Preliminary Flora and Fauna assessment

Daisy Hill Estate
Proposed subdivision of Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW

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Executive Summary

Background

A rural-residential subdivision (*Daisy Hill Estate*) is proposed for Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW. Total development area is approximately 430 hectares. The subdivision plan has not been finalised but will include lots ranging in size from a minimum lot size of 0.6ha to a minimum lot size of 3ha resulting in approximately 284 rural-residential lots. Boundary fencing, access roads and driveways will be constructed.

A preliminary flora and fauna assessment of the development is required to determine impacts on threatened and endangered species as part of the development application.

Scope

This report is a preliminary flora and fauna assessment of the site for the existence of key habitats or threatened species and assessment of impacts from the subdivision.

Summary

The study area is a rural property located approximately 2km east of Dubbo. The land-use of the study area was grazing. Stock grazing, pasture hay making and cereal cropping has occurred on the site for the past 100 years. An assessment of impacts of the subdivision was undertaken by a review of previous assessments, a review of the NSW OEH Bionet database and evaluation of impacts from the development. This preliminary assessment is based on a flora and fauna assessment of Lot 64 which is considered to be representative of the site. An inspection was undertaken of the site.

The development will create approximately 284 rural-residential lots with associated building envelopes, driveways, boundary fencing and access roads. A development plan has not been finalised but building envelopes, driveways, access roads and boundaries are expected to be located in areas cleared of trees. The land-use post-development will be rural-residential with grazing at a similar or lower density to the existing land-use.

The study area is dominated by grasslands with a small area of open woodland in the central section of Lot 64. The grasslands consist of exotic and native pasture species. The dominant species were *Hordeum* sp. (barley grass), *Lolium rigidum* (ryegrass) and *Avena fatua* (wild oats) with some *Austrodanthonia* sp. (wallaby grass). Several isolated *Brachychiton populneus* (Kurrajong), *Callitris glaucophylla* (white cypress pine) and *Melia azedarach* (white cedar) occur across the grasslands. The grasslands are disturbed by grazing, pasture hay making, introduction of exotic species and other agricultural practices including cultivation and fertilising.

The small woodland in Lot 64 is dominated by *Eucalyptus microcarpa* (Inland grey box) and *E. conica* (fuzzy box). One *E. albens* (white box) and one *C. glaucophylla* (white cypress pine) were identified in the woodland. The woodland is classified as the endangered ecological community Inland Grey Box woodland.

Potential Inland Grey Box woodlands are located in road easements around and on the development area. The road easement woodlands have been partially cleared and contain mature *C. glaucophylla* on the upper slopes and *E. microcarpa* on the lower slopes. No disturbance to the woodlands is expected from the development.

It is unlikely that any threatened or endangered floral species exist within the study area. The development is unlikely to impact on threatened or endangered floral species existing within the study area.

Little fauna diversity was observed within the grasslands due to intense and ongoing long term disturbance by past agricultural practices. It is unlikely that any threatened or endangered fauna species exist within the study area. The development is unlikely to impact on threatened or endangered fauna species existing within the study area.

The endangered ecological community on Lot 64 is degraded due to clearing, cropping, regular grazing, presence of weeds, absence of regeneration, routine slashing, application of pesticides and fertilisers and therefore of low ecological value. No endangered populations or other ecological communities are expected within other farming areas of the study area. The development is unlikely to impact on endangered populations or ecological communities existing within the study area.

A search of the NSW OEH Bionet database found no records of threatened or endangered flora or fauna occurring in the study area. The *Pomatostomus temporalis temporalis* (Grey-crowned babbler) was recorded along the southern boundary of Lot 200. Twelve species were recorded within 5km of the study area and forty five predicted to occur within 5km of the study area due to habitat characteristics. Species with habitat attributes consistent with habitat in the study area were assessed using the Assessment of Significance. It was concluded the development was unlikely to impact on these species.

A small number of *E. albens* (White Box) was identified in the study area on Lot 64. *E. albens* is a listed koala feed species (SEPP 44). The study area is not considered potential koala habitat as listed koala feed trees comprise less than 15% of the total tree component. The number of koala feed trees in the study area is insufficient to sustain a resident koala population long term. The study area is not considered core koala habitat as the study area does not or is unlikely to encompass a resident koala population.

The impact of the proposed development on threatened or endangered flora and fauna, their populations, habitat and ecological communities within the study area was assessed using the Assessment of Significance under Section 5a of the *Environmental Planning and Assessment Act (1979)* and EPBC Act considerations. No significant impact on any potential flora and fauna species was determined in the Assessment of Significance or EPBC considerations on Lot 64 or expected on the *Daisy Hill Estate* site.

Threatened or endangered species and populations are unlikely to be present within the study area. Development areas are expected to be within grassland areas that have been disturbed through clearing, stock grazing, cropping and agricultural practices. The construction of dwellings, driveways, access roads and fencing is not expected to inhibit faunal habitat or movement. Access from Pinedale Road will not require the removal of trees. Habitat will not become further isolated or fragmented. Preliminary conclusions are the development will not have a significant impact on threatened species, populations or communities.

An additional assessment will be undertaken to describe flora and fauna over the whole *Daisy Hill* site to confirm the preliminary conclusions. The additional assessment will include the road reserves areas adjacent and within the *Daisy Hill Estate*. The flora and fauna assessment will include assessment of impacts and mitigation measures to minimise the impacts.

Contents

1. Background

A rural-residential subdivision is proposed for Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 (*Daisy Hill Estate*) Eulomogo Road, Dubbo NSW. The site is cleared farmland which has been cropped and intensively grazed.

The subdivision plan has not been finalised but will include lots ranging in size from a minimum lot size of 0.6ha to a minimum lot size of 3ha resulting in approximately 284 rural-residential lots. Each lot will have a dwelling entitlement. Boundary fencing will be constructed between the proposed lots. Access roads and driveways will also be created. The land-use post-development will be rural-residential with low intensity grazing expected.

A preliminary flora and fauna assessment is required by Dubbo City Council to assess impacts of the development as part of a rezoning application. More detailed field assessments will be undertaken at the development application stage.

2. Scope of report

Envirowest Consulting Pty Ltd was commissioned by Bourke Securities Pty Ltd to undertake a preliminary flora and fauna assessment of the *Daisy Hill Estate* Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW.

The assessment will assess the study area for the existence of key habitats of threatened species and give an overview of the flora and fauna species present. The assessment aims to identify impacts the proposed development may have on flora and fauna species, their communities and any ecological interactions that may occur in the study area. The assessment will use the available information to indicate the need for additional studies and identify significant impacts of the development.

3. Site description

3.1 Location

The site is in the locality of Eulomogo east of Dubbo. The study area is the proposed *Daisy Hill Estate*, Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW and is approximately 430 hectares in size (Figure 1). Pinedale Road located along the northern boundary of the development area and Torwood Road located along the eastern boundary of the development area is also included in the study area. An unnamed crown road reserve is located within the development. The study area is located within the Brigalow Belt South Bioregion approximately 2km east of Dubbo. The locality is characterised by rural-residential lots.

The subject site is those areas to be impacted by the subdivision. The subject site includes proposed building envelopes, access roads, driveways and proposed boundary fencing. The subject site will be the study area as the subdivision plan has not been finalised.

3.2 Climate

Climatic data from the nearest recording station, Dubbo (Darling Street), indicates the site has an average annual rainfall of 584mm. Rainfall is at a maximum in January and February with each month averaging 60.7 and 53.4mm respectively. July to September are the driest months, each receiving approximately 43mm.

Availability of soil moisture is lowest in the summer and not usually limiting in the winter when rainfall exceeds evaporation. Low winter temperatures restrict plant growth from May to September so that plant growth is most active during spring and autumn.

3.3 Topography

The site is located on a flat within a mid-slope. A low ridge is located through the central section of Lot 200 DP825059. Aspect is predominantly west with a southerly aspect in the southern section of Lot 200. Slopes are very gently inclined and generally <1%. Elevation ranges between 311 and 377 metres above sea level.

3.4 Vegetation

The natural woodland has been cleared from the farming part of the study area. The site is dominated by introduced pasture species including ryegrass, lucerne, clover and oats. Native pasture species includes wallaby grass, weeping grass and spear grass. Annual and perennial weedy species are located over site. Weed species included saffron thistle, sheep sorrel, Paterson's curse, cats head, wild oats, great brome, khaki weed. Isolated trees including kurrjong, white cypress pine and white cedar exist throughout the paddocks.

A small stand of remnant native trees is located in a central section of Lot 64. Tree species consisted of inland grey box and fuzzy box. The road reserves contained inland grey box and white cypress pine.

Ornamental trees and shrubs have been planted around the dwellings located on Lots 64 and 65 DP254287 and Lot 200 DP825059.

A detailed description of the vegetation in the study area is given in Section 6.1.

3.5 Land-uses

The current land-use of the site is grazing land. Farming has been undertaken for over 100 years which has included clearing, cultivation, sowing of pasture and cropping species and the application of fertilisers. The original mud/straw construction settlers cottage is located on Lot 65 (*Mt Olivetti*) which is estimated to have been constructed in 1885. Dwellings and associated infrastructure for the farming operations are located on Lots 64 (*Peachville Park*) and Lot 200 DP825059 (*Firgrove*).

Cropping has occurred in the past on the lower slopes and flats of the site (Figure 2). Cereal cropping has occurred commonly on the flat areas (Lots 316 and 317) and occasionally on the lower slopes (most of Lot 64 and part of Lot 200). Cultivation for pasture renovation has occurred over most other areas which are located on the mid-slopes. Crops were cereals which were harvested for grain or hay. All cropping and cultivation areas were also used for opportunistic meadow hay making in suitable seasons.

The whole site has been intensively grazed primarily by sheep but also cattle and horses. Intermittent grazing has also occurred in the road reserves at times for vegetation management or feed shortages due to dry seasonal conditions.

3.6 Soils and geology

The site is within the Eulomogo Soil Landscape (Murphy and Lawrie 1998). Topsoil consists of a dark reddish brown to light reddish brown sandy loam with a gradual boundary change to a dark reddish brown to light reddish brown fine sandy clay loam to 100cm over a mottled yellow and grey clay to 150cm. Soils have a low to moderate fertility and moderate erosion hazard. Soil salinity problems are absent over the site.

The geological unit is Piliga Sandstone and Ballimore Formation with lithology comprising massive to cross-bedded coarse pebbly lithic-quartz sandstone, minor lithic sandstone and siltstone (Colquhoun *et al.* 1997).

3.7 Surface water

An intermittent drainage line is located through the central section of the study area and runs south east to north west. Surface water over the majority of the site flows into intermittent drainage lines which empty into Troy Creek located approximately 900m north west of the site.

Surface water in the southern section of the site flows south and into Eulomogo Creek approximately 1km from the study area.

No dams or permanent streams are located on or near the site.

3.8 Groundwater

Three operational bores are located on the site. One bore is located around the homestead of *Mt Olivetta*, one is located on *Peachville Park* and one is located in the south eastern section of *Peachville Park West*. The operational on-site bores are licenced for stock and domestic supplies and have water bearing zones from 47m. Standing water levels at the time of drilling were from 30m.

The Office of Environment and Heritage (OEH) NSW Natural Resource Atlas (2013b) identifies fifty seven bores within 1km of the site. These bores are licensed for domestic, stock and irrigation supplies. Eight are Dubbo City Council groundwater monitoring bores. Depth of the bores ranged from 9 to 107m. Water bearing zones were located at generally deeper than 10m in basalt and sandstone. Standing water levels at the time of construction ranged between 5 to 50m.

4. Proposed development

The development proposes a rural-residential subdivision. The subdivision plan has not been finalised but expected to comprise approximately 284 lots ranging in size from a minimum lot size of 0.6ha to a minimum lot size of 3ha.

Future land-use of the lots is expected to be house yards, garden areas, maintained and unmaintained lawn areas. Some of the larger lots may have pastures with grazing by livestock. Planting of native vegetation will occur in the road reserves and gardens over the study area.

Access to each lot will be from Eulomogo Road, Pinedale Road or new access roads created as part of the development. A driveway will be formed to the proposed dwellings through grasslands.

Proposed building envelopes are expected to be located in grazed grasslands that have previously been disturbed by clearing, cultivation and grazing. No remnant native trees will be removed to allow construction of the dwellings.

Boundary fencing between the proposed lots are expected to be constructed through grasslands. Stock fencing is present across the study area.

5. Methodology

5.1 Desktop study

A desktop study was undertaken to collect information on individual species and in particular the presence of any endangered species. This was determined primarily by habitat assessment of the study area and a search of the NSW Office of Environment and Heritage (OEH) Bionet database. The area for the Bionet and database search covered a 5km radius from the study area.

The OEH Bionet database was also reviewed for threatened species, populations and communities known or predicted to occur within the search area.

The impact of the proposed development on flora and fauna in the study area was assessed in accordance with the Assessment of Significance under Section 5a of the *Environmental Planning and Assessment Act* (1979), Section 94A of the *Threatened Species Conservation Amendment Act* (2002) and EPBC Act considerations. The habitat, life cycles and general ecology of a range of both plant and animal species was researched. This and all other information has been used to make impact assessments.

A flora and fauna assessment was undertaken for Lot 64 DP254287 in 2010 by Envirowest Consulting Pty Ltd (report number R10297ff). Field surveillance work was undertaken in October 2010. The assessment was reviewed for information regarding existing flora and fauna in the locality. The flora and fauna identified in the 2010 assessment is expected to be similar to that located on other lots due to the similar land-use histories of the site.

Aerial photographs were reviewed for occurrence of potential habitat for threatened species.

5.2 Field surveys

The flora and fauna assessment undertaken in October 2010 was used to make assumptions regarding the occurrence of flora and fauna species on the site. A drive over of the site was undertaken in 2013 for the assessment to confirm aerial photograph information. Field surveys of flora and fauna species were not undertaken on the remainder of the study area.

6. Results and Discussion

6.1 Flora

The flora and fauna of the study area was described following review of the 2010 flora and fauna assessment undertaken on Lot 64 DP254287 in 2010 by Envirowest Consulting Pty Ltd (report number R10297ff). The historical land-use of the study area is similar to the historical land-use of Lot 64. Flora and fauna species identified on Lot 64 are expected to be representative of that found over the study area.

The site contained a high diversity of grass and herb species with the dominant species exotic pastures. Pasture species included *Lolium rigidum* (ryegrass), *Medicargo sativa* (lucerne), *Trifolium* sp. (clover), *Medicago* spp. (medic) and *Avena fatua* (wild oats) (Table 1). *Austrodanthonia* sp. (wallaby grass) was also identified.

The grasslands had been historically cleared of trees. Isolated tree species included *Brachychiton populneus* (kurrajong), *Callitris glaucophylla* (white cypress pine) and *Melia azedarach* (white cedar). Stands of *C. glaucophylla* (white cypress pine) were located along boundaries outside the study area.

An approximately 1.8ha remnant woodland is located in the central section of Lot 64. The area contains several rocky outcrops and is the likely reason it has not been cleared in the past for agricultural activities. The woodland was dominated by *Eucalyptus microcarpa* (Inland grey box) and *E. conica* (fuzzy box). One *E. albens* (white box) and one *C. glaucophylla* (white cypress pine) were identified in the woodland. The woodland contained mature trees and no saplings were observed due to stock grazing.

Grasses and herbs identified in the woodland included *Microlaena stipoides* (weeping grass), *Hordeum* sp. (barley grass), *L. rigidum* (ryegrass), *Anagallis arvensis* (scarlet pimpernel), *Polygonum aviculare* (wireweed) and *Arctotheca calendula* (capeweed).

The woodland is classified as the endangered Inland Grey Box Woodland community under the *Environmental Planning and Assessment Act (1979)*. It is not included in the EPBC Act classification as it is less than 2ha in size and contains less than 50% perennial native species in the ground cover layer.

Woodland was also identified along the road reserves of Pinedale Road, Torwood Road and road reserve between Lots 64 and 316. The roadside woodland was approximately 24 hectares in size and up to 30m wide. The woodland contained *C. glaucophylla* and *E. microcarpa*. Additional assessments are required to determine if the woodland is a listed endangered ecological community and impacts from the development.

No threatened or endangered flora species or other endangered communities were observed within the study area.

Species in each floristic group identified within the study area are listed in Table 1.

Table 1. Flora species recorded in each floristic group

Scientific Name	Common Name
Trees	
Brachychiton populneus	Kurrajong
Callitris glaucophylla	White cypress pine
Eucalyptus albens	White box
E. conica	Fuzzy box
E. microcarpa	Inland grey box
Grevillea robusta	Silky oak
Melia azedarach	White cedar
Schinus molle	Peppercorn tree
Shrubs	
Sclerolaena birchii	Galvanized burr
Herbs	
Amaranthus sp.	Amaranth
Anagallis arvensis	Scarlet pimpernel
Arctotheca calendula	Capeweed
Brachyscome sp.	Brachyscome
Calotis lappulacea	Cotula
Carthamas lanatus	Saffron thistle
Chondrilla juncea	Skeleton weed
Crassula sieberana	Australian crassula
Dichondra repens	Kidney weed
Dittrichia graveolens	Stinkwort
Echium plantagineum	Paterson's curse
Fumaria muralis	Wall fumitory
Hypochoeris radicata	Flatweed
Linum usitatissimum	Linseed
Marrubium vulgare	Horehound
Medicago sp.	Medic
Medicago sativa	Lucerne
Oxalis sp.	Oxalis
Polygonum aviculare	Wireweed
Raphanus raphanistrum	Wild radish

Rumex acetosella	Sheep sorrel
Salvia verbenaca	Wild sage
Sinapis arvensis	Charlock
Sisymbrium officinale	Hedge mustard
Trifolim repens	White clover
Grasses	
Austrodanthonia sp.	Wallaby grass
Austrostipa sp.	Spear grass
Avena fatua	Wild oats
Avena sativa	Oats
Bothriochloa macra	Red grass
Bromus molliformis	Soft brome
Chloris truncata	Windmill grass
Hordeum sp.	Barley grass
Eragrostis curvula	African lovegrass
Lolium rigidum	Ryegrass
Microlaena stipoides	Weeping grass
Poa labillardierei	Tussock grass
Vulpia bromoides	Silver grass
Sedges	
Juncus usitatus	Common rush

6.2 Fauna

Faunal habitat within the study area was generally uniform and relatively homogeneous in structure. Species diversity in the grassland was moderate due to good spring rains promoting exotic and native grass and herb growth. Historical clearing and cultivation has resulted in a loss of tree and shrub species.

A small stand of remnant eucalypt woodland is located in a central section of Lot 64. The woodland contained mature trees with hollows. Dead and standing timber and leaf litter provided habitat to native species.

Isolated remnant trees throughout the study area and open woodland provide habitat for birds and mammals traversing the grasslands from one woodland to another. Faunal habitat provided by the small open woodland included tree hollows, rocks and fallen logs. It is expected the woodland only provides habitat for aves and reptile species. Mammals are unlikely to inhabit the woodland due its size, past and ongoing grazing pressures and degraded condition. Historical clearing of surrounding woodland has resulted in fragmentation of the woodland from other woodland areas.

The grasses have provided a food source for grazing animals in the past. The past and ongoing disturbance in the grasslands results in poor habitat for native fauna.

Fauna recorded during the field surveys are presented in Table 2.

No threatened or endangered fauna species were observed within the study area.

A small number of *E. albens* trees were identified in the study area. *E. albens* is a listed koala feed species in Schedule 2 of the State Environmental Planning Policy No. 44 (SEPP 44) Koala Habitat Protection. To be considered potential koala habitat the trees listed in Schedule 2 of the Act should comprise at least 15% of the total number of trees in the tree component.

Table 2. Fauna species identified in opportunistic observations

Scientific name	Common Name	Comments
Aves		
Cacatua roseicapilla	Galah	Sighting, call
Corvus coronoides	Australian raven	Call
Gymnorhina tibicen	Australian magpie	Sighting
Manorina melanophrys	Noisy miner	Sighting, call
Nymphicus hollandicus	Cockatiel	Sighting
Platycercus elegans	Crimson rosella	Sighting
Platycercus eximius	Eastern rosella	Sighting
Mammalia		
Equus ferus caballus	Horse	Sighting
Macropus giganteus	Eastern grey kangaroo	Sighting
Oryctolagus cuniculus	European rabbit	Burrows
Ovis aries	Sheep	Sighting

The survey undertaken of the study area indicates native tree habitat has been mostly cleared within the study area. The study area is predominantly grasslands consisting of native and exotic pasture species.

The study area is not considered potential koala habitat as listed koala feed trees comprise less than 15% of the total tree component. The number of koala feed trees on the site is insufficient to sustain a resident koala population long term. The study area are not considered core koala habitat as the study area does not or is unlikely to encompass a resident or transient koala population.

6.3 Threatened species

6.3.1 Threatened species recorded within the study area

No threatened species were listed on the OEH Bionet database as being recorded within the study area. The Inland grey box woodland in the Riverina, NSW, South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions was identified in the central section of Lot 64.

6.3.2 Threatened species recorded in the vicinity

Threatened flora and fauna species, which have been recorded within 5km of the study area, are listed in Table 3. The data was obtained from the OEH Bionet database. Each species has a Threatened Species Conservation (TSC) Status which is a legal status according to the TSC Act, 1995 and an Environment Protection and Biodiversity Conservation (EPBC) status which is a legal status according to the EPBC Act (1999).

Twelve threatened species have been recorded within 5km of the study area (Table 3). The *Pomatostomus temporalis temporalis* (grey-crowned babbler) was recorded to the south of the southern boundary of Lot 200 DP825059 and the *Polytelis swainsonii* (superb parrot) was recorded 0.8km to the south. Eight species, *Chalinolobus picatus* (little pied bat), *Saccolaimus flaviventris* (yellow-bellied sheath-tail bat), *Climacteris picumnus victoriae* (brown treecreeper), *Hieraaetus morphnoides* (little eagle), *Petroica boodang* (scarlet robin), *Petroica phoenicea* (flame robin), *P. swainsonii* and *P temporalis temporalis* have habitat attributes similar to that occurring in the study area. The survival of these species is not expected to be impacted by the development due to the availability of suitable alternative habitat elsewhere in the locality. The impact of the development on these species has been assessed in accordance with the Assessment of Significance (Appendix 2) and EPBC Act considerations (Appendix 3).

6.3.3 Threatened species with potential to occur in the vicinity

Threatened flora and fauna species, with the potential to occur in the area, are listed in Table 3. The data was obtained from the OEH Bionet database. The search area covered a 5km radius from the study area.

Habitat attributes for *Daphoenositta chrysoptera* (varied sittella), *Glossopsitta pusilla* (little lorikeet), *Hamirostra melanosternon* (black-breasted buzzard), *Lophochroa leadbeateri* (Major Mitchell's Cockatoo), *Melithreptus gularis gularis* (black-chinned honeyeater), *Neophema pulchella* (turquoise parrot), *Stagonopleura guttata* (diamond firetail), *Hoplocephalus bitorquatus* (pale-headed snake), *Diuris tricolor* (pine donkey orchid) and *Tylophora linearis* are found within the study area. The survival of these species is not expected to be impacted by the development due to the availability of suitable alternative habitat elsewhere in the locality. The impact of the development on these species has been assessed in accordance with the Assessment of Significance (Appendix 2) and EPBC Act considerations (Appendix 3).

Habitat attributes for the remainder of the species listed in Table 3 are not found within the study area though may occur elsewhere in the locality. The survival of these species is not expected to be impacted by the development.

Table 3. Threatened species and communities predicted or known to occur in the study area from the OEH Bionet database and recorded occurrence of threatened species on the OEH Bionet database (Search area – 5km radius from the study area)

Scientific Name	Common Name	Last recorded date	Distance from the site (km)	TSC Status	EPBC Status
Mammals					
Cercartetus nanus	Eastern Pygmy-possum	NR	NR	V	Not listed
Chalinolobus dwyeri	Large-eared Pied Bat	NR	NR	V	V
Chalinolobus picatus	Little Pied Bat	1999	2.2km	V	Not listed
Dasyurus maculatus	Spotted-tailed Quoll	NR	NR	V	E
Nyctophilus corbeni	Corben's Long-eared Bat	NR	NR	V	V
Petaurus norfolcensis	Squirrel Glider	NR	NR	V	Not listed
Phascolarctos cinereus	Koala	NR	NR	V	V
Saccolaimus flaviventris	Yellow-bellied Sheath-tail Bat	2011	3.4km W	V	Not listed
Sminthopsis macroura	Stripe-faced Dunnart	NR	NR	V	Not listed
Avifauna					
Anseranas semipalmata	Magpie Goose	NR	NR	V	Not listed
Anthochaera phrygia	Regent Honeyeater	1986	4.8km W	E4	E
Botaurus poiciloptilus	Australasian Bittern	NR	NR	E1	E
Burhinus grallarius	Bush Stone-curlew	NR	NR	E1	Not listed
Calyptorhynchus lathami	Glossy Black Cockatoo	NR	NR	V	Not listed
Chthonicola sagittata	Speckled Warbler	NR	NR	V	Not listed
Circus assimitis	Spotted Harrier	NR	NR	V	Not listed
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	1999	6.3km SW	V	Not listed
Daphoenositta chrysoptera	Varied Sittella	NR	NR	V	Not listed
Ephippiorhynchus asiaticus	Black-necked Stork	NR	NR	E1	Not listed
Epthianura albifrons	White fronted Chat	NR	NR	V	Not listed
Falco hypoleucos	Grey Falcon	NR	NR	E1	Not listed
Glossopsitta pusilla	Little Lorikeet	NR	NR	V	Not listed
Grus rubicunda	Brolga	NR	NR	V	Not listed
Hamirostra melanosternon	Black-breasted Buzzard	NR	NR	V	Not listed
Hieraaetus morphnoides	Little Eagle	2011	3.3km W	V	Not listed
Lathamus discolour	Swift Parrot	NR	NR	E1	E
Leipoa ocellata	Malleefowl	NR	NR	E1	V

Limosa limosa	Black-tailed Godwit	NR	NR	V	Not listed
Lophochroa leadbeateri	Major Mitchell's Cockatoo	NR	NR	V	Not listed
Lophoictinia isura	Square Tailed Kite	NR	NR	V	Not listed
Melanodryas cucullata cucullata	Hooded Robin (south eastern form)	NR	NR	V	Not listed
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	NR	NR	V	Not listed
Neophema pulchella	Turquoise Parrot	NR	NR	V	Not listed
Ninox connivens	Barking Owl	NR	NR	V	Not listed
Oxyura australis	Blue-billed Duck	NR	NR	V	Not listed
Pachycephala inornata	Gilberts Whistler	NR	NR	V	Not listed
Petroica boodang	Scarlet Robin	1991	3.3km NE	V	Not listed
Petroica phoenicea	Flame Robin	1990	4.8km W	V	Not listed
Polytelis swainsonii	Superb Parrot	2000	0.8km S	V	V
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	2009 2011	Southern site boundary 3.4km W	V	Not listed
Rostratula australis	Australian Painted Snipe	NR	NR	E1	E
Stagonopleura guttata	Diamond Firetail	NR	NR	V	Not listed
Stictonetta naevosa	Freckled Duck	NR	NR	V	Not listed
Tyto novaehollandiae	Masked Owl	NR	NR	V	Not listed
Amphibia					
Crinia sloanei	Sloane's Froglet	NR	NR	V	Not listed
Reptilia					
Hoplocephalus bitorquatus	Pale-headed Snake	NR	NR	V	Not listed
Flora					
Acacia ausfeldii	Ausfelds Wattle	NR	NR	V	Not listed
Bothriochloa biloba	Lobed Bluegrass	2003 2011	2.1km S 3.8km W	Not listed	V
Calotis glandulosa	Mauve-burr Daisy	1903	5.5km NW	V	V
Dichanthium setosum	Bluegrass	NR	NR	V	V
Diuris tricolor	Pine Donkey Orchid	NR	NR	V	Not listed
Philotheca ericifolia		NR	NR	Not listed	V
Rulingia procumbens		NR	NR	V	V
Swainsona sericea	Silky Swainson-pea	NR	NR	V	Not listed
Tylophora linearis		NR	NR	V	E
Zieria ingramii	Keiths Zieria	NR	NR	E1	E
Community					
Fuzzy Box on alluvials of South West Slopes, Darling Riverine Plains and the Brigalow Belt South		NR	NR	E3	Not listed
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	Inland Grey Box Woodland	NR	NR	E3	Not listed
White Box Yellow Box Blakely's Red Gum Woodland	Box-Gum Woodland	NR	NR	E3	E

TSC Status - Legal status of a species according to the Threatened Species Act (1995)

E1 – Endangered
E2 – Endangered population
E3 – Endangered ecological community
E4 – Extinct
E4A – Critically endangered
E4B – Critically endangered ecological community
V – Vulnerable
V2 – Vulnerable ecological community

EPBC Status - Legal status of a species according to the Environment Protection and Biodiversity Conservation Act (1999)

CE – Critically endangered
E – Endangered
V – Vulnerable
E – Extinct

NR - Not recorded

6.4 Impacts of the development on flora and fauna

The development proposes the creation of approximately 284 rural-residential lots ranging from a minimum lot size of 0.6ha to a minimum lot size of 3ha. The subdivision plans have not been finalised. The development will include building envelopes, driveways, access roads and boundary fencing. Land-use over the majority of the study area will remain rural-residential with low intensity grazing expected.

Additional native vegetation plantings are expected to occur post development.

The areas to be impacted are expected to be generally located in exotic pasture grassland areas and no trees are expected to require removal for dwelling, driveway, access roads or boundary fencing construction. Impacts from the development include creation of the building site, driveway and construction of fencing.

The boundaries will be fenced. Boundary fencing is recommended to be 90cm high stock proof fences constructed of plain wire to ensure free movement of native fauna. The fences are not expected to fragment populations or restrict fauna movement. Impact on flora and fauna species from fence construction is not expected to be significant in the study area.

Occupancy of the dwellings will result in an increase in the number of vehicles using Eulomogo Road and Pinedale Road. This increase is not expected to have a significant impact on flora and fauna.

The additional dwellings may result in an increase in domestic cat and dog numbers. Cat and dog numbers are not currently controlled in the study area. Impact on flora and fauna is not expected to be significant.

Firewood is not common in the study area. Firewood collection for use in home fires is not expected from the development. Impact on flora and fauna is not expected to be significant.

The Assessment of Significance of Section 5a of the *Environmental Planning and Assessment Act* (1979) and Section 94A of the *Threatened Species Conservation Amendment Act (2002)* for threatened and endangered species which inhabit or likely to inhabit the study area are presented in Appendix 2. EPBC Act considerations for listed vulnerable and endangered species are presented in Appendix 3. No impacts in the study area from the development were identified in the Assessment of Significance or EPBC Act considerations on threatened and endangered species which inhabit or potentially inhabit the study area.

Measures are recommended to reduce any potential impact on flora and fauna species (Section 8). These recommendations aim to maintain and improve suitable habitat.

7. Conclusions

The study area consists of disturbed improved grasslands with isolated trees and a small area of the listed endangered ecological community Inland Grey Box woodland. The woodland is highly modified due to regular grazing, presence of weeds and absence of regeneration and therefore of low ecological value. Additional assessments will be required to determine if the woodland along road reserves forms part of an endangered ecological community.

Threatened or endangered species and populations are unlikely to be present within the study area. Development areas are expected to be within grassland areas that have been disturbed through clearing, stock grazing, cropping and agricultural practices. The construction of dwellings,

driveways, access roads and fencing is not expected to inhibit faunal habitat or movement. Access from Pinedale Road will not require the removal of trees. Habitat will not become further isolated or fragmented. Preliminary conclusions are the development will not have a significant impact on threatened species, populations or communities.

Typical recommendations which will ensure the protection and maintenance or enhancement of habitat for the native flora and fauna existing or likely to exist within the study area include:

- Restrict the removal of trees and shrubs
- Restrict the removal of dead trees
- Retain fallen logs as habitat where possible
- Avoid the introduction of introduced plants that may become weeds
- Erosion and sediment control plans to be implemented prior to construction activities
- Restrict the removal of bush rock
- Maintain understorey shrubs, herbs and grasses
- Control feral animals
- Restrict removal of timber for commercial purposes
- New boundary fences to be 90cm high stock proof fences constructed of plain wire to ensure free movement of native fauna

8. Recommendations

An additional assessment will be undertaken to describe flora and fauna over the whole *Daisy Hill* site to confirm the preliminary conclusions. The additional assessment will include the road reserves areas adjacent and within the *Daisy Hill Estate*. The flora and fauna assessment will include assessment of impacts and mitigation measures to minimise the impacts.

9. Limitations

The assessment was preliminary and did not include a detailed trapping or spotlighting program. The information presented is thought to be accurate however Envirowest Consulting Pty Ltd will not be responsible for any errors of omissions or the results of any actions taken on the basis of the information.

10. References

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Figures

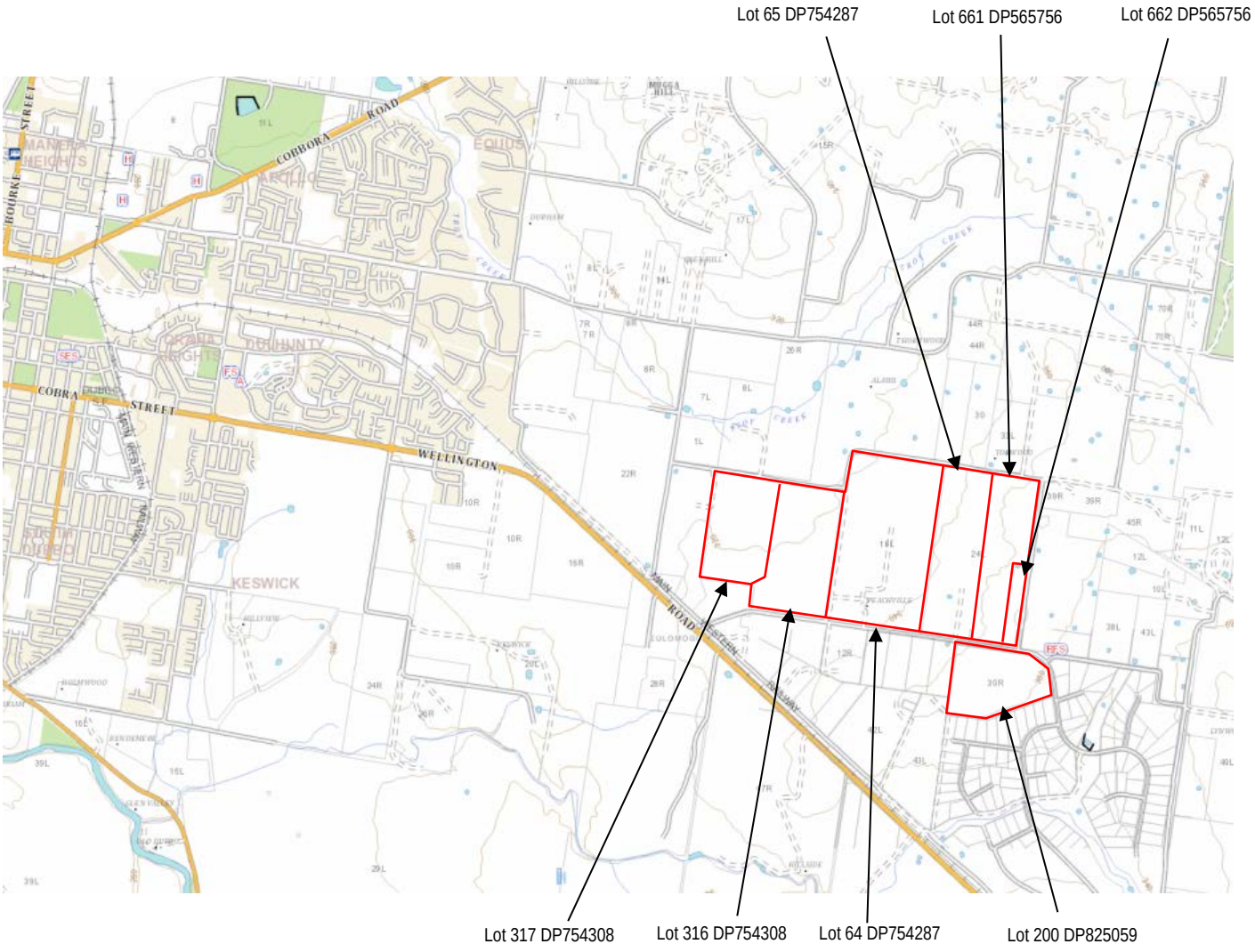
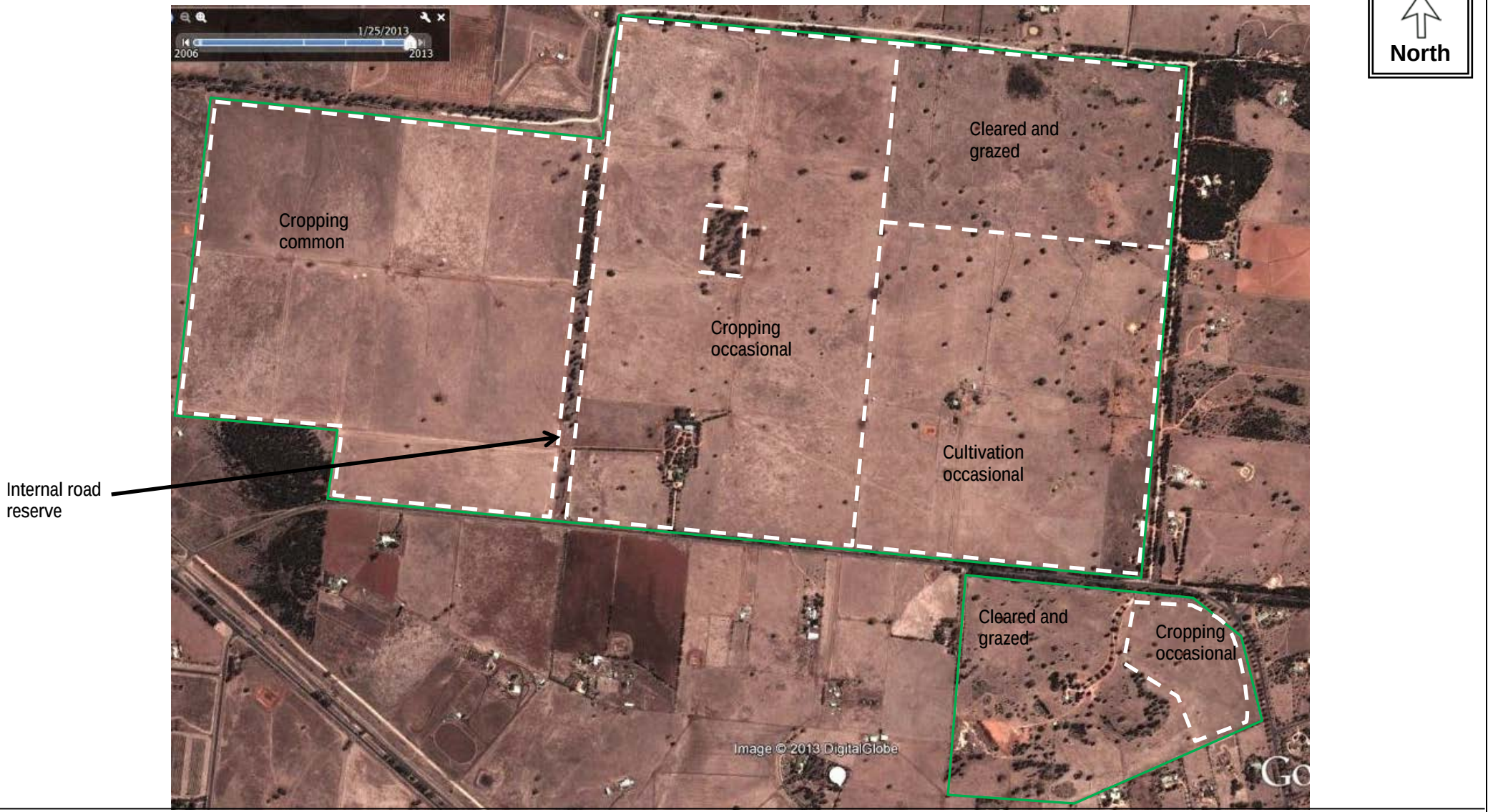


Figure 1. Study area locality and titles

Proposed subdivision of Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW

	Envirowest Consulting Pty Ltd	
Job – R13365ff.2	Drawn by: LD	Date: 23/7/2013



Legend

Daisy Hill Estate study area

Approximate Scale 1: 16,000

0 160 320 640m

Figure 2. Aerial photograph of the study area, areas of cropping and cultivation

Proposed subdivision of Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW

Envirowest Consulting Pty Ltd

Job – R13365ff.2	Drawn by: LD	Date: 20/1/2014

Legend

Daisy Hill Estate study area

Approximate Scale 1: 16,000

0 160 320 640m

Figure 3. Aerial photograph of the study area and vegetation groups

Proposed subdivision of Lot 200 DP825059, Lots 661 and 662 DP565756, Lots 64 and 65 DP754287, Lots 316 and 317 DP754308 Eulomogo Road, Dubbo NSW

Envirowest Consulting Pty Ltd

Job – R13365ff.2	Drawn by: LD	Date: 20/1/2014

Figure 4. Photographs of the study area

Appendices

Appendix 1. Impacts of the proposal on flora, fauna and communities
Appendix 2. Assessment of Significance “Seven Part Test”
Appendix 3. EPBC Act considerations

Appendix 1. Impacts of the proposal on flora, fauna and communities

Impacts of the proposal on flora, fauna and communities

1. Species unlikely to be present

The preferred habitat and ecology of some species, identified as possibly present from the Bionet database (Table 3) indicate they are unlikely to be present in the study area. Some species can be reasonably excluded and do not require evaluation in the Assessment of Significance, "seven part test" or EPBC Act considerations. The species excluded and the basis for this are presented in the table below. Reasons for exclusion are listed as habitat likely to be impacted on. Information provided within the table, is referenced from the OEH Threatened Species Profile for individual species or Ayers *et al.* (1996).

Common Name	Known (K) or predicted (P) to occur *	Habitat likely to be impacted on Comment	Assessment of significance required	EPBC Act considerations required
Mammals				
Cercartetus nanus Eastern Pygmy-possum	P	Eastern pygmy-possums inhabit rainforest to sclerophyll forests and woodland to heath. They feed on nectar and pollen from banksias, eucalypts and bottlebrushes, insects and soft fruits when there are no flowers. The eastern pygmy-possum shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests or thickets of vegetation.	No	NA
Chalinolobus dwyeri Large-eared Pied Bat	P	Large-eared pied bats roost in caves, crevices in cliffs, old mine workings and in disused, bottle-shaped mud nests of the Fairy Martin. They inhabit well-timbered areas containing gullies. It is thought that the species probably forages for small, flying insects below the forest canopy.	No	No
Chalinolobus picatus Little Pied Bat	K	Little pied bats are found in dry open forest, open woodland, mulga woodlands, cheopod shrublans, cypress pine forests and mallee and Bimbil box woodlands. They roost in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. Requires access to nearby open water. They feed on moths and possibly other flying invertebrates.	Yes	NA
Dasyurus maculates Spotted-tailed Quoll	P	The spotted tailed quoll is recorded within a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. The spotted tailed quoll requires hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces within its range to be used as den sites. The spotted tailed quoll feeds on a variety of prey including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits and insects.	No	No
Nyctophilus corbeni Corben's Long-eared Bat	P	Inhabits a variety of vegetation types including mallee, bulloke and box eucalypt dominated communities but more common in box/ironbark/cypress pine vegetation that occurs in a north south belt along the western slopes and plains of NSW and southern Queensland. They roost in tree hollows, crevices and under loose bark.	Yes	Yes
Petaurus norfolcensis Squirrel Glider	P	Inhabits mature or old growth Box, Box-Ironbark woodlands. Prefers mixed species stands with a shrub or Acacia mid-storey.	No	NA

Phascolarctos cinereus Koala	P	The koala is an arboreal mammal and is dependent on good tree coverage. Koalas mainly occur on the central and north coasts with some populations in the western region. They inhabit eucalypt woodlands and forests where acceptable food trees are present.	No	No
Saccolaimus flaviventris Yellow-bellied Sheath-tail Bat	K	Yellow-bellied sheathtail-bats occur in most wooded habitats. They roost singly or in groups of up to six in tree hollows and buildings. In treeless areas they are known to utilise mammal burrows. They forage in most habitats across its range with or without trees.	Yes	NA
Sminthopsis macroura Stripe-faced Dunnart	P	Found mainly in the gullies and river systems that drain the Great Dividing Range. Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest. Usually roosts in tree hollows but has also been found in buildings. Forages along creek and river corridors. Does not occur above 500m elevation.	No	NA
Avifauna				
Anseranas semipalmata Magpie Goose	P	Mainly found in shallow wetlands. Activities are centred on wetlands.	No	NA
Anthochaera phrygia Regent Honeyeater	K	Most commonly found in box-ironbark woodlands and will also inhabit swamp mahogany forests and riverine she-oak woodlands. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Remnant stands of timber, roadside reserves, travelling stock routes and street trees also provide habitat. The regent honeyeater mainly feeds on the nectar from a wide range of eucalypts and mistletoes. They also feed on fruit from mistletoe and insects. A shrubby understorey is an important source of insects and nesting material.	No	No
Botaurus poiciloptilus Australasian Bittern	P	Favours permanent freshwater wetlands	No	No
Burhinus grallarius Bush Stone-curlew	P	Inhabits open forest and woodlands with a sparse grassy groundlayer and fallen timber. It is largely nocturnal and especially active on moonlit nights. The bush stone-curlew feeds on insects and small vertebrates such as frogs, lizards and snakes. They form a nest on the ground in a scrape or small bare patch.	No	NA
Calyptorhynchus lathami Glossy Black Cockatoo	P	Inhabits open forest and woodlands with stands of sheoak species	No	NA
Chthonicola sagittata Speckled Warbler	P	Lives in a wide range of *Eucalyptus* dominated communities that have a grassy understorey. Typical habitat includes scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.	No	NA
Circus assimilis Spotted Harrier	P	The Spotted Harrier is found in open wooded country in tropical and temperate Australia, particularly in arid and semi-arid areas. It hunts by day on ground birds, mice, rats, rabbits and lizards. The nest is built in trees in open or remnant woodland.	No	NA
Climacteris picumnus victoriae Brown Treecreeper (eastern subspecies)	K	Widespread within eastern Australia, occurring in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. They forage in trees and on the ground for insects, mostly ants. They also feed on nectar from Mugga Ironbark and paperbark, lizards and food scraps. The brown treecreeper nests in hollows of dead standing or live trees.	Yes	NA

Daphoenositta chrysoptera Varied Sittella	P	Varied Sittella are found in eucalypt woodlands and forests. They prefer rough-barked trees like stringybarks and ironbarks or mature trees with hollows or dead branches. They feed mainly by gleaning on tree trunks or branches looking for insects. The nest is a deep open cup of bark and spiderweb.	Yes	NA
Ephippiorhynchus asiaticus Black-necked Stork	P	Black-necked Stork is widespread in coastal and subcoastal northern and eastern Australia with vagrants recorded at scattered sites away from the coast. The species becomes increasingly uncommon south of the Northern Rivers region. Habitat includes shallows, permanent freshwater, terrestrial wetlands, swamps, floodplains, watercourses, billabongs, freshwater meadows, wet heathland, farm dams, shallow floodwaters, estuaries and intertidal shore-lines.	No	NA
Epthianura albifrons White-fronted Chat	K	Found mostly in temperate to arid climates and very rarely sub-tropical areas, it occupies foothills and lowlands up to 1000m above sea level. It occurs mostly in the southern half of NSW in damp open habitats along the coast and near waterways in the western part. Forages on bare or grassy ground in wetland areas.	No	NA
Falco hypoleucos Grey Falcon	P	Sparsely distributed in NSW and thought to be extinct in areas with more than 500mm rainfall. Habitat is usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions. Also occurs near wetlands where surface water attracts prey. Prey consists of birds and mammals.	No	NA
Glossopsitta pusilla Little Lorikeet	P	The Little Lorikeet is found in dry, open eucalypt forests and woodlands. They forage in small flocks, feeding primarily on nectar and pollen in the tree canopy. On the Western Slopes and Tablelands, White Box and Yellow Box are particularly important food sources for pollen and nectar. The nest hollows are located at heights of between 2 and 15m in living smooth-barked eucalypts.	Yes	NA
Grus rubicunda Brolga	P	Dependent on wetlands.	No	NA
Hamirostra melanosternon Black-breasted Buzzard	P	Inhabits areas which receive less than 500mm rainfall. Lives in a range of inland habitats, especially along timbered watercourses. Also hunts over grasslands and sparsely timbered woodland for reptiles, small mammals and birds. Also feeds on large eggs. Breeds from August to October near water in a tall tree.	Yes	NA
Hieraaetus morphnoides Little Eagle	K	The Little Eagle is seen over woodland and forested lands and open country extending into the arid zone. It tends to avoid rainforest and heavy forest. It searches for prey on the wind and from a high exposed perch. Prey includes rabbits, other live mammals and insects. They nest in mature living trees in open woodland or tree lined watercourses and rarely in isolated trees.	Yes	NA
Lathamus discolour Swift Parrot	P	Breeding in Tasmania and its nearby islands the swift parrot migrates to south-eastern Australia to feed during winter. Inhabiting winter flowering species such as Red Ironbark, Yellow Gum, White Box, Swamp Gum and Manna Gum that have an association with psyllid infestations.	No	No
Leipoa ocellata Malleefowl	P	Predominantly inhabits mallee communities	No	No
Limosa limosa Black-tailed Godwit	P	Primarily found along the coast, this species also occurs inland on mudflats and in large muddy lakes and swamps where the water is less than 10cm deep.	No	NA

Lophochroa leadbeateri Major Mitchell's Cockatoo	P	Inhabits a wide range of treed and treeless inland habitats within easy reach of water. Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pine.	Yes	NA
Lophoictinia isura Square Tailed Kite	P	Shows a particular preference for timbered watercourses.	No	NA
Melanodryas cucullata Hooded Robin (south eastern form)	P	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee. The habitat needs to be structurally diverse with mature eucalypts, saplings, small shrubs and tall native grasses. The hooded robin feeds on insects. They nest in a tree fork or crevice using bark and grasses to form the nest.	No	NA
Melithreptus gularis gularis Black-chinned Honeyeater (Eastern subspecies)	P	Inhabits drier open forests or woodlands dominated by box and ironbark eucalypts. It also inhabits open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees. The black-chinned honeyeater moves quickly from tree to tree, foraging rapidly along outer twigs, underside of branches and trunks, probing for insects. Nectar is taken from flowers and honeydew is gleaned from foliage. The nest is placed high in the crown of the tree and hidden by foliage.	Yes	NA
Neophema pulchella Turquoise Parrot	P	Extending from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range the turquoise parrot lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. They prefer to feed in the shade of a tree and spends most of the day on the ground searching for the seeds of grasses and herbaceous plants. The turquoise parrot nests in tree hollows, logs or posts.	Yes	NA
Ninox connivens Barking Owl	P	Inhabits eucalypt woodland, open forest, swamp woodlands and, especially in inland areas, timber along watercourses. Denser vegetation is used occasionally for roosting. The barking owl feeds on a variety of prey with invertebrates predominant for most of the years and birds and small mammals becoming important during breeding.	No	NA
Oxyura australis Blue-billed Duck	P	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation	No	NA
Pachycephala inornata Gilberts Whistler	P	Preferred habitat is mallee, distributed over arid and semi-arid zone of inland southern Australia, west from the western slope of NSW.	No	NA
Petroica boodang Scarlet Robin	K	The Scarlet Robin lives in mature and regrowth eucalypt forest and woodlands. In autumn and winter, many Scarlet Robins live in open grassy woodland and grasslands or grazed paddocks with scattered trees. They forage insects and other invertebrates from low perches, fenceposts or on the ground. The nest is an open cup made of plant fibres and cobwebs and is built in the fork of a tree.	Yes	NA
Petroica phoenicea Flame Robin	K	The Flame Robin breeds in upland tall moist eucalypt forests and woodlands and prefer clearings or areas with open understoreys. In winter, they migrate to drier more open habitats in the lowlands and live in dry forests, open woodlands and in pastures and native grasslands with or without scattered trees. They forage small invertebrates from low perches or take flying insects in the air.	Yes	NA
Polytelis swainsonii Superb Parrot	K	Inhabits box-gum, box-cypress pine and boree woodlands and river red gum forest or woodland.	Yes	Yes
Pomatostomus temporalis temporalis Grey-crowned Babbler (eastern subspecies)	K	Inhabits open box-gum woodland on the slopes and box-cypress pine and open box woodlands on alluvial plains.	Yes	NA

Rostratula australis Australian Painted Snipe	P	The Australian painted snipe prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation such as grasses, tussocks or reeds.	No	No
Stagonopleura guttata Diamond Firetail	P	It is found in grassy woodlands as well as open forest, mallee and natural temperate grassland. The diamond firetail feeds on the ground on ripe and partly ripe grass and herb seeds, green leaves and insects. Nests are globular structures built in either the shrubby understorey or higher up. They roost in dense shrubs or in smaller nests.	Yes	NA
Stictonetta naevosa Freckled Duck	P	Prefers permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree.	No	NA
Tyto novaehollandiae Masked Owl	P	Roosts and breeds in moist eucalypt forested gullies	No	NA
Amphibia				
Crinia sloanei Sloane's Froglet	P	Associated with periodically inundated areas in grassland, woodland and disturbed habitats.	No	NA
Reptilia				
Hoplocephalus bitorquatus Pale-headed Snake	P	The Pale-headed Snake is found mainly in dry eucalypt forests and woodlands, cypress woodland and occasionally in rainforest or moist eucalypt forests. They favour streamside areas, particularly in drier habitats. The Pale-headed Snake shelters during the day between loose bark and tree trunks or in hollow trunks and limbs of dead trees.	Yes	NA
Flora				
Acacia ausfeldii Ausfelds Wattle	P	Found mostly on flat sandy ground.	No	NA
Bothriochloa biloba Lobed Bluegrass	K	Lobed bluegrass grows in cleared eucalypt forests and relict grassland preferring heavier textured soils such as brown or black clay soils.	NA	No
Calotis glandulosa Mauve-burr Daisy	K	Found in montane and sub-alpine grasslands in the Australian Alps. Appears to be a coloniser of bare patches. Does not persist in heavily-grazed pastures of the Monaro or the Shoalhaven area.	No	No
Dichanthium setosum *Bluegrass*	P	Associated with heavy basaltic black soils. These soils do not occur on the site.	No	No
Diuris tricolor Pine Donkey Orchid	P	Grows in sclerophyll forest among grass, often with native cypress pine. It is found in sandy soils, either on flats or small rises. The species is usually recorded in disturbed habitats. The pine donkey orchid flowers from September to November. It is a tuberous, deciduous terrestrial orchid.	Yes	NA
Philothecs ericifolia	P	Grows in dry sclerophyll forests and heaths on damp sandy flats and gullies.	No	No
Rulingia procumbens	P	Grows in sandy sites and recorded in *Eucalyptus dealbata* and *E. sideroxylon* communities, *Melaleuca uncinata* scrub, under mallee eucalypts with a *Calytrix tetragona* understorey and in recently burnt Ironbark and *Callitris* area.	No	No
Swainsona sericea Silky Swainson-pea	P	Found in temperate grassland and snow gum woodland on the Monaro and box-gum woodland in the southern tablelands and south west slopes. Sometimes found in association with cypress pines.	No	NA
Tylophora linearis	P	Grows in dry scrub and open forest. Recorded from low altitude sedimentary flats in dry woodlands of *Eucalyptus fibrosa*, *E. sideroxylon, E. albens, Callitris endlicheri, C. glaucophyllal* and *Allocasuarina luehmannii*	Yes	Yes

Zieria ingramii Keiths Zieria	P	Known only from Goonoo Goonoo State Forest. Grows in dry sclerophyll forest on light sandy soils. All known populations have been recorded in Eucalyptus-Callitris woodland or open forest with a shrubby to heathy understorey.	No	No
Ecological communities				
Fuzzy Box on alluvials of South West Slopes, Darling Riverine Plains and the Brigalow Belt South	P	Occurs on alluvial soils. Mainly in the Dubbo-Narromine-Parkes-Forbes area. Tall woodland or open forest dominated by Fuzzy Box (*Eucalyptus conica*) often with Grey Box (*Eucalyptus microcarpa*), yellow box or Kurrajong. Buloke (*Allocasuarina luehmanii*) is common in places. Shrubs are generally sparse and the groundcover moderately dense, although this will vary with season.	No	NA
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	P	Occurs on the fertile soils of the western slopes and plains. Correlation between the distribution of the community and soils of Tertiary and Quaternary alluvial origin. Generally occurs where average rainfall is 375-800mm/year and mean maximum annual temperature is 22-26˚C. Includes those woodlands in which the most characteristic tree species, *Eucalyptus microcarpa* is often found in association with *Eucalyptus populnea* subsp. *Bimbil* (Poplar Box), *Callitris glaucophylla* (White Cypress Pine), Kurrajong, Buloke or Yellow Box and sometimes White Box. Shrubs are typically sparse or absent.	Yes	No
White Box Yellow Box Blakely's Red Gum Woodland	P	Open woodland community in which the most obvious species are White Box, Yellow Box and/or Blakely's Red Gum. Remnants generally occur on fertile lower parts of the landscape where resources such as water and nutrients are abundant. The NSW definition of this community differs from the federal definition.	No	No

* Species known (K) to occur were identified in the search area on the Bionet database or from field surveys. Predicted (P) species were identified from the Bionet database.

Appendix 2. Assessment of Significance "Seven Part Test"

Chalinolobus picatus (Little Pied Bat)

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,

Little pied bats roost in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. They inhabit dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress-pine forest, mallee and Bimbil box. Little pied bats feed on moths and possibly other flying invertebrates (OEH 2013a).

The most recent sighting of the little pied bat in the search area was in 1999 and was located approximately 2.2km from the study area (OEH 2013). The small remnant open woodland occurring in the study area provides potential habitat and foraging areas for the little pied bat.

The proposed development will require the removal of no native trees. Proposed land-use across the study area will be rural-residential. Roosting and foraging areas will remain. The proposed development will have negligible or no effect on the roosting and foraging areas of little pied bats that possibly exist within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered little pied bat population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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,

Potential roosting and foraging areas exist in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the little pied bat will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other foraging and potentially roosting habitat exists to the east. The long term survival of the little pied bat in the study area will not be affected.

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

No critical habitat has been declared in the area by the NSW NPWS.

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

No recovery plan has been developed for the little pied bat. No priority action statements have been identified which are relevant for the little pied bats possibly existing in the study area.

The OEH threatened species profile (2013a) identifies three threats to little pied bat. These are:

- *Loss or modification of habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. No clearing will occur on the site consequently the development will not affect survival.
- *Predation by cats;* Domestic cat numbers within the study area are thought to increase slightly following development. Cats are not currently controlled in the study area.
- *Application of pesticides in or adjacent to foraging areas;* Pesticide use is not currently controlled in the study area. Pesticide use is not expected to change post-development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the little pied bat. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Nyctophilus corbeni (Corben's Long-eared Bat)

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,

Corben's long-eared bats inhabit a variety of vegetation types including mallee, bulloke and box eucalypt dominated communities but more common in box/ironbark/cypress pine vegetation. They roost in tree hollows, crevices and under loose bark. They are a slow flying, agile bat that utilises the understorey to hunt non-flying prey in particular caterpillars and beetles. Mating occurs in autumn with one or two young born in late spring to early summer (OEH 2013a).

The Corben's long-eared bat has not been recorded in the search area (OEH 2013) The small remnant open woodlands occurring in the study area provides potential habitat for the Corben's long-eared bat.

The proposed development will require the removal of no native trees. Proposed land-use across the study area will be rural-residential. Habitat will remain. The proposed development will have negligible or no effect on the habitat of Corben's long-eared bats that possibly exist within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered Corben's long-eared bat population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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,

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the Corben's long-eared bat will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the Corben's long-eared bat in the study area will not be affected.

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

No critical habitat has been declared in the area by the NSW NPWS.

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

No recovery plan has been developed for the Corben's long-eared bat. No priority action statements have been identified which are relevant for the Corben's long-eared bats possibly existing in the study area.

The OEH threatened species profile (2013a) identifies three threats to Corben's long-eared bat. These are:

- *Loss of remnant semi-arid woodland and mallee habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. No clearing will occur on the site consequently the development will not affect survival.
- *Loss of hollow-bearing tree;* No native trees will be removed as part of the development. No clearing will occur on the site consequently the development will not affect survival.
- *Application of pesticides in or adjacent to foraging areas;* Pesticide use is not currently controlled in the study area. Pesticide use is not expected to change post-development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the Corben's long-eared bat. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Saccolaimus flaviventris (Yellow-bellied Sheathtail-bat)

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,

The yellow-bellied sheathtail-bat is a very distinctive, large, insectivorous bat. The yellow-bellied sheathtail-bat is a wide-ranging species found across northern and eastern Australia. Occurring in most wooded habitats, the yellow-bellied sheathtail-bat inhabits rainforests, sclerophyll forests and woodlands, although recorded more commonly in the tropics (OEH 2013a). They roost in tree hollows and buildings and in treeless areas they may utilise mammal burrows.

The most recent sighting of the yellow-bellied sheathtail-bat in the search area was in 2011 and was located approximately 3.4km from the study area (OEH 2013). The woodlands occurring in the study area provide potential habitat for the yellow-bellied sheathtail-bat.

The proposed development will require the removal of no native trees. Proposed land-use across the study area will be rural-residential. Habitat will remain. The proposed development will have negligible or no effect on the habitat of yellow-bellied sheathtail-bats that possibly exist within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered yellow-bellied sheathtail-bat population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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,

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the yellow-bellied sheathtail-bat will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the yellow-bellied sheathtail-bat in the study area will not be affected.

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

No critical habitat is declared within the area under the TSC Act (1995).

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

No recovery plan has been developed for the yellow-bellied sheathtail-bat. No priority action statements are relevant to yellow-bellied sheathtail-bat unlikely to be present in the study area.

The OEH threatened species profile (2013a) identifies four threats to yellow-bellied sheathtail-bat. These are:

- *Disturbance to roosting and summer breeding sites;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. No clearing will occur on the site consequently the development will not affect survival.
- *Foraging habitats are being cleared for residential and agricultural developments;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. Foraging habitat will remain similar to that existing.
- *Loss of hollow-bearing trees, clearing and fragmentation of forest and woodland habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. No clearing will occur on the site consequently the development will not affect survival.
- *Pesticide and herbicides may reduce the availability of insects or result in the accumulation of toxic residues in individuals fat stores* Pesticide and herbicide use is not currently controlled in the study area and is undertaken as standard agricultural practice. Pesticide and herbicide use is expected to decrease post-development due to alternative management methods adopted within rural-residential areas.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the yellow-bellied sheathtail-bat. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Loss of hollow bearing trees.* The study area is located in mostly cleared areas. No native trees will be removed as part of the development. Current management techniques have meant that removal of hollow bearing trees is not controlled. Increase in the removal of hollow bearing trees is not expected post-development following adoption of the recommendations in this report.

Additional key threatening processes will not increase as a result of the proposed development.

Climacteris picumnus victoriae (Brown Treecreeper eastern subspecies)

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,

The brown treecreeper is widespread within eastern Australia, occurring in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range (OEH 2013a). They forage in trees and on the ground for insects, mostly ants. They also feed on nectar from Mugga Ironbark and paperbark, lizards and food scraps. The brown treecreeper nests in hollows of dead standing or live trees.

The most recent sighting of the brown treecreeper in the search area was in 1999 and was located approximately 6.3km south west of the study area (OEH 2013). The remnant open woodland occurring in the study area provides potential habitat for the brown treecreeper.

The proposed development will require the removal of no native trees. Proposed land-use across the study area will be rural-residential. Woodland habitat will remain. The proposed development will have negligible or no effect on the habitat of brown treecreeprs that possibly exist within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered brown treecreeper population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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,

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the brown treecreeper will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the brown treecreeper in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the brown treecreeper. No priority action statements are relevant to brown treecreeper unlikely to be present in the study area.

The OEH threatened species profile (2013a) identifies six threats to brown treecreepers. These are:

- *Historical loss of woodland, forest and mallee habitats;* Historical clearing of woodland has been undertaken across the study area. The development will not impact on historical clearing.
- *Fragmentation of woodland and forest remnants;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. No clearing will occur on the site consequently the development will not affect survival.
- *Ongoing degradation of habitat;* Historical clearing has been undertaken in the study area and exotic trees, grasses and herbs are established. Habitat within the study area is not expected to be further degraded as a result of the development.
- *Lack of regeneration of eucalypt over storey in woodland;* Land-use within the study area is not expected to change. Regeneration of eucalypt over storey in the open woodland will remain similar to pre-development.
- *Loss of ground litter from compaction and overgrazing;* Grazing of open woodlands is currently undertaken in the study area and is expected to continue at a lower intensity post development.
- *Inappropriate forestry management practices;* Forestry is not undertaken in the study area and is not expected post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the brown treecreeper. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Loss of hollow bearing trees.* The study area is located in mostly cleared areas. No native trees will be removed as part of the development. Current management techniques have meant that removal of hollow bearing trees is not controlled. Increase in the removal of hollow bearing trees is not expected post-development following adoption of the recommendations in this report.

Additional key threatening processes will not increase as a result of the proposed development.

Daphoenositta chrysoptera (Varied Sittella)

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,

The varied sittella is sedentary and inhabits most of mainland Australia except treeless deserts and open grasslands. It inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and acacia woodland. They feed on arthropods gleaned from crevices in rough bark, dead branches, standing dead trees and from small branches and twigs in the tree canopy. The varied sittella builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork (OEH 2013a).

The varied sittella has not been recorded in the search area (OEH 2013). The remnant open woodland occurring in the study area provides potential habitat and foraging areas for the varied sittella.

The proposed development will require the removal of no native trees. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat and foraging potential of the varied sittella possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered varied sittella population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the varied sittella will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the varied sittella in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the varied sittella. No priority action statements have been developed for the varied sittella.

The OEH threatened species profile (2013a) identifies four threats to varied sittella. These are:

- *Population viability is sensitive to habitat isolation and simplification, including reductions in tree species diversity, tree canopy cover, shrub cover, ground cover, logs, fallen branches and litter;* Historical clearing has been undertaken in the study area resulting in tree decline. No native trees are proposed to be removed as part of the development. Native tree removal is not expected to increase post development. Removal of logs, fallen branches and litter is not currently controlled in the study area and is not expected to increase post-development.
- *Declining habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. No clearing will occur on the site consequently the development will not affect survival.
- *Dominance of Noisy Miners;* Noisy miners are expected to occur in the study area. Numbers are not currently controlled and are not expected to be controlled post development.
- *Habitat degradation;* Historical clearing has been undertaken in the study area resulting in degradation of potential habitat. No native trees are proposed to be removed as part of the development. Loss of habitat tree species and woodlands will not increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the varied sittella. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Loss of hollow bearing trees.* The study area is located in mostly cleared areas. No native trees will be removed as part of the development. Current management techniques have meant that removal of hollow bearing trees is not controlled. Increase in the removal of hollow bearing trees is not expected post-development following adoption of the recommendations in this report.

Additional key threatening processes will not increase as a result of the proposed development.

Glossopsitta pusila (Little Lorikeet)

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.

In NSW the little lorikeet is distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri. They are gregarious, usually foraging in small flocks, often with other species of lorikeet. They feed primarily on nectar and pollen particularly on profusely-flowering eucalypts. On the western slopes and tablelands *Eucalyptus albens* and *E. melliodora* are particularly important for pollen and nectar respectively. Nest hollows are located at heights between 2 and 15m, mostly in living, smooth-barked eucalypts especially *E. viminalas, E. blakelyi* and *E. dealbata* (OEH 2013a).

The little lorikeet has not been recorded in the search area (OEH 2013). Remnant open woodlands occurring in the study area provide potential habitat for the little lorikeet.

The proposed development will require the removal of no native trees. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat and foraging potential of little lorikeet possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered little lorikeet population relevant to the subject area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the little lorikeet will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of

habitat. Other habitat exists to the east. The long term survival of the little lorikeet in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the little lorikeet. No priority action statements have been developed for the little lorikeet.

The OEH threatened species profile (2013a) identifies three threats to little lorikeet. These are:

- *Loss of food sources from on-going land clearing;* The proposed development will require the removal of no native trees and shrubs. Clearing will not increase post development.
- *Loss of breeding sites;* The proposed development will require the removal of no native trees and shrubs. Loss of breeding sites and woodlands will not increase post development.
- *Competition with the introduced honeybee;* Honeybees are not currently controlled in the study area and control is not expected post development. Honeybee numbers are not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processers for the little lorikeet . Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Clearing of native vegetation is not expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Loss of hollow bearing trees.* The study area is located in mostly cleared areas. No native trees will be removed as part of the development. Current management techniques have meant that removal of hollow bearing trees is not controlled. Increase in the removal of hollow bearing trees is not expected post-development following adoption of the recommendations in this report.

- *Competition from feral honey bees (*Apis mellifera*).* The risk of competition from feral honey bees is not expected to increase post development. Feral honeybees are not currently managed within the study area; therefore little lorikeet are currently at risk from competition.

Additional key threatening processes will not increase as a result of the proposed development.

Hamirostra melanosternon (Black-breasted buzzard)

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,

The black-breasted buzzard inhabits areas which receive less than 500mm of rain. They live in a range of inland habitats, especially along timbered watercourses. They hunt over grasslands and sparsely timbered woodland for reptiles, small mammals and birds. The black-breasted buzzard breeds from August to October near water in a tall tree. Normally two eggs are laid (OEH 2013a)

The black-breasted buzzard has not been recorded in the search area (OEH 2013). Open woodlands and grasslands occurring in the study area provide potential habitat and hunting areas for the black-breasted buzzard.

The proposed development will require the removal of no native trees. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat and hunting areas of black-breasted buzzards possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered black-breasted buzzard population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the black-breasted buzzard will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the black-breasted buzzard in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the black-breasted buzzard. No priority action statements have been prepared for the black-breasted buzzard.

The OEH threatened species profile (2013a) identifies three threats to black-breasted buzzards. These are:

- *Clearing of trees along watercourses;* Watercourses do not occur within the study area. No native trees will be removed as part of the development.
- *Degradation of foraging habitat through overgrazing and tree clearing;* The existing land-use in the study area is agriculture with grazing of stock. Historical management activities have included tree clearing. No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. The rural-residential land-use is expected to result in stock grazed at conservative rates.
- *Illegal egg collection and shooting;* Egg collection is not currently controlled on the site. Any egg collection and shooting is expected to decline due to the higher density of people residing in the study area.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the black-breasted buzzard. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Hieraaetus morphnoides (Little Eagle)

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,

The little eagle occupies open eucalypt forest, woodlands or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used. They nest in tall living trees and prey on birds, reptiles and mammals (OEH 2013a)

The most recent sighting of the little eagle in the search area was in 2011 and was located approximately 3.3km west from the study area (OEH 2013). Remnant open woodlands occurring in the study area provide potential habitat and hunting areas for the little eagle.

The proposed development will require the removal of no native trees. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat and hunting areas of little eagles possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered little eagle population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the little eagle will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the little eagle in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the little eagle. No priority action statements have been prepared for the little eagle.

The OEH threatened species profile (2013a) identifies four threats to little eagles. These are:

- *Urban expansion;* The development is a rural-residential subdivision. No native trees will require removal to allow the development.
- *Clearing and degradation of foraging and breeding habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Rural-residential subdivision and associated land-uses*; No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Secondary poisoning from rabbit baiting*; Baiting is not currently used for management of rabbits. This is expected to continue post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the little eagle. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Lophochroa leadbeateri (Major Mitchell's cockatoo)

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,

The Major Mitchell's cockatoo inhabits a wide range of treed and treeless inland habitats within easy reach of water. They feed mostly on the ground on the seeds of native and exotic melons and on the seeds of saltbush, wattles and cypress pines. They are normally found in pairs or small groups and flocks of hundreds where food is abundant. The Major Mitchell's cockatoo nest in tree hollows throughout the second half of the year. Nests are at least 1km apart with no more than one pair every 30km^2 (OEH 2013a).

The Major Mitchell's cockatoo has not been recorded in the search area (OEH 2013). A food source comprising cypress pines is located within the study area.

The proposed development will require the removal of no native trees. Existing food sources will remain. The proposed development will have negligible or no effect on the foraging areas of Major Mitchell's cockatoos possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered Major Mitchell's cockatoo population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (ii) 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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential foraging habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the Major Mitchell's cockatoo will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the Major Mitchell's cockatoo in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the Major Mitchell's cockatoo. No priority action statements are relevant to Major Mitchell's cockatoos unlikely to be present in the study area.

The OEH threatened species profile (2013a) identifies four threats to Major Mitchell's cockatoos. These are:

- *Clearing of woodlands;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Heavy grazing of feeding areas resulting in the removal of seeding grasses and preventing regeneration of food plants;* Grazing of grasses is currently undertaken as part of the existing agricultural enterprise. The rural-residential land-use post development is expected to have similar and potentially lower stocking rates then pre-development.
- *Loss of existing and future hollow-bearing trees;* No native trees and therefore hollows will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future tree hollows.
- *Illegal nest-robbing and trapping;* Nest-robbing and trapping is not currently undertaken or controlled in the study area. The occurrence of this is expected to decrease post development with the higher density of people occupying the study area.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the Major Mitchell's cockatoo. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Loss of hollow bearing trees.* Minimal clearing of native vegetation and tree hollows is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Competition from feral honey bees (*Apis mellifera*).* The risk of competition from feral honey bees is not expected to increase post development. Feral honeybees are not currently managed within the study area; therefore little lorikeet are currently at risk from competition.

Additional key threatening processes will not increase as a result of the proposed development.

Melithreptus gularis gularis (Black-chinned Honeyeater eastern subspecies)

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,

The black-chinned honeyeater occupies drier open forests or woodlands dominated by box and ironbark eucalypts. It also inhabits open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees. The black-chinned honeyeater moves quickly from tree to tree, foraging rapidly along outer twigs, underside of branches and trunks, probing for insects. Nectar is taken from flowers and honeydew is gleaned from foliage. The nest is placed high in the crown of the tree and hidden by foliage (OEH 2013a).

The black-chinned honeyeater has not been recorded in the search area (OEH 2013). Remnant open woodlands occurring in the study area provide potential habitat for the black-chinned honeyeater.

The proposed development will require the removal of no native trees. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of black-chinned honeyeaters possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered black-chinned honeyeater population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the black-chinned honeyeater will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the black-chinned honeyeater in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the black-chinned honeyeater No priority action statements are relevant to black-chinned honeyeater unlikely to be present in the study area.

The OEH threatened species profile (2013a) identifies three threats to black-chinned honeyeaters. These are:

- *Clearing of remnant open forest and woodland habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Poor regeneration of open forest and woodland habitats because of intense grazing;* Grazing is currently undertaken as part of the existing agricultural enterprise. The rural-residential land-use post development is expected to have similar and potentially lower stocking rates than pre-development.
- *May be excluded from smaller remnants by aggressive species such as the Noisy Miner;* Aggressive species are not currently controlled on the site. Numbers are not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the black-chinned honeyeater. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Neophema pulchella (Turquoise Parrot)

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,

Extending from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range the turquoise parrot lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland (OEH 2013a). They prefer to feed in the shade of a tree and spends most of the day on the ground searching for the seeds of grasses and herbaceous plants. The turquoise parrot nests in tree hollows, logs or posts.

The turquoise parrot has not been recorded in the search area (OEH 2013). Grasslands in the study area and adjacent eucalypt woodlands provide potential habitat for the turquoise parrot.

The proposed development will require the removal of no native trees. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of turquoise parrots possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered turquoise parrot population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (ii) 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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the turquoise parrot will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the turquoise parrot in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the turquoise parrot. No priority action statements are relevant to turquoise parrots unlikely to be present in the study area.

The OEH threatened species profile (2013a) identifies five threats to turquoise parrots. These are:

- *Clearing of grassy woodland and open forest habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Loss of hollow bearing trees;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Degradation of habitat through heavy grazing, firewood collection and establishment of exotic pastures;* Grazing of the study area currently occurs and is expected to occur at a similar density post development. Collection of firewood is not currently controlled in the study area. This is expected to continue post development. Exotic plant species dominate the study area.
- *Predation by foxes and cats;* A threat abatement plan has been developed based on predation by the red fox. The turquoise parrot is not listed as a priority species for fox control. The study area is not listed as a priority area for fox control. Fox numbers are expected to decrease post development due to the increase in human occupation of the study area. Domestic cat numbers within the study area are expected to increase following development.
- *Illegal trapping of birds and collection of eggs;* Illegal trapping is not currently undertaken or controlled in the study area. Illegal trapping is not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the turquoise parrot. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Loss of hollow bearing trees.* No hollow bearing trees are located in the study area.

Additional key threatening processes will not increase as a result of the proposed development.

Petroica boodang (Scarlet Robin)

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,

The scarlet robin lives in mature and regrowth dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs and abundant logs and fallen timber. In autumn and spring, many scarlet robins live in grassy woodlands and grasslands or grazed paddocks with scattered trees. The scarlet robin forages for small insects and other invertebrates from low perches, fence posts or on the ground. The nest is an open cup made of plant fibres and cobwebs usually more than 2m above the ground (OEH 2013a)

The most recent sighting of the scarlet robin in the search area was in 1991 and was located approximately 3.3km north east from the study area (OEH 2013). Grasslands occurring in the study area provide potential foraging areas for the scarlet robin.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of scarlet robins possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered scarlet robin population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential foraging habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the scarlet robin will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other foraging habitat exists in all directions. The long term survival of the scarlet robin in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the scarlet robin. No priority action statements have been developed for the scarlet robin.

The OEH threatened species profile (2013a) identifies ten threats to scarlet robins. These are:

- *Historical clearing and degradation;* Historical clearing of woodland has been undertaken across the study area. The development will not impact on historical clearing. T
- *Habitat modification due to overgrazing;* Grazing is currently undertaken as part of the existing agricultural enterprise. The rural-residential land-use post development is expected to have similar and potentially lower stocking rates than pre-development.
- *Reduction of size of remnant patches;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. A reduction in the size of remnant patches is not expected.
- *Reduction in structural complexity*; The remnants are not structurally complex due to the current and historical agricultural land-use and associated management practices. Native vegetation plantings are expected post development increasing future structural complexity. .
- *Loss of nest sites, food sources and foraging sites;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future nest sites, food sources and foraging sites. Land-use across the majority of the study area will remain similar to that currently occurring. A reduction in the size of remnant patches is not expected.
- *Predation by over-abundant populations of Pied Currawong;* Pied Currawong are not currently controlled in the study area.
- *Predation by feral cats* Domestic cat numbers within the study area are expected to increase slightly following development.
- *Robbing of nests and predation of fledglings by rats;* Rats are not currently controlled in the study area.
- *Isolation of patches of habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring. Further isolation of potential habitat is not expected.
- *Dense regeneration after bushfires or other disturbances;* Regeneration after bushfires or other disturbances are not currently managed in the study area.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the scarlet robin. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

- *Predation by the Feral Cat.* The risk of predation by feral cats may increase as domestic cat numbers within the area may increase. Feral cats are not currently managed within the study area; therefore scarlet robins are currently at risk from predation.

Additional key threatening processes will not increase as a result of the proposed development.

Petroica phoenicea (Flame Robin)

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,

The flame robin breeds in upland tall moist eucalypt forests and woodlands often on ridges and slopes in clearing or areas with open understorey. The groundlayer is dominated by native grasses and the shrub layer may be either sparse or dense. In winter, the birds migrate to direr more open habitats in the lowlands. The flame robin often occurs in recently burnt areas, however habitat becomes unsuitable as vegetation closes up following regeneration. The flame robin forages from low perches from which they sally or pounce onto small invertebrates which they take from the ground or off tree trunks, logs and other coarse woody debris. Nests are often near the ground and are built in sheltered sites. The nest is an open cup nest made of plant materials and spider webs (OEH 2013a)

The most recent sighting of the flame robin in the search area was in 1990 and was located approximately 4.8km west from the study area (OEH 2013). Grasslands and remnant open woodlands occurring in the study area provide potential habitat and foraging areas for the flame robin.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of flame robins possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered flame robin population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
(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
(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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the flame robin will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New

boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists in all directions. The long term survival of the flame robin in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the flame robin. No priority action statements have been developed for the flame robin.

The OEH threatened species profile (2013a) identifies five threats to flame robins. These are:

- *Clearing and degradation of breeding habitat;* The study area does not provide breeding habitat for the flame robin.
- *Degradation of wintering habitat;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Degradation and simplification of habitat by overgrazing and removal of standing dead timber, logs and coarse woody debris;* The existing land-use in the study area is agriculture with grazing of stock. Post development, stocking rates are expected to be similar or potentially lower. Historical management activities have included tree clearing, removal of logs and coarse woody debris. No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Nest predation by native and exotic predators;* Native and exotic predators are not currently controlled in the study area. Increase in nest predation is not expected.
- *Dense regeneration after bushfires or other disturbances;* Regeneration after bushfires or other disturbances are not currently managed in the study area and not expected post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the flame robin. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Polytelis swainsonii (Superb Parrot)

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,

The superb parrot is distributed primarily on the upper and middle reaches of the Murray, Murrumbidgee & Lachlan Rivers (Ayers *et al* .1996). Core breeding area on the south western slopes is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west (OEH 2013a). The birds nest mostly in dead trees. The birds feed in trees, understorey shrubs and on the ground on grass seeds and herbaceous plants but will also eat fruits, berries, nectar, buds, flowers, insects and grain.

The most recent sighting of the Superb Parrot in the search area was in 2000 and was located approximately 0.8km south from the study area (OEH 2013). The remnant open woodland occurring in the study area provide potential habitat for the superb parrot.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of flame robins possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered superb parrot population relevant to the subject area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the superb parrot will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the superb parrot in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the superb parrot. No priority action statements are relevant to superb parrot possibly existing in the study area

The OEH threatened species profile (2013a) identifies six threats to superb parrots. These are:

- *Removal of hollow bearing trees;* No native trees and tree hollows will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Clearing of woodland remnants;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Poor regeneration of nesting trees and food resources;* Additional native vegetation plantings are expected post development increasing potential future habitat and food resources.
- *Feeding on grain spills and subsequently being struck by vehicles;* Minimal cropping is expected to be undertaken in the study area post development. Grazing is the dominant agricultural land-use. The occurrence of being struck by vehicles while feeding on grain is expected to be low.
- *Loss of hollows to feral bees and native and exotic hollow-nesting birds;* Feral bees and hollow-nesting birds are not currently controlled in the study area. Loss of hollows to feral bees and native and exotic hollow-nesting birds is not expected to increase post development.
- *Illegal trapping;* Illegal trapping is not currently undertaken or controlled in the study area. Illegal trapping is not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the superb parrot. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Pomatostomus temporalis temporalis (Grey-crowned Babbler)

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,

The grey-crowned babbler (eastern sub-species) occurs in NSW on the western slopes of the Great Dividing Range and on the western plains reaching as far as Louth and Balranald (OEH 2013a). The grey-crowned babbler inhabits Box-Gum Woodlands on the slopes and Box-Cypress pine and Open Box Woodlands on alluvial plains. Flight is laborious and birds are generally unable to cross large open areas. They live in family groups that consist of a breeding pair and young from previous breeding seasons. Breeding occurs between July and February. The grey-crowned babbler feed on invertebrates, either foraging on the trunks and branches of eucalypts and other woodland trees or on the ground.

The grey-crowned babbler was been recorded along the southern boundary of the study area in 2009 in an area which has since been developed for rural-residential land-use. The most recent sighting of the grey-crowned babbler in the search area was in 2011 and was located approximately 3.4km west from the study area (OEH 2013). The remnant open woodlands occurring in the study area provide potential habitat for the grey-crowned babbler.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of flame robins possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered grey-crowned babbler population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat

for the grey-crowned babbler will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists to the east. The long term survival of the grey-crowned babbler in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the grey-crowned babbler. No priority action statements have been developed for the grey-crowned babbler.

The OEH threatened species profile (2013a) identifies three threats to the grey-crowned babbler. These are:

- *Clearing of woodland remnants;* No native trees will be removed as part of the development. Additional native vegetation plantings are expected post development increasing potential future habitat. Land-use across the majority of the study area will remain similar to that currently occurring.
- *Heavy grazing and removal of coarse, woody debris within woodland remnants;* The existing land-use in the study area is agriculture with grazing of stock. Post development, stocking rates are expected to be similar or potentially lower. Historical management activities have included tree clearing, removal of logs and coarse woody debris.
- *Nest predation by species such as ravens and butcherbirds;* Control of predatory birds is not currently undertaken in the study area and is not expected post development. Predatory bird numbers are not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the grey-crowned babbler. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Stagonopleura guttata (Diamond firetail)

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,

The diamond firetail is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina (OEH 2013a). It is found in grassy woodlands as well as open forest, mallee and natural temperate grassland. The diamond firetail feeds on the ground on ripe and partly ripe grass and herb seeds, green leaves and insects. Nests are globular structures built in either the shrubby understorey or higher up. They roost in dense shrubs or in smaller nests.

The diamond firetail has not been recorded in the search area (OEH 2013). Grasslands and remnant woodland occurring on study area provide habitat for the diamond firetail.

The proposed development will require the removal of no native trees. The availability of seeds which the diamond firetail rely on as a food source is not expected to be reduced. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat or foraging potential of diamond firetail possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered diamond firetail population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the diamond firetail will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or

isolate areas of habitat. Other habitat exists in all directions. The long term survival of the diamond firetail in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the diamond firetail. No priority action statements are relevant to diamond firetail possibly existing in the study area.

The OEH threatened species profile (2013a) identifies six threats to diamond firetails. These are:

- *Clearing and fragmentation of woodland, open forest, grassland and mallee habitat;* The proposed development will require the removal of no native trees and shrubs. Additional native vegetation plantings are expected post development increasing potential future habitat. Little clearing will occur on the site consequently the development will not affect roosting and feeding sites.
- *Poor regeneration of open forest and woodland habitats;* Regeneration of open woodland habitats is not currently occurring on the site. Additional native vegetation plantings are expected post development increasing potential future habitat.
- *Invasion of weeds;* Weed management is undertaken on the site as part of routine agricultural practices. This is expected to continue post development. Weeds are not expected to increase post development.
- *Modification and destruction of ground and shrub layers within habitat;* The proposed development will require the removal of no native trees and shrubs. Small amounts of grasses will be removed to allow the construction of access roads, dwellings and driveways. Additional native vegetation plantings are expected post development increasing potential future habitat. Exotic plant species are already located in the study area. Removal of native plants, litter and fallen timber is not currently controlled in the study area. Modification and destruction of ground and shrub layers are not expected to increase post development.
- *Predation of eggs and nestlings by increased populations of native predators;* Native predators are not currently controlled in the study area.
- *Risk of local extinction due to small, isolated populations;* Isolation will not be increased within the study area as the development will require the removal of few trees.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the diamond firetail. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Hoplocephlus bitorquatus (Pale-headed snake)

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,

The pale-headed snake is found in dry eucalypt forests and woodlands, cypress woodland and occasionally in rainforest or moist eucalypt forests. They favour streamside areas, particularly in drier habitats. The pale-headed snake shelters during the day between loose bark and tree trunks or in hollow trunks and limbs of dead trees (OEH 2013a).

The pale-headed snake has not been recorded in the search area (OEH 2013). Open woodlands occurring on the site containing cypress pine provide potential habitat for the pale-headed snake.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of pale-headed snake possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered pale-headed snake population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the pale-headed snake will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists in all directions. The long term survival of the pale-headed snake in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the pale-headed snake. No priority action statements are relevant to the pale-headed snake possibly existing in the study area.

The OEH threatened species profile (2013a) identifies four threats to pale-headed snakes. These are:

- *Clearing and fragmentation of habitat;* The proposed development will require the removal of no native trees and shrubs and will not further fragment habitat. Additional native vegetation plantings are expected post development increasing potential future habitat. Little clearing will occur on the site consequently the development will not affect habitat.
- *Forestry practices which result in loss of old or dead trees;* Forestry is not proposed as part of the development.
- *Too frequent burning for fuel reduction or grazing management which destroys old and dead trees and removed understorey vegetation;* Fire is not currently used as a management tool. Fire is not proposed to be used as a management tool.
- *Illegal collection of snakes from the wild;* Illegal collection of snakes is not currently undertaken or controlled in the study area. Illegal collection is not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the pale-headed snake. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Diruis tricolor (Pine donkey orchid)

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,

The pine donkey orchid grows in sclerophyll forest among grass, often with native cypress pine. It is found in sandy soils, either on flats or small rises. The species is usually recorded in disturbed habitats. The pine donkey orchid flowers from September to November. It is a tuberous, deciduous terrestrial orchid (OEH 2013a).

The pine donkey orchid has not been recorded in the search area (OEH 2013). Open woodlands occurring on the site containing cypress pine provide potential habitat for the pine donkey orchid.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of pine donkey orchids possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered pine donkey orchid population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the pine donkey orchid will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists in all directions. The long term survival of the pine donkey orchid in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the pine donkey orchid. No priority action statements are relevant to the pine donkey orchid possibly existing in the study area.

The OEH threatened species profile (2013a) identifies four threats to pine donkey orchid. These are:

- *Habitat clearing and modification;* The proposed development will require the removal of few trees, shrubs and grasses. Additional native vegetation plantings are expected post development increasing potential future habitat. Tree clearing is not expected post development. Little clearing will occur on the site consequently the development will not affect survival.
- *Short flowering duration means it will be impossible to detect when some developments are assessed for their impact on threatened species;* Habitat for the pine donkey orchid will not be impacted by the creation of the building envelopes or access roads.
- *Feral animal impacts;* Management of rabbits and feral goats is currently undertaken as general farm management. This is expected to continue post development.
- *Weed competition;* Weed management is undertaken on the site as part of routine agricultural practices. This is expected to continue post development. Weeds are not expected to increase post development.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the pine donkey orchid. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Tylophera linearis

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,

The *T. linearis* grows in dry scrub and open forest and woodlands of *Eucalyptus fibros, E. sideroxylon, E. albens, Callitris endlicheri, C. glaucophylla* and *Allocasuarine luehmannii*. It flowers in spring. There are very low numbers of confirmed populations and has been recorded in very low abundancesd (OEH 2013a).

T. linearis has not been recorded in the search area (OEH 2013). Open woodlands occurring on the site containing cypress pine provide potential habitat for the *T. linearis*.

The proposed development will require the removal of no native trees. Land-use will remain similar to that currently occurring. Existing habitat will remain. The proposed development will have negligible or no effect on the habitat of *T. linearis* possibly existing within the study area.

b. 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,

An endangered population is defined as a population specified in Part 2 of the Schedule 1 of the *Threatened Species Conservation Act (1995).* No endangered *T. linearis* population relevant to the study area is listed in the schedule.

c. 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,

Not applicable.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

Potential habitat exists in the study area. The habitat has been degraded by historical agricultural activities such as clearing, removal of standing and fallen dead timber, introduction of exotic grasses and stock grazing. Habitat for the *T. linearis* will not be impacted by the creation of the building envelopes, driveways, boundary fencing or access road. Land-use over the majority of the study area will remain similar to that currently occurring. New boundary fencing will be sited to minimise habitat impact and is unlikely to further fragment or isolate areas of habitat. Other habitat exists in all directions. The long term survival of the*T. linearis* in the study area will not be affected.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the *T. linearis*. No priority action statements are relevant to the*T. linearis* possibly existing in the study area.

The OEH threatened species profile (2013a) identifies three threats to *T. linearis*. These are:

- *Track maintenance;* farm tracks are present in the study area. New roads will be created as part of the development. The proposed development will require the removal of few trees, shrubs and grasses. Little clearing will occur on the site consequently the development will not affect survival.
- *Forestry activities;* Forestry is not proposed as part of the development.
- *Inappropriate disturbance regimes;* The proposed development will require the removal of few trees, shrubs and grasses. Little clearing will occur on the site consequently the development will not affect survival.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes for the *T. linearis*. Applicable key threatening processes post development are:

- *Clearing of native vegetation.* Minimal clearing of native vegetation is expected to occur as part of the development. Clearing is not expected to increase post-development.

Additional key threatening processes will not increase as a result of the proposed development.

Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions

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,

Not applicable.

b. 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,

Not applicable.

c. 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,

Inland Grey Box Woodland occurs in the study area as small fragmented areas. Impact on the woodland will be from the construction of boundary fencing through the woodland. Building envelopes and roads will be positioned within grassland areas. No native trees are expected to be removed from the woodland. Fences currently exist in the locality and surround the woodland area. The local occurrence of the Inland Grey Box *W*oodland will not be placed at risk of extinction.

The woodland community on the site is highly modified due to regular grazing, presence of weeds and absence of regeneration and are therefore of low ecological value. The composition of the woodland is not expected to change following development. Current management techniques are expected to continue. Additional native tree plantings are expected post development.

Impacts are expected to be minimal on the woodland community as vegetation is expected to be maintained.

d. 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
   (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
   (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 rural development will not alter the current land-use from an agriculturally based grazing enterprise.

No native trees are expected to be removed from the woodland. Existing habitat will remain. Habitat is currently poor due to regular grazing. Isolation is already evident within the study area due to clearing.

Existing woodland is unlikely to become further fragmented. The community is currently poor due to historical clearing, presence of weeds, regular grazing and absence of regeneration. The local occurrence of the Inland Grey Box Woodland will not be placed at risk of extinction.

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

No critical habitat is declared within the study area under the TSC Act (1995).

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

No recovery plan has been developed for the Inland Grey Box Woodland. No priority action statements are relevant to the Inland Grey Box Woodland existing in the study area.

The OEH threatened species profile (2013a) identifies five threats to the Inland Grey Box Woodland. These are:

- *Small scale clearing for cropping improvement or other development;* Historical clearing has been undertaken in the study area resulting in degradation and fragmentation of the woodland. The proposed development will require the removal of no native trees and shrubs. Clearing of trees is not expected post development. Additional native vegetation plantings are expected post development increasing potential future habitat.
- *Firewood cutting, increased livestock grazing, stubble burning, weed invasion, inappropriate fire regimes, soil disturbance and increased nutrient loads;* Collection of firewood is not currently controlled in the study area. Collection of firewood is not expected to increase post development. Grazing of open woodlands is currently undertaken in the study area and is expected to continue at a lower intensity post development. Stubble burning does not currently occur within the woodland and is not expected post development. Weeds are currently controlled as part of general farm management. This is expected to continue post development. Fire is not currently used as a management technique and is not expected post development. Soil disturbance does not currently occur within the woodland and is not expected post development. An increased nutrient load is not expected post development.
- *Degradation of the landscape in which remnants occur including soil acidification, salinisation, extensive erosion scalding and loss connectivity;* Land degradation is not currently occurring within the woodland and is not expected to increase post development.
- *Grazing by introduced European rabbits and fauna predation by feral cats;* Rabbits and feral cats are currently controlled as part of general farm maintenance. This is expected to continue post development.
- *Poor representation in isolated conservation reserves;* The development will not impact on representativeness of the woodland in conservation reserves.

g. 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.

Development is not recognised as a key threatening process in Schedule 3 of the Threatened Species Conservation Act (1995).

The proposed development may potentially increase activities that are considered key threatening processes. Applicable key threatening processes post development are:

- *The clearing of native vegetation.* The development areas (building envelopes, driveways, access road and boundary fencing) will be located in mostly cleared areas. Some boundary fencing may be located within part of the woodland. No native trees are proposed to be removed to allow fence construction or other development activities.

- *The removal of dead wood and dead trees.* The development areas (building envelopes, driveways, access road and boundary fencing) will be located in mostly cleared areas. Some boundary fencing may be located within part of the woodland. No native trees are proposed to be removed to allow fence construction or other development activities. Current management techniques have meant that removal of dead wood and dead trees is not controlled. Increase in the removal of dead wood and dead trees is not expected post-development following adoption of the recommendations in this report.

- *The invasion of native plant communities by exotic perennial grasses.* Exotic perennial grasses are already established in the study area.

- *Predation by the Feral Cat* Felis catus*.* The risk of predation to native animals and birds by feral cats may slightly increase as domestic cat numbers within the area may slightly increase. Feral cats are not currently managed within the study area; therefore native animals and birds are currently at risk from predation.

- *Competition and grazing by the feral European Rabbit*. Land-use post development is expected to remain similar to that pre-development. European rabbit control is expected to be undertaken as general farm management. European rabbit numbers are not expected to increase as a result of the development.

- *Competition from feral honeybees*. Land-use post development is expected to remain similar to that pre-development. Feral honeybee numbers are not expected to increase as a result of the development.

- *Predation by the European red fox.* Land-use post development is expected to remain similar to that pre-development. European red fox control is expected to be undertaken as general farm management. European red fox numbers are not expected to increase as a result of the development.

- *Loss of hollow bearing trees*. The development areas (building envelopes, driveways, access road and boundary fencing) will be located in mostly cleared areas. Some boundary fencing may be located within part of the woodland. No native trees are proposed to be removed to allow fence construction or other development activities. Current management techniques have meant that removal of hollow bearing trees is not controlled. Increase in the removal of hollow bearing trees is not expected post-development following adoption of the recommendations in this report.

Additional key threatening processes will not increase as a result of the proposed development.

Appendix 3. EPBC Act considerations

Nyctophilus corbeni (Corben's Long-eared Bat)

a. Is the action likely to lead to a long-term decrease in the size of the population?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. The action is unlikely to lead to a long-term decrease in the size of the population.

b. Is the action likely to reduce the area of occupancy of the species?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. The action is unlikely to lead to a reduction in the area of occupancy.

c. Is the action likely to fragment existing populations into two or more populations?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. Further isolation due to fencing and dwellings will not occur. The action is not likely to fragment populations.

d. Is the action likely to adversely affect habitat critical to the survival of the species?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. The current grazing regime of the potential habitat will continue. The action is unlikely to adversely affect habitat critical to the survival of the Corben's long-eared bat possibly occurring in the study area.

e. Is the action likely to disrupt the breeding cycle of a population?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. It is unlikely the development will disrupt the breeding cycle of the Corben's long-eared bat.

f. Is the action likely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. It is unlikely the development will result in the decline of the Corben's long-eared bat.

g. Is the action likely to result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?

The current grazing regime of the potential habitat will continue. Weeds will be managed in areas of potential habitat; home owners are likely to contain garden species. It is unlikely the development will lead to an increase in invasive species that will be harmful to the Corben's long-eared bat.

h. Is the action likely to introduce disease that may cause the species to decline?

Diseases which may impact on Corben's long-eared bat are not currently managed in the study area. This is expected to continue post development. Introduction of diseases that may cause the species to decline is not likely to increase.

i. Is the action likely to interfere with the recovery of the species?

Potential habitat for the Corben's long-eared bat was identified in the woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. The majority of the existing habitat in the study area will remain. The development is unlikely to decrease the potential for recovery of the Corben's long-eared bat potentially occurring in the study area.

Superb Parrot *(Polytelis swainsonii)*

a. Is the action likely to lead to a long-term decrease in the size of an important population?

Potential habitat for the superb parrot was identified in the study area. Minimal potential habitat will be removed as part of the development. The action is unlikely to lead to a long-term decrease in the size of the population.

b. Is the action likely to reduce the area of occupancy of an important species?

Potential habitat for the superb parrot was identified in the study area. Minimal potential habitat will be removed as part of the development. The action is unlikely to lead to a reduction in the area of occupancy.

c. Is the action likely to fragment existing important populations into two or more populations?

Potential habitat for the superb parrot was identified in the study area. Minimal potential habitat will be removed as part of the development. The action is not likely to fragment populations.

d. Is the action likely to adversely affect habitat critical to the survival of the species?

Minimal habitat will be removed as part of the development. The current grazing regime of the potential habitat will continue. The action is unlikely to adversely affect habitat critical to the survival of the superb parrot possibly occurring in the study area.

e. Is the action likely to disrupt the breeding cycle of a population?

Potential habitat for the superb parrot was identified in the study area. Minimal potential habitat will be removed as part of the development.

Feral animals will be controlled as part of routine agricultural activities. It is unlikely the development will disrupt the breeding population of the superb parrot.

f. Is the action likely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?

Potential habitat for the superb parrot was identified in the study area. Minimal potential habitat will be removed as part of the development. The action is unlikely to lead to a reduction in the area of occupancy. It is unlikely the development will result in the decline of the superb parrot.

g. Is the action likely to result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?

The current grazing regime of the potential habitat will continue. The control of foxes as part of routine agricultural activities will reduce predation from these species. Weeds will be managed in areas of potential habitat; home owners are likely to contain garden species. It is unlikely the development will lead to an increase in invasive species that will be harmful to the superb parrot.

i. Is the action likely to introduce disease that may cause the species to decline?

Introduction of diseases that may cause the species to decline is not likely to increase.

h. Is the action likely to interfere substantially with the recovery of the species?

Minimal potential habitat will be removed as part of the development. The control of foxes as part of routine agricultural activities will reduce predation from these species. The development is unlikely to decrease the potential for recovery of the superb parrot potentially occurring in the study area.

Tylophera linearis

a. Is the action likely to lead to a long-term decrease in the size of the population?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. The action is unlikely to lead to a long-term decrease in the size of the population.

b. Is the action likely to reduce the area of occupancy of the species?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. The action is unlikely to lead to a reduction in the area of occupancy.

c. Is the action likely to fragment existing populations into two or more populations?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. Further isolation due to fencing and dwellings will not occur. The action is not likely to fragment populations.

d. Is the action likely to adversely affect habitat critical to the survival of the species?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. The current grazing regime of the potential habitat will continue. The action is unlikely to adversely affect habitat critical to the survival of the *T. linearis* possibly occurring in the study area.

e. Is the action likely to disrupt the breeding cycle of a population?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. It is assumed *T. linearis* is insect pollinated. It is unlikely the development will disrupt the breeding cycle of the *T. linearis*.

f. Is the action likely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. It is unlikely the development will result in the decline of the *T. linearis*.

g. Is the action likely to result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?

The current grazing regime of the potential habitat will continue. Weeds will be managed in areas of potential habitat; home owners are likely to contain garden species. It is unlikely the development will lead to an increase in invasive species that will be harmful to the *T. linearis*.

h. Is the action likely to introduce disease that may cause the species to decline?

Diseases which may impact on *T. linearis* are not currently understood. The development is not expected to result in diseases which may cause *T. linearis* numbers to decline. This is expected to continue post development.

i. Is the action likely to interfere with the recovery of the species?

Potential habitat for the *T. linearis* was identified in the open woodland areas of the study area. The study area is located in extensively cleared and modified agricultural areas. It is unlikely to contain *T. linearis*. The majority of the existing habitat in the study area will remain. The development is unlikely to decrease the potential for recovery of the *T. linearis* potentially occurring in the study area.