	Unlikely
<i>Petaurus norfolkensis</i>	Squirrel Glider	TSC - V,P	3	Unlikely
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	TSC - V,P EPBC - V	33	Site may act as small part of large foraging range. Possible
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	TSC - V,P	1	Unlikely
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	TSC - V,P	15	May use site as small part of larger foraging range. AoS completed.
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	TSC - V,P	6	May use site as small part of larger foraging range. AoS completed.

Scientific Name	Common Name	Status	Records	Likelihood of Occurrence
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	TSC - V,P	17	May use site as small part of larger foraging range. AoS completed.
<i>Myotis macropus</i>	Southern Myotis	TSC - V,P	12	May use site as small part of larger foraging range. AoS completed.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	TSC - V,P	11	May use site as small part of larger foraging range. AoS completed.
<i>Meridolum corneovirens</i>	Cumberland Plain Land Snail	TSC - E1	33	Possible. AoS completed.

4 Ecological Considerations and Recommendations

4.1 Ecological Considerations

Due to high levels of disturbance in the past and extensive weed invasion, the site is considered to be of low-moderate ecological value. Highest value is maintained around the existing dam, in which two Threatened flora species are known to occur. The proximity of the proposed house to the dam requires a sandstone retaining wall at the base of the dam wall which will directly impact three to four individual *Dillwynia tenuifolia*.

The following ecological values have been considered as part of the assessment:

- The property was found to contain two flora species that are listed as vulnerable under section 2 on the *Threatened Species Conservation Act 1995*;
- No Threatened fauna species were observed during the site inspection; however, the site is considered to contain potential habitat for 11 fauna species listed as Vulnerable/Endangered under section 2 on the *Threatened Species Conservation Act 1995*;
- There is an agricultural dam in the northern section of the site, that provides a water source and habitat for several fauna species;
- Regrowth vegetation; and
- The site forms part of a corridor, that runs parallel to Penrith Lakes. The vegetation present facilitates the movement of moderate-highly mobile species to the north. Habitat links throughout the site are of moderate quality.

4.2 Potential Impacts

Broad ecological impacts which may result from development of the site based on the proposal are considered minor. These include:

- **Direct mortality of fauna via clearing of habitat and destruction:** A small amount of vegetation, dominated by invasive grasses and several native shrubs is proposed to be removed. This section provides low quality habitat and as such there is a small risk of direct fauna mortality via clearing. A small potential does exist for small terrestrial mammals, reptiles and amphibians to become trapped in grass, however it is expected that construction noises within the centre of the development footprint, will ward fauna out of the clearing area.
- **Vegetation Clearing:** No high value native vegetation is proposed to be removed as part of the proposed works. The development footprint occurs within a small patch (~0.12ha) in the northern section of the site. Majority of this area is already cleared or underscrubbed, with approximately 750m² to be cleared as a result of the proposal. Vegetation to be removed does not provide core habitat for any threatened species. Vegetation to be removed is regrowth, less than 15 years old. There are also 10 semi-mature Eucalypt species to be removed within the house footprint and three trees on the dam wall, two of which are dead and one (*Angophora costata*) is not endemic to the locality. The proposal will impact on three to four *Dillwynia tenuifolia* sitting on the

dam wall. It is proposed that these plants are transplanted.

- **Spread of declared weeds:** Disturbance of soil provides the opportunity for weed invasion. Weeds may also be transported to the site from vehicle, people (e.g. on clothing), etc., who visit the development area and via fill material. High level of weed invasion already experienced on site, especially outskirts of vegetation fronting access tracks and cleared grassland. Following the construction phase, it is not expected that the proposed works will increase weed levels onsite.
- **Edge Effects:** The vegetation onsite is highly disturbed and already highly exposed to edge effects. Due to the small extent of any clearing and highly disturbed nature, it is not expected that the proposed works will further increase edge effects.
- **Fragmentation:** Fragmentation and the associated landscape changes at all scales is major factor in the decline of biodiversity, the modification of ecosystems, and alteration of ecosystem processes. Its effects vary with factors such as distance of fragments from similar habitat, their position in the landscape and the type of habitat modification that occurs. The proposal will not result in the fragmentation of any vegetation. It is likely that the vegetation immediately surrounding the development footprint is only utilised by common and/or highly mobile species and as such, the proposal will not fragment the habitat of any threatened species.
- **Erosion and sedimentation:** Sedimentation and erosion impacts can occur at both the construction and establishment phases. Erosion/sedimentation may occur via erosion of fill material and disturbed soils, scouring of exposed soils and habitats adjacent to the development area via directed flow (e.g. stormwater), or where runoff is concentrated. The potential exists for sedimentation to flow through the site, reaching the dam, or potentially being washed offsite via stormwater, reducing water quality (increasing sedimentation in the water and possibly intruding containments).
- **Noise, vibration and anthropogenic disturbances:** Currently a small amount of noise is derived from local traffic along Cranebrook Road, nursery activities and human traffic associated with one dwelling. However, the development envelope is in the most northern extremity of the site, furthest away from Cranebrook road and slightly removed from these every day anthropogenic disturbances. During the development's establishment, noise will be highest during construction, but limited to day time hence will only impact diurnal birds and mammals. Following construction, the site is likely to experience an increase in human traffic, in an area where human traffic is currently very low. The introduction of a dwelling to this section of the site would increase anthropogenic influences such as vibration from vehicle traffic and artificial lighting, which is likely to interrupt native fauna on the site. Additional lighting to be installed may have the potential to increase negative effects on fauna such as disorientation and increased exposure to predators. Some common species such as skinks and dragons, frequenting the open areas may experience a slight impact in the area immediately surrounding the development envelope.
- **Storm water runoff entering water body:** The potential exists for storm water runoff and sedimentation will drain along hard surfaces, eventually reaching local water courses. However given the absence of formalised flow paths, runoff is generally diffuse and this impact is considered very minor and localised.
- **Impact Threatened flora species on site:** There are two threatened flora species onsite, with current records within vegetation immediately surrounding the dam and historical records along the western boundary. These records do not fall within the development footprint, however the risk of damage during the construction phase exists.

4.3 Recommendations

From an ecological perspective, there is little impediment to the proposal. However, to reduce the potential for adverse ecological impacts, the following recommendations should be considered as part of the development works:

- Pruning of any mature trees should be completed by a suitably qualified arborist in accordance with *Australian Standard 4970-2009 Protection of trees on development sites*;
- Vegetation Protection: Prior to clearing, it is essential that native vegetation to be retained is protected from disturbance. Therefore, it is important to identify and protect vegetation to be retained using temporary fencing. Fencing should be constructed of 1650mm star pickets driven into the ground every 3m and should be greater than 1m high. Three stands of high tensile wire or similar should be strung between each post. High visibility para-webbing should be attached to the wire fence. Machinery and other works should be avoided in these areas or undertaken at a safe distance. The remaining *Grevillea* and *Dillwynia* will be protected in this way;
- Vegetation Clearing: Vegetation clearing will be limited to the footprint of the works area. No vegetation clearing will be undertaken outside of the designated land clearing area;
- Seed collection and Propagation: It is highly recommended that seed be collected from the vulnerable species *Grevillea juniperina* and *Dillwynia tenuifolia* prior to commencement of works. Seed collection should be undertaken by a qualified person and requires a Scientific License from the NSW National Parks and Wildlife Service. Seed can then be propagated in the wholesale nursery on-site for replanting in another area of the property. The nursery staff have the expertise to do this. The ideal time to collect seed is during spring and propagation will be undertaken immediately after collection to achieve high germination rates. It is recommended that propagated plants be planted along the bank of the dam (where no works are proposed) or in other locations where conditions are appropriate and the chance of future disturbance is low;
- Appropriate procedures should be implemented during construction to reduce the potential for introducing weeds to the site – e.g. within mulch and topsoils;
- Weed control: Invasive grasses such as African Love Grass, which is prevalent on the site is known to alter the ground-cover density and out-compete the Threatened flora species onsite. Regular weed control, with a focus on African Love Grass should be conducted to maintain populations on site;
- Landscaping should avoid the use of plant species which may become weeds;
- An Erosion and Sediment Control Plan (ESCP) should be developed and implemented to reduce risk on water quality in Cranebrook Road during and following the construction period;
- A stormwater/wastewater management plan should be implemented to manage stormwater and wastewater onsite; and
- Consider the impact of domestic animals on wildlife, keep domestic pets, namely cats, indoors.
- Revegetation works to recreate Scribbly Gum and Ironbark Forest should be undertaken to compensate for lost vegetation. Approximately 2600m² of suitable area has been identified for these works and is detailed within the Site Based Landscape Plan (AWC, 2017).

5 Statutory Assessment

5.1 Introduction

The proposal has been examined in the context of the following environmental legislation (discussed at Sections 6.2 to 6.6):

- The *Environmental Planning and Assessment (EPA) Act 1979*, specifically:
 - Section 5A (Significant effect on threatened species, populations or ecological communities, or their habitats), and
 - Section 5C (Application of Act with respect to threatened species conservation—fish and marine vegetation).
- The *TSC Act 1995*,
- The *Fisheries Management (FM) Act 1994*,
- The *Native Vegetation (NV) Act 2003*, and
- The *EPBC Act 1999*.

5.2 NSW Environmental Planning and Assessment Act 1979

5.2.1 Section 5A of the Environmental Planning and Assessment Act 1979

The *Threatened Species Conservation Amendment Act 2002* establishes the AoS (7-part test) in Section 5A of the *NSW EPA Act 1979*, Section 94 of the *TSC Act 1995* and Section 220ZZ of the *FM Act 1994*.

The AoS requires consideration when determining whether a proposed action (development) is likely to have a significant effect upon listed threatened species, populations or ecological communities, or their habitats, therefore determining if a Species Impact Statement (SIS) is required.

AoS have been completed for threatened species considered as having potential to occur at the site (refer Table 5.4) and are attached at Appendix B. The AoS concluded that the proposed works would not result in significant impacts to any threatened species, population or community and hence a SIS would not be required.

5.3 Fisheries Management Act 1994

The *FM Act 1994* lists a number of threatened species, populations and communities and lists a number of Key Threatening Processes (KTPs).

Section 220ZZ of the *FM Act 1994* lists the factors requiring consideration when determining whether a proposed action (development) is likely to have a significant effect upon threatened species, populations or ecological communities, and their habitats, therefore determining if a SIS is required (as also required under Section 5C of the *EPA Act 1979*).

An AoS under the *FM Act* is not required as:

- No threatened species, populations or ecological communities and their habitats occur or would be likely to occur at the site; and

- The proposal is not characteristic of any KTP. The water bodies located at the site are constructed farm dams and the impact of the works would not cause an 'alteration to natural flow regimes' (a listed KTP).

5.4 Native Vegetation Act 2003

The NV Act regulates the clearing of native vegetation on all land in NSW. As the land is zoned rural, the Act only applies where any native vegetation does not meet the definition of 'regrowth' (i.e. has grown since 1990). The native vegetation present meets the definition of regrowth, and no remnant native vegetation will be cleared as part of the proposed works.

5.5 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act an 'action' requires approval from the minister if the action has, will have, or is likely to have a significant impact on a Matter of National Environmental Significance (MNES). Table 6.1 summarises MNES listed in the EPBC Act, based on a search using the Protected Matters Search Tool within a 5km radius of the site and assesses the potential impacts of the proposal on MNES. Based on the potential impacts to MNES shown at Table 5.1, the development of the site based on the proposal would not result in any impacts to MNES.

Table 5.1 Assessment of MNES and other matters in the EPBC Act

MNES	Impact
<i>Any Environmental Impact on a World Heritage Property?</i>	
No World Heritage Properties occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on National Heritage Places?</i>	
No National Heritage Places occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on Wetlands of International Significance?</i>	
No Wetlands of International Significance occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on the Great Barrier Reef Marine Park?</i>	
The site does not occur within or adjacent to the Great Barrier Reef Marine Park.	Nil
<i>Any Environmental Impact on a Commonwealth Marine Area?</i>	
No Commonwealth Marine Areas occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on Threatened Ecological Communities?</i>	
Five listed Threatened Ecological Communities (TEC) occurs in the locality: Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion, Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion, Cumberland Plain Shale Woodlands and Shale-gravel Transition Forest, Shale Sandstone Transition Forest of the Sydney Basin Bioregion, Western Sydney Dry Rainforest and Moist Woodland on Shale. These TECs does not occur on the site and will not be affected by the proposed works.	Negligible
<i>Any Environmental Impact on Threatened Species?</i>	
The EPBC database records potential habitat for 34 threatened species within a 5km radius of the site. ~4 of these are considered to have a potential to occur on site (Nodding Geebung Grey-headed Flying Fox, Large-eared Pied Bat, Swift Parrot). A minute amount of low quality, weedy, regrowth vegetation will be cleared as a result of the proposal. Due to the small scale of the proposal it is not likely any impact will occur to any of the listed threatened species.	Negligible
<i>Any Environmental Impact on Migratory Species?</i>	
The EPBC database records potential habitat for 13 migratory species within a 5km radius of the site. Several migratory species are likely to occur on an opportunistic	Negligible

MNES	Impact
and seasonal basis. Minute amount of low quality, weedy, regrowth vegetation loss arising from the proposal would not significantly affect any migratory species.	
<i>Any Environmental Impact on Commonwealth Land?</i>	
Six known parcels of Commonwealth Land occur within a 5km radius of the site (Airservices Australia, Australian Telecommunications Commission, Defence Housing Authority, Director of War Services Homes, Telstra Corporation Limited). This land would not be affected by the proposal.	Nil
<i>Any Environmental Impact on Commonwealth Heritage Places?</i>	
No Commonwealth Heritage Places occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on Marine Species?</i>	
The EPBC database records potential habitat for 19 marine species within a 5km radius of the site of which several are also listed as migratory species (refer above). No marine habitat on site.	Nil
<i>Any Environmental Impact on Whales and Other Cetaceans?</i>	
No. The site does not constitute marine habitat.	Nil
<i>Any Environmental Impact on Critical Habitats?</i>	
No Critical Habitat occurs within a 5km radius of the site.	Nil
<i>Any Environmental Impact on Commonwealth Reserves?</i>	
No Commonwealth Reserves occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on a Place on the RNE?</i>	
No places on the RNE occur within a 5km radius of the site.	Nil
<i>Any Environmental Impact on State and Territory Reserves?</i>	
Two listed state reserve occurs within 5km of the site (Castlereagh, Wianamatta). The proposal would have no impacts on this reserve.	Nil
<i>Any Environmental Impact on Regional Forest Agreements?</i>	
No Regional Forest Agreement (RFA) operate in the locality.	Nil
<i>Any Environmental Impact on Invasive Species?</i>	
52 invasive species are recorded as occurring within a 5km radius of the site, of which a number are known to occur within the locality (Common Myna, Cat, Domestic Dog, Domestic Cat, House Mouse, Rabbit, Black Rat, Red Fox, Lantana, Blackberry, and Fireweed). The proposal would not enhance conditions to enable the further spread of any pest species.	Nil
<i>Any Environmental Impact on Nationally Important Wetlands</i>	
No Nationally Important Wetlands occur within 5km of the site.	Nil
<i>Any Environmental Impact on Key Ecological Features (Marine)</i>	
No Key (Marine) Ecological Features occur within a 5km radius of the site.	Nil

Conclusion: As the proposed works would be unlikely to result in significant impacts to any MNES, referral to the Minister for the Environment would not be required.

6 Conclusion

This Ecological Assessment has been prepared to support the development application to Penrith City Council for the establishment of an additional dwelling at Lot 8 DP 31820, 175 Cranebrook Road, Cranebrook.

Following assessment of the site and consideration of the proposal, it is concluded that:

- There are no Threatened fauna records on the site and none were observed during the site survey. Several other species have a low-moderate potential on site, however their occurrence would be restricted to the vegetation to be retained throughout the site. A Species Impact Statement is not required for this proposal.
- Two threatened flora species were observed during the site survey; *Dillwynia tenuifolia* & *Grevillea juniperina*. *Grevillea juniperina* will not be affected by the proposal however three to four *Dillwynia tenuifolia* are proposed to be transplanted into managed vegetation zones and supplemented with additional planting. A 7-part test concluded the order of magnitude of impacts associated with the proposal is not considered likely to be sufficient to place a local population at risk of extinction.
- Two vegetation communities on site broadly meet the definition of any EECs (TSC Act);
- No vegetation communities on site meet the definition and condition threshold of the any TECs (EPBC Act);
- Clearing required for the proposal is likely to be exempt under the provisions of the *Native Vegetation Act 2003* as clearing will be limited to exotic species, planted native vegetation and weedy regrowth. The development footprint falls within an already cleared area and as such no clearing of native vegetation classed as 'remnant' under the Act will occur as a result of the proposed work; and
- Development of the site would be unlikely to have a significant impact on any MNES listed in the *EPBC Act 1999* and hence referral to the Minister for the Environment would not be required.
- Ecological impacts on native vegetation can be adequately offset through revegetation works.

7 References

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Appendix A – Dwelling proposal

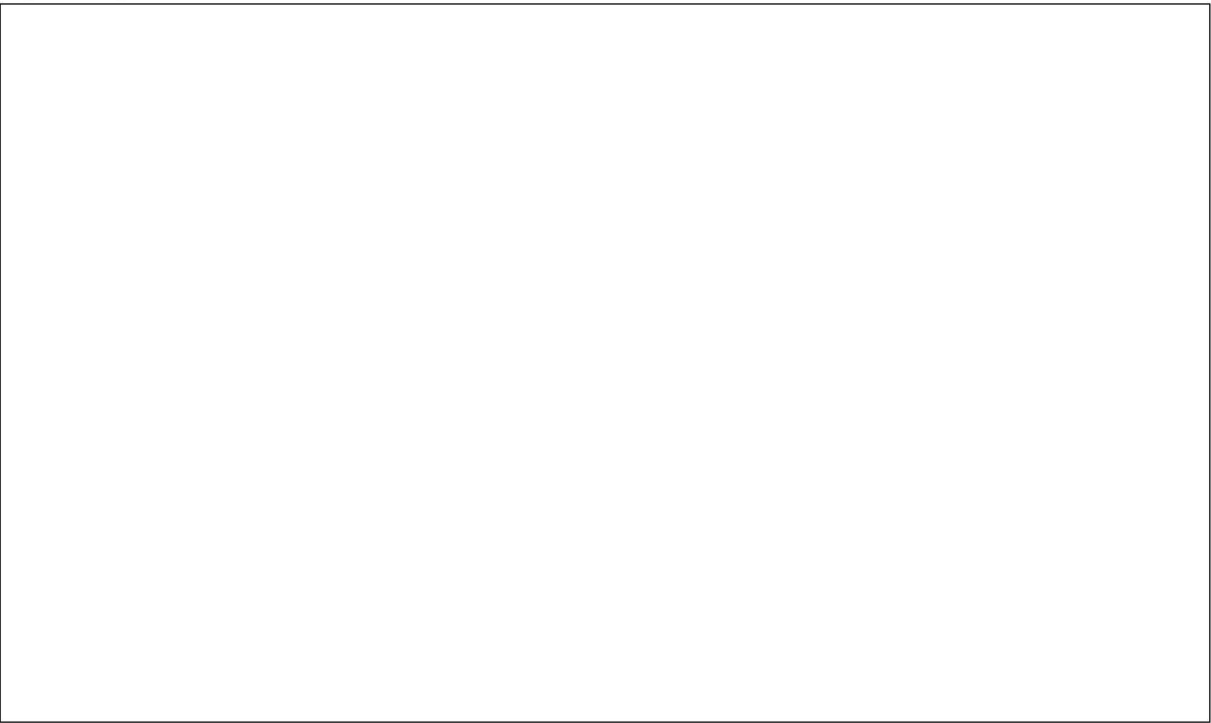
SHEET INDEX

No.	NAME
1	COVER SHEET
2	SITE PLAN
3	CONTOUR SKETCH
4	WATER MANAGEMENT PLAN
5	GROUND FLOOR PLAN
6	GRANNY FLAT FLOOR PLAN
7	DOOR & WINDOW SCHEDULES
8	ELEVATIONS / SECTION
9	ELEVATIONS
10	GRANNY FLAT ELEVATIONS
11	KITCHEN DETAILS
12	BUTLER'S PANTRY / LDRY DETAILS
13	BATHROOM DETAILS
14	ENSUITE DETAILS
15	GRANNY FLAT KITCHEN / BATH 2 DETAILS
16	FLOOR COVERINGS
17	SLAB PLAN
18	DRAINAGE PLAN
19	GRANNY FLAT SLAB AND DRAINAGE PLAN

PRELIMINARY BASIX ASSESSMENT FOR YOUR JOB HAS NOT BEEN COMPLETED. THE GEOGRAPHIC LOCATION OF YOUR LAND MEANS ASSESSMENT REQUIRES THE INCLUSION OF WALL AND ROOF COLOURS WHICH WILL BE NOMINATED AT YOUR COLOUR SELECTIONS APPOINTMENT. ONCE THIS PROCEDURE HAS BEEN COMPLETED AN ABSA RATING WILL BE PERFORMED ON YOUR DWELLING. AS A RESULT OF THIS PROCESS THERE MAY BE NO FURTHER REQUIREMENTS, OR THERE MAY BE SIGNIFICANT ADDITIONAL ITEMS REQUIRED, FOR EXAMPLE WALL WRAP, WHIRLYBIRDS, CHANGES IN WINDOW SIZE OR ORIENTATION, NOMINATION OF FLOOR COVERINGS. YOU WILL BE ADVISED OF ANY REQUIREMENTS OR ALTERNATIVES ONCE THE ASSESSMENT HAS BEEN COMPLETED.



LOCATION MAP



SUSTAINABILITY COMMITMENTS

WATER COMMITMENTS

- 3 STAR (> 7.5 BUT <= 9 L/MIN) SHOWER HEADS
- 3 STAR TOILET SUITES
- 3 STAR KITCHEN TAPS
- 3 STAR BATHROOM TAPS

601.86 m² TOTAL ROOF AREA

10000 L WATER TANK(S) MINIMUM CAPACITY
601.86 m² MINIMUM ROOF AREA TO TANK(S)

RAINWATER TANK(S) TO BE CONNECTED TO:
- ALL PLUMBING FIXTURES AND FITTINGS

NO RETICULATED RECYCLED WATER SUPPLY

300 m² GARDEN/LAWN AREA

ENERGY COMMITMENTS

HOT WATER SYSTEM

- ELECTRIC HEAT PUMP - FEWER THAN 15 RECS

HEATING SYSTEM

- 3-PHASE REVERSE CYCLE AIR CONDITIONING
EER 3.5 - 4.0

COOLING SYSTEM

- 3-PHASE REVERSE CYCLE AIR CONDITIONING
EER 3.0 - 3.5

VENTILATION (EXHAUST FANS)

- AT LEAST ONE BATHROOM:
INDIVIDUAL FAN - DUCTED TO FACADE OR ROOF, MANUAL SWITCH ON/OFF
- KITCHEN RANGEHOOD:
INDIVIDUAL FAN - DUCTED TO FACADE OR ROOF, MANUAL SWITCH ON/OFF
- NO MECHANICAL VENTILATION TO LAUNDRY

PRIMARY FLUORESCENT/LED LIGHTING INCLUDING COVER

- N/A

NATURAL LIGHTING TO

- N/A

ALTERNATIVE ENERGY

- N/A

OTHER

- ELECTRIC COOKTOP, ELECTRIC OVEN
- FIXED OUTDOOR CLOTHESLINE BY OWNER

BUILDING INFORMATION

GROUND FLOOR CEILING HEIGHT(S):	2700mm
GRANNY FLAT CELING HEIGHT:	2400mm
FRAMES AND TRUSSES:	STEEL
ROOF PITCH (U.N.O.):	26°
ELECTRICITY SUPPLY:	3-PHASE
GAS SUPPLY:	NONE

ROOF MATERIAL:	SHEET METAL
ROOF COLOUR:	DARK
ROOF INSULATION:	R3.0 BATTS 50mm FOIL FACED BLANKET
WHIRLYBIRDS:	1

WALL MATERIAL:	HEBEL
WALL COLOUR:	N/A
WALL INSULATION:	R2.0 BATTS WALL WRAP

FLOOR INSULATION:	N/A
-------------------	-----

ENGINEERING & SITE INFORMATION

SLAB TO BE 85mm THICK (U.N.O.) WITH REINFORCEMENT TO ENGINEERS SPECIFICATIONS & DETAILS OVER A 200µm WATERPROOF MEMBRANE ON A BED OF FREE DRAINING COARSE SAND (WHERE SPECIFIED)

PROVIDE HEBEL CONTROL JOINTS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

ALL STEEL FRAMING TO BE DESIGNED TO AS 4100-1998 OR AS/NZS 4600-2005

DESIGN CRITERIA

WIND RATING:	N2
--------------	----

SITE CLASSIFICATION

SITE CLASSIFICATION IS:	M
-------------------------	---

SLAB CLASSIFICATION

SLAB CLASSIFICATION IS:	M
-------------------------	---

BASIX AREAS

CONDITIONED	341.16
UNCONDITIONED	26.66

TOTAL FLOOR AREAS

ALFRESCO	59.77
GARAGE	68.93
LIVING	340.78
PATIO	9.59
	479.07 m²

TOTAL FLOOR AREAS (GRANNY FLAT)

LIVING	67.28
	67.28 m²

THIS PLAN ACCEPTED BY:

PLEASE NOTE: NO VARIATIONS WILL BE
ACCEPTED ON THIS PLAN AFTER SIGNING

SIGNATURE:

DATE:



YOUR HOME. YOUR DREAM

SPECIFICATION:



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	DRAWING	DRAWN
1	CONSOLIDATED TENDER 2 PLANS	JCR 2017.08.27
2	CONTRACT PLANS	MDE 2017.10.06

CLIENT:

PETER WILLIAM ADCOCK & CHARLENE NITA ADCOCK

ADDRESS:

CRANE BROOK ROAD

SUBURB:

CRANE BROOK

POSTCODE:

2749

COUNCIL:

PENRITH

LOT No:

8

DP No:

31820

SECTION No:

-

HOUSE DESIGN:

MILANO FOUR 16 ELITE

FACADE DESIGN:

CALSSIC

SHEET TITLE:

COVER SHEET

HOUSE CODE:

CUSTOM

FACADE CODE:

CUSTOM

SCALES:

SHEET No:

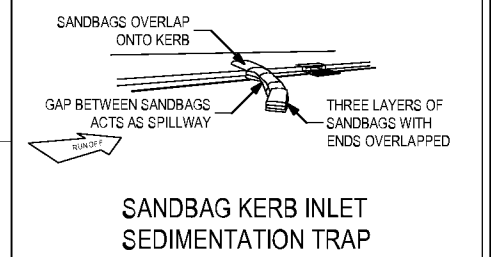
1 / 19

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AND VERIFY DIMENSIONS AND LEVELS
PRIOR TO THE COMMENCEMENT OF ANY
WORK. ALL DISCREPANCIES TO BE
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603432

WIND CLASSIFICATION	N-2
WITHIN 1 KM. OF BREAKING SALT WATER	NA
WITHIN 100 M. OF SALT WATER	NA
MINIMUM AHD FLOOR LEVEL APPLICABLE	NA

329.87



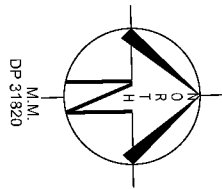
THIS PLAN ACCEPTED BY:

PLEASE NOTE: NO VARIATIONS WILL BE
ACCEPTED ON THIS PLAN AFTER SIGNING

SIGNATURE:

DATE:

 McDonald Jones YOUR HOME. YOUR DREAM www.mcdonaldjoneshomes.com.au © 2017	SPECIFICATION:		DRAWING		DRAWN		CLIENT:		LOT No:		HOUSE DESIGN:		HOUSE CODE:		DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. CHECK AND VERIFY DIMENSIONS AND LEVELS PRIOR TO THE COMMENCEMENT OF ANY WORK. ALL DISCREPANCIES TO BE REPORTED TO THE DRAFTING OFFICE. 603432
			1 CONSOLIDATED TENDER 2 PLANS		JCR	2017.08.27	PETER WILLIAM ADCOCK & CHARLENE NITA ADCOCK		8		MILANO FOUR 16 ELITE		CUSTOM		
			2 CONTRACT PLANS		MDE	2017.10.06	ADDRESS: CRANE BROOK ROAD		DP No: 31820		FACADE DESIGN: CALSSIC		FACADE CODE: CUSTOM		
							SUBURB: CRANE BROOK		POSTCODE: 2749	COUNCIL: PENRITH	SECTION No: -	SHEET TITLE: SITE PLAN	SCALES: 1:200	SHEET No: 2 / 19	



LOT 7

LOT 8
20300m²

LOT 6

LOT 9

CRANE BROOK ROAD

LIMIT OF SURVEY

DAM

SHRUBS AND
MULTIPLE TREES
ON SITE

BM NAIL ON POST
RL 19.87
(ASSUMED)

00°54'30"

19.35
234°19'00"

180°54'30"
329.87

19.63 POST AND 19.48 WIRE

FENCE

POST

* 19.61

* 19.32 * 19.34



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SPECIFICATION:



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	DRAWING	DRAWN
1	CONSOLIDATED TENDER 2 PLANS	JCR 2017.08.27
2	CONTRACT PLANS	MDE 2017.10.06

CLIENT:
PETER WILLIAM ADCOCK & CHARLENE NITA ADCOCK

ADDRESS:
CRANE BROOK ROAD

SUBURB:
CRANE BROOK

POSTCODE:
2749

COUNCIL:
PENRITH

LOT No:
8

DP No:
31820

SECTION No:
-

HOUSE DESIGN:
MILANO FOUR 16 ELITE

FACADE DESIGN:
CALSSIC

SHEET TITLE:
CONTOUR SKETCH

HOUSE CODE:
CUSTOM

FACADE CODE:
CUSTOM

SCALES:
1:500

SHEET No:
3 / 19

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603432

Template Version: 19.014

Appendix B – Bionet Atlas Results

Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodi comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive rounded to 0.1°; ^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Entities in selected area [N recorded since 01 Jan 1980 until 16 Jan 2017 returned a total of 1,216 records of 45 species. Report generated on 16/01/2017 9:43 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic
Animalia	Amphibia	Myobatrachida	3042	<i>Heleioporus australiacus</i>	
Animalia	Aves	Anatidae	0214	<i>Stictonetta naevosa</i>	
Animalia	Aves	Ardeidae	0196	<i>Ixobrychus flavicollis</i>	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>	
Animalia	Aves	Accipitridae	0225	<i>Hieraaetus morphnoides</i>	
Animalia	Aves	Accipitridae	0230	^^ <i>Lophoictinia isura</i>	
Animalia	Aves	Falconidae	0238	<i>Falco subniger</i>	
Animalia	Aves	Cacatuidae	0265	^ <i>Calyptorhynchus latham</i>	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>	
Animalia	Aves	Psittacidae	0309	^^ <i>Lathamus discolor</i>	
Animalia	Aves	Psittacidae	0302	^^ <i>Neophema pulchella</i>	
Animalia	Aves	Strigidae	0248	^^ <i>Ninox strenua</i>	
Animalia	Aves	Tytonidae	0250	^^ <i>Tyto novaehollandiae</i>	
Animalia	Aves	Tytonidae	9924	^^ <i>Tyto tenebricosa</i>	
Animalia	Aves	Acanthizidae	0504	<i>Chthonicola sagittata</i>	
Animalia	Aves	Meliphagidae	0603	<i>Anthochaera phrygia</i>	
Animalia	Aves	Meliphagidae	0598	<i>Grantiella picta</i>	
Animalia	Aves	Meliphagidae	8303	<i>Melithreptus gularis</i>	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus</i>	
Animalia	Aves	Petroicidae	0380	<i>Petroica boodang</i>	
Animalia	Aves	Petroicidae	0382	<i>Petroica phoenicea</i>	
Animalia	Aves	Petroicidae	0383	<i>Petroica rodinogaster</i>	
Animalia	Aves	Estrildidae	0652	<i>Stagonopleura guttata</i>	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	
Animalia	Mammalia	Petauridae	1136	<i>Petaurus australis</i>	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>	

Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>
Animalia	Mammalia	Molossidae	1329	<i>Mormopterus norfolkensis</i>
Animalia	Mammalia	Vespertilionida e	1372	<i>Falsistrellus tasmaniensis</i>
Animalia	Mammalia	Vespertilionida e	1834	<i>Miniopterus schreibersii oceanensis</i>
Animalia	Mammalia	Vespertilionida e	1357	<i>Myotis macropus</i>
Animalia	Mammalia	Vespertilionida e	1361	<i>Scoteanax rueppellii</i>
Animalia	Gastropoda	Camaenidae	1006	<i>Meridolum corneovirens</i>
Plantae	Flora	Apocynaceae	10896	<i>Marsdenia viridiflora subsp. viridiflora</i>
Plantae	Flora	Casuarinaceae	8320	<i>Allocasuarina glareicola</i>
Plantae	Flora	Fabaceae (Faboideae)	2853	<i>Dillwynia tenuifolia</i>
Plantae	Flora	Fabaceae (Faboideae)	3007	<i>Pultenaea parviflora</i>
Plantae	Flora	Fabaceae (Mimosoideae)	3728	<i>Acacia bynoeana</i>
Plantae	Flora	Myrtaceae	4274	<i>Micromyrtus minutiflora</i>
Plantae	Flora	Proteaceae	10917	<i>Grevillea juniperina subsp. juniperina</i>
Plantae	Flora	Proteaceae	5458	<i>^^Persoonia hirsuta</i>
Plantae	Flora	Proteaceae	5467	<i>Persoonia nutans</i>
Plantae	Flora	Thymelaeaceae	6190	<i>Pimelea spicata</i>

ans. The data are only indicative and cannot be considered a
 Species Data Policy may have their locations denatured (^
 ment and Heritage. Search criteria : Public Report of all Valid
 lorth: -33.64 West: 150.66 East: 150.76 South: -33.74]

Common Name	NSW status	Comm. status	Records	Info
Giant Burrowing Frog	V,P	V	1	
Freckled Duck	V,P		2	   
Black Bittern	V,P		1	
White-bellied Sea-Eagle	V,P	C	3	
Little Eagle	V,P		5	
Square-tailed Kite	V,P,3		3	  
Black Falcon	V,P		1	
Glossy Black-Cockatoo	V,P,2		2	
Little Lorikeet	V,P		9	  
Swift Parrot	E1,P,3	CE	20	
Turquoise Parrot	V,P,3		1	
Powerful Owl	V,P,3		2	 
Masked Owl	V,P,3		1	
Sooty Owl	V,P,3		1	    
Speckled Warbler	V,P		11	
Regent Honeyeater	E4A,P	CE	3	
Painted Honeyeater	V,P	V	1	
Black-chinned Honeyeater (eastern subspecies)	V,P		3	
Varied Sittella	V,P		30	
Dusky Woodswallow	V,P		10	
Scarlet Robin	V,P		10	   
Flame Robin	V,P		2	
Pink Robin	V,P		1	
Diamond Firetail	V,P		1	
Koala	V,P	V	2	
Yellow-bellied Glider	V,P		1	 
Squirrel Glider	V,P		3	

Grey-headed Flying-fox	V,P	V	33	
Yellow-bellied Sheathtail-bat	V,P		1	
Eastern Freetail-bat	V,P		15	
Eastern False Pipistrelle	V,P		6	
Eastern Bentwing-bat	V,P		17	
Southern Myotis	V,P		12	
Greater Broad-nosed Bat	V,P		11	
Cumberland Plain Land Snail	E1		33	
Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas	E2		185	
	E1,P	E	19	
	V,P		241	
	E1,P	V	89	
Bynoe's Wattle	E1,P	V	30	
	E1,P	V	94	
Juniper-leaved Grevillea	V,P		145	
Hairy Geebung	E1,P,3	E	1	
Nodding Geebung	E1,P	E	150	
Spiked Rice-flower	E1,P	E	4	

Appendix C – Protected Matters Search Tool Results



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 16/01/17 09:38:44

- [Summary](#)
- [Details](#)

[Matters of NES](#)[Other Matters Protected by the EPBC Act](#)[Extra Information](#)
- [Caveat](#)
- [Acknowledgements](#)

No Image Available

This map may contain data which are
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(Geoscience Australia), ©PSMA 2010

[Coordinates](#)
[Buffer: 5.0Km](#)

No Image Available

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	34
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	6
Commonwealth Heritage Places:	None
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	52
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Community likely to occur within area
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically Endangered	Community likely to occur within area
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	Community may occur within area
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	Community may occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species

Name	Status	Type of Presence
habitat may occur within area		
Frogs		
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat known to occur within area
Acacia pubescens Downy Wattle, Hairy Stemmed Wattle [18800]	Vulnerable	Species or species habitat may occur within area
Allocasuarina glareicola [21932]	Endangered	Migration route known to occur within area
Eucalyptus aggregata Black Gum [20890]	Vulnerable	Species or species habitat may occur within area
Genoplesium baueri Yellow Gnat-orchid [7528]	Endangered	Species or species habitat may occur within area
Haloragis exalata subsp. exalata Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat may occur within area
Micromyrtus minutiflora [11485]	Vulnerable	Species or species habitat likely to occur within area
Persoonia nutans Nodding Geebung [18119]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Pimelea curviflora var. curviflora [4182]	Vulnerable	Species or species habitat may occur within area
Pimelea spicata Spiked Rice-flower [20834]	Endangered	Species or species habitat known to occur within area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area
Pterostylis saxicola Sydney Plains Greenhood [64537]	Endangered	Species or species habitat likely to occur within area
Pultenaea parviflora [19380]	Vulnerable	Species or species habitat likely to occur within area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area

Reptiles		
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species	[Resource Information]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		

Apus pacificus Fork-tailed Swift [678]	Species or species habitat likely to occur within area
---	--

Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area

Migratory Wetlands Species

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land	[Resource Information]
-------------------	--

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Airservices Australia
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Defence Housing Authority
Commonwealth Land - Director of War Service Homes
Commonwealth Land - Telstra Corporation Limited
Defence - LONDONDERRY PARACHUTE DROP ZONE

Listed Marine Species	[Resource Information]
-----------------------	--

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Hirundapus caudacutus White-throated Needletail [682]	Critically Endangered	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]	Critically Endangered	Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]	Endangered*	Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves		[Resource Information]
Name		State
Castlereagh		NSW
Wianamatta		NSW

Invasive Species

[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur

Name	Status	Type of Presence
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		within area Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.69507 150.71079

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Department of Land and Resource Management, Northern Territory](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- [Australian Tropical Herbarium, Cairns](#)
- [eBird Australia](#)
- [Australian Government – Australian Antarctic Data Centre](#)
- [Museum and Art Gallery of the Northern Territory](#)
- [Australian Government National Environmental Science Program](#)
- [Australian Institute of Marine Science](#)
- [Reef Life Survey Australia](#)
- [American Museum of Natural History](#)
- [Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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[Department of the Environment](#)
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix D – 7-Part Test of Significance

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

<i>Dillwynia tenuifolia</i>	Vulnerable - TSC Act 1995
Habitat description/ life cycle components	<i>Dillwynia tenuifolia</i> is abundant within open areas in the Castlereagh Ironbark Forest; Castlereagh Ironbark/Scribbly Gum transitional vegetation, Shale Gravel Transition Forest, and is occasionally common within the Scribbly Gum Woodland.
Threats	- Habitat fragmentation makes individual patches more isolated and also more likely to suffer local fire or other major disturbance. - Partial clearance (e.g. removal or thinning of the canopy) may have a significant impact upon vegetation structure. This can result in dense monospecific regrowth e.g. <i>Allocasuarina littoralis</i> or <i>Melaleuca</i> spp. which out-compete smaller species. - The implementation of inappropriate fire regimes, - Uncontrolled vehicular access can result in loss through clearing, destruction and the possibly introduction of pathogens and weeds. - Dumping of materials into accessible patches will reduce the capacity of the species to germinate and grow, or may also cause hotter fires (especially when green-waste dumping occurs). - Invasive grasses - particularly African Love Grass and Coolatai Grass - can alter the ground-cover density and both out-compete the species - Repeated slashing of sites
Likelihood of local extinction	The area where the plants are located is largely disturbed with a degraded understorey dominated by African Lovegrass and other weeds, therefore a significant area of this habitat will not be modified or removed. The habitat on the property is already isolated from surrounding habitat and the proposed clearing will not constitute further isolation of the species in this regard. This proposal will remove three to four individual plants of this species to be translocated and supplemented with additional planting of seedlings. The nature of surrounding land uses means this population is relatively isolated, therefore, the loss of the plants would not be enough to endanger the viability of any local population. <i>Dillwynia tenuifolia</i> has also been identified on other sites in this region in reasonable numbers. A Species Impact Statement for <i>Dillwynia tenuifolia</i> is not required for this proposal.

<i>Grevillea juniperina</i>	Vulnerable - TSC Act 1995
Habitat description/ life cycle components	<i>Grevillea juniperina</i> is endemic to Western Sydney, its distribution is centred on an area bounded by Blacktown; Erskine Park; Londonderry; and Windsor with outer populations at Kemps Creek and Pitt Town.
Threats	• Degradation and reduction of habitat following clearing and fragmentation of native vegetation is a major threat. • Other threats include disturbance by rubbish dumping, trampling, road works, dumping of fill, changes in drainage, and recreational activities. • Potential risk of the entry of exotic pathogens • Arson causing frequent and intense fires • Invasion from exotic perennial grasses, particularly African lovegrass (<i>Eragrostis curvula</i>). • Current or potential future land management practices do not support conservation • Inappropriate fire regime.
Likelihood of local extinction	There are several individual plants found on the property; one on the eastern and one on the western bank of the dam. The vegetation surrounding the dam is not proposed for clearing as part of this proposal. It is not likely that a viable population of <i>Grevillea juniperina</i> will be placed at risk of extinction due to the proposal. The area where the plants are located is largely disturbed and not considered to be a significant area of known habitat. The habitat on the property is already isolated from surrounding habitat and the proposed clearing will not constitute further isolation of the species in this regard. The range of <i>Grevillea juniperina</i> is limited to the Blacktown and Berkshire Park soil landscapes in the Cumberland Plain in Western Sydney. They are relatively common in the core area of distribution, mainly on private land and along roadsides. The property is located within the core area of distribution and is not at the limit of its known distribution. The habitat in which the plants are located has been previously disturbed and is largely degraded. The property is relatively isolated and no significant impacts on any local viable population is likely as a result of removing one plant from the property. A Species Impact Statement for <i>Grevillea juniperina</i> is therefore not required for this proposal.

Microbat Species	
Habitat description/ life cycle components	Greater Broad-nosed Bat: Forages over range of habitats including rainforests and moist forests, but prefers ecotones between riparian forest, woodland and cleared land. Requires sparse understorey and will forage over water. Eastern Bentwing Bat: Primary roosting habitat is caves, but also uses derelict mines, stormwater tunnels, buildings and other man-made structures. Hunt in forested areas catching moths and other flying insects above tree tops. Eastern Free-tail Bat: Occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Eastern False Pipistrelle: Prefers moist habitats, with trees taller than 20 m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Southern Myotis: Roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.
Threats	• Disturbance by recreational cavers and general public accessing caves and adjacent areas particularly during winter or breeding. • Loss of high productivity foraging habitat. • Introduction of exotic pathogens, particularly white-nose fungus. • Cave entrances being blocked for human health and safety reasons, or vegetation (particularly blackberries) encroaching on and blocking cave entrances. • Hazard reduction and wildfire fires during the breeding season. • Disturbance to roosting and summer breeding sites. • Foraging habitats are being cleared for residential and agricultural developments, including clearing by residents within rural subdivisions. • Loss of hollow-bearing trees. • Pesticides and herbicides may reduce the availability of insects, or result in the accumulation of toxic residues in individuals' fat stores. • Changes to water regimes are likely to impact food resources, as is the use of pesticides and herbicides near waterways. • Disturbance to roosting and summer breeding sites. • Foraging habitats are being cleared for residential and agricultural developments, including clearing by residents within rural subdivisions. • Pesticides and herbicides may reduce the availability of insects, or result in the accumulation of toxic residues in individuals' fat stores. • Changes to water regimes are likely to impact food resources, as is the use of pesticides and herbicides near waterways. • Poor knowledge of reproductive success and population dynamics • Disturbance to roosting areas by goats
Likelihood of local extinction	While an individual/s may use the site/study area for foraging habitat at some time, any local population of these species would extend well beyond the site to meet all their full lifecycle requirements. Considering that a minute amount of low quality foraging habitat will be lost and that a local population of these bats would routinely extend well beyond the site to meet their lifecycle requirements: the order of magnitude of impacts associated with the proposal is not considered likely to be sufficient to place a local population of the subject bats at risk of extinction.

Grey-headed Flying-fox	Vulnerable - <i>TSC Act 1995</i>
Habitat description/ life cycle	Occurs in subtropical and temperate rainforests, tall sclerophyll forests

Grey-headed Flying-fox	Vulnerable - <i>TSC Act 1995</i>
components	and woodlands. The species forages on nectar and pollen of native trees, in particular Eucalypts, Melaleuca and fruits of rainforest trees and vines, in addition to cultivated gardens and fruit crops. Congregation camps of up to the tens of thousands are used for roosting, often in stands of riparian rainforest, Paperbark or Casuarina forest.
Threats	• Loss of foraging habitat. • Disturbance of roosting sites. • Unregulated shooting. • Electrocution on powerlines.
Likelihood of local extinction	The proposal would result in the loss of a minute, if any amount of opportunistic foraging habitat for the Grey-headed Flying-fox. No roost camps or potential roost camps occur at the site. Potential foraging habitat occurs widely in the locality where extensive areas of eucalypt forest occur. As such, there is little likelihood of the proposal contributing towards the local extinction of the species within the locality. Considering that a minute amount of low quality foraging habitat will be lost and that a local population would extend well beyond the site to meet their lifecycle requirements: the order of magnitude of impacts associated with the proposal is not considered likely to be sufficient to place a local population of the Grey-headed Flying Fox at risk of extinction.

Scarlet Robin	Vulnerable - <i>TSC Act 1995</i>
Habitat description/ life cycle components	Dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation.
Threats	• Historical habitat clearing and degradation. • Habitat modification due to overgrazing. • Reduction of size of remnant patches. • Reduction in the structural complexity of habitat, including reductions in canopy cover, shrub cover, ground cover, logs, fallen branches and leaf litter. • Reduction of the native ground cover in favour of exotic grasses. • Loss of nest sites, food sources and foraging sites, such as standing dead timber, logs and coarse woody debris from depletion by grazing, firewood collection and 'tidying up' of rough pasture. • Predation by over-abundant populations of Pied Currawong (<i>Strepera graculina</i>) which are supported by planted exotic berry-producing shrubs; this pressure, in addition to that from other native and exotic predators, may be a potentially severe threat to the breeding success of Scarlet Robin populations. • Predation by feral cats (<i>Felis catus</i>). • Robbing of nests and predation of fledglings by rats. • Isolation of patches of habitat, particularly where these patches are smaller than 10 ha, and in landscapes where clearing has been heavy or where remnants are surrounded by cropping or stock grazing. • Habitat for the Scarlet Robin may become unsuitable if dense regeneration occurs after bushfires or other disturbances. • Competitive exclusion by over-abundant Noisy Miners (<i>Manorina melanoccephala</i>) within habitat.
Likelihood of local extinction	Small sections of dry, open eucalypt forest which provide potential habitat. Logs and fallen timber are scattered throughout in a low abundance. Feral cat and dog numbers and gregarious bird species are likely to be high on the site, reducing the habitat quality for this species

Scarlet Robin	Vulnerable - <i>TSC Act 1995</i>
	The proposed development is not likely to contribute towards the local extinction of the species as there is low quality potential habitat present on site and this habitat will not be affected as a result of the proposed works.

Speckled Warbler	Vulnerable - <i>TSC Act 1995</i>
Habitat description/ life cycle components	<i>Eucalyptus</i> dominated communities that have a grassy understorey, often on rocky ridges or in gullies, include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy.
Threats	• Due to the fragmented nature of the populations and their small size the species is susceptible to catastrophic events and localised extinction. • Clearance of remnant grassy woodland habitat for paddock management reasons and for firewood. • Poor regeneration of grassy woodland habitats. • Modification and destruction of ground habitat through removal of litter and fallen timber, introduction of exotic pasture grasses, heavy grazing and compaction by stock and frequent fire. • Habitat is lost and further fragmented as land is being cleared for residential and agricultural developments. In particular, nest predation increases significantly, to nest failure rates of over 80%, in isolated fragments. • Nest failure due to predation by native and non-native birds, cats, dogs and foxes particularly in fragmented and degraded habitats. • Infestation of habitat by invasive weeds. • Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners. • Climate change impacts including reduction in resources due to drought.
Likelihood of local extinction	Small sections of dry, open eucalypt forest which provide low quality potential habitat. Logs and fallen timber are scattered throughout site in a low abundance. Feral cat and dog numbers and gregarious bird species are high on the site, reducing the habitat quality for this species The proposed development is not likely to contribute towards the local extinction of the species as there is low quality potential habitat present on site and this habitat will not be affected as a result of the proposed works.

Square-tailed Kite	Vulnerable - <i>TSC Act 1995</i>
Habitat description/ life cycle components	Dry woodlands and open forests. Shows a particular preference for timbered watercourses. Diet consists of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy.
Threats	• Clearing, logging, burning, and grazing of habitats resulting in a reduction in nesting and feeding resources. • Disturbance to or removal of potential nest trees near watercourses. • Illegal egg collection and shooting.

Square-tailed Kite	Vulnerable - <i>TSC Act 1995</i>
Likelihood of local extinction	Species has a low potential to occur on site, possibly as a flyover or using the study area as a small part of a large local range. Species require very large territories that far exceed the site/study area. Hence the site/study area only has potential to form a small to minute part of a local pair's range. The site/study area overall offers some generic potential foraging opportunities, with prey abundance and diversity considered to be high. No nests are present, and site is not considered to be potential nesting habitat. A minute amount of low quality habitat will be removed, no barrier to connectivity for these species will be created; that they are also known to forage in retained and urban woodland habitat within or adjacent to rural-residential and urban areas (hence are likely to occur in the study area post-development), and that the local population of the subject species would extend well beyond the confines of the study area to meet the majority of their life cycle requirements: the order of magnitude of the proposal's sum negative effect is not considered sufficient to result in a direct or indirect decline (i.e. reduce viability) of the local populations.

Swift Parrot	Endangered - <i>TSC Act 1995</i>
Habitat description/ life cycle components	• Migrates to the Australian south-east mainland between March and October. • On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. • Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i>, Spotted Gum <i>Corymbia maculata</i>, Red Bloodwood <i>C. gummifera</i>, Mugga Ironbark <i>E. sideroxylon</i>, and White Box <i>E. albens</i>.
Threats	• Habitat loss and fragmentation from forest harvesting, residential/industrial development, agricultural clearing, senescence and dieback • Changes in spatial and temporal distribution of habitat due to climate change. • Reduced food availability due to drought conditions • Competition from introduced bees and large, aggressive honeyeaters for food resources • Collisions with human made structures resulting in death or injury • Psittacine Beak and Feather Disease vulnerability • Weed invasion impacting on habitat regeneration and health • High fire frequency impacting on food resource availability • Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners. • Predation by cats • Illegal capture and trade of wild birds for aviculture
Likelihood of local extinction	This bird traverses over a very large range according to seasonal flowering. Hence the site/study area only has potential to form a minute part of low quality habitat (few preferred species present), and consequently, a local population needs to fulfil its lifecycle requirements well beyond the study area. In consideration of the above; the ecology of the subject species; that

Swift Parrot	Endangered - <i>TSC Act 1995</i>
	no barrier to connectivity for this species will be created; and that the local populations of the species would extend well beyond the confines of the site/study area to meet life cycle requirements: the order of magnitude of the proposal's sum negative effect is not considered sufficient to result in a direct decline of a local population of the Swift Parrot.

Little Lorikeet	Vulnerable - <i>TSC Act 1995</i>
Habitat description/ life cycle components	- Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. - Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. - Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards
Threats	- Given that large old Eucalyptus trees on fertile soils produce more nectar, the extensive clearing of woodlands for agriculture has significantly decreased food for the lorikeet, thus reducing survival and reproduction. Small scale clearing, such as during roadworks and fence construction, continues to destroy habitat and it will be decades before revegetated areas supply adequate forage sites. - The loss of old hollow bearing trees has reduced nest sites, and increased competition with other native and exotic species that need large hollows with small entrances to avoid predation. Felling of hollow trees for firewood collection or other human demands increases this competition. - Competition with the introduced Honeybee for both nectar and hollows exacerbates these resource limitations. - Infestation of habitat by invasive weeds. - Inappropriate fire regimes. - Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners. - Climate change impacts including reduction in resources due to drought. - Degradation of woodland habitat and vegetation structure due to overgrazing.
Likelihood of local extinction	This bird traverses over a very large range according to seasonal flowering. Hence the site/study area only has potential to form a part of a local pair's seasonal range, and consequently, a local population needs to fulfil its lifecycle requirements well beyond the study area. No hollow-bearing trees will be removed, and minimal if any further clearing is required to establish the development envelope. In consideration of the above; the ecology of the subject species; that no barrier to connectivity for this species will be created; that the species is known to forage in retained habitat within or adjacent to rural-residential (hence likely to occur in the study area post development); and that the local populations of the species would extend well beyond the confines of the site/study area to meet life cycle requirements: the order of magnitude of the proposal's sum negative

Little Lorikeet	Vulnerable - <i>TSC Act 1995</i>
	effect is not considered sufficient to result in a direct decline of a local population of the Little Lorikeet.

Little Eagle	Vulnerable - <i>TSC Act 1995</i>
Habitat description/ life cycle components	- Occupies open eucalypt forest, woodland or open woodland. Sheoak or <i>Acacia</i> woodlands and riparian woodlands of interior NSW are also used. - Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.
Threats	- Secondary poisoning from rabbit baiting - Clearing and degradation of foraging and breeding habitat
Likelihood of local extinction	Species has a low potential to occur on site, possibly as a flyover or using the study area as a small part of a large local range. Species require very large territories that far exceed the site/study area. Hence the site/study area only has potential to form a small to minute part of a local pair's range. The site/study area overall offers some generic potential foraging opportunities, with prey abundance and diversity considered to be high. No nests are present, and site is not considered to be potential nesting habitat. A minute amount of low quality habitat will be removed, no barrier to connectivity for these species will be created; that they are also known to forage in retained and urban woodland habitat within or adjacent to rural-residential and urban areas (hence are likely to occur in the study area post-development), and that the local population of the subject species would extend well beyond the confines of the study area to meet the majority of their life cycle requirements: the order of magnitude of the proposal's sum negative effect is not considered sufficient to result in a direct or indirect decline (i.e. reduce viability) of the local population

Cumberland Plain Land Snail	Endangered - <i>TSC Act 1995</i>
Habitat description/ life cycle components	- Primarily inhabits Cumberland Plain Woodland. It is also known from Shale Gravel Transition Forests, Castlereagh Swamp Woodlands and the margins of River-flat Eucalypt Forest - Grassy, open woodland with occasional dense patches of shrubs. - Lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Occasionally shelters under rubbish.
Threats	- Clearing and degradation of Cumberland Plain Woodland remnants. - Weeds are considered a threat to the species, altering the composition of the litter that grows the fungi on which the species feeds. - Fires at inappropriate times, or too frequently, will destroy the habitat required by the species, or burn the groundcover in which it can be sheltering, leading to direct loss of individuals. - Heavy grazing by domestic stock in areas the species occupies will reduce the amount of cover available and lead to loss by trampling

Cumberland Plain Land Snail	Endangered - <i>TSC Act 1995</i>
	and habitat change. - As the species shelters under fallen logs, removal of this material for firewood or in 'clearing up' can result in loss of ground habitat at sites occupied by the species. - There is generally a poor understanding of other threats to this species. - Predation of the species by carnivorous snails is known, and should be considered in translocation actions - Slashing can lead to a loss of ground shelter habitat. - Changes to vegetation structure and composition that result from weed invasion and seral shift.
Likelihood of local extinction	Small amount of low quality habitat present on site. Minute amount of this habitat will be affected as a result of the proposed works. Searches were undertaken for signs of this species on site, with no sign found. A minute amount of low quality habitat will be removed, no barrier to connectivity for these species will be created; that they are also known to forage in retained and urban woodland habitat within or adjacent to rural-residential: the order of magnitude of the proposal's sum negative effect is not considered sufficient to result in a direct or indirect decline (i.e. reduce viability) of the local population.

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

No threatened flora populations occur are likely to occur on the site.

b) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or*
- ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.*

Two EECs are confirmed to be present on the site: Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion and Cooks River/Castlereagh Ironbark Forest.

c) in relation to the habitat of a threatened species, population or ecological community:

- i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and*

The proposed development would not result in the removal of any habitat of significant importance to any of the subject species.

- ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and*

The proposed works would not fragment or isolate any habitat of value to the subject species.

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

The proposed works will be contained within an already cleared area and as such will result in the removal of a minute amount of low quality potential habitat. Fragmentation or isolation of any habitat will not be increased as a result of the proposed works.

d) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No areas of critical habitat listed under the *TSC Act 1995* occur within the locality.

e) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

There are no approved recovery plans have been prepared for the identified species, however there is a draft recovery plan for the Grey-headed Flying-fox. The proposal may require (if any) loss of a minute amount of generic potential Grey-headed Flying Fox habitat (eg a few trees to achieve canopy separation), however as this habitat is a minute fraction of the habitat on site and in the study area and is not part of a roosting site; and no barriers or new threats to movement created: it is not capable of significantly affecting the objectives of the Plan.

Three approved threat abatement plans (TAPs) have been prepared to date:

- Bitou Bush and Boneseed;
- Predation by the Red Fox; and
- Predation by the Plague Minnow.

None of the approved TAPs have relevance to any of the subject species with regard to the proposed action.

f) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

The proposed work does not constitute as part of any key threatened processes. The current list of Key Threatening Processes (KTPs) are listed at Table G.2 and discussed below.

TABLE B.1 KEY THREATENING PROCESSES

<i>Threatened Species Conservation Act 1995 Schedule 3 Key Threatening Processes</i>	<i>Applicable to proposal</i>
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners	No
Alteration of habitat following subsidence due to longwall mining	No
Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands.	No
Bushrock Removal	No
Clearing of native vegetation	Yes
Competition and grazing by the feral European rabbit	No
Competition and habitat degradation by Feral Goats	No
Competition from feral honeybees	No
Death or injury to marine species following capture in shark control programs on ocean beaches	No
Ecological consequences of high frequency fires	No

<i>Threatened Species Conservation Act 1995</i> Schedule 3 Key Threatening Processes	Applicable to proposal
Entanglement in, or ingestion of anthropogenic debris in marine and estuarine environments	No
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	No
Herbivory and environmental degradation caused by feral deer	No
Human-caused Climate Change	No
Importation of red imported fire ants into NSW	No
Infection by Psittacine circoviral (beak and feather) disease affecting endangered psittacine species	No
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	No
Infection of native plants by <i>Phytophthora cinnamomi</i>	No
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	No
Introduction of the large earth bumblebee	No
Invasion and establishment of exotic vines and scramblers	No
Invasion and establishment of Scotch Broom	No
Invasion and establishment of the Cane Toad	No
Invasion of native plant communities by African Olive	No
Invasion of native plant communities by bitou bush & boneseed	No
Invasion of native plant communities by exotic perennial grasses	No
Invasion of the yellow crazy ant into NSW	No
Invasion, establishment and spread of Lantana	No
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	No
Loss and/or degradation of sites used for hill-topping by butterflies	No
Loss of hollow-bearing trees	No
Predation and hybridisation by Feral Dogs	No
Predation by feral cats	No
Predation by the European Red Fox	No
Predation by the Plague Minnow	No
Predation by the Ship Rat on Lord Howe Island	No
Predation, habitat degradation, competition and disease transmission by Feral Pigs	No
Removal of dead wood and dead trees	No

Conclusion: The proposed works would not result in any significant impact to any of the subject threatened flora species; and impacts upon the two EEC's present are regrowth areas which will be compensated for via revegetation. Therefore a Species Impact Statement (SIS) is not required.

Appendix E – Species List

Fauna Species

Scientific Name	Common Name
<i>Acridotheres tristis</i> *	Indian Mynah
<i>Anthochaera carunculata</i>	Red Wattlebird
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Chenonetta jubata</i>	Australian Wood Duck
<i>Corvus coronoides</i>	Australian Raven
<i>Cracticus torquatus</i>	Grey Butcherbird
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Eolophus roseicapillus</i>	Galah
<i>Eopsaltria australis</i>	Eastern Yellow Robin
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Hirundo neoxena</i>	Welcome Swallow
<i>Lampropholis sp.</i>	Garden Sunskink
<i>Malurus cyaneus</i>	Superb Fairy-wren
<i>Manorina melanocephala</i>	Noisy Miner
<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Passer domesticus</i> *	House Sparrow
<i>Petaurus breviceps</i>	Sugar Glider
<i>Philemon corniculatus</i>	Noisy Friarbird
<i>Porphyrio porphyrio</i>	Purple Swamphen
<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Strepera graculina</i>	Pied Currawong
<i>Streptopelia chinensis</i>	Spotted Dove
<i>Sturnus vulgaris</i> *	Common Starling
<i>Trichosurus vulpecula</i>	Common Brushtail Possum

*Non-native species

Flora List

Native Species

Scientific Name	Common Name
<i>Acacia falcata</i>	Sickle Wattle
<i>Acacia longifolia</i>	Flax-leaved Wattle
<i>Acacia parramattensis</i>	Parramatta Green Wattle
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Angophora bakeri</i>	Narrow-leaved Apple
<i>Aristida ramosa</i>	Three-awn Speargrass
<i>Banksia spinulosa</i>	Hair-pin Banksia
<i>Callistemon salignus</i>	Willow Bottlebrush
<i>Casuarina glauca</i>	Swamp She-Oak, Grey She-Oak
<i>Cheilanthes sieberi</i>	Mulga Fern
<i>Corymbia gummifera</i>	Red Bloodwood
<i>Corymbia maculata</i>	Spotted Gum
<i>Dianella revoluta</i>	Mauve Flax Lily
<i>Dichelachne micrantha</i>	Shorthair Plume Grass
<i>Digitaria sp.</i>	Fingergrasses
<i>Dillwynia tenuifolia</i>	
<i>Echinopogon caespitosus</i>	Tufted Hedgehog Grass
<i>Einadia nutans</i>	Native Seaberry, Saloop-bush
<i>Eragrostis brownii</i>	Brown's Love Grass
<i>Eucalyptus fibrosa</i>	Broad-leaved Ironbark
<i>Eucalyptus grandis</i>	Flooded Gum
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum
<i>Eucalyptus sideroxylon</i>	Red Ironbark
<i>*Grevillea juniperina</i>	Juniper
<i>Hakea salicifolia</i>	Willow-leaved Hakea
<i>Hakea sericea</i>	Bushy Needlebush
<i>Imperata cylindrica</i>	Blady Grass
<i>Kunzea ambigua</i>	Tick Bush
<i>Leptospermum polygalifolium</i>	Lemon Scented Tea-tree
<i>Lomandra multiflora</i>	
<i>Microlaena stipoides</i>	Weeping Grass
<i>Melaleuca armillaris</i>	Giant Honeymyrtle, Bracelet Honeymyrtle
<i>Melaleuca decora</i>	White Feather Honeymyrtle
<i>Melaleuca linariifolia</i>	Snow-in-summer
<i>Melaleuca nodosa</i>	Ball Honeymyrtle
<i>Panicum sp.</i>	Panic
<i>Pimelea linifolia</i>	Rice Flower
<i>Pratia purpurascens</i>	White Root
<i>Themeda australis</i>	Kangaroo Grass
<i>Wahlenbergia gracilis</i>	Native Bluebell
<i>Xanthorrhoea minor</i>	Grass Tree

Weed Species

Scientific Name	Common Name
<i>Andropogon virginicus</i>	Whisky Grass
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Bryophyllum delagoense</i>	Mother of Millions
<i>Conyza sp.</i>	Fleabane
<i>Cynodon dactylon</i>	Common Couch
<i>Eragrostis curvula</i>	African Lovegrass
<i>Lantana camara</i>	Lantana
<i>Onopordum acanthium</i>	Scotch Thistle
<i>Paspalum dilatatum</i>	Paspalum
<i>Pennisetum clandestinum</i>	Kikuyu
<i>Plantago lanceolata</i>	Common Plantain
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rumex sp.</i>	Dock, Sorrel
<i>Senecio madagascariensis</i>	Fireweed
<i>Senna x floribunda</i>	Smooth Cassia
<i>Setaria sp.</i>	Pigeon Grass
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum nigrum</i>	Blackberry Nightshade
<i>Sonchus oleraceus</i>	Common Sowthistle, Milk Thistle

Appendix F – Photo Plate



Plate 1. Dam located south of proposed development footprint



Plate 2. Access Track



Plate 3. Southern section of development footprint



Plate 4. Development Footprint (view from south to north)



Plate 5.



Plate 6. Nursery (centre of site) with dam in background



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