

Jeff Bulfin
Precise Planning
PO Box 426
Northbridge NSW 1560



EP ref: 2015-044

27 July 2015

Re: Assessment of ecological impacts and avoidance, mitigation and offsetting measures for planning proposal at Thirlmere Way, West Tahmoor, Wollondilly LGA.

Dear Jeff,

Following recent discussions, I understand that following on from the two subdivision Development Applications (DAs) lodged at Macquarie Place, Tahmoor, a third DA will soon be lodged on adjacent land fronting Thirlmere Way, Tahmoor, which is also the subject of a planning proposal to reduce lot sizes (see **Figure 1** for lot boundary).

As you are aware, this area is significantly constrained ecologically (see ELA 2014; Ecoplanning 2015a,b,c) by the presence of:

- Shale Sandstone Transition Forest, a critically endangered ecological community (CEEC) listed under State and Commonwealth legislation,
- Potential threatened species habitat for State listed microbats and birds,
- Natural Resources – Biodiversity Layer under the Wollondilly LEP 2011, and
- Myrtle Creek, which is a Prescribed Stream requiring 50 m riparian setbacks.

The most recent revision of the planning proposal shows lot sizes between 500-1,400 m², which does not allow for the retention of any native vegetation. Following on from previous advice (ELA 2014) and in consultation with Council (Alex Stengl, Biodiversity Officer), clearing of this vegetation is considered significant and proposed measures to first avoid, mitigate then offset unavoidable impacts are necessary.

Below I have outlined the direct and indirect impacts associated with the proposal, including impacts not associated with the planning proposal that will indirectly affect the vegetation at the subject site. I have also included some discussion on the avoidance, mitigation and ultimate proposal to prepare a Biobanking Statement for the clearing of native vegetation at the site.

Direct impacts

Vegetation clearing

There is currently 2.1 ha of native remnant or regenerating Shale Sandstone Transition Forest CEEC at the subject site, the majority of which is in a modified and degraded condition state. Approximately 0.88 ha remains in a relatively intact 'forest' condition state, with the remaining degraded states including, 'disturbed – partially intact' forest (0.18 ha), 'disturbed – underscrubbed/regrowth' woodland (1.02 ha) and scattered paddock trees (0.04 ha). Approximately 1.44 ha of exotic and introduced vegetation is also present at the subject site.

The proposed subdivision will require the removal of 1.30 ha of Shale Sandstone Transition Forest, the majority of which is in a 'disturbed – underscrubbed/regrowth' condition state (1.00 ha). All scattered paddock trees will require removal (0.04 ha), along with some 'disturbed – partially intact' forest vegetation (0.18ha). All of the exotic/introduced vegetation will be removed (1.29 ha) (**Table 1** and **Figure 1**).

The vast majority of vegetation clearing will be of exotic and introduced vegetation, with all of native vegetation proposed to be removed having been modified to some extent. Through a number of revisions to the development footprint, it has been possible to avoid clearing any of the highest conservation significance 'forest' zone vegetation and retain this vegetation in either a conservation area or as a component of an Asset Protection Zone (see further discussion below).

When considered in its entirety, the Shale Sandstone Transition Forest mapped onsite is of low condition, mostly regrowth (<50 years), highly modified through slashing and grazing, and/or occurs in disjunct remnants separated by either exotic vegetation, cleared lands or residential housing. In the long term, the remnant and regrowth Shale Sandstone Transition Forest mapped at the subject site will continue to degrade due to the above reasons, and may not be viable without significant intervention.

Loss of fauna habitat

The proposal will remove potential foraging, roosting/sheltering, and breeding habitat. This will impact upon some threatened fauna either recently recorded in the study area, or considered to have either high or moderate likelihood of utilising the subject site, as outlined in **Table 2** (see Ecoplanning 2015).

Records of these species are not common in the locality (5 km surrounding site), and they are predominantly located along riparian areas and gullies, or in the conservation estate to the west (Thirlmere Lakes National Park) (see Ecoplanning 2015). Only one threatened fauna species has been recorded in the study area by Biosis (2011), the Black-chinned Honeyeater – eastern subspecies. This species is known to occur in low numbers in the landscape, and is not known to persist in remnants of <200 ha (NSW SC 2011). This is the only record within 5 km of the study area in the past 20 years, and given the highly cleared and lineal nature of the remnant vegetation in locality, the study area is not considered to retain significant habitat for this species.

Other impacts to fauna habitat include loss of hollow bearing and stag trees, with two threatened species of microbat, Greater Broad-nosed Bat and Eastern False Pipistrelle, known to utilise hollows for roosting and nesting considered to have a 'moderate' likelihood of occurring in the study area. There are hollow bearing and stag trees mapped in the study

area, with all but one stag tree occurring within the subject site (i.e. the development footprint). Greater Broad-nosed Bat and Eastern False Pipistrelle are known from within <1 km from the survey of Hayes (2005), although this report did not discuss the level of activity for this species, and there are no other records of this species recorded in the Atlas of NSW Wildlife within the locality from the past 20 years (OEH 2015). Given the comparatively low number of records in the locality, the study area is not likely to be utilised by this species with any frequency and the impact of the loss of hollows from the proposal is not substantial.

The site is potential foraging habitat for Greater Broad-nosed Bat and Eastern False Pipistrelle, as well as Eastern Bent-wing Bat and Large-eared Pied Bat, but given the low numbers of records and the large amount of semi-cleared rural land in the locality, it is not likely to provide a comparatively exceptional food source for foraging.

Similarly, potential foraging and roosting habitat for the Varied Sittella, Little Eagle and Square-tailed Kite also with a moderate potential to occur in the study area, but there are few records in the locality, with only four records of the Varied Sittella and one record of both the Little Eagle and Square-tailed Kite in the past 20 years (OEH 2015). Varied Sittella is a fairly sedentary species (Simpson and Day 2008), and each of these records is >1 km from the subject site, three of them >3 km west in the Thirlmere Lakes National Park. The records of Little Eagle and Square-tailed Kite are >2.5 km from the study area, although the home range for these species is relatively large. Due to their high mobility, impacts at the subject site will represent a small and incremental impact to their foraging resources (e.g. rabbits and small passerines respectively) within this home range.

Whilst the proposal will reduce the amount of habitat for microbats, and diurnal birds in the locality, this impact is considered relatively minor given these species being highly mobile and/or being of low abundance in the locality. Due to the largely peri-urban nature of the locality, similar habitats remain on the surrounding properties, and more intact habitat is present in the nearby riparian areas, gullies and the conservation estate.

Table 1: Direct impacts of the proposed subdivision (Stage 3) on native and exotic/introduced vegetation.

VEGETATION TYPE	VEGETATION ZONE (CONDITION CLASS)	DEVELOPMENT FOOTPRINT (ha)	RETAINED LAND CONSERVATION (ha)	AREA (ha)
Shale Sandstone Transition Forest	Forest	0.08	0.80	0.88
	Disturbed – partially intact	0.18	0.00	0.18
	Disturbed – underscrubbed/regrowth/ exotic	1.00	0.02	1.02
	Scattered paddock trees	0.04	0.00	0.04
<i>Total native vegetation</i>		1.30	0.82	2.12
Other vegetation	Pasture – grazed/mown	0.59	0.08	0.67
	Pines	0.13	0.01	0.14
	Planted/Introduced	0.57	0.05	0.62
<i>Total exotic/introduced</i>		1.29	0.15	1.44
<i>Total vegetation</i>		2.59	0.97	3.56

Table 2: Threatened and migratory species considered with a moderate-high likelihood of utilising the subject site and being impacted by the proposal.

Scientific name	Common name	Likelihood of occurrence	Impact
Threatened microbats			
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Moderate	Foraging only
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Moderate	Foraging/roosting/ breeding
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing Bat	Moderate	Foraging only
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Moderate	Foraging/roosting/ breeding
Threatened diurnal birds			
<i>Daphoenositta chrysoptera</i>	Varied Sittella	Moderate	Foraging roosting
<i>Hieraaetus morphnoides</i>	Little Eagle	Moderate	Foraging/roosting
<i>Lophoictinia isura</i>	Square-tailed Kite	Moderate	Foraging/roosting
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Recent record	Foraging/roosting

Indirect impacts

It is difficult to quantify indirect impacts of the proposed development, but these may include impacts such as noise and/or erosion associated with the construction phase of the project. These impacts will be managed through the development of a Construction Environmental Management Plan.

Given the already highly modified nature and present residential use of the subject site, indirect impacts from the proposal are considered to be negligible or non-existent.

Impacts not associated with this proposal

Proposed construction of road by Council

Whilst not a component of the planning proposal, a Crown Road reserve exists along the western boundary of the subject site and it is understood that Council are planning to develop this road in the near future. Whilst it is difficult to quantify impacts from this future proposed road, it will have the effect of further isolating some portions of Shale Sandstone Transition Forest in the subject site, that are currently mapped as 'disturbed – underscrubbed/regrowth', from the larger patches of vegetation remaining to the west. This

has been considered in the impact assessment of this proposal, as the resultant avoidance of impacting the vegetation along the western boundary of the subject site would result in the retention of a small isolated and degraded patch, requiring ongoing management from edge effects associated with the development.

Current DA's on adjacent land

There are presently two DA's in progress on the neighbouring parcels of land to the east (see Stage 1 and 2, **Figure 2**). Impacts from the Stage 1 DA have been assessed under the NSW Biobanking Assessment Methodology (OEH 2014) (Stage 1), and an application has been lodged for a Biobanking Statement under Section 7A of the NSW *Threatened Species Conservation Act 1995* (TSC Act) (see Ecoplanning 2015b). Impacts from the Stage 2 DA have been assessed under s5A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), which found impacts were not significant. The Stage 2 DA did however provide Biodiversity Offset Strategy which included the retirement of Biobanking 'ecosystem credits', for impacts to the area identified under the Biodiversity Layer of the WLEP (see Ecoplanning 2015c).

Avoidance and mitigation

Vegetation clearing

The remnant native vegetation in the study area is found in varying condition states, and a number of iterations of the final lot layout have been explored in order to identify the best outcome for retaining vegetation of higher conservation significance. These reiterations included exploring a number of lot layouts and lot sizes in order to avoid potential impacts from the 10/50 Bushfire Code of Practice (RFS 2014), which would have allowed for thinning of vegetation to within 10 m of the Myrtle Creek (a Prescribed Stream) without consent.

The current planning proposal seeks to reduce the minimum lot size from 2,000 m² lots to 450 m², allowing for the redesign of the lot layout to avoid these impacts. In order to accommodate this avoidance strategy, consultation was undertaken with Council which has resulted in a preferred outcome of 450 m² lot size with a designated building envelope. This allows for the first 10 m of the 10/50 to be implemented within the lot boundary, but the residual 40 m to be managed by Council. Further, the development has been focussed in areas of previously long disturbed vegetation, and impacts to the vegetation of highest conservation significance (i.e. 'forest' vegetation zone) has been avoided.

This allows for the residual vegetation along Myrtle Creek to be managed for conservation, and revegetation to take place for the remaining areas of the previously cleared land. A nominal 3-4 m mown strip of native grasses will be maintained by Council, providing a buffer between the back fence of residential property and the high conservation area 'forest' vegetation zone, which will be managed as a Council Reserve.

This revegetation and management strategy will require the preparation of a Vegetation Management Plan, which will be implemented prior to construction to allow for the utilisation of local provenance vegetation prior to clearing the subject site. Implementation of this Vegetation Management Plan and ongoing management funding will be provided by the applicant.

Loss of fauna habitat

As identified above, direct impacts will occur to fauna habitats including, hollow bearing and stag trees, some fallen timber and manmade structures. It is possible that hollow dependant fauna such as microbats, arboreal mammals and amphibians may be present in hollow bearing and stag trees. Appropriate pre-clearance protocols will be put in place at the time of construction to avoid and mitigate any potential harm or injury to these individuals. These protocols should be outlined in a Fauna Management Plan.

Due to the proposed lot layout and lot size, the clearing of hollow bearing trees has been unavoidable, although one stag tree will be retained in the conservation area. Fauna habitat boxes of equivalent size and number to those being lost will be installed in the conservation area. These habitat boxes will be monitored annually for a period of three years to ensure they are not colonised by introduced pest species such as the Common Myna or Feral European Honeybees (*Apis mellifera*).

Construction Environmental Management Plan (CEMP)

To avoid potential indirect offsite impact during construction, an appropriate erosion and sedimentation control plan should be in place following best practice protocols such as Landcom (2004). It is recommended that this and Vegetation and Fauna Management Plans are included in a site specific Construction Environmental Management Plan (CEMP), prior to any construction works taking place. The CEMP will be required to span the pre, during and post-construction period.

Offsets

The above avoidance and mitigation measures have been developed through consultation with the proponent and Council. Whilst these measures to avoid and mitigate will reduce the impact of the ultimate subdivision DA, impacts to the Shale Sandstone Transition Forest CEEC are still considered significant, and vegetation under the Biodiversity Layer of the WLEP is still considered to be adverse. For this reason, the proponent will submit an application for a Biobanking Statement and Red Flag Variation in accordance with the BBAM (OEH 2014) under the Part 7A TSC Act for the residual impact from the future subdivision.

If you would like to discuss any of the above further, please contact me on the details provided below.

Sincerely,

Lucas McKinnon

Director | Principal Ecologist – Accredited Biobanking Assessor
BEnvSc(Hons), GCert. Ornithology, Biobanking Acc. (#76)
M: 0421 603 549 | E: lucas.mckinnon@ecoplanning.com.au



Figure 1: Subject site boundary with proposed lot boundary over mapped vegetation.



Figure 2: Staging of development footprint at West Tahmoor.

References

Ecoplanning (2015a). DRAFT Flora and fauna assessment – Lots 1-4 // DP 243776 and Lot 6 // DP 793897, Macquarie Place and Thirlmere Way, Tahmoor. Prepared for Precise Planning.

Ecoplanning (2015b). Flora and Fauna Assessment – Part Lots 1-3 // DP 243776, Macquarie Place and Thirlmere Way, Tahmoor. Prepared for Precise Planning.

Ecoplanning (2015c). Biodiversity Assessment Report – Macquarie Place, Tahmoor, NSW (v 1.0). Prepared for ABAX Contracting, c/o Precise Planning.

ELA (2014). Macquarie Place, West Tahmoor – *Threatened Species Conservation Act* advice and prelim Biocertification calculations. Letter advice prepared for Precise Planning by Eco Logical Australia, Sutherland.

Hayes (2005). Lots 58 & 60 // DP 21549, 35 & 45 Marion Street, Thirlmere – Proposed Vegetation Clearing – Flora and Fauna Assessment. Prepare by Hayes Environmental.

NSW Office of Environment and Heritage (OEH) (2011). Major Rivers Database: Prescribed New South Wales watercourses for determining riparian buffer strip widths. Accessed 22 February 2015, at: <http://www.environment.nsw.gov.au/vegetation/MajorRivers.htm>

NSW Office of Environment and Heritage (OEH) (2014). Shale Sandstone Transition Forest in the Sydney Basin Bioregion – profile. Accessed at: <http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10755>

NSW Office of Environment and Heritage (OEH) (2015). BioNet Atlas of NSW Wildlife. Accessed at: http://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx

NSW Scientific Committee (SC) (2014). Final Determination to list the Shale Sandstone Transition Forest in the Sydney Basin Bioregion as a Critically Endangered Ecological Community in Part 2 of Schedule 1A of the *Threatened Species Conservation Act 1995*.

Threatened Species Scientific Committee (TSSC) (2014). Approved Conservation Advice (including listing advice) for Shale Sandstone Transition Forest of the Sydney Basin Bioregion.