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Date: 6th March 2018

To: The General Manager

Lismore City Council

PO Box 23A,

LISMORE NSW 2480

Attention: Sally Slater

Dear Sally,

Re: Lot 2 DP 1073973, 528 Caniaba Rd, Caniaba - Proposed Rezoning: Assessment of Potential Ecological Impacts and suggested rezoning to E2.

Introduction

Melaleuca Group has been engaged by Mr and Mrs Farquharson to provide independent advice in regard to the possible rezoning of the site and impacts from future development on the surrounding environment. The following is in addition to that provided in April 2017 and in response to Council's suggested zone of E2 over part of the Subject Site (Attachment A, Figure A1).

Flora and Fauna Assessment

The methods used to conduct this assessment are:

- A review of relevant documents and past studies pertaining to the subject land (including Place Environmental 2007);
- A review of available recent and historical aerial photographs;
- A search of Schedules of the NSW *Biodiversity Conservation Act* 2016 (BC Act), the Atlas of Living Australia (ALA) and of the National Parks and Wildlife Service (NPWS) Bionet Atlas of NSW Wildlife (Atlas) to identify threatened species, populations and ecological communities, or their habitats recorded on and within a five-kilometre radius of the subject land;

- Search of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) database to identify threatened species, ecological communities, Ramsar Sites and migratory species recorded within a five-kilometre radius of the subject land;
- A 0.5-day flora assessment of the subject land with particular attention given to mapping of vegetation communities and Endangered Ecological Communities and identification of threatened flora identified in the NPWS Atlas search;
- A 0.25-day Koala assessment which included a targeted and meandering transect assessments of the subject land with particular attention given to the assessment for Koalas and identification of other threatened fauna habitat identified in the NPWS Atlas search; and
- An evaluation of the habitat and wildlife corridor value of the subject land.

Desktop Assessment

As detailed in Melaleuca Group previous report (April 2017), an assessment of vegetation within the area earmarked for rezoning (refer Attachment A, Figure A1, Melaleuca Group 2017) along with vegetation within the allotment was considered appropriate. This was due to some vegetation located on the property as being identified as High Conservation Vegetation and Primary Koala Habitat by Lismore Council (Intramaps 2017).

Further desktop investigations (Landmark Vegetation 2013) show the area as being mapped as:

- Camphor Laurel - Not detected;
- Canopy Cover (0-16% for vegetation mapped on the site);
- Canopy Height (0-6m for vegetation mapped on the site);
- Forest Red Gum grassy open forest;
- Keith Class - North Coast Dry Sclerophyll Forest;
- Formation - Dry Sclerophyll Forest;
- Rainforest probability - unlikely;
- Mature forest for vegetation mapped on the site;
- Lantana - not detected;
- Site not mapped within any corridor (lies between two fingers of the Tuncester-Parrots Nest Connector (Landmark 2012).

The 'Key Habitats and Corridors in NSW' database (NPWS undated) was consulted to determine whether the subject land occurred within a mapped regional or sub-regional corridor. The site lies within the extensive "Alstonville Plateau Link" Climate Change Corridor. The site is not mapped as Key Habitat. DWLC (1996) mapped the majority of site as scattered trees with the north-east corner mapped as 'Trees in Clumps' (Refer Attachment A, Figure A2, Melaleuca Group 2017).

In 1999, some vegetation in the northern section of the site was mapped as Richmond Range Spotted Gum (No. 118) under the Forest Ecosystem Classification and Mapping for Upper and Lower North East CRA Regions (refer Attachment A, Figure A3, Melaleuca Group 2017). This also coincided with NSW NPWS mapping for a mature forest in that area (Refer Attachment A, Figure A3, Melaleuca Group 2017).

A review of available historical aerals was undertaken. Images from 1964, 1987, 2004, 2009 and 2017 were examined (refer Attachment A, Figures A4 to A8 respectively in Melaleuca Group 2017).

These images show the site relatively devoid of treed vegetation in 1964. Grassland with scattered trees covered the majority of the site. Some increased tree density is noted across the site. This particularly occurred in the north-east section of the site in proximity to drainage lines that develop into an unnamed tributary of Yeurabar Creek. A Macadamia Plantation was established on the site in approximately 1995 (D. Farquharson, Pers Comm) but was removed in 2008. The 2009 image provides evidence of the plantation's removal.

A review of records of threatened flora and fauna species and populations known or predicted to occur within a 100 km² area surrounding the site was undertaken. The Office of Environment and Heritage (OEH), Bionet Atlas (2018) showed 55 records of 15 threatened fauna species and 34 records of 4 threatened flora species (listed under Schedules of the BC Act 2016). In addition, ten (10) Endangered Ecological Communities are listed. None of the threatened flora and fauna species listed were shown to be mapped on or in the vicinity of the site.

A search of the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) Protected Matters Search Tool listed 39 threatened flora or fauna species or species habitat likely to occur or may occur within 5 km of the site. Sixteen (16) migratory species, or their habitats, have also been listed as potentially occurring within 5 km of the site. The species listed within the EPBC search are not actual records, rather just species or species habitat likely to occur within area. Assessments of potential occurrence are based on the field survey, a review of previous assessments completed in the study area and knowledge of the ecological requirements of threatened fauna species known from the locality.

A previous ecological assessment of the site was undertaken by Place Environmental in 2007. This report was reviewed. No significant issues of concern were identified during that study. That is, no threatened flora or fauna species nor Endangered Ecological Communities (EECs) were located on the site. The report concluded no significant impacts would be envisaged by the proposed development. The Summary section of this report has been reproduced in Attachment B of Melaleuca Group (2017). Please note, the figure included shows a lot layout proposed at that time. No lot layout has been determined at this time.

Field Assessment - Flora

A field survey was carried out over 4 hours on 15 February 2018 by Mr David Fell (David Fell Environmental). The purpose of this survey was to determine the vegetation at the site and its relative quality and the imposition of an E2 zoning on the site. The methodology included a walking traverse throughout remnant and margins with the completion of a cumulative species inventory. The structure and floristics were detailed at eight (8) sites located throughout the remnant/s.

The following is a summary of findings:

- The core area of forest occurs on steep slopes with basalt outcrop throughout.
- The vegetation is a depauperate dry rainforest with scattered emergents of *Araucaria cunninghamii* and *Eucalyptus amplifolia* subsp. *amplifolia*, *E. tereticornis*, *E. siderophloia* and *Lophostemon confertus*.
- Predominant dry rainforest canopy species are *Pentaceras australe*, *Cupaniopsis parviflora*, *Mallotus philippensis*, *Alectryon tomentosus*, *Alphitonia excelsa*, *Diospyros australis*, *Jagera pseudorhus* and *Acacia disparrima*. Less common canopy tree are *Flindersia australis*, *Erythrina vespertilio*, *Elaeocarpus obovatus*, *Aphananthe philippinensis*, *Ligustrum lucidum** and *Siphonodon australis*.

- Typical mid and understory species include *Allogyne ilicifolius*, *Cupaniopsis parviflora*, *Mallotus philippensis*, *Harpullia hillii*, *Alectryon tomentosus*, *Diospyros australis*, *Macular cochinchinensis*, *Notelaea longifolia*, *Claoxylon australe*, *Myrsine variabilis*, *Breynia oblongifolia*, *Pittosporum multiflorum*, *Ligustrum lucidum** and *Guioa semiglauca*.
- Thin wiry vines abundant throughout such as *Smilax australis*, *Cissus antarctica*, *Dioscorea transverse*, *Trichosanthes* sp., *Cayratia clematidea*, *Eustrephus latifolius*, *Geitonoplesium cymosum*, *Secamone elliptica*, *Callerya megasperma* and *Austrosteenisia blackii*.
- The remnant is not fenced with condition impacted by low intensity cattle grazing with evidence of tracks into the ephemeral gully.
- Large leaved privet is the main weed impacting on the forest condition. It is scattered in the canopy and more common on margins and in the understory of margins and detached reman at where vine thicket species occur as an understory to Eucalyptus open forest.
- Other minor weeds are Asparagus fern (*Asparagus plumosus*), Corky passionfruit (*Passiflora suberosa*), and Coral Berry (*Riving humilis*).
- No living Lantana recorded with dead stems having been actively controlled by landowners.
- Although Large leaved privet infestations are continuing to impact the remnant and the overall development of the forest in terms of structure and floristics is considered as good.
- Intervention to control large leaved Privet and minor Asparagus and Coral Berry, and maintain management effort on Lantana together with removal of cattle impacts will be favourable to improving condition of the remnant.
- 32 species from Appendix A of EPBC Lowland Subtropical Rainforest Determination were recorded (see list below Table 1). Although it meets other threshold criteria (i.e. elevation, soil type, location etc) the remnant does not meet the threshold of 40 species. Thereby it is not considered consistent with EPBC.
- In reference to the EEC Lowland Subtropical Rainforest the determination does allow for a dry forest element therefore the forest could be considered as borderline consistent with the EEC. More detailed consideration of this element requires further consideration following review of this information provided.

Table 1. EPBC Lowland Subtropical Rainforest Species recorded at the site

Scientific Name
<i>Alphitonia excelsa</i>
<i>Aphananthe phillippinensis</i>
<i>Araucaria cunninghamii</i>
<i>Asplenium australasicum</i>
<i>Breynia oblongifolia</i>
<i>Capparis arborea</i>
<i>Cissus antarctica</i>
<i>Citrus australasica</i>
<i>Commersonia bartramia</i>
<i>Cordyline rubra</i>
<i>Cryptocarya obovata</i>
<i>Dioscorea transversa</i>
<i>Elaeocarpus obovatus</i>
<i>Eustrephus latifolius</i>
<i>Ficus coronata</i>
<i>Ficus obliqua</i>
<i>Flindersia australis</i>
<i>Geitonoplesium cymosum</i>
<i>Glochidion ferdinandi</i>
<i>Gossia bidwillii</i>
<i>Guioa semiglauca</i>
<i>Jagera pseudorhus</i>
<i>Lophostemon confertus</i>
<i>Maclura cochinchinensis</i>
<i>Mallotus philippensis</i>
<i>Notelaea longifolia</i>
<i>Pentaceras australe</i>
<i>Pittosporum multiflorum</i>
<i>Platynerium bifurcatum</i>
<i>Smilax australis</i>
<i>Streblus brunonianus</i>
<i>Wilkiea huegeliana</i>

Field Assessment - Fauna

A field survey was carried out over 2 hours on 14 February 2018 by Mr David Charley (Wildsearch Environmental Services). The purpose of the field inspection was to assess Koala activity / presence at the site and to determine whether the imposition of an “E” zone was appropriate. An assessment of the management requirements / threats to the Koala habitat was also undertaken.

A foot-based meandering survey of the Forest Red Gum (*Eucalyptus tereticornis*) / Cabbage Gum (*E. amplifolia*) dominated open forest was undertaken. A majority of the trees were inspected for the presence of Koalas and/or signs of use by Koalas.

Threats to this Koala habitat and potential management issues were also assessed.

The following is a summary of findings:

The majority of the Koala food trees were found in the open forest areas of the higher plateau and upper slopes of the central western parts of the property. This area is broadly encompassed by the E2 zone proposed by Lismore City Council planning staff and by OEH.

Forest Red Gum is a primary food tree however Cabbage Gum is of lesser value. This is evidenced by the low levels of use at the site.

Koala presence:

A single Koala was observed (AMG: 521622/6811402) near the head of the small farm dam in the south eastern parts of the property. This Koala appeared to have a wet/stained bottom and some conjunctivitis in the eyes. The eyes were however, open and relatively dry.

From the shape of the head and relatively small size of the animal it appeared to be a female. However, the chest was not visible therefore the presence of a scent gland could not be determined. Testis were not visible.

A majority of the Eucalypts on the property were checked for signs of Koala use. Approximately 50% of the Forest Red Gum/ Cabbage Gum showed signs of very low levels of Koala activity. Virtually no Koala scats were found and those trees that did show signs of use by Koalas (scratches and scats) held only a few light scratches suggesting use by one Koala on one occasion. Some of these scratches were relatively new.

These appeared to be no focus of Koala use as scratches, where they were present, were found throughout the open forest area. This suggests low levels of activity, transient use of the site or a very small population, possibly only one Koala, using the site. The open forests of the property are part of a much large forested belt extending to the south east and west long the escarpment edge.

Management Issues:

Grazing:

The study area is currently grazed by cattle. Grazing pressure is moderate to light and there is dense ground cover of introduced and native grasses. Dominant grass species include Seteria, Rhodes Grass, Blady Grass, Broad-leaved Paspalum, Kangaroo Grass (heavily grazed), Kikuyu and Carpet Grass, amongst others. Without grazing these fast growing and aggressive introduced grass species would rapidly dominate the site to the detriment of the native grasses. This would also increase the fire risk and exclude native species regrowth.

Weeds:

Weeds such as Lantana and Crofton Weed appeared to be managed through regular spraying and by grazing.

Fire:

There appears to be little or no recent fire history. Because of the existing grazing regime, fire is currently not a threat to this Koala population. Reduced grazing or management of the area would result in an increased fire risk through the development of a tall and dense grass cover and spread of weed species such as Lantana.

E2 or retention of the RU1 Zoning:

Under the new NSW Regulatory Vegetation Regulatory Map, the site has lands mapped Category 2 Vulnerable Regulated Land and Category 2 Sensitive Regulated Land (refer Attachment A, Figure A2 and A3 respectively).

The retention of the existing RU1 zoning is considered the most appropriate as it would allow the development of a single or possibly a maximum of two (2) dwellings in large allotments in the eastern section of the site and, importantly, would enable a continuation of current management. Recent and current management by the landowners (i.e. Mr and Mrs Farquharson, for over 20 years), has maintained the vegetation in a moderately good condition despite a relatively low level of management input by the owners.

The imposition of an E2 (Environmental Conservation) zone over this area would exclude the construction of a dwelling on a large allotment. Re-zoning to an E2 zone would result in either an absentee manager agisting cattle (continuing use rights) on the site or no management of the site once the current landowners sell the property. One option may be to sell the larger lot to a neighbour, however, this is considered unlikely as an E2 zoning is restrictive to development and use with only environmental management activities permissible. Adjoining neighbours are generally on smaller allotments and it is understood are also considering development (subdivision) and thereby are unlikely to purchase additional land with onerous development and use restrictions.

An E2 zone, in the medium to long-term, would almost certainly result in the degradation of the environmental values of the site through lack of management. Whereas the ability to allow for 1 or 2 large allotments over the eastern parts of the area with continuing RU1 zoning would ensure long-term active management of fire and control of introduced grasses and weed species in this area. This would be to the benefit of the local Koala population. It would also ensure that the area is managed for its environmental values as is protected under the Local Land Services (LLS) Act 2013 and the BC Act 2016.

Furthermore, the topography and geology of the area is steep and rocky. These topographic features are not conducive to many agricultural pursuits nor construction of dwellings. Grazing of existing cleared or semi-cleared areas is considered the most viable agricultural pursuit. As detailed above, this current activity is assisting in the management of weed growth which has favourable outcomes for the Koalas and for the vegetation community. Steep and rocky areas along with the creekline will limit the positioning of any dwellings as considerations of these features are required for onsite wastewater disposal. For example, a 40m setback is required from the creekline for an effluent application area. Similarly, bushfire considerations will also limit the likelihood of dwellings being within close proximity to vegetation.

In addition, a dwelling could be easily sited so as to avoid removal of Koala food trees. The existing use of the land is compatible with the retention of Koala habitat at the site, as is evidenced by the continuing use of the site by a small number of Koalas. The small number of dwellings in the area could be permitted with the adoption of strategies to facilitate the continued use of the area by Koalas.

Summary and Conclusion

These assessments found vegetation within the Study Area (Council's E2 zone) is in good condition and does provide some habitat for Koalas. The current condition of the vegetation is due, in the main, to the management of the area by the current landowners and the grazing of the area by cattle.

The proposed E2 zoning is considered inappropriate as will result in a large area that may have an absentee owner and lack of management. The vegetation is mapped as either Vulnerable or Sensitive Regulated land and as such cannot be cleared for agricultural purposes. Clearing for development in the area would be regulated by the BC Act 2016 and the strategic placement of one or possibly two dwellings would be possible. Higher dwelling numbers are unlikely given the topographic and geological features in this section of the site. Any subdivision proposal would require a Development Application submission to Council. This allows Council to assess the proposal at that time and determine appropriate consent conditions to limit impact on nearby vegetation.

As such it is considered the original proposed rezoning (refer Attachment A, Figure A4) is considered appropriate for the following reasons:

- The site is not mapped as Key Habitat;
- Vegetation on the site is considered in good condition. For the dry rainforest recorded in the gully area, while 32 species from Appendix A of EPBC Lowland Subtropical Rainforest Determination were recorded and it meets other threshold criteria, (i.e. elevation, soil type, location etc) the remnant does not meet the threshold of 40 species. Thereby it is not considered consistent with EPBC;
- The condition of the remnant can be partially attributed to the management of the current landowners;
- Signs of Koala activity was very low with approximately 50% of the Forest Rd Gum/Cabbage Gum showing signs of use. The evidence suggests low levels of activity, transient use of the site or a very small population, possibly only one Koala, using the site
- Continuing RU1 zoning would ensure long-term active management of fire and control of introduced grasses and weed species in eastern section of the site. This would be to the benefit of the local Koala population and it would also ensure that the area is managed for its environmental values.
- There is sufficient legislative protection under the LLS Act 2013 and the BC Act 2016 to protect the existing vegetation and the habitat values of the site.

Should you require any additional information or wish to clarify any matter raised in this correspondence please feel free to contact the writer at any time.

Yours faithfully,

Melaleuca Group



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Dr. Melissa Van Zwieten

Senior Environmental Scientist

Attachments: Attachment A: Figures

Attachment A. Figures

Proposed Zone Map: 528 Caniaba Road

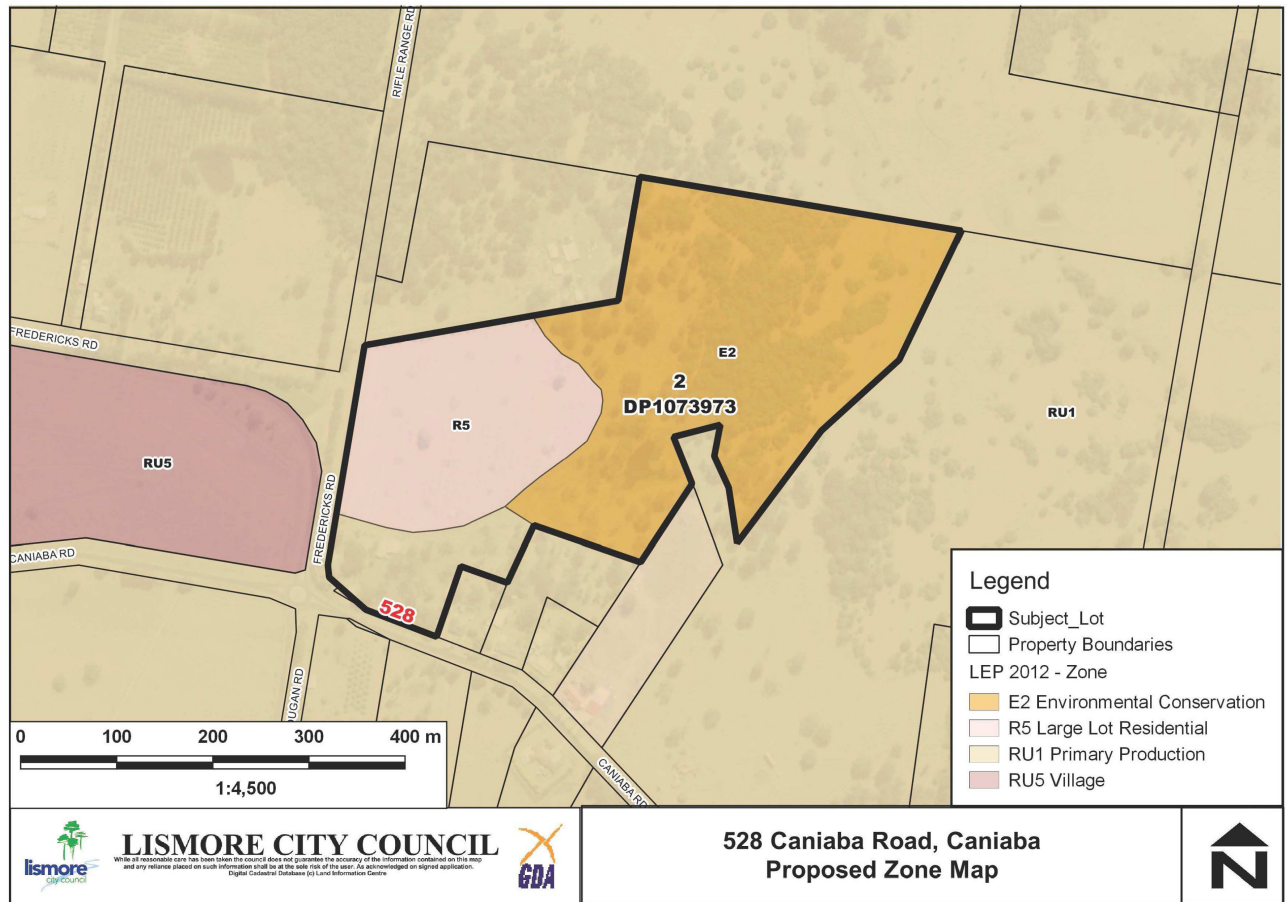


Figure A1. Subject Site and Proposed Rezoning by Council.



Figure A2. Subject Site and Vulnerable Regulated Land (arrowed).

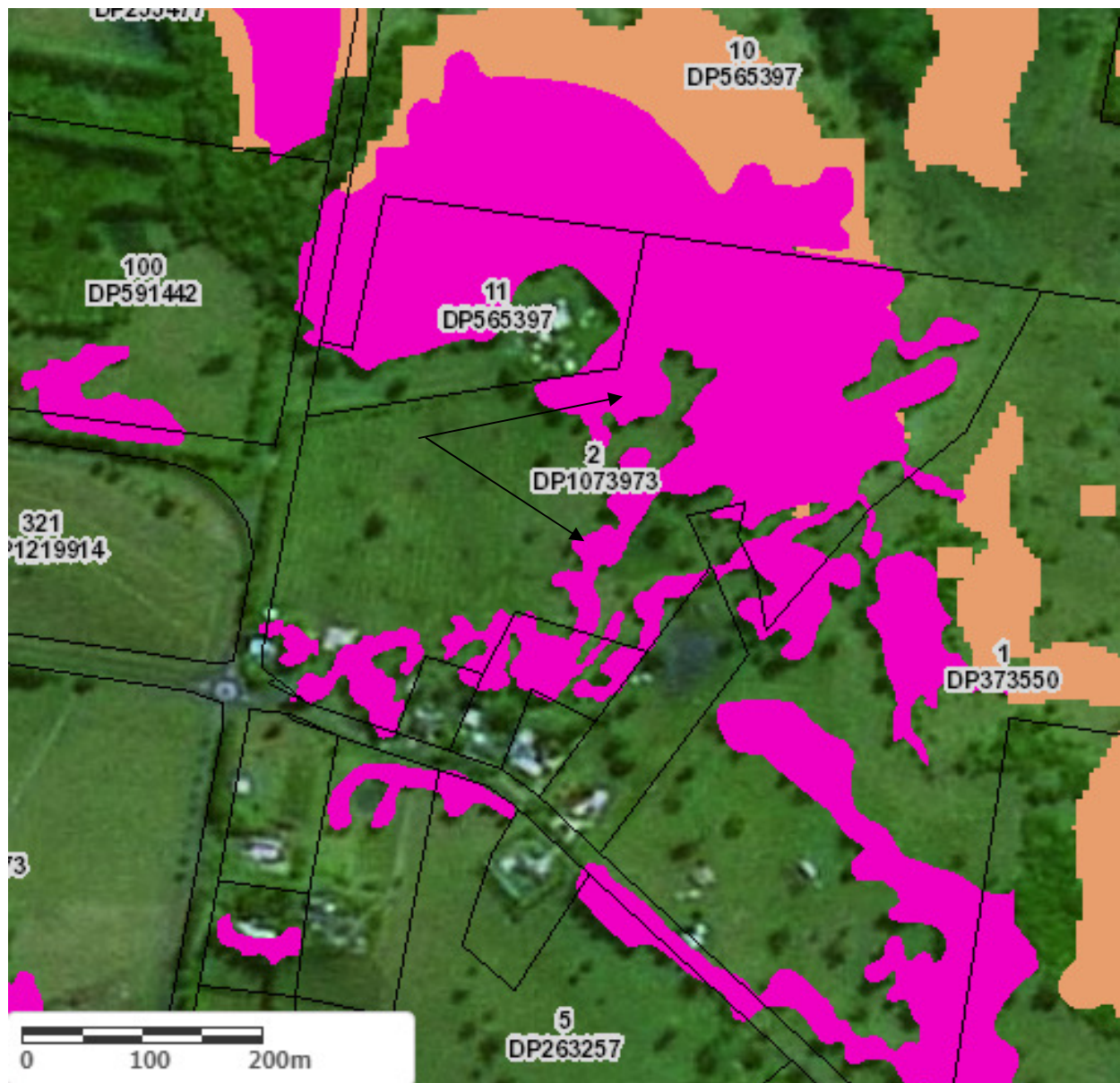
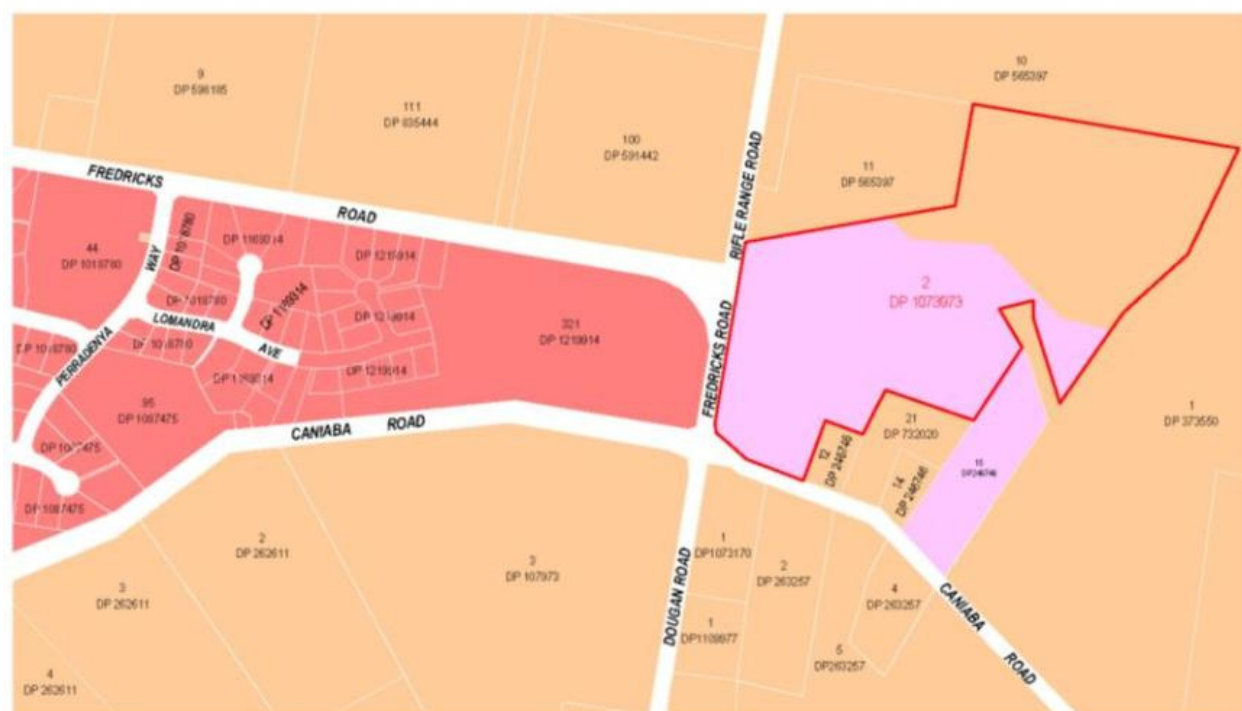


Figure A3. Subject Site and Sensitive Regulated Land (arrowed).

**LEGEND**

- RU1 Primary Production
- RUS Village
- R5 Large Lot Residential

DISCLAIMER:

This plan was prepared to accompany a application to council and should not be used for any other purpose. The lots shown hereon are approximate only and may be subject to final survey and also to the requirements of council and any other authority which may have requirements under any relevant legislation. In particular, no reliance should be placed on the information on this plan for any financial dealings involving the land. This note is an integral part of this plan.



SCALE 1:8000 AT A4

Graham Meineke

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PROPOSED ZONING
LOT 2 IN DP 1073973
Caniaba Road
Caniaba

SOURCE:
Cadastre: LPI, NSW, (GIS Data)
Zoning: L.C.C. Interactive Mapping
LGA: Lismore
Locality: Caniaba
Scale at A4: 1:6000
Design: -
Drawn: G.C.
Approved: G.M.
Date: 18.04.2017
Draw No: GM17003-PL7A

Figure A4. Subject Site and Rezoning Area.