Hayes Environmental Pty Ltd
ABN 61 523 229 092
PO Box 2257, Bowral 2576
Phone 0412 600 173
Email rhogan@hayesenv.com.au
Web www.hayesenv.com.au

29th April 2023

Att: Robert Harwood
rh@harwoodarchitects.com

Dear Robert,

Re: Preliminary biodiversity advice for Lot 35 DP 878862 Miles Franklin Drive, Talbingo.

A botanical survey was conducted across the subject property by Mr Daniel Clarke on the 8th March 2023 to identify and map the extent of native vegetation (based on current definitions).

Field data was applied to the Bionet vegetation classification database to confirm the plant community type/s (PCT) present on the land. This information was used to generate a list of threatened plant and animal species of potential relevance to the property, to enable provision of advice around survey requirements and timing.

The following biodiversity findings are relevant to the property:

1. The majority of the land (approximately 12 hectares) contains grassland or regenerating forest classed as 'native vegetation' under current legislation and guidance, based on the percent cover of native groundlayer species. The land also supports occasional native trees and regenerating shrubs. Refer to Map 1.
2. The land has historically been cleared and partly developed. Native vegetation is regenerating but is in very poor condition. The limited number of species and highly modified groundlayer make it difficult to confidently identify the original PCT, so a range of sources of information were used. The determination of PCT was based on use of the Bionet vegetation classification database, with a higher reliance placed on remnant and regenerating native tree and shrub species and a lesser reliance placed on groundlayer species. Also taken into consideration was the location and landscape positions described for candidate PCTs in their Bionet profiles, the class and natural structure of the candidate PCTs, and regional vegetation mapping (including both the current Eastern NSW PCT mapping, and previous Southern Forests – VIS 3859 mapping).
3. On the basis of these considerations, native vegetation present across the subject property is classed as degraded PCT 3365 *Bondo Slopes Red Stringybark Grassy Forest*. This PCT is not currently associated with any threatened ecological communities listed under either the BC Act or EPBC Act. The PCT is estimated to be 55.22% cleared from its pre-European extent.
4. The property is situated across the western footslopes of the Cumberland Range. A second order stream (Strahler classification) drains to the northwest through the property, to Jounama Pondage on the Tumut River. It would be usual to apply a 20m riparian setback from the top of bank each side of second order streams.

5. No threatened plant or animal species are known to occur on the property. Six threatened bird species have previously been recorded from the Talbingo village area, including the Dusky Woodswallow, Diamond Firetail, Scarlet Robin, Flame Robin, Gang Gang Cockatoo and White-bellied Sea-eagle. There is a high likelihood of these species occurring on the subject property on occasions.

6. Based on the PCT and region, the Biodiversity Assessment Method (BAM) calculator identifies sixteen candidate threatened species which would require field survey or further assessment prior to lodgement of a development application. These are set out in Table 1 below. Some of these species are known to use degraded grassland habitats. Targeted field surveys are required in accordance with relevant guidelines and timeframes to demonstrate absence of threatened species. Where species cannot be demonstrated absent, it is usually necessary to assume presence and pay the corresponding biodiversity offset.

7. Species listed (DPE guidance) as being at risk of Serious And Irreversible Impact (SAII) are a permissibility risk for development. Only one of the candidate species is currently listed as being at risk of SAII, the Large-eared Pied Bat. The SAII risk for this species is associated with loss of breeding habitat. It is not likely the site provides breeding habitat, so risks associated with this species are low, but do require further assessment.

Table 1 Threatened species credit species of relevant to the subject land.

Relevant Threatened Species	SAII	Designated Survey Period	Proposed Survey timing
Flora			
Ammobium craspedioides Yass Daisy	X	Sep to Nov	Spring
Eucalyptus cannonii Capertee Stringybark	X	all year	Spring
Fauna			
Pink-tailed Legless Lizard *Aprasia parapulchella*	X	Sep to Nov	Spring
Bush Stone-curlew *Burhinus grallarius*	X	all year	Spring
Gang Gang Cockatoo *Callocephalon fimbriatum* (breeding)	X	Oct to Jan	Spring
Glossy Black Cockatoo *Calyptorhynchus lathami* (breeding)	X	Jan to Sep	Winter
Large-eared Pied Bat *Chalinolobus dwyeri*	✓	Nov to Jan	Spring
White-bellied Sea-Eagle (breeding)	X	Jul to Dec	Spring
Little Eagle *Hieraaetus morphnoides* (breeding)	X	Aug to Oct	Spring
Booroolong Frog *Litoria booroolongensis*	X	Oct to Dec	Spring
Square-tailed Kite *Lophoictinia isura*	X	Sept to Jan	Spring
Barking Owl *Ninox connivens* (breeding)	X	May to Dec	Spring
Powerful Owl *Ninox strenua* (breeding)	X	May to Aug	Winter
Koala *Phascolarctos cinereus*	X	All year	Spring
Superb Parrot *Polytelis swainsonii*	X	Sep to Nov	Spring
Masked Owl *Tyto novaehollandiae* (breeding)	X	May to Aug	Winter

Map 1 *Native vegetation zones within the subject property (aerial image from Nearmap, dated 29/09/2020)*

Implications for development:

* It is a requirement of biodiversity legislation that impacts are first avoided and minimised where possible, with mitigation and off-setting used for residual impacts that cannot be avoided.

* With current information, it does not appear the site contains biodiversity values that warrant specific retention or protection. Consideration should be given to management of the riparian zone for stability, water quality and wetland habitats. Consideration should be given to retention of existing native trees, where practicable.

* Future landscaping of the development should incorporate locally indigenous native plants as mitigation for loss of native vegetation.

* Development of the site would exceed the area threshold of the Biodiversity Offset Scheme (BOS). This means a Biodiversity Development Assessment Report (BDAR) would be required to be lodged with a development application. The BDAR must be prepared by an Accredited Assessor in accordance with the Biodiversity Assessment Method (BAM).

* The BDAR must include details concerning the avoidance and minimisation of impacts to a reasonable degree, the mitigation of residual impacts, and calculation of the biodiversity offset required under the BOS.

* Due to the poor condition of native vegetation across the subject property, it is possible the vegetation integrity score may be below the offset threshold, such that no additional biodiversity offset is payable. This cannot be confirmed until the detailed field work has been completed.

* It will be necessary to conduct targeted field surveys for most of the relevant threatened species listed in Table 1. It is possible additional species may be added to the list over the course of the project due to ongoing changes to the threatened species lists and databases. Some species may be able to be removed from the list on the basis of the habitat being too degraded, or particular habitat requirements not being present.

* Further botanical surveys are required to target the Yass Daisy (September to November), and to collect BAM vegetation integrity plot data across the native grassland areas (estimate 5-6 plot surveys required to meet BAM requirements). This work needs to be done when the majority of native grasses are likely to be flowering and able to be identified, which is generally over Spring and Summer.

* A fauna habitat and winter-breeding bird survey is required in the period from May to August. A more comprehensive fauna survey (particularly including reptile searches) would then be required during October and November.

* A fee proposal for Stages 2 and 3 of the biodiversity assessment have been prepared and are provided separately.

Please do not hesitate to contact me with any queries.

Kind regards,

Rebecca Hogan
BSc (environmental biology) MEngMngt MECA (NSW)
Accredited BAM Assessor (BAAS17090)
Principal, Hayes Environmental

PO Box 2257 Bowral NSW 2576
M: 0412 600 173
E: rhogan@hayesenv.com.au
W: www.hayesenv.com.au

ECA ECOLOGICAL CONSULTANTS ASSOCIATION of NSW Inc
2023 PRACTISING MEMBER

Observation Point 1
GPS: MGA55
617090 6061418

Natives:	Exotic / Non-local natives
Themeda triandra	**Holcus lanatus*
Dichanthium sericeum	**Hypericum perforatum*
	**Cenchrus clandestinus*
	**Paspalum dilatatum*
	**Bromus catharticus*

Comments: Modified open area with concrete foundations / driveways. Former storage area or agricultural area. Native groundlayer cover about 15%.

Observation Point 2
GPS: MGA55
617060 6061376

Natives:	Exotic / Non-local natives
Acacia dealbata	**Holcus lanatus*
	**Dittrichia graveolens*
	**Verbena bonariensis*
	**Cenchrus clandestinus*
	**Populus nigra*

Comments: Soil mounds and concrete area with some *Acacia dealbata*

Observation Point 3
GPS: MGA55
617023 6061352

Natives:	Exotic / Non-local natives
Themeda triandra	**Cenchrus clandestinus*
Dichanthium sericeum	**Dittrichia graveolens*
Acacia dealbata	**Hypericum perforatum*
	**Paspalum dilatatum*

Comments: Concrete areas with regenerating *Acacia dealbata.* Some areas suport high cover of native grass.

Observation Point 4
GPS: MGA55
616966 6061322

Natives:	Exotic / Non-local natives
Themeda triandra	**Rubus anglocandicans*
Dichanthium sericeum	
Acacia melanoxylon	

Comments: Open area in north-west of site. Large native grass component – well over 50% cover. Some Blackberry patches.

Observation Point 5
GPS: MGA55
616944 6061305

Natives:	Exotic / Non-local natives
Themeda triandra	**Paspalum dilatatum*
	**Rubus anglocandicans*

Comments: Themeda cover is 90%. Some exotic component

Observation Point 6
GPS: MGA55
616875 6061271

Natives:	Exotic / Non-local natives
Themeda triandra	
Acacia melanoxylon	
Pteridium esculentum	

Comments: Themeda patch continues – 80-90% cover. Regenerating *Acacia melanoxylon* on western boundary.

Observation Point 7
GPS: MGA55
616900 6061207

Natives:	Exotic / Non-local natives
Themeda triandra	**Rubus anglocandicans*
Leptospermum brevipes	**Briza maxima*
Brachychiton populneus	**Hypericum perforatum*
Epilobium billardierianum	

Comments: Extensive Themeda cover (80%) with *Brachychiton* and *Leptospermum*. Small dug drainage channel at location, running north.

Observation Point 8
GPS: MGA55
616935 6061151

Natives:	Exotic / Non-local natives
Themeda triandra	**Rubus anglocandicans*
Leptospermum brevipes	**Holcus lanatus*
	**Paspalum dilatatum*

Comments: Exotic cover has increased. Native grass cover still 50-60%

Observation Point 9
GPS: MGA55
616952 6061172

Natives:	Exotic / Non-local natives
Themeda triandra	**Pinus elliottii*
Acacia melanoxylon	**Paspalum dilatatum*
Leptospermum brevipes	**Cyperus eragrostis*

Comments: Capturing regenerating *Leptospermum* shrubs + *Themeda* grassland – at least 50% cover.

Observation Point 10
GPS: MGA55
616981 6061104

Natives:	Exotic / Non-local natives
Kunzea parvifolia	**Rubus anglocandicans*
Themeda triandra	**Prunus* sp.
Acacia melanoxylon	**Cenchrus clandestinus*
Panicum effusum	**Verbena bonariensis*
	**Dittrichia graveolens*

Comments: Open area with gravel driveway. Native grass persists but about 15% cover. Old rubbish dumping. Large trees of *Acacia melanoxylon*.

Observation Point 11
GPS: MGA55
617010 6061081

Natives:	Exotic / Non-local natives
Kunzea parvifolia	
Leptospermum brevipes	
Themeda triandra	

Comments: Open paved-bitumen driveway area in south-western area of site. Regenerating native shrubs and grasses. Native grass cover at 70% alongside paved area

Observation Point 12
GPS: MGA55
617028 6161032

Natives:	Exotic / Non-local natives
Themeda triandra	**Rubus anglocandicans*
Pteridium esculentum	**Holcus lanatus*
	**Populus nigra*

Comments: Trees on southern boundary – south-west corner. Mixed exotic and native components. Large Blackberry patch. Native cover up to 20% in some areas.

Observation Point 13
GPS: MGA55
617046 6061120

Natives:	Exotic / Non-local natives
Acacia dealbata	**Rubus anglocandicans*
Themeda triandra	**Cirsium vulgare*
	**Rosa rubiginosa*
	**Paspalum dilatatum*

Comments: Along start of southern access road – western end. Some native vegetation on southern side along southern boundary. Strong Themeda groundlayer – 40-50%- either side of road

Observation Point 14
GPS: MGA55
617102 6061130

Natives:	Exotic / Non-local natives
Eucalyptus globulus subsp. *bicostata*	**Dittrichia graveolens*
Acacia melanoxylon	**Rubus anglocandicans*
Exocarpos cupressiformis	**Holcus lanatus*
Acacia dealbata	
Dichanthium sericeum	

Comments: Along old southern access road – southern boundary. Some regenerating native vegetation on southern boundary. Vegetation north of road is in poorer condition.

Observation Point 15
GPS: MGA55
617173 6061136

Natives:	Exotic / Non-local natives
Eucalyptus globulus subsp. *bicostata*	**Cyperus eragrostis*
Themeda triandra	**Populus nigra*
Eragrostis leptostachya	**Rubus anglocandicans*
	**Paspalum dilatatum*
	**Quercus palustris*

Comments: Along old southern access road – southern boundary. Narrow strip to south of road is in better condition than north of road. Some native grass cover and trees south of road. Native grass cover about 25%. Poplars to north of road.

Observation Point 16
GPS: MGA55
617252 6061152

Natives:	Exotic / Non-local natives
Eucalyptus globulus subsp. *bicostata*	**Populus nigra*
Acacia melanoxylon	**Verbena bonariensis*
Dichanthium sericeum	**Cyperus eragrostis*

Comments: Generally a degraded area with increased native grass cover on southern fenceline – south of old access road. Extensive soil-mounding. Poplars north of road.

Observation Point 17
GPS: MGA55
617327 6061168

Natives:	Exotic / Non-local natives
Eucalyptus globulus subsp. *bicostata*	**Rubus anglocandicans*
	**Populus nigra*

Comments: Highly degraded area – old dam / steep circular hole/depression with eucalypts on southern boundary- to south of road.

Observation Point 18
GPS: MGA55
617376 6061213

Natives:	Exotic / Non-local natives
Eucalyptus globulus subsp. *bicostata*	**Agrostis capillaris*
Themeda triandra	**Rubus anglocandicans*
Acacia melanoxylon	**Populus nigra*
Rytidosperma racemosum	**Holcus lanatus*

Comments: Areas both sides of old access road observed. Better native quality on south side along fenceline.

Observation Point 19
GPS: MGA55
617439 6061268

Natives:	Exotic / Non-local natives
Eucalyptus globulus subsp. *bicostata*	**Verbena bonariensis*
Brachychiton populneus	**Prunus cerasifera* 'Nigra'
Themeda triandra	**Rubus anglocandicans*
Dichanthium sericeum	

Comments: Some native groundlayer which is in better condition to south of road along southern fenceline

Observation Point 20
GPS: MGA55
617480 6061358

Natives:	Exotic / Non-local natives
None observed	**Rubus anglocandicans*
	**Populus nigra*
	**Paspalum dilatatum*
	**Holcus lanatus*
	**Phalaris aquatica*

Comments: Mostly degraded groundlayer with very little native component.

Observation Point 21
GPS: MGA55
617440 6061339

Natives:	Exotic / Non-local natives
Dichanthium sericeum	**Rubus anglocandicans*
	**Paspalum dilatatum*
	**Populus nigra*
	**Paspalum dilatatum*
	**Pyracantha crenulata*
	**Agrostis capillaris*

Comments: Extensive *Dichanthium* in groundlayer with exotic patches. Around 50% or more in some areas. Concrete pads at location.

Observation Point 22
GPS: MGA55
617416 6061306

Natives:	Exotic / Non-local natives
Acacia melanoxylon	**Rubus anglocandicans*
Themeda triandra	**Populus nigra*
Dichanthium sericeum	

Comments: At old building-block / facilities-dwelling. Paved concrete areas – extensive native grass in some areas at 70% cover.

Observation Point 23
GPS: MGA55
617374 6061307

Natives:	Exotic / Non-local natives
Acacia dealbata	**Rubus anglocandicans*
Dichanthium sericeum	**Hypericum perforatum*
Themeda triandra	**Rosa rubiginosa*
Rytidosperma racemosum	**Paspalum dilatatum*

Comments: Native grass about 25% cover.

Observation Point 24
GPS: MGA55
617358 6061276

Natives:	Exotic / Non-local natives
Rytidosperma racemosum	**Rubus anglocandicans*
Dichanthium sericeum	**Pyracantha crenulata*
	**Populus nigra*

Comments: Some native grass cover – 10 to 20%.

Observation Point 25
GPS: MGA55
617346 6061233

Natives:	Exotic / Non-local natives
Themeda triandra	**Rubus anglocandicans*
	**Dactylis glomerata*
	**Pyracantha crenulata*
	**Populus nigra*

Comments: Near main creekline. Blackberry dominant on creekline but extensive *Themeda* upslope to east – 50% cover.

Observation Point 26
GPS: MGA55
617331 6061293

Natives:	Exotic / Non-local natives
Themeda triandra	**Prunus* sp.
	**Ligustrum sinense*
	**Sporobolus africanus*
	**Verbena bonariensis*
	**Paspalum dilatatum*
	**Populus nigra*
	**Rosa rubiginosa*
	**Rubus anglocandicans*
	**Phalaris aquatica*

Comments: Native groundlayer diminishing. Some *Themeda* present but low cover compared to further south.

Observation Point 27
GPS: MGA55
617269 6061256

Natives:	Exotic / Non-local natives
Acacia dealbata	**Prunus* sp.
Themeda triandra	**Ligustrum sinense*
	**Sporobolus africanus*
	**Verbena bonariensis*
	**Paspalum dilatatum*
	**Populus nigra*

Comments: Native grass cover – about 30%.

Observation Point 28
GPS: MGA55
617252 6061224

Natives:	Exotic / Non-local natives
Acacia dealbata	**Paspalum dilatatum*
Themeda triandra	**Cotoneaster glaucophyllus*
	**Populus nigra*

Comments: Large copse of *Acacia dealbata* regeneration. Native grass cover around 70%

Observation Point 29
GPS: MGA55
617190 6061229

Natives:	Exotic / Non-local natives
Rytidosperma racemosum	**Paspalum dilatatum*
Dichanthium sericeum	**Populus nigra*
	**Prunus* sp.
	**Rosa rubiginosa*
	**Rubus anglocandicans*

Comments: Extensive native groundlayer – 50% cover.

Observation Point 30
GPS: MGA55
617136 6061244

Natives:	Exotic / Non-local natives
Themeda triandra	**Phalaris aquatica*
Dichanthium sericeum	**Paspalum dilatatum*
Microlaena stipoides	**Bromus catharticus*
	**Rubus anglocandicans*
	**Populus nigra*
	**Bromus molliformis*

Comments: Moderate native groundlayer persists. 50% cover persists in some areas

Observation Point 31
GPS: MGA55
617108 6061284

Natives:	Exotic / Non-local natives
Themeda triandra	**Avena barbata*
Dichanthium sericeum	**Paspalum dilatatum*
	**Rubus anglocandicans*
	**Verbena bonariensis*
	**Ligustrum sinense*
	**Populus nigra*

Comments: Extensive to moderate patches of native grass – around 30% cover.

Observation Point 32
GPS: MGA55
617072 6061308

Natives:	Exotic / Non-local natives
Rytidosperma racemosum	**Paspalum dilatatum*
Themeda triandra	**Rubus anglocandicans*
Dichanthium sericeum	**Hypericum perforatum*
	**Chloris gayana*
	**Cirsium vulgare*

Comments: Highly degraded area on artificial slope but native grass persisting- around 15% cover

Observation Point 33
GPS: MGA55
617053 6061336

Natives:	Exotic / Non-local natives
Typha domingensis	**Cenchrus clandestinus*
	**Cirsium vulgare*

Comments: Extensive degraded area with artificial soil mounding and dense Kikuyu