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Mr Matt Philpott
Allen Price & Scarratts Pty Ltd
PO Box 73
Nowra
NSW 2541

Delivery via email: mattphilpott@allenprice.com.au



ABN 86139603268
6 John Street
Port Macquarie 2444
Phone: 6593 6178
Mobile: 0431 833 968
Email: jbenvironsw@gmail.com

Dear Matt,

**Re: Moss Vale Rd North Urban Release Area Masterplan and Development Control Plan
– Spring-Summer Survey Results and Review of Final Concept Plan.**

Following completion of the spring-summer survey, and provision of the final concept plan, we provide updated advice as an addendum to ELA (2017) Moss Vale Rd North Urban Release Area Masterplan and Development Control Plan Flora and Fauna Assessment.

1 BACKGROUND INFORMATION

ELA (2017) undertook a Flora and Fauna Assessment (FFA) for the Moss Vale Road North (MVRN) Urban Release Area (URA).

The MVRN URA is approximately 266.1ha in area (excluding roads zoned within an R1 area), located north-west of Bomaderry and east of Cambewarra.

The FFA identified and mapped vegetation on the site, which was largely found to be highly modified due to a long history of rural enterprise which largely continues today, with some rural-residential subdivision. The key ecological value found was the presence of low condition *Riverflat Eucalypt Forest on Coastal Floodplains* Endangered Ecological Community.

While the site's limited native vegetation contains some key habitat components such as tree hollows (most of which fall into E2 zones, ELA (2017) did not detect any threatened species, and provided recommendations for further targeted survey which were largely addressed for species detectable in spring-summer (JBE 2019).

These results in the context of the statutory framework and the new concept are briefly discussed below.

2 FINAL CONCEPT PLANS

2.1 Key Changes

The final concept plans are provided in **Figure 1** and **Figure 2**.

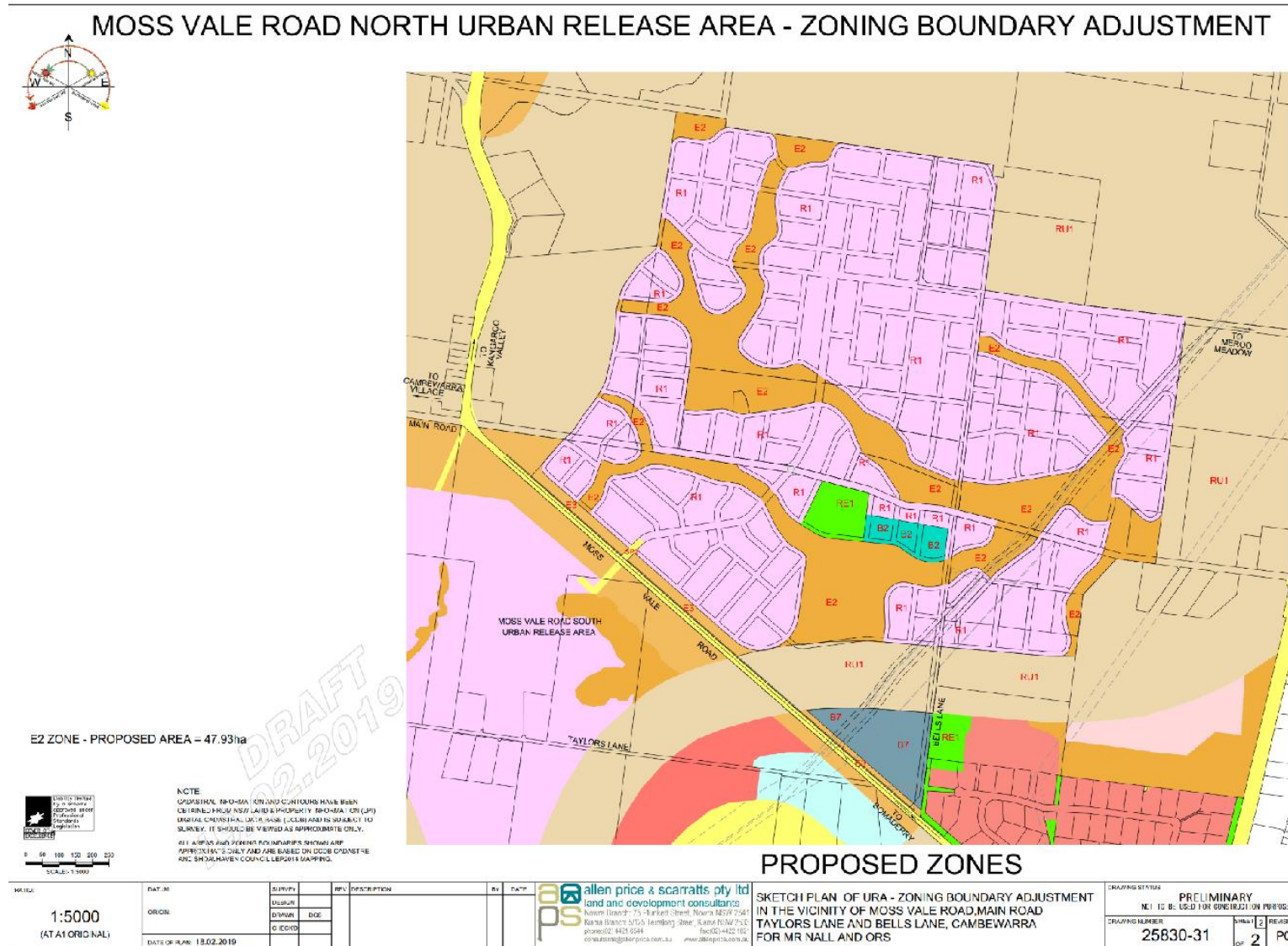
The key changes from the LEP zone map assessed in ELA (2017) are summarised as follows:

Table 1: Summary of key zone changes

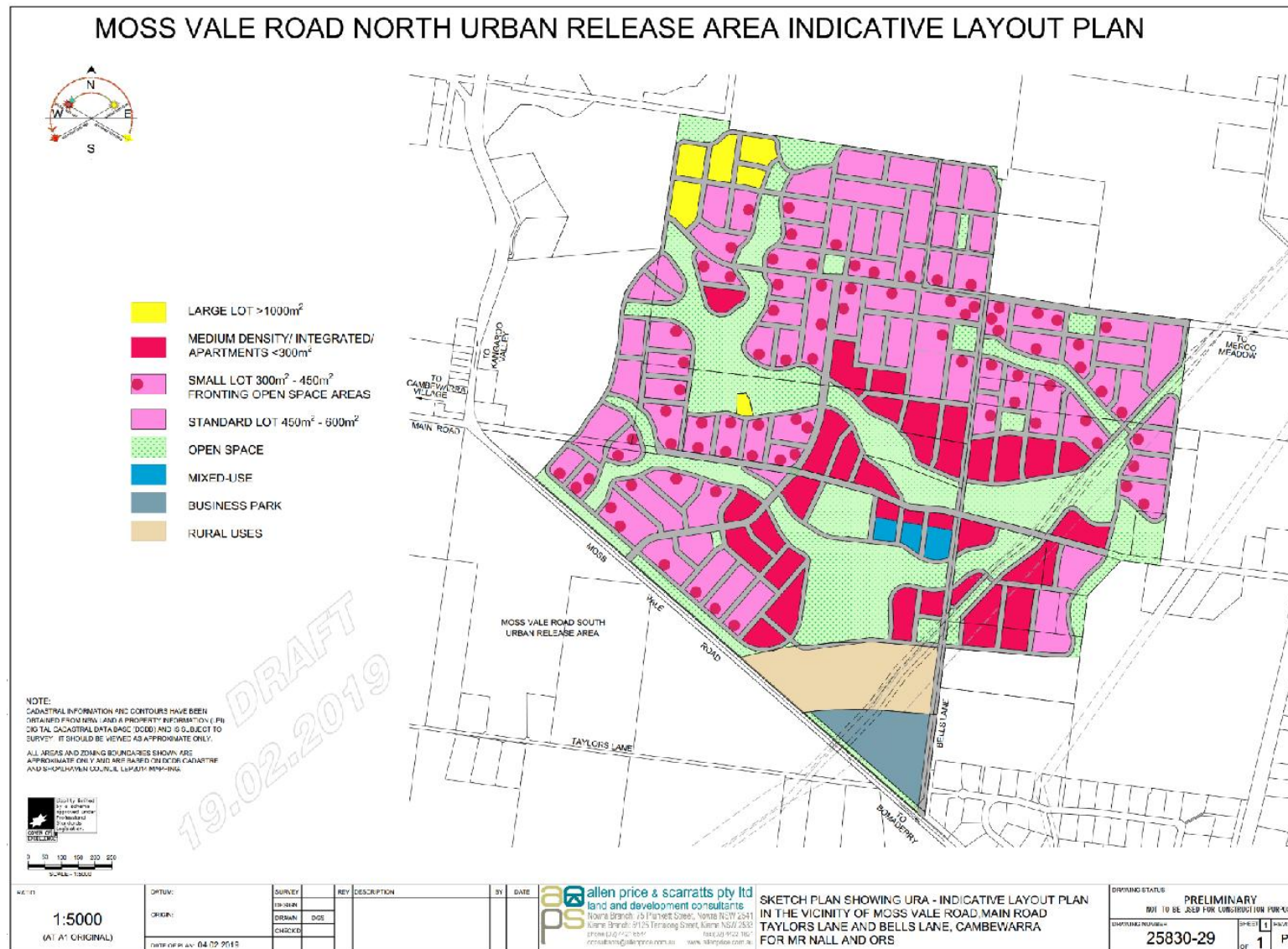
Location	Feature	Change	Comment
Lot 4 DP268209	1 st order stream in the southwest corner	E2 to R1	No connectivity value and edge effects would be extremely difficult to manage.
Lot 1 DP1191186	2 nd order stream which feeds into Abernathy's Creek on mid-west boundary, and narrowing of riparian zone buffer for road.	E2 to R1	Offset by widening of northern 2 nd order stream for greater future wildlife connectivity and buffer to edge effects. This watercourse is directly linked to Cambewarra mountain hence future riparian zone restoration on adjoining land would enhance connectivity to Abernathy's Creek's rehabilitated riparian zone.
	Remnant forest patch in northwest corner.	R1 to E2	Patch of 1206 Spotted Gum - Blackbutt shrubby open forest on the coastal foothills, southern Sydney Basin Bioregion and northern South East Corner Bioregion in the northwest corner which contains hollow-bearing trees to be retained and support future connectivity with above corridor. Also complies with Avoid Mitigate Offset requirements of BC Act.
	Long 2 nd order watercourse and lower section of 1 st order streams	R1 to E2	>80% of these watercourses were not mapped in an E2 zone in the DCP. Now included in a wide E2 zone to capture several natural pools and watercourse sections and remnant vegetation including hollow-bearing trees. Restoration of riparian vegetation will provide another linkage to Cambewarra mountain and its habitats.
	1 st order stream in open paddock.	E2 to R1	This 1 st order stream has been cleared of virtually all native vegetation and contains only a dam and 1 tree. Relocated E2 zone to 2 nd order watercourse to west for better biodiversity outcome.
Lot 1 DP1191186	Upper end 1 st order stream	E2 to R1 (upstream), R1 to E2 (downstream)	The section of the 1 st order stream west of Bell's Lane is essentially a shallow depression with only a small dam with no aquatic vegetation. Vegetation in the watercourse is entirely pasture. Small 1 st order from junction with 2 nd order is same condition and offers no significant ecological value. Section of 1 st to 2 nd order watercourse with EEC and common frog habitat retained in E2, and E2 zone extended downstream to include large dam and all riparian zone to merge with Abernathy's Creek.
Lot 7 DP618693, Lot 2 DP113476	Short 1 st order stream		

Location	Feature	Change	Comment
Lot 1 DP1134376, Lot 1 DP882059, Lot 21 DP854369	2 nd watercourse and Crown Rd in southeast corner	R1 to E2	2 nd order stream previously not in an E2 zone changed into E2 zone, and 'landlocked' R1 area in southeast added to this area. This directly connects the Abernathy's Creek riparian zone to small remnant forest patches off-site along Abernathy's Lane, and sees net increase in carrying capacity.
Lot 4 DP268209	Northern end of 1 st order stream which flows into large dam on Lot 4	R1 to E2	E2 re-shaped to include foot of 1 st order stream which contained common frog habitat and to round off E2 zone shape for better ecological outcome to manage edge effects.

Figure 1: Moss Vale Rd URA – Zoning Boundary Adjustment



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3 EPBC Act 1999

As noted in ELA (2017), the site and study area do not contain any threatened ecological communities listed under the EPBC Act. JBE (2019) also did not detect any threatened flora, and as noted in ELA (2017), the best potential habitat will be retained with weed control to be implemented under a Vegetation Management Plan (VMP).

JBE (2019) confirmed the presence of the Grey-headed Flying Fox (Vulnerable) as predicted by ELA (2017). JBE (2019) surveyed outside the season for potential detection of the Swift Parrot, but as occurrence also depends on flowering incidence, this species can be difficult to assess. It will need to be considered as likely to occur.

While conditions were not ideal (lack of recent heavy rain preceding or rain during the survey), searches around the dams and watercourses on site failed to detect the Green and Golden Bell Frog. This was predicted in ELA (2017) given the site's physical isolation by natural and artificial barriers. It is thus considered unlikely to occur.

No Koalas were detected by survey over two non-consecutive survey periods. Coupled with failure to detect scats and sparse local records, this confirms the site does not contain Koala habitat.

JBE (2019) recorded a 'confident' call detection of the Large-eared Pied Bat (Vulnerable). As detailed in JBE (2019), this appears to be a foraging record only, with no suitable roosts in sandstone escarpments within a 2km radius of the site.

Future Development Applications (DAs) will need to undertake a Matters of National Environmental Significance, however no referral to the Commonwealth Department of Energy and the Environment (DotEE) is likely to be required as:

- The site does not contain sufficient habitat to play a key role in the ecology of any of the known or potentially occurring species.
- The site does not contain breeding habitat for known or potentially occurring species.
- The total impact of the proposed development as shown in Figure 1 is not likely to have a significant impact on any MNES.

4 BIODIVERSITY CONSERVATION ACT 2016

4.1 Assessment Pathways

4.1.1 BDARs

ELA (2017) provided a general overview of the relevant provisions of *the Biodiversity Conservation (BC) Act 2016* in relation to future development. This overview is further refined after over 12 months of implementation of the new regime and some further clarity of the new framework.

Any DA that exceeds the area threshold for the relevant zoning will require a Biodiversity Development Assessment Report (BDAR). This includes clearing of planted native vegetation and pasture. The latter is included as there is no definition in the Biodiversity Assessment Methodology (BAM) for when an area of vegetation is considered non-native because it is degraded: only thresholds for when Vegetation Integrity is so degraded that Ecosystem Credits are not required (which is expected to be the case for the majority of the development areas).

Some non-native vegetation may also provide habitat for a Species Credit species, hence consideration of this aspect is also required.

Where a BDAR is required, the application of the BAM will vary with the relevant situation. The Streamlined BAM may apply for small area developments, or the Paddock Tree Module (PTM) for where the impacted vegetation meets the Paddock Tree specifications. The PTM is expected to apply in many instances, but for some DAs, a combination of the full BAM and PTM may apply eg. where clearing of vegetation which does not qualify as Paddock Trees and vegetation which does qualify as Paddock Trees applies on the same area of land proposed for development.

The crossing of Abernathy's Creek will also trigger off a BDAR if the works are assessed under Part 4 as the watercourse is mapped as a Sensitive Biodiversity Value Land (SBVL).

Any development which does not exceed the thresholds or impact SBVL will be assessed under the Five Part Tests.

4.1.2 Biodiversity Stewardship Options

The non-riparian E2 zones could be established as Biodiversity Stewardship Sites (BSS) under a Biodiversity Stewardship Agreement (BSA). This would require a Biodiversity Stewardship Site Assessment Report (BSSAR).

In terms of cost effectiveness, this option may not be practical due to the cost of a BSSAR and associated application fee; the few credits generated per hectare; and management costs.

It is also still unclear if the rehabilitation of the riparian zone could be used to generate Biodiversity Credits, especially if the *Water Management (WM) Act 2000* requirements come into play first ie. the Act and its rehabilitation requirements are triggered by an action, as a site subject to existing obligations cannot be used for generating credits.

As the riparian zone is highly degraded, the improvement in Vegetation Integrity would however be significant and hence should generate more credits than the more intact E2 zone on Lot 4 for instance. The Total Fund Deposit would need to be funded, but this option has potential advantages including assisting in meeting some of the future credit obligations of the ultimate development. Further discussions with OEH and SSC are recommended to clarify options with regards to the rehabilitation of the riparian zones.

4.1.3 Credit Requirements

Ecosystem Credits will be required for the limited areas of native vegetation comprised by small clumps of forest or immature regrowth within pasture (eg. road reserve vegetation and adjacent regrowth on Lot 54 DP1024592); and paddock trees to be removed.

Given the very limited area of semi-intact native vegetation, credit obligations are expected to be limited for most of the area zoned for development.

ELA (2017) identified the following Species Credit (SC) species as potential occurrences. The table has been updated after the spring-summer survey:

Table 2: Species Credit species assessment

Species	Credit type	SC Required?
Leafless Tongue Orchid (<i>Cryptostylis hunteriana</i>)	Species	No. Not detected in two surveys over flowering season in 2 years.
Southern Myotis (<i>Myotis macropus</i>)	Species	No. Survey as per OEH (2018) guidelines failed to confidently detect.
Glossy Black-Cockatoo (<i>Calyptrorhynchus lathamii</i>)	Species (breeding habitat only)	Unlikely, but targeted survey in breeding season required.
Swift Parrot (<i>Lathamus discolor</i>)	Species (mapped important areas only)	OEH habitat mapping needs to be consulted to see if mapped within an important area.
Square-tailed Kite (<i>Lophoictinia isura</i>)	Species (breeding habitat only)	No. No nest.
Eastern Bentwing-bat <i>Miniopterus schreibersii oceanensis</i>	Species (breeding habitat only)	No. No breeding roosting habitat.
Powerful Owl (<i>Ninox strenua</i>)	Species (breeding habitat only)	Unlikely, but targeted survey in breeding season required.
Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>)	Species (breeding habitat only)	No. No roosting habitat (existing camp in locality).
Masked Owl (<i>Tyto novaehollandiae</i>)	Species (breeding habitat only)	Unlikely, but targeted survey in breeding season required.
Gang-gang Cockatoo (<i>Callocephalon fimbriatum</i>)	Species (breeding habitat only)	No – not detected by targeted survey.
Little Eagle (<i>Hieraaetus morphnoides</i>)	Species (breeding habitat only)	No. No nest.

OEH advice is pending on the matter, but although the Large-eared Pied Bat was detected on site, Species Credits do not appear likely to be required as there is no roosting habitat on site or within 2km.

5 SEPP 44 – KOALA HABITAT PROTECTION

As noted above, failure to detect presence of the Koala has again verified that the site does not form part of Core Koala Habitat.

Consequently, a Koala Plan of Management is not required for future DAs.

6 COASTAL SEPP

There is no area on site mapped under the Coastal SEPP as Coastal Wetland or Littoral Rainforest, or a Proximity Area.

Yours faithfully,



Jason Berrigan.

Director, JBEnviro

B. Nat. Res. (Hons). Grad. Cert. (Fish.).
MECANSW, MRZNSW, MABS, MAHS, MAPCN