PLANNING PROPOSAL – 32-34 JACKS LANE, MAROOTA

THEME: Balanced Urban Growth

OUTCOME: 7. Responsible planning facilitates a desirable living environment and meets growth targets.

STRATEGY: 7.2 Manage new and existing development with a robust framework of policies, plans and processes that is in accordance with community needs and expectations.

AUTHOR: Graeme Bell

EXECUTIVE SUMMARY

Rezone for the purpose of cluster subdivision

This proposal recommends that 32-34 Jacks Lane, Maroota be rezoned from RU1 Primary Production to RU2 Rural Landscape and to identify part of the site on the Terrestrial Biodiversity Map. This site does not allow the intent of the RU1 objectives to be achieved and the rezoning will allow for a development application to be made for rural cluster subdivision, which will align to the intent of the RU2 objectives.

The RU1 Primary Production Zone was a new zone under the Standard Instrument Local Environmental Plan Template intended to encourage sustainable primary industries and minimise the fragmentation of resource lands. In the preparation of LEP 2012 this zone was used to recognise the significance of the Maroota sand resource and land in the same locality where there was a concentration of intensive plant and horticultural industries.

Whilst the importance of this zone for primary industries is recognised, the suitability of the subject site for agricultural activities is limited due to the poor quality of the soil, site constraints including significant vegetation and slope which restrict the area of land available, and local council imposed restrictions on agricultural activities. The subject site is at the periphery of the identified primary production area and contains large areas of native vegetation including Shale Sandstone Transition Forest which is listed as a critically endangered ecological community[1],[2]. The forest is also a riparian zone and preservation of this forest will contribute to maintaining water quality in the Sydney basin.

The site is located in an extreme bush fire risk zone. A fire assessment of the site[3] shows that this rezoning proposal has the capacity to comply with the *Planning for Bush Fire Protection 2006.(with latest amendments)* It also considers the issues identified in the Hills Bush Fire Risk Management Plan and aligns to the broad strategic objectives of the area. The applicant has undertaken significant fire mitigation strategies and the rezoning proposal includes the addition of a second fire escape route for the Jacks Lane community, currently not available. All new lots proposed under the anticipated subdivision proposal will be less than 200m from a

[1] Flora and Fauna Assessment 32-34 Jacks Lane, Maroota (October 2016), *Frazer Ecological Consulting*
[2] Hobley, S, (February 2015), *Bio Design & Associates Pty Ltd*
[3] Building Code & Bushfire Hazard Solutions Pty Ltd (September 2015)

through road, and meet the design criteria and acceptable solutions of *Planning for Bush Fire Protection 2006*.
(including the latest RFS amendments)

It is acknowledged that proceeding with the subject planning proposal could result in other applications seeking a similar outcome with implications for the fragmentation of rural resource land and potential for land use conflict. It is considered that the subject site is distinguished from the majority of sites in the RU1 Primary Production zone by its reduced capacity to sustain agricultural activities, the peripheral location at the interface with the RU2 Rural Landscape zone, the extent of significant biodiversity on the site, and the improved bushfire security to the Jacks Lane community.

It is therefore considered that there is justification for a rural cluster outcome on the site.

THE HILLS LOCAL ENVIRONMENTAL PLAN 2012

Zone:	RU1 Primary Production
Minimum Lot Size:	10ha
Maximum Height:	10m
Maximum Floor Space Ratio:	Not applicable

POLITICAL DONATIONS

Nil disclosures.

HISTORY

26/11/96	Registered survey plan
2016 -2017	Preliminary discussions with Senior Town Planner
12/10/15	Proposed cluster subdivision developed
21/09/16	Soil report received (SESL Australia)
21/10/16	Bushfire report received.
19/02/15	Environmental report received (Bio Design & Associates Pty Ltd)
24/10/16	Flora and fauna report received (Fraser Ecological Consulting)

BACKGROUND

Council's 2009 Employment Lands Direction informed the drafting of Local Environmental Plan 2012 with regard to employment lands and employment generating activities. It included a strategy to create a specific zone to identify significant agricultural activities and rural resource lands such as extractive industries and intensive plant agriculture. The boundaries of the zone were not identified at this time however it was indicated that, in addition to the area for sand mining operations identified under Sydney Regional Environmental Plan No.9 – Extractive Industry (SREP No.9), there was a concentration of intensive plant and horticultural industries in the same locality along Old Northern Road and the spine of Wisemans Ferry Road towards Sackville Ferry Road.

In preparing LEP 2012, the specific boundaries of the RU1 Primary Production zone were defined by the SREP No.9 area and consideration of historic and existing agricultural activities identified by way of aerial photographs and site inspection. Consideration was also afforded to slope, bushland, and sensitive vegetation.

During the exhibition of Local Environmental Plan 2012, there were a number of requests for land proposed to be zoned RU1 Primary Production to be included in the RU2 Rural Landscape zone, specifically to permit community title 'rural cluster' subdivision. Landowners perceived the allocation of the RU1 Primary Production zone as a 'down zone', as other rural zones had more subdivision potential.

Following consideration of submissions no changes were made to the boundaries of the RU1 Primary Production zone given the matters raised were inconsistent with Council's strategic framework. At the time it was acknowledged the subject properties were not current in production, however the concentration of primary industry production in the locality was encouraged. It was also considered a rural landscape outcome was still achievable given the permissibility of other residential land uses such as dwelling houses, dual occupancies (attached) and secondary dwellings. The current extent of the RU1 Primary Production zone together with the location of the SREP No.9 area is shown in councils RU1 primary production zone map

In addition to properties in the area not being used for primary production, at the time of purchase by the current owners, the Council of the Shire of Baulkham Hills placed additional commercial production restrictions on the use of land at 32-34 Jacks Lane, Maroota. These restrictions included use of the land for commercial poultry farming, pig farming, market gardening, boarding kennels, waste disposal, and mushroom farming. These restrictions limit the owner's capacity to operate the land as an RU1 zone.

There have been other enquiries for land in the vicinity of this site for properties to be rezoned from RU1 Primary Production to RU2 Rural Landscape. Given the level of interest, a review of agriculture in the Shire and, in particular, the function of RU1 Primary Production zoned land, particularly in light of Council's additional primary production restrictions on this property, is included as part of this planning proposal (Section 4 (a) of this report).

REPORT

The purpose of this submission is to consider a planning proposal for land at 32-34 Jacks Lane, Maroota (Lot 4 DP864355), which seeks to rezone the site from RU1 Primary Production to RU2 Rural Landscape.

1. THE SITE

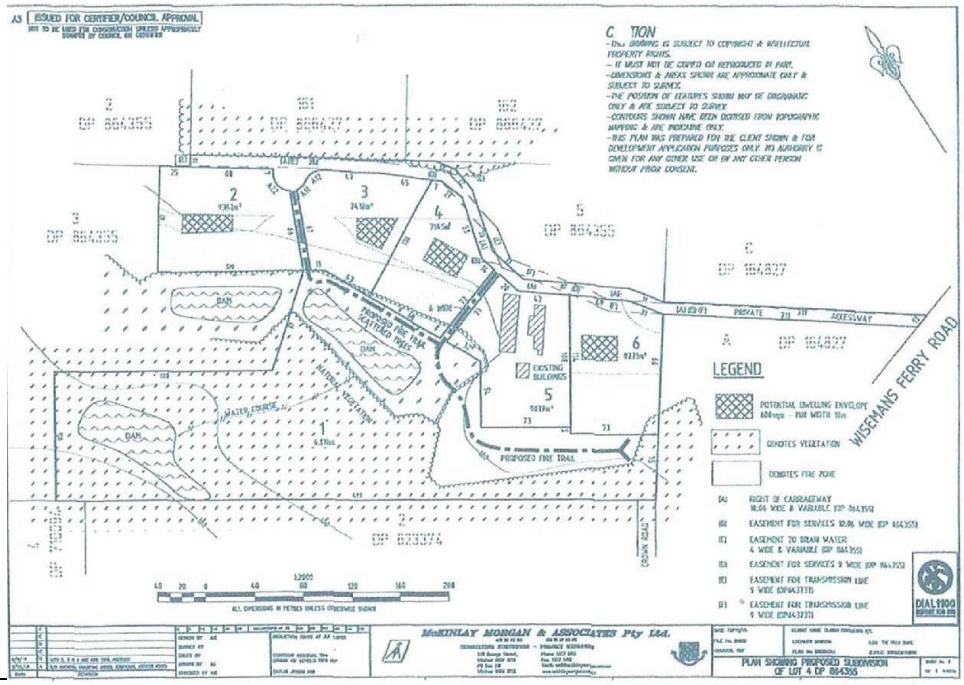
The subject site has an irregular shape and an area of 10.29 hectares. The site is heavily vegetated on approximately 60% of the property, particularly in the riparian zone boarding the creek in the gully. This area has been identified as having high biodiversity with distinctive plant assemblages[4]. The remaining 40% has a a more moderate slope of between 10-15% away from Jacks Lane.

The subject site contains a single storey dwelling and rural sheds. Adjoining and adjacent properties also contain similar rural residential development with some previous orchid activity evident at the property on the corner of Jacks Lane and Wisemans Ferry Road (the adjoining property). Land immediately to the north and north-west of the subject site are currently zoned as RU2 Rural Landscape. Access to this RU2 zone is through a right of way through the subject site. Accessing RU2 zoned land through RU1 zoned land would appear to be a conflict of land use and not provide a consistent land use corridor.

2. PLANNING PROPOSAL

The planning proposal seeks to rezone the site from RU1 Primary Production to RU2 Rural Landscape to allow application to be made for a rural cluster subdivision. Amendment of minimum lot size or height of building standards is not proposed.

In support of the planning proposal the applicant has submitted a subdivision concept illustrating the intended future development outcomes for the site. Rural cluster subdivision of the subject site would provide for up to five development lots between 4,000m2 and 1 hectare in area and a single community lot where biodiversity values would be protected. In support of the planning proposal the applicant has also submitted a Soil Chemistry Profile Assessment, Flora and Fauna Assessment and Bushfire Assessment Report.



[4] Hobley, S, (February 2015), *Bio Design & Associates Pty Ltd*

3. STRATEGIC CONTEXT

A Plan for Growing Sydney

On 14 December 2014, the NSW Minister for Planning released *A Plan for Growing Sydney*. The Plan is intended to guide land use planning decisions for the next 20 years and presents a strategy for accommodating Sydney's forecast population growth over this time. To achieve the Government's vision for Sydney as a "strong global City and a great place to live", the Plan sets out four (4) main goals, for Sydney to be:

- A competitive economy with world-class services and transport,
- A City of housing choice with homes that meet our needs and lifestyles,
- A great place to live with strong, healthy and well-connected communities, and
- A sustainable and resilient City that protects the natural environment and has a balanced approach to the use of land and resources.

The metropolitan strategic plan aims to create a sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources. The plan recognises that Sydney's metropolitan rural area contains most of Sydney's conservation reserves and significant agriculture and extractive industry. It includes actions related to protection of biodiversity, protection of resources such as mineral, energy and construction material needs and protection of productive agricultural land to keep fresh food available locally. Action 4.1.2 highlights the need for a strategic framework to enhance and protect the broad range of environmental, economic and social assets for the metropolitan rural area. The plan identifies 'agricultural clusters' throughout the metropolitan rural area which includes the locality along Old Northern Road and Wisemans Ferry Road .

Whilst the land, the subject of the planning proposal, is identified as part of the 'agricultural cluster', it currently does not accommodate any productive agricultural use. As part of the planning proposal submitted to Council, the land owner has shown that viability for farming is limited due to site constraints including soil quality, the extent of native vegetation on the site, and additional primary production restrictions imposed by Council (refer to 'Background'). The capacity of the site to contribute to agricultural outcomes is addressed further in matters for consideration.

Rezoning of the land to RU2 would not only address the goals under *A Plan for Growing Sydney* by providing alternative, lifestyle, housing choices and accommodating the growing Sydney population, but also help towards housing affordability as people move from the high cost zones in central Sydney.

Section 117

Directions Section 117(2) of the Environmental Planning and Assessment Act 1979 enables the Minister for Planning and Infrastructure to issue directions which planning authorities must address when preparing Local Environmental Plans and planning proposals. The following Section 117 Directions are relevant to this planning proposal:

- Direction 1.2 Rural Zones;

- Direction 2.1 Environmental Protection Zones; and
- Direction 4.4 Planning for Bushfire Protection.

Direction 1.2 Rural Zones seeks to protect the agricultural production value of rural land. The direction requires that a planning proposal must not contain provisions that will increase the permissible density of land within a rural zone. The planning proposal seeks to rezone the subject site from RU1 Primary Production to RU2 Rural Landscape which would uplift the density and enable an application to be made for rural cluster subdivision, which is inconsistent with this direction.

The inconsistency is considered to be minor as the planning proposal includes a single site that has low capacity for agricultural uses and is limited by soil quality, vegetation and slope constraints and restricted primary production use imposed by Council. There is also precedent to this type of rezoning with approximately 400 hectare of prime agricultural land in Rouse Hill, Riverstone, and adjacent shire areas now zoned for intensive housing.

It is understood that should Council resolve to proceed and forward the planning proposal to the Department of Planning and Environment for Gateway Determination, Council must further satisfy the Secretary of the Department of Planning and Environment that inconsistency with Section 117 Direction 1.2 is justified. The applicant is able to provide further support to Council for this action through, for example, the provision of timely documentation and attending meetings.

Direction 2.1 Environmental Protection Zones requires that a planning proposal protects and conserves environmentally sensitive areas. The proposal is consistent with this direction as it facilitates the protection of a significant area of vegetation (6.17ha of Shale Sandstone Transition Forest and high biodiversity riparian zones), as it will be within a separate community association lot that continues the biodiversity corridor in this area.

Direction 4.4 Planning for Bushfire Protection requires a planning proposal to encourage the sound management of land mapped as bushfire prone. The direction seeks to protect life, property and environment from bushfire hazards. The planning proposal is consistent with this direction and has the capacity to comply with the design criteria and acceptable solutions of *Planning for Bush Fire Protection 2006*[5], as detailed further in section 4(e) of this submission.

<u>Local Strategy</u>
Council's Draft Local Strategy was adopted in 2008, it is the principal document for communicating the future planning of the Shire and includes the objectives of longer term planning projects of the State Government as well as responding to, and planning for, local needs such as employment, housing and transport.

Key components of the Local Strategy related to the subject proposal are Rural Lands Study, Employment Lands Direction and Environment and Leisure Direction.

- *Rural Lands Strategy*
The Rural Lands Strategy was adopted in 2003 and acknowledges the importance of a consistent approach to the management of rural lands to ensure their suitability for

[5] Building Code & Bushfire Hazard Solutions Pty Ltd (September 2015)

agricultural use and to minimise the occurrence of incompatible surrounding uses. It reflects the value of rural areas for the Shire, and the challenge of sustainable land use in the long term management of rural lands. Whilst the Strategy sought to provide for economic development opportunities, it recognised that some existing agricultural uses were marginal from an economic sustainability point of view. A specific land use designation (or zone) for agriculture was not suggested at the time the Strategy was prepared, due to the scattered nature of high class agricultural land and the lack of any large and contiguous areas of agricultural production. The proposal for a specific zone related to primary production was explored further in 2009 in the preparation of Council's Employment Lands Direction, following the opportunity offered by the Standard Instrument LEP.

The Rural Lands Strategy also includes an objective to ensure the ecological integrity of the rural lands are enhanced and maintained. It included an action to identify and protect significant linkages of native vegetation in a draft LEP for the Shires rural lands. The draft rural lands LEP reported to Council in June 2005 included an overlay designating environmentally sensitive lands, which included a significant portion of the subject site (refer Figure 6). The overlay formed the basis of the terrestrial biodiversity mapping contained in LEP 2012, since adjusted to exclude land zoned RU1 Primary Production.

Given the foregoing, the planning proposal is not considered to be inconsistent with the objectives and strategies contained within the Rural Lands Strategy. Development of the site for rural cluster subdivision, as proposed, will allow for retention of significant vegetation and will contribute to biodiversity in the area consistent with the objective to maintain and enhance the ecological integrity of the rural area.

- *Employment Lands Direction*

The Employment Lands Direction seeks to facilitate sustainable economic development that promotes growth in local business and employment opportunities. It outlines the historic contribution of the Shires rural area to the local economy including sand mining in the northern part of Maroota, where SREP 9 identifies land with extractive potential of regional significance. The Direction also identifies a cluster of horticultural use in the form of market gardens, orchards and roadside stalls selling fresh produce along the nearby Old Northern Road and Wisemans Ferry Road and recommends the creation of a new RU1 Primary Production zone to reflect the significant land uses.

The boundaries of the zone whilst not specified in the Direction were informed by the activities allowed under SREP 9 as well as the site opportunities and constraints such as slope, bushland and sensitive vegetation. In preparing draft LEP 2012, the subject site was included within the boundaries of the primary production zone albeit was not in production at the time of inspection in 2009.

On face value, the current planning proposal would seem inconsistent with the objectives of the Employment Lands Direction. However, closer examination of the suitability of the subject site for RU1 Primary Production zone activities is warranted. The site immediately adjoins the RU2 Rural Landscape zone and the capacity for agricultural uses is limited by soil quality, the area of land free of vegetation, slope constraints and Council imposed restrictions on primary production land use.

- *Environment and Leisure Direction*

The Environment and Leisure Direction seeks to provide for the protection of flora and fauna in land use planning and provide for ongoing effective management of environmentally significant lands.

The planning proposal is consistent with this Direction. If supported, the concept will deliver the retention of a significant area of vegetation (Shale Sandstone Transition Forest in a riparian zone), which is a critically endangered ecological community, within a separate community association. It will also provide for a continuation of the biodiversity corridor in this area within the Local Environmental Plan 2012.

4. MATTERS OF CONSIDERATION

a) Loss of agricultural land

The Rural Lands Strategy completed in 2003 identified that, whilst the Shire did not have a great deal of high class agricultural land (Classes 1 to 3), it did have some significant pockets located at Box Hill, Maraylya, Cattai, Maroota and South Maroota and along the banks of the Hawkesbury River in Sackville North and Lower Portland. Much of the agriculture practiced in these areas comprised of intensive plant growing activities such as nurseries, cut flowers, hydroponics and market gardening.

Over the last 10 years there has been a gradual decline in total output (gross revenue) and jobs associated with the agriculture, forestry and fishing industry in the Shire. Currently this industry sector contributes approximately $163.8m (or 0.9%) to the Shire's $18.9b economic output. In 2007 it contributed approximately $171.5m (or 1.74%) to the Shire's $9.8b output. This represents a decline of $7.7m despite the Shire's output almost doubling over a 9 year period. Likewise, total jobs for the industry sector have reduced from 899 jobs in 2007 to 486 jobs in 2016[6].

Desktop analysis of aerial imagery from 2005 to 2014 identifies that there has been a reduction in land area within the Shire used for horticultural activities (329.7 ha in 2005 and 317.8 ha in 2014). Part of the loss of agricultural land has been a result of urban development in the release areas. However, there has also been a -7.3% decrease in the area of land used for horticulture in the RU1 Primary Production zone in Maroota since 2008 (refer Table 1).

	2008	2014	% Change
Horticultural activities (market gardens, orchards, crops)	161.7ha	149.74ha	-7.3%
Extractive industries	102.9ha	120.9ha	+17.4%

Table 1 Changes to horticultural activities and extractive industry operations RU1 Primary Production zone 2008 to 2014

The Maroota area is characterised by dispersed agricultural lots used predominately for intensive horticultural purposes such as market garden cultivation, orchard vines

[6] Source: Remplan data, April 2016

and large crops. Extractive industry operations within the SREP 9 boundary have increased in land area by 17.4% since 2008 (refer Table 1) and partly account for the reduction in horticultural activities in the locality. Figure 7 shows the changes to horticultural activities and extractive industry operations in the RU1 Primary Production zone between 2008 and 2014.

Given that the RU1 Primary Production zone was only introduced in October 2012 and the analysis is based on 2014 aerial imagery, it is considered too soon to gauge whether the use of the zone will deliver on the objective of encouraging primary industry production in the locality. However, it is observed that the ongoing horticultural activities are generally on larger unconstrained sites with land areas in the order of 12ha.

It is noted that whether the rezoning of the subject site is approved or not, it will not change the inability of the land to be used for commercial RU1 activities and therefore not contribute to the loss of primary production, jobs or revenue in the area. These losses are already included in the above statistics since the land has been shown to not be able to support commercial RU1 activities.

The Department of Trade and Investment, Regional Infrastructure and Services, Primary Industries focuses on the intent of the rural zones for agricultural purposes. In the past, they have raised that issues such as loss of agricultural land and conflict between agricultural uses and nearby dwellings reduces the ability of agriculture to operate.

A five class system used by NSW Agriculture classifies land in terms of its suitability for general agricultural use. Agricultural land is classified by evaluating biophysical, social and economic factors that may constrain the use of land for agricultural purposes. The subject site is a mix of classes

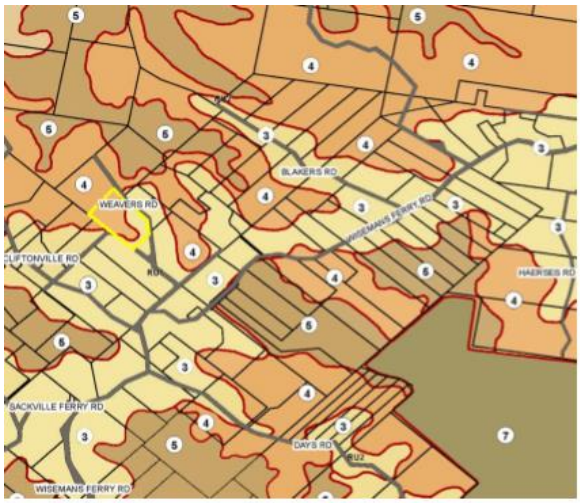


Fig 8 Agricultural land classification in Maroota location

Class 3 lands are suited to cropping but not continuous cultivation with production risks
Managed through cropping in rotation with pastures. The land is well suited to grazing with limitation to production including shallow, stony or eroded soils. Soil conservation or drainage works would be required to improve the cultivation capacity.

Class 4 is generally suitable for grazing but not for cultivation. Overall level of production is comparatively low due to major environmental constraints.

It should be noted that the example site contains more agricultural land than the subject site and the majority of the vegetation, based on Council's mapping, is Cattai Shale Cap Forest as distinct from the subject site which contains Shale Sandstone Transition Forest and riparian zones which is listed as a critically endangered ecological community under the Threatened Species Conservation Act (1995).

The subject site at 32-34 Jacks Lane has a total site area of 10.29 hectares, of which approximately 6.17ha or approximately 60% contains significant vegetation. This leaves approximately 4.12ha for agricultural activities, excluding the area currently occupied by existing buildings and paved areas.

A Soil Chemistry Profile Assessment submitted with the planning proposal concludes that the soil from the subject site is strongly acidic with a high portion of exchangeable hydrogen. As the soil is sandy clay loam with low CEC and therefore a poor ability to retain plant nutrients. The assessment also notes that the ability of the soil to hold water is low and, in its current state, is not an ideal agricultural soil.

Given the number of constraints to undertaking agriculture on the subject site, and the already identified loss of agricultural activity as shown , the proposal will not result in the loss of productive agricultural land. Allowing opportunity for rural cluster subdivision will facilitate conservation and ongoing management of the land affected by significant biodiversity and deliver on the objectives of *A Plan for Growing Sydney*, and RU2 land use. In this instance, this outcome should be preferred.

b) Land use conflict of agriculture and rural-residential

As with any land use, there is the potential for conflict between uses that needs to be managed. However, in this instance the rural lots that have access through a right of way through the subject site are already zoned RU2 and those to the south are RU1, with a significant percentage of native bushland. In this instance the conflict would be minimal as no RU1 activities are being conducted on neighbouring sites. Indeed, conducting RU1 activities on the subject site would lead to greater conflict with the adjacent RU2 sites. A simple shift of the existing boundary line between the RU1 and RU2 zones would be the result.

Horticulture is the predominant agricultural industry in this vicinity and is defined under the group terms of 'Intensive Plant Agriculture', and more broadly 'Agriculture', under Local Environmental Plan 2012. Impacts from this land use can be managed by controls applicable under The Hills DCP Part B Section. These existing controls consist of:

- A minimum side setback control of 40m for all new residential dwellings adjacent to a lot where intensive plant agriculture (in which horticulture falls under), intensive livestock agriculture, rural industry, plant nursery or other approved rural activity;
- Acoustic/noise impacts require proposals that are to demonstrate how they will not give rise to offensive noise as defined in the Protection of the Environment Operations Act and complies with the NSW Industrial Noise Policy; and

- Landscape screening control to all boundaries of the property to ensure dense landscaping screening is incorporated into all boundary setbacks to effectively screen the development from adjoining property boundaries.

It is understood that Council has recently undertaken a review of RU6 Transition zone objectives and permissible land uses under LEP 2012 in response to Council's resolution of 15 December 2015. In order to mitigate the impacts associated with a number of permissible uses and ensure these uses can continue to occur in a manner which is consistent with the zone objectives with minimal impact on the lifestyle of residents in the rural area, amendments have been proposed within The Hills Development Control Plan 2012 ('DCP') Part B Section 1 – Rural. It is understood these proposed amendments are still to be considered by Council and, among other changes, recommend additional controls for 'Intensive Plant Agriculture' (including 'horticulture') within all rural areas (including the RU1 Primary Production Zone). For example, seeking to minimise the impact of dust and air pollution on adjoining properties, reduce acoustic and visual disturbance on adjoining properties (through increased setback distances) and minimise potential for the impacts of lighting.

Given the location and nature of existing agricultural businesses, existing RU2 zones adjacent to the subject site, and existing and proposed controls to mitigate potential acoustic/noise, odour, dust, visual and lighting impacts which may be associated with the use, it is considered that any potential conflict can be more than adequately managed. Indeed, the rezoning of the subject site to RU2 is more consistent with existing adjacent activities that those of RU1 activities.

c) Precedent for other sites within the vicinity

It is acknowledged that proceeding with the subject planning proposal could result in other applications seeking a similar outcome.

The subject site is distinguished from the majority of sites in the RU1 Primary Production zone by its reduced capacity to sustain agricultural activities, the peripheral location at the interface with the RU2 Rural Landscape zone and the extent of significant biodiversity on the site. Only a limited number of sites within the vicinity may have similar characteristics, prompting landowners to submit planning proposal for consideration.

d) Protection of native vegetation

The introduction of the rural cluster subdivision option would enable the retention of additional areas of native vegetation and contribute to the biodiversity outcome. It is understood that this vegetation was previously not identified on the terrestrial biodiversity mapping.

Based on the two independent environmental reports, including a Flora and Fauna report, high biodiversity values on this site have been identified.

- Large areas of native vegetation occur on the site including Shale Sandstone Transition Forest, which is listed as a critically endangered ecological community under the Threatened Species Conservation Act (1995), and riparian zones with high biodiversity value[7],[8].

[7] Flora and Fauna Assessment 32-34 Jacks Lane, Maroota (October 2016), *Frazer Ecological Consulting*

[8] Hobley, S, (February 2015), *Bio Design & Associates Pty Ltd*

- A 10 kilometre search of Bionet (Atlas of NSW Wildlife) returns over 2,000 records from over 100 threatened species from the locality. Therefore there is a high likelihood of threatened species and/or their habitats occurring on the site.
- The site has good connectivity, with are significant riparian zone within the site connecting the upper and lower regions of the creek and gully to large areas of bushland in the surrounding area
- Presence of creek lines and large dams occur on the site, associated predominately with the above corridors.

There is a clear distinction within the site of cleared land and the areas of retained native bushland where the majority of the biodiversity values identified above would occur. The north western and north eastern boundaries directly adjoin land zoned as RU2 Rural Landscape. This zoning in the surrounding area includes land mapped as "Biodiversity" on the Terrestrial Biodiversity Map that would generally support rural cluster subdivision development subject to satisfaction of the applicable Local Environmental Plan 2012 and Development Control Plan requirements. It is anticipated that under the mapping criteria used for the preparation of LEP 2012 the biodiversity values identified above would have resulted in the Terrestrial Biodiversity mapping extending onto the subject site, and only the RU1 Primary Production zoning precluded this from occurring.

The Development Control Plan 2012 provides controls related to minimum lot sizes for community title schemes and includes guiding principles to ensure the protection of the landscape, biodiversity and rural setting of the land. The DCP also requires that a minimum 60% of the site is to be provided as the association property. The owners agree to the management of this area to be governed by a Vegetation Management Plan to assure that the biodiversity on the site is protected, maintained and enhanced.

Should the planning proposal be supported it is requested that amendments also occur to the Terrestrial Biodiversity map.

e) Bushfire Affectation

A significant portion of the site is identified as bushfire prone land (indicated below), primarily as Buffer Zone on the Building Code and Bushfire Hazard Solutions map[9]. This development proposal will comply with the provisions of *Planning for Bushfire Protection 2006* and take into consideration entry and exit from the area, construction methods and other matters relating to fire impact. Proposed building envelopes will be located on previously cleared land and any bushfire asset protection zones or 10/50 vegetation clearing entitlement will not extend into the community association lot or existing bushland areas.

The applicant has submitted a Bushfire Report with the planning proposal, which states that, proposed building envelopes within the proposed new allotments have the capacity to meet the minimum requirements of *Planning for Bushfire Protection 2006*. Should the planning proposal proceed the implications for the future development of a rural cluster in relation to bushfire affectation will be further

[9] Building Code & Bushfire Hazard Solutions Pty Ltd (September 2015)

addressed as part of the Gateway Determination through referral to the NSW Rural Fire Service.

f) Flora and Fauna Assessment

Two separate ecological assessments prepared by Fraser Ecological Consulting and Bio Design & Associates Pty Ltd evaluate the impacts of the proposed cluster subdivision on the terrestrial ecology located at the subject site. The assessment reports apply considerations under Section 5A of the Environmental Planning and Assessment Act, 1979 and evaluate whether a significant impact is likely to occur and corresponding, whether a Species Impact Statement is required.

The Bio Design & Associates Pty Ltd report notes that the vegetation mapped by Baulkham Hills Shire Council on the subject site as "Map Unit 1: Shale Sandstone Transition Forest (Low Sandstone Influence)" is **incorrect**. The vegetation should be described as "Map Unit 2: Shale Sandstone Transition Forest (High Sandstone Influence)".

Vegetation Species at 32 – 34 Jacks Lane Maroota Refer to Fraser Ecological Consulting report

The report confirms that native bushland occurring within the gully and hillside is consistent with Sydney Sandstone Gully Forest and Shale Sandstone Transition Forest which is a critically endangered ecological community under the Threatened Species Conservation Act (1995). The location of the proposed cluster lots comprises of land predominately absent of native vegetation, with the proposed community lot down slope of the rural cluster lots. Future development would be unlikely to have a significant impact upon the health of surrounding good quality bushland and will not interfere with local wildlife corridor functions.

A site inspection by the report authors has confirmed that where the rural cluster dwellings will be located on largely cleared land without any significant stands of vegetation. The conclusion of the submitted flora and fauna report is therefore considered appropriate.

CONCLUSION

The planning proposal seeks to rezone the subject site from RU1 Primary Production to RU2 Rural Landscape to enable application to be made for rural cluster subdivision.

The use of the RU1 Primary Production zone to specifically encourage primary industries recognises the economic significance of sand extraction and intensive horticultural activities in the Maroota locality. Based on site specific consideration, it is proposed that a strong case is made for rezoning of the subject site to RU2 Rural Landscape.

The suitability of the subject site for productive agricultural activities is limited due to the poor quality of the soil, site constraints including significant vegetation and slope, and Council imposed restrictions on primary production activities on the land. In combination these constraints significantly restrict the land available and its commercial primary production capacity. The location at the periphery of the identified primary production area and the presence of a large area of critically endangered ecological community, Shale Sandstone Transition Forest and riparian zones, warrant consideration of a rural cluster outcome and the opportunity to secure the conservation and management of biodiversity land. It is considered that the potential for land use conflict is minimal, and would align more to existing zoning of

the adjacent RU2 land. It is note any conflict can be appropriately managed through existing and proposed DCP controls. It is believed that the precedent for other sites to seek similar outcomes is limited, requiring detailed justification that environmental benefits would outweigh the loss of land identified for agricultural production and the need to show the land is generally unsuitable for agricultural activities.

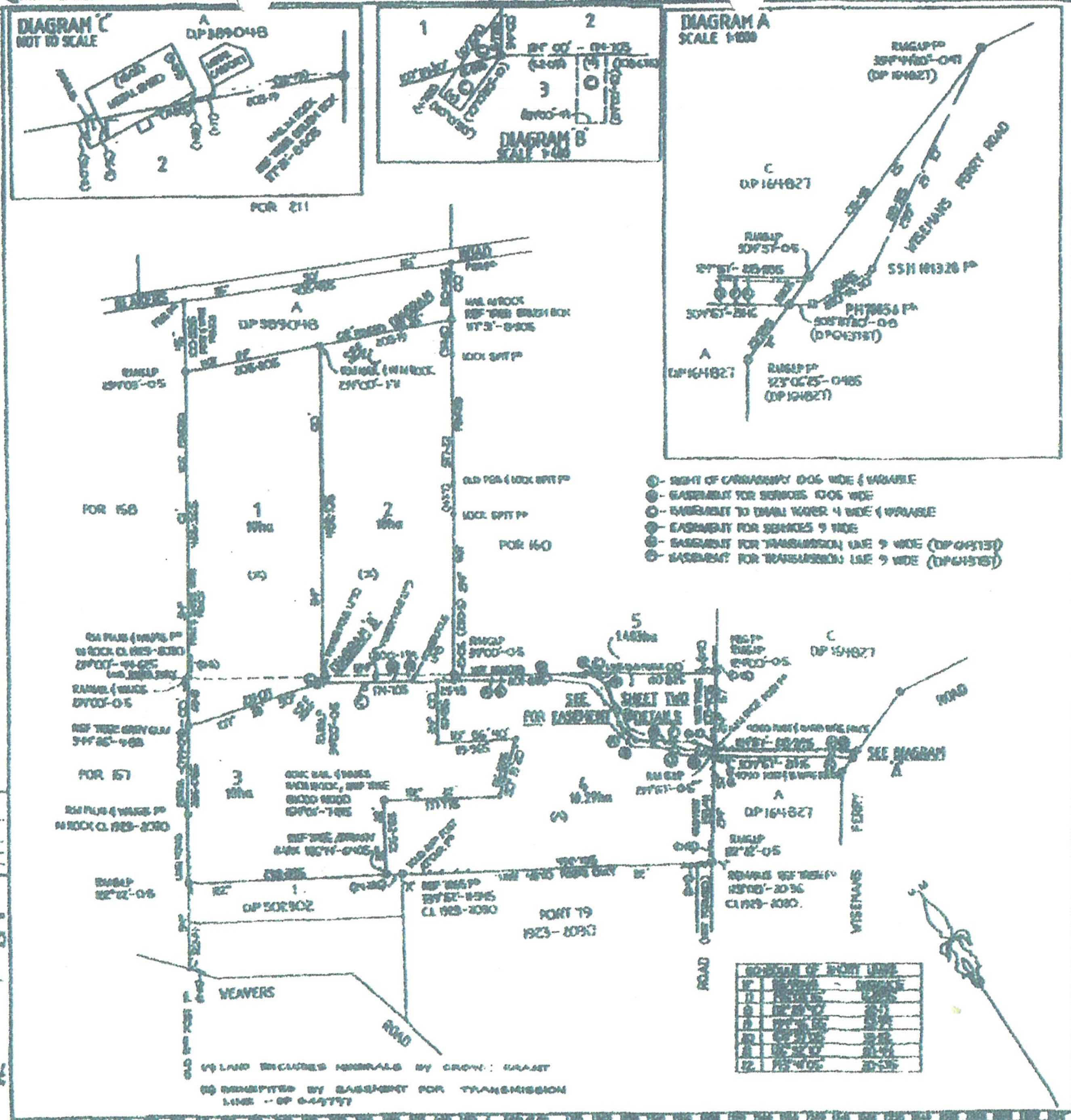
Given the foregoing it is recommended that the planning proposal for 32-34 Jacks Lane be considered favourably by Council.

ATTACHMENTS

- Registered survey plan
- Proposed cluster subdivision
- Soil report (SESL Australia)
- Bushfire report
- Environmental report (Bio Design & Associates Pty Ltd)
- Flora and fauna report (Fraser Ecological Consulting)

PLAN FORM 2

SIGNATURES AND SEALS ONLY.



WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

OFFICE USE ONLY

DP 864355

Registered 26-11-1996

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: PARISH

Last Plan: DP 389048, DP 502302, DP 164827

PLAN OF SUBDIVISION OF LOT B IN DP 389048, LOT 2 IN DP 502302, LOT B IN DP 164827

L.G.A. BAULKHAM HILLS

Locality: MAROOTA

Parish: CORNELIA & MAROOTA

County: CUMBERLAND

completed on 1st OCTOBER 1996

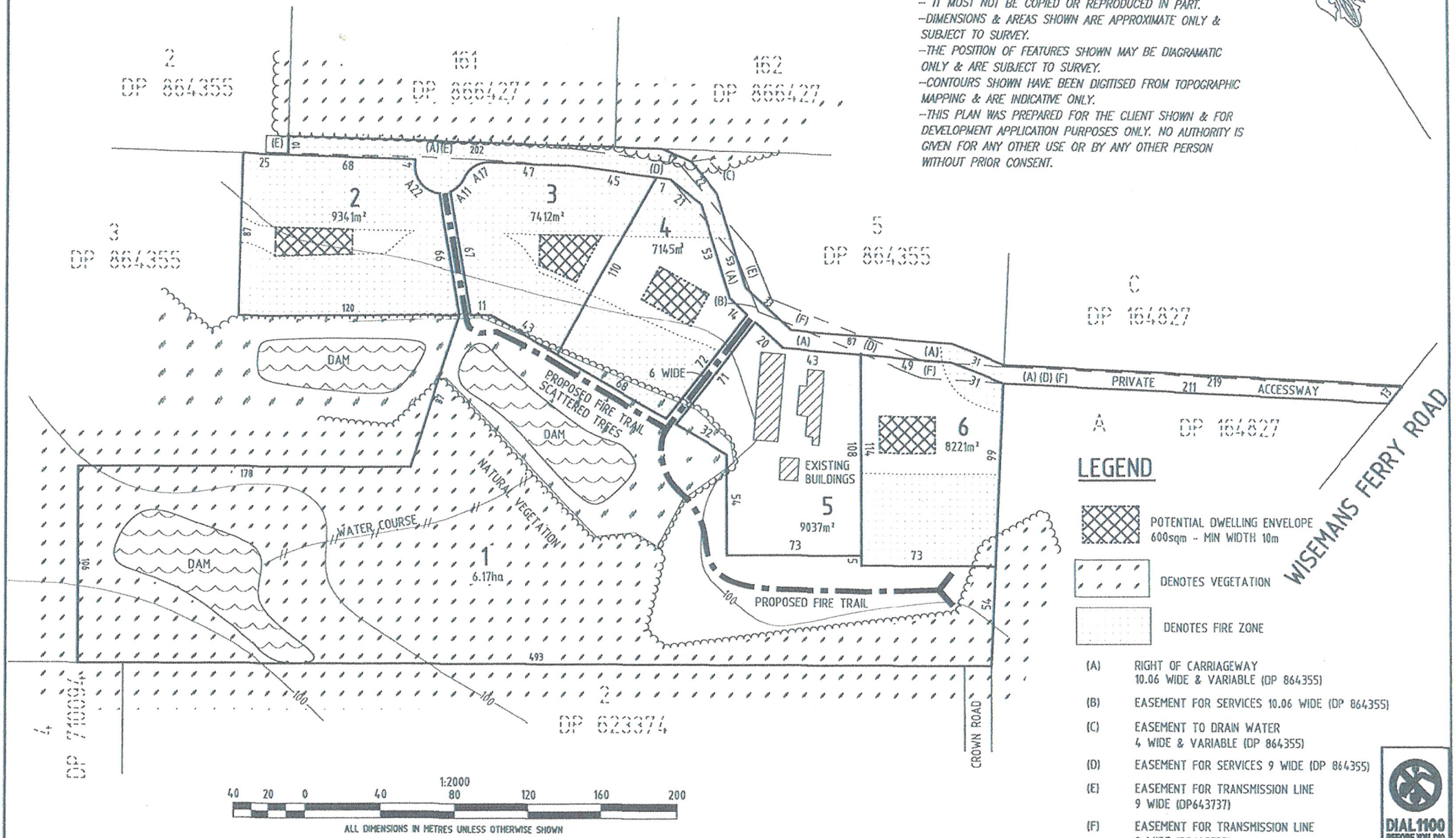
Plans used in preparation of survey/compilation:
DP 389048
502302
164827
389049
645137

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919, AS AMENDED IT IS INTENDED TO CREATE
1. RIGHT OF CARRIAGEWAY 10.06 WIDE & VARIABLE
2. EASEMENT FOR SERVICES 10.06 WIDE
3. EASEMENT TO DRAIN WATER 4 WIDE & VARIABLE
4. EASEMENT FOR SERVICES 9 WIDE
5. RESTRICTION ON USE
6. RESTRICTION ON USE
7. POSITIVE COVENANT
8. POSITIVE COVENANT
9. POSITIVE COVENANT

DP 864355

A3 **ISSUED FOR CERTIFIER/COUNCIL APPROVAL**

NOT TO BE USED FOR CONSTRUCTION UNLESS APPROPRIATELY STAMPED BY COUNCIL OR CERTIFIER



LEGEND

- POTENTIAL DWELLING ENVELOPE 600sqm – MIN WIDTH 10m
- DENOTES VEGETATION
- DENOTES FIRE ZONE
- (A) RIGHT OF CARRIAGEWAY 10.06 WIDE & VARIABLE (DP 864355)
- (B) EASEMENT FOR SERVICES 10.06 WIDE (DP 864355)
- (C) EASEMENT TO DRAIN WATER 4 WIDE & VARIABLE (DP 864355)
- (D) EASEMENT FOR SERVICES 9 WIDE (DP 864355)
- (E) EASEMENT FOR TRANSMISSION LINE 9 WIDE (DP643737)
- (F) EASEMENT FOR TRANSMISSION LINE 9 WIDE (DP643737)

DIAL 1100 BEFORE YOU DIG

Date		REVISION
	F	
	E	
	D	
	C	
6/9/17	B	LOTS 2, 3 & 6 AND FIRE TRAIL AMENDED
3/10/16	A	5/6 AMENDED, CULDESAC ADDED, ADDITIONAL ACCESS ADDED

DESIGN BY AJE
SURVEY BY
CALCS BY
DRAWN BY AM
CHECKED BY AJE

REDUCTION RATIO AT A3 1:2000
CONTOUR INTERVAL 10m
ORIGIN OF LEVELS TOPO MAP
DATUM APPROX AHD

McKINLAY MORGAN & ASSOCIATES Pty Ltd.
ACN 169 615 001 ABN 99 169 615 001
CONSULTING SURVEYORS – PROJECT MANAGERS
333 George Street, Windsor NSW 2756
PO Box 217 Windsor NSW 2756
Phone: 4577 6411
Fax: 4577 6910
Email: mail@mckinlaymorgan.com.au
www.mckinlaymorgan.com.au

DATE 12/10/15
FILE No. 92830
COUNCIL REF

CLIENT NAME CLARON CONSULTING P/L
LOCALITY WAROOTA LGA THE HILLS SHIRE
PLAN No. 92830DA1 C.FILE: 92830DA1B.DWG

PLAN SHOWING PROPOSED SUBDIVISION OF LOT 4 DP 864355

SHEET No. 1 OF 1 SHEETS

Soil Chemistry Profile

Mehlich 3 - Multi-nutrient Extractant

SESL AUSTRALIA
Environment & Soil Sciences

Sample Drop Off: 16 Chilvers Road, Thornleigh NSW 2120
Mailing Address: PO Box 357, Pennant Hills NSW 1715
Tel: 1300 30 40 80
Fax: 1300 64 46 89
Em: info@sesl.com.au
Web: www.sesl.com.au

Batch N°: 40740 **Sample N°: 1** **Date Received: 21/9/16** **Report Status:** ○ Draft ◉ Final

Client Name: **Graeme Bell**
Client Contact: **Graeme Bell**
Client Job N°:
Client Order N°:
Address: **32 Jacks Lane, Maroota NSW**

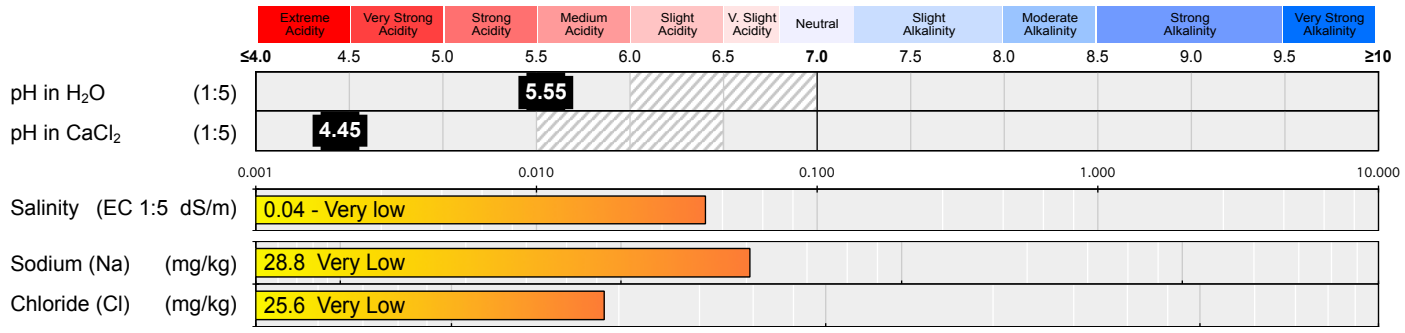
Project Name: **Chemical & Physical Soil Analysis**
SESL Quote N°: **Q6081**
Sample Name: **Soil Sample**
Description: **Soil**
Test Type: **FSC, TOC_DC, BSP, FC/PWP EWEA**

RECOMMENDATIONS

This soil was analysed to determine its suitability as a high performing agricultural soil. The soil is extremely acidic with a high proportion of exchangeable hydrogen. Due to the acidity, aluminium has become available which can be toxic to plants. Being a sandy clay loam, the soil has a low CEC and therefore a poor ability to retain plant nutrients. This is reflected by the plant available nutrients which are deficient. The ability of this soil to hold water is low - the field capacity (amount of water in the soil 48 hours after saturation) is 25.27%, and the plant available water is 116.1mm/m. Most soils are above 150mm/m. Organic matter levels are low.
In it's current state this soil is not an ideal agricultural soil. It is sandy, has poor nurtient and water holding and is strongly acidic. However, this soil can be improved. **Lime at 220 g/sqm (say 2 t/ha)** will raise the pH and balance cations. Applications of a properly composted (conforms to A.S. 4454 CSC) **organic material at up to 10t/ha** will improve water and nutrient holding capacity. A full NPK plus trace element fertiliser program is required appropriate to the enterprise. For pasture a **Pasture Starter at 500 kg/ha** plus annual application will be required for reasonable productivity. For fruit trees and Gardens **"Nitrophoska" at 50-100 g/sqm** is a high analysis well balanced product.

SOIL SAMPLE DEPTH (mm): ◉ 100 ○ 150 ○ 200 **FERTILITY RATING:** ○ Low ◉ Moderate ○ High

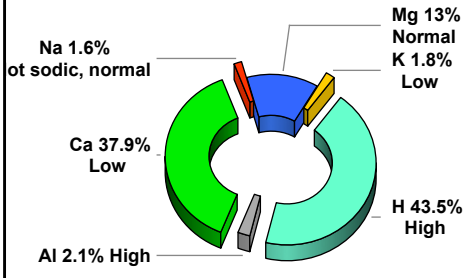
pH and ELECTRICAL CONDUCTIVITY



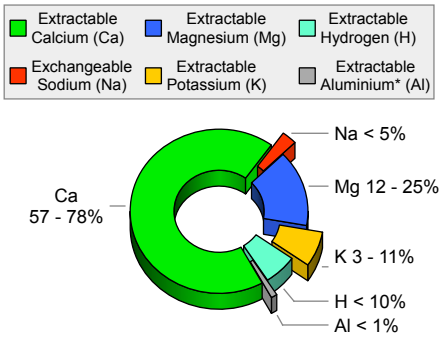
CATION BALANCE

EXCHANGEABLE CATION PERCENTAGE

Note: Hydrogen only determined when pH in $CaCl_2$ ≤ 5.5
Al only determined if pH in $CaCl_2$ is ≤ 5.2



ACTUAL



IDEAL

EFFECTIVE CATION EXCHANGE CAPACITY (eCEC)

CATION RATIOS

Ratio	Result	Target Range
Ca:Mg	2.9	4.1 – 6.0
Comment: Calcium low		
Mg:K	7.1	2.6 – 5.0
Comment: Potassium low		
K/(Ca+Mg)	0.04	< 0.07
Comment: Acceptable		
K:Na	1.2	N/A

Sodium Absorption Ratio: D.N.T.

EXCHANGEABLE CATIONS (meq/100g)

Na:	K:	Ca:	Mg:	H:	Al:
0.13	0.15	3.11	1.06	3.57	0.17

SOLUBLE CATIONS (meq/100g)

Na:	K:	Ca:	Mg:

SESL AUSTRALIA
Environment & Soil Sciences

Soil Chemistry Profile

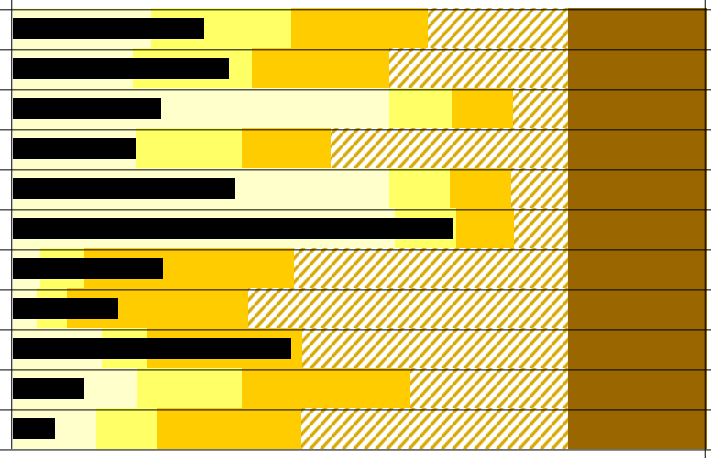
Mehlich 3 - Multi-nutrient Extractant

Sample Drop Off: 16 Chilvers Road, Thornleigh NSW 2120
Mailing Address: PO Box 357, Pennant Hills NSW 1715
Tel: 1300 30 40 80
Fax: 1300 64 46 89
Em: info@sesl.com.au
Web: www.sesl.com.au

Batch N°: 40740 **Sample N°: 1** **Date Received: 21/9/16** **Report Status: ○ Draft ◉ Final**

PLANT AVAILABLE NUTRIENTS

Major Nutrients	Result (mg/kg)	Very Low / Low / Marginal / Adequate / High	Result (g/sqm)	Desirable (g/sqm)	Adjustment (g/sqm)
Nitrate-N (NO_3)	7.2		1	4	3
Phosphate-P (PO_4)	25.2		3.4	8.4	5
Potassium (K) †	58.5		7.8	29.3	21.5
Sulphate-S (SO_4)	15		2	9	7
Calcium (Ca) †	624		83	208.3	125.3
Magnesium (Mg) †	129		17.2	21.7	4.5
Iron (Fe)	149		19.8	73.4	53.6
Manganese (Mn) †	8.3		1.1	5.9	4.8
Zinc (Zn) †	2.5		0.3	0.7	0.4
Copper (Cu)	0.8		0.1	0.8	0.7
Boron (B) †	0.2		0	0.4	0.4



Explanation of graph ranges:

Very Low
Growth is likely to be severely depressed and deficiency symptoms present. Large applications for soil building purposes are usually recommended. Potential response to nutrient addition is >90%.

Low
Potential "hidden hunger", or sub-clinical deficiency. Potential response to nutrient addition is 60 to 90%.

Marginal
Supply of this nutrient is barely adequate for the plant, and build-up is still recommended. Potential response to nutrient addition is 30 to 60%.

Adequate
Supply of this nutrient is adequate for the plant, and and only maintenance application rates are recommended. Potential response to nutrient addition is 5 to 30%.

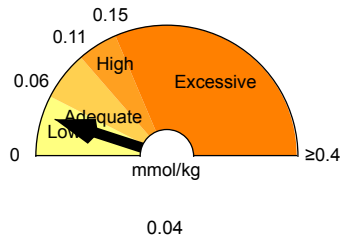
High
The level is excessive and may be detrimental to plant growth (i.e. phytotoxic) and may contribute to pollution of ground and surface waters. Drawdown is recommended. Potential response to nutrient addition is <2%.

NOTES: Adjustment recommendation calculates the elemental application to shift the soil test level to within the **Adequate** band, which maximises growth/yield, and economic efficiency, and minimises impact on the environment.

Drawdown: The objective nutrient management is to utilise residual soil nutrients. There is no agronomic reason to apply fertiliser when soil test levels exceed **Adequate**.

• g/sqm measurements are based on soil bulk density of 1.33 tonne/m^3 and selected soil depth.

Phosphorus Saturation Index



0.04

Low. Plant response to applied P is likely.

Exchangeable Acidity

Adams-Evans Buffer pH (BpH):	**7.4**
Sum of Base Cations (meq/100g^{-1}):	**4.5**
Eff. Cation Exch. Capacity (eCEC):	**8.2**
Base Saturation (%):	**54.88**
Exchangeable Acidity (meq/100g^{-1}):	**3.57**
Exchangeable Acidity (%):	**43.54**

Lime Application Rate

– to achieve pH 6.0 (g/sqm):	**220**
– to neutralise Al (g/sqm):	**17**

Gypsum Application Rate

– to achieve 67.5% exch. Ca (g/sqm): **0**

The CGAR is corrected for a soil depth of 100mm and any Lime addition to achieve pH 6.0.

Physical Description

Texture:	**Sandy Clay Loam**
Colour:	**-**
Estimated clay content:	**20 - 30%**
Size:	**Fine (1 - 10mm)**
Gravel content:	**Gravelly**
Aggregate strength:	**Pedal - Weak**
Structural unit:	**Crumb**
Potential infiltration rate:	**Moderate**
Permeability (mm/hr):	**5 - 20**
Calculated EC_{SE} (dS/m):	**0.4**

– Non-saline. Salinity effects on plants are mostly negligible.

Organic Carbon (OC%)†: **0.7 – Low**

Organic Matter (OM%): **1.2**

Additional comments:

Consultant: Chantal Milner

Authorised Signatory: Simon Leake

Date Report Generated 18/10/2016

METHOD REFERENCES:
pH (1:5 H_2O) - Rayment & Higginson (1992) 4A1,
pH (1:5 $CaCl_2$) - Rayment & Higginson (1992) 4B1,
EC (1:5) - Rayment & Higginson (1992) 3A1,
Chloride - Rayment & Higginson (1992) 5A2,
Nitrate - Rayment & Higginson (1992) 7B1
Aluminium - SESL in-house,
PO_4, K, SO_4, Ca, Mg, Na, Fe, Mn, Zn, Cu, B - Mehlich 3 (1984),
Buffer pH and Hydrogen - Adams-Evans (1972)
Texture/Structure/Colour - PM0003 (Texture- "Northcote" (1992), Structure- "Murphy" (1991), Colour- "Munsell" (2000))

ASPAC

A member of the Australasian Soil and Plant Analysis Council
† This laboratory has been awarded a Certificate of Proficiency for specific soil and plant tissue analyses by the Australasian Soil and Plant Analysis Council (ASPAC). Tests for which proficiency has been demonstrated are highlighted in this report.

SESL AUSTRALIA
Environment & Soil Sciences

Multiple Analysis Profile

Sample Drop Off: 16 Chilvers Road
Thornleigh NSW 2120
Tel: 1300 30 40 80
Fax: 1300 64 46 89

Mailing Address: PO Box 357
Pennant Hills NSW 1715
Em: info@sesl.com.au
Web: www.sesl.com.au

Batch N°: 40740 **Sample N°: 1** **Date Instructions Received: 21/9/16** **Report Status: ○ Draft ◉ Final**

Client Name: **Graeme Bell**
Client Contact: **Graeme Bell**
Client Job N°:
Client Order N°:
Address: **32 Jacks Lane**
Maroota NSW

Project Name: **Chemical & Physical Soil Analysis**
SESL Quote N°: **Q6081**
Sample Name: **Soil Sample**
Description: **Soil**
Test Type: **FSC, TOC_DC, BSP, FC/PWP EWEA**

Analysis	Unit	Result
Plant Available Water Capacity (volume)	mm/min at density 1.35	157
WMAX Field Capacity	% w/w	25.27
WMIN Wilting Point	% w/w	13.66

Water holding capacity is low.

Consultant:

Chantal Milner

Authorised Signatory:

Simon Leake

Date Report Generated
18/10/2016

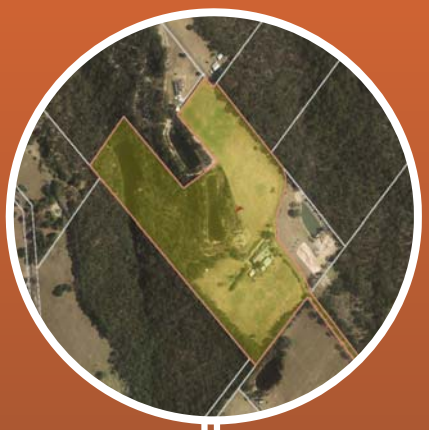
Bushfire Hazard Assessment Report

Planning Proposal

At:
32 – 34 Jacks Lane
Maroota

Reference Number: 150840

Prepared For:
Graeme Bell



22nd September 2017

Prepared By:
Building Code & Bushfire Hazard Solutions Pty Limited

Tel: (02) 9457 6530
Fax: (02) 9457 6532

PO Box 124
Berowra NSW 2081
ABN 19 057 337 774

www.bushfirehazardsolutions.com.au

FPA AUSTRALIA
CORPORATE MEMBER

Contents

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	The Hills Council
DA	Development Application
EP&A Act	*Environmental Planning and Assessment Act* - 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
LEP	Local Environmental Plan
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	*Planning for Bush Fire Protection* – 2006
ROW	Right of Way
RF Act	*Rural Fires Act* - 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

The subject site is known as 32-34 Jacks Lane, Maroota (Lot 4 DP 864355) and is a large allotment zoned RU1 – Primary Production. The planning proposal relates to the proposed new zoning (RU2 - Rural Landscape) to allow for the future cluster subdivision of the subject site into five (5) new rural-residential allotments and one (1) association allotment having no building rights.

As part of this planning proposal the applicant has had a subdivision plan prepared by McKinlay Morgan & Associates (Plan No. 92830: DA:1, dated 12/10/15 REV: B 6/9/17) to demonstrate that the proposed future subdivision can comply with Council's relevant specifications and requirements. We have also relied on this subdivision plan to demonstrate the proposal satisfies the relevant specifications and requirements of Planning for Bush Fire Protection 2006. In this regard should the planning proposal be successful and the future subdivision application remain consistent with this subdivision plan this report is suitable for use for both applications.

The location of the available building envelopes are greater than 200 metres from a public through road and in this light consideration has been given to the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas' (Fact Sheet 1/17, version 1 – June 2017). In this regard additional bushfire protections measures have been provided to ensure an acceptable level of bushfire safety. Pre-lodgement advice from the NSW RFS has directed us to take this approach and the response from our formal pre-lodgement meeting included;

> *"The bush fire assessment report prepared for the proposal should reflect the additional performance based requirements for rural residential cluster subdivisions as outlined in the NSW RFS community resilience fast fact titled 'Multi Lot Residential Subdivision in Bush Fire Prone Area' dated December 2016".*

The subject site has street frontage to Jacks Lane to the northeast which exits the site and interconnects with Wisemans Ferry Road to the southeast and abuts other private rural allotments to the southeast, southwest and northwest. The vegetation identified as being a potential bushfire hazard is located within the subject allotment, (proposed future association allotment) and neighbouring allotments to the southwest, northeast and northwest.

The Hills Council's Bushfire Prone Land Map identifies that the subject site as containing designated Category 1 Vegetation and its associated 100 metre buffer zone and therefore the application of *Planning for Bush Fire Protection* 2006 (PBP) is required.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide an independent bushfire hazard determination together of the subject site and surrounding area and to determine if the planning proposal and subsequently the future development applications will comply with the requirements of Planning for Bush Fire Protection 2006.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire hazard assessment for future development within the subject site. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject site.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW *Environmental Planning and Assessment Act* 1979 (EP&A Act), the *Rural Fires Act* 1997, the Rural Fires Regulation 2013, the RFS document known as '*Planning for Bush Fire Protection* 2006' for the purposes of bushfire hazard determination and Australian Standard 3959 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has made an inspection of the site and the surrounding area. The proposed subdivision plan prepared by McKinlay Morgan & Associates (Plan No. 92830: DA:1, dated 12/10/15 REV: A 6/9/17) has been relied upon for this report.

5.0 Site Zone

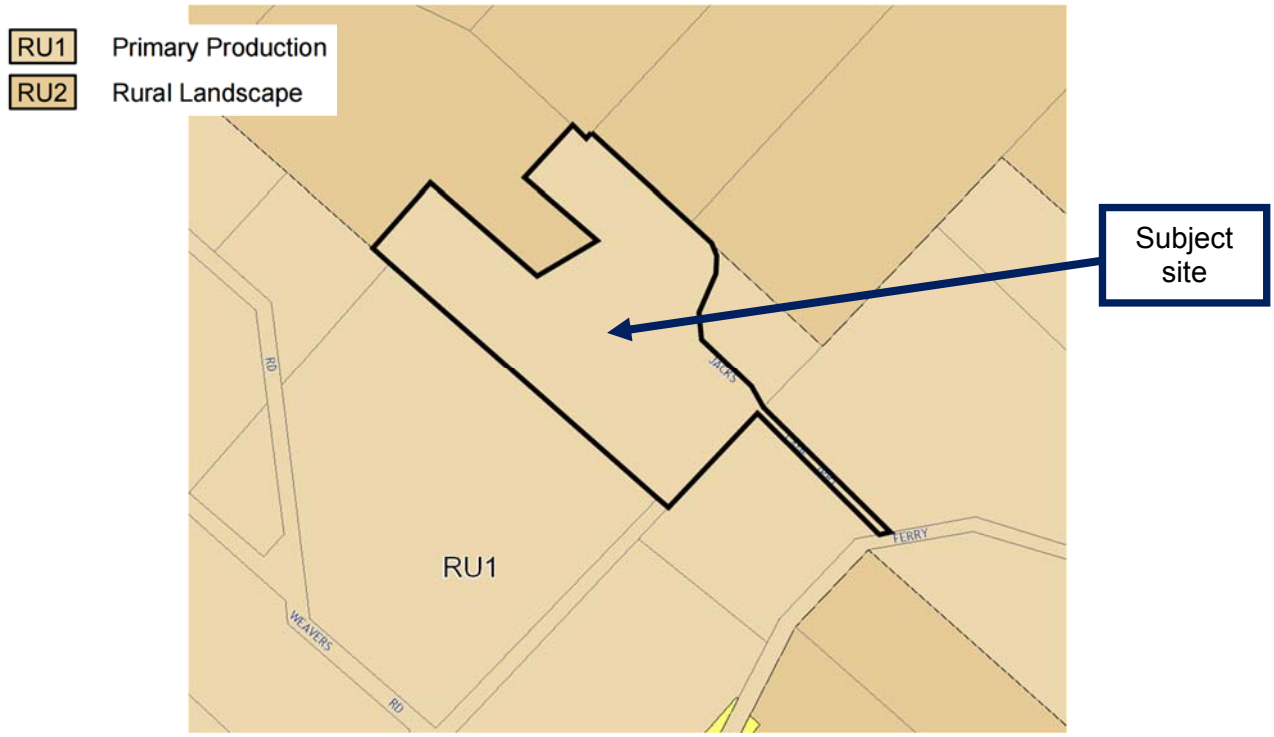


Image 01: Zone plan extract from The Hills Council Mapping database

6.0 Aerial view of the subject allotment

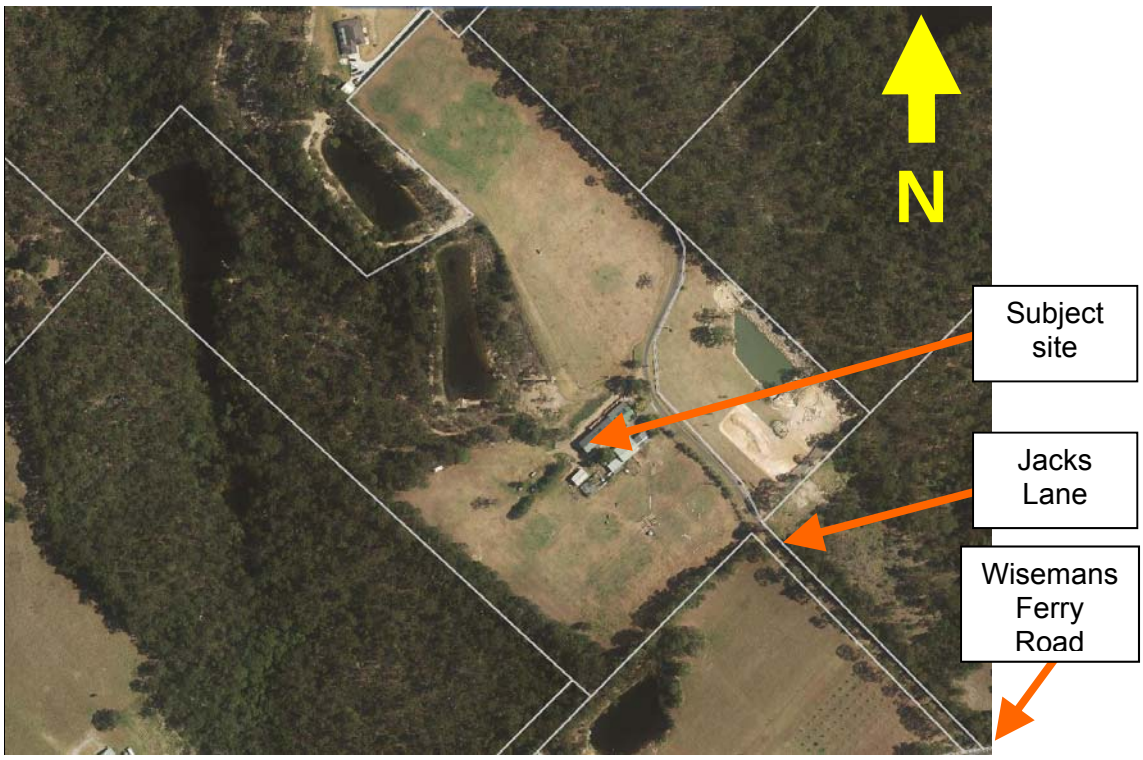


Image 02: Aerial view of the subject area, extract from SixMaps.

7.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2006*.

Proposed lot 2:	**Northeast**	**Southeast**	**Southwest**	**Northwest**
Vegetation Structure	Forest	Maintained grounds	Forest	Forest
Slope	10 - 15 degrees down	N/A	0 – 5 degrees down	0 – 5 degrees down
Required Asset Protection Zone	50 metres	N/A	25 metres	25 metres
Proposed Asset Protection Zone	≥50 metres	>100 metres	≥32 metres	≥61 metres
Significant Environmental Features	Jacks Lane	Proposed Lot 3	Neighbouring allotment / Dam / Proposed Lot 1	Maintained grounds
Bushfire Attack Level	BAL 29	BAL Low	BAL 29	BAL 12.5
Proposed Bushfire Attack Level	BAL 40	BAL 40	BAL 40	BAL 40

Proposed lot 3:	**Northeast**	**Southeast**	**Southwest**	**Northwest**
Vegetation Structure	Forest	Maintained grounds	Forest	Maintained grounds
Slope	10 – 15 degrees down	N/A	0 – 5 degrees down	N/A
Required Asset Protection Zone	50 metres	N/A	25 metres	N/A
Proposed Asset Protection Zone	≥50 metres	>100 metres	≥32 metres	>150 metres
Significant Environmental Features	Jacks Lane	Proposed Lot 4	Dam / Proposed Lot 1	Proposed Lot 2
Bushfire Attack Level	BAL 29	BAL Low	BAL 29	BAL Low
Proposed Bushfire Attack Level	BAL 40	BAL 40	BAL 40	BAL 40

Proposed lot 4:	**Northeast**	**Southeast**	**South**	**West**
Vegetation Structure	Forest	Maintained grounds	Maintained grounds	Forest
Slope	10 – 15 degrees down	N/A	N/A	0 - 5 degrees down
Required Asset Protection Zone	50 metres	N/A	N/A	25 metres
Proposed Asset Protection Zone	>50 metres	>100 metres	>100 metres	>32 metres
Significant Environmental Features	Jacks Lane	Maintained grounds	Proposed Lot 5	Dam / Proposed Lot 1
Bushfire Attack Level	BAL 29	BAL Low	BAL Low	BAL 29
Proposed Bushfire Attack Level	BAL 40	BAL 40	BAL 40	BAL 40

Proposed lot 5 (existing dwelling):	**North**	**East**	**West**	**Southwest**
Vegetation Structure	Maintained grounds	Maintained Grounds	Forest	Forest
Slope	N/A	N/A	0 – 5 degrees down	10 - 15 degrees down
Required Asset Protection Zone	N/A	N/A	25 metres	50 metres
Proposed Asset Protection Zone	>100 metres	>100 metres	>16 metres	≥125 metres
Significant Environmental Features	Proposed Lot 4	Jacks Lane	Proposed Lot 1	Neighbouring allotment

Proposed Lot 6:	North	East	South	Southwest
Vegetation Structure	Maintained grounds	Forest	Maintained grounds	Forest
Slope	N/A	0 – 5 degrees down	N/A	0 - 5 degrees down
Required Asset Protection Zone	N/A	25 metres	N/A	25 metres
Existing Asset Protection Zone	>100 metres	>32 metres	N/A	≥50 metres
Significant Environmental Features	Proposed Lot 5	Jacks Lane	Neighbouring private allotment	Proposed Lot 1
Bushfire Attack Level	BAL Low	BAL 29	BAL Low	BAL 19
Proposed Bushfire Attack Level	BAL 40	BAL 40	BAL 40	BAL 40

Asset Protection Zones Compliance

The proposed new allotments can accommodate a building footprint achieving the minimum required Asset Protection Zones under Appendix 2 of Planning for Bush Fire Protection 2006.

The available Asset Protection Zones will consist of maintained land within the subject property and land considered 'equivalent to an APZ' being the developed portion of Jacks Lane and maintained grounds within neighbouring private rural-residential allotments.

The location of the available building envelopes are greater than 200 metres from a public through road and in this light consideration has been given to the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas'. The available building envelopes have been designed so that they exceed the minimum required setbacks from Appendix 2 PBP 2006 and achieve BAL 29 rating under AS3959 – 2009, however in accordance with the RFS publication the future dwellings will be constructed to BAL 40.

Construction Level Compliance

No new dwellings are proposed as part of this application. An independent assessment will be required under s79BA of the *Environmental Planning and Assessment Act* 1997 at the time of an application for the construction of a dwelling within the newly created allotments.

Due to the location of the available building envelopes being greater than 200 metres from a public through road the minimum APZ have been increased to target BAL 29 setbacks however the construction of the future dwellings will be BAL 40 to allow for an increased confidence on these structures.

A restriction to user or positive covenant (e.g. section 88B instrument under the Conveyancing Regulation 2013) shall be placed on each title to ensure any future purchaser or dwelling application includes these requirements in the ensuing consent conditions.

The existing dwelling is required to be retrofitted to improve their resilience against smoke and ember attack. This is to be achieved by enclosing all openings or covering openings with a non-corrosive metal mesh screen (steel, bronze or aluminium) with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access	The proposed allotments will have street frontage to Jacks Lane to the northeast / east. Jacks Lane will be upgraded to provide a 6.5 metre trafficable width along the property's frontages. From Lot 6 to Wisemans Ferry Road the access will also be upgraded generally to 6.5 metres wide however will slightly narrow where it passes the existing electrical poles (see section 8.07 for more detail). The location of the available building envelopes are greater than 200 metres from a public through road and in this light consideration has been given to the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas' (Fact Sheet 1/17, version 1 – June 2017). In this regard additional bushfire protections measures have been provided to ensure an acceptable level of bushfire safety. Any new private access drive from Jacks Lane to the individual dwellings must comply with the requirements for Property Access as detailed in section 4.1.3(2) of Planning for Bush Fire Protection 2006.
Water Supply	Water considerations will be required to be applied at the time of the construction of a new dwelling within the proposed new allotments. In consideration of the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas' the water supply within the proposed lots must be dedicated solely for fire fighting purposes. We recommend that a restriction to user be included to ensure a 10,000 litre static water supply is applied as a dedicated source at the time of any future dwelling construction within these allotments. The existing dam within proposed Lot 1 also provides an additional large static water supply for fire fighters.
Evacuation	Evacuation is possible by utilising the existing and proposed road infrastructure. It is recommended that the occupants complete a Bush Fire Safety Plan addressing "Prepare, Act Survive" as advocated by the NSW RFS http://www.rfs.nsw.gov.au/ under publications / bushfire safety.

8.0 Bushfire Hazard Assessment

8.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document '*Planning for Bush Fire Protection* 2006' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in Australian Standard 3959 'Construction of buildings in bushfire prone areas' 2009.

Planning for Bush Fire Protection 2006, (PBP) formally adopted on the 1st March 2007 and amended May 2010 (Appendix 3) provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The future development application will relate to the subdivision of an existing allotment for residential purposes. To accord with PBP the future subdivision is classified as integrated development and future application will be assessed under section 100B of the *Rural Fires Act* 1997 and a Bushfire Safety Authority will be required from the Commissioner of the NSW Rural Fire Service.

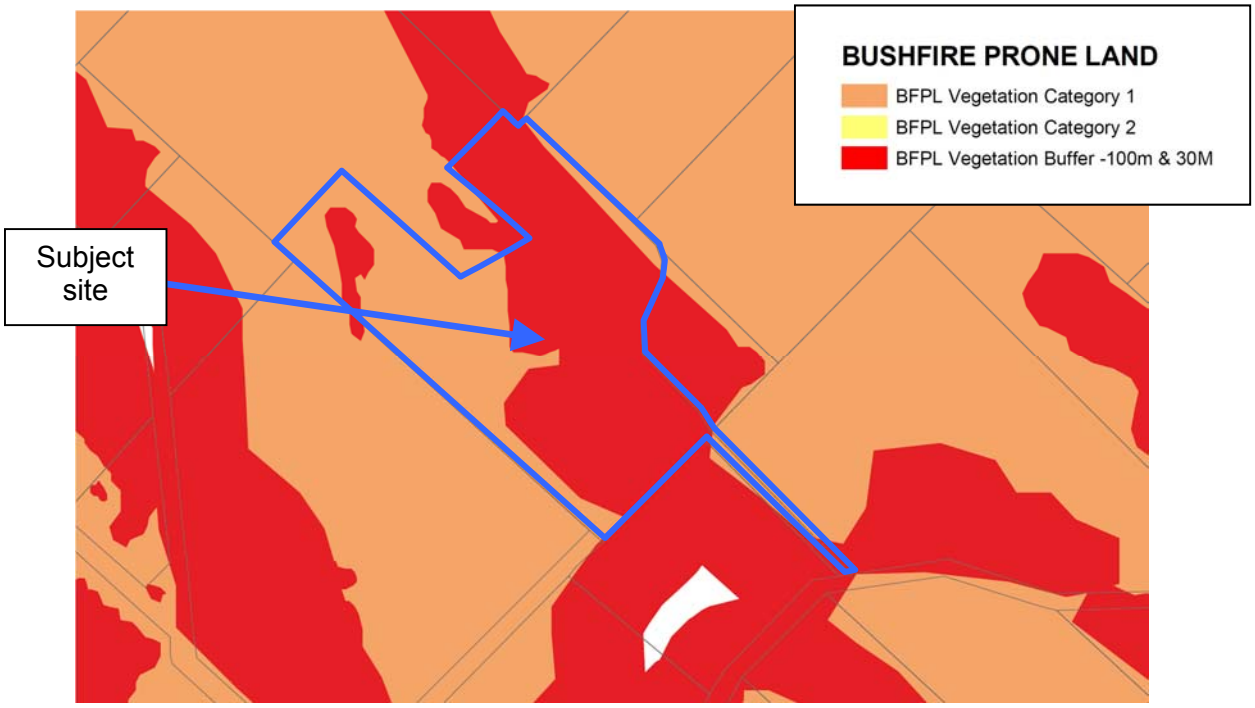


Image 03: Extract from The Hills Council's Bushfire Prone Land Map

8.02 Location

The subject site is known as 32-34 Jacks Lane, Maroota (Lot 4 DP 864355) and is a large allotment zoned RU1 – Primary Production.

The subject site has street frontage to Jacks Lane to the northeast and abuts other private rural allotments to all other aspects. The vegetation identified as being a potential bushfire hazard is located within the subject allotment (proposed residual lot 1) and neighbouring allotments to the northwest, northeast and southwest.

Photograph 01: View southwest from Jacks Lane toward the subject site

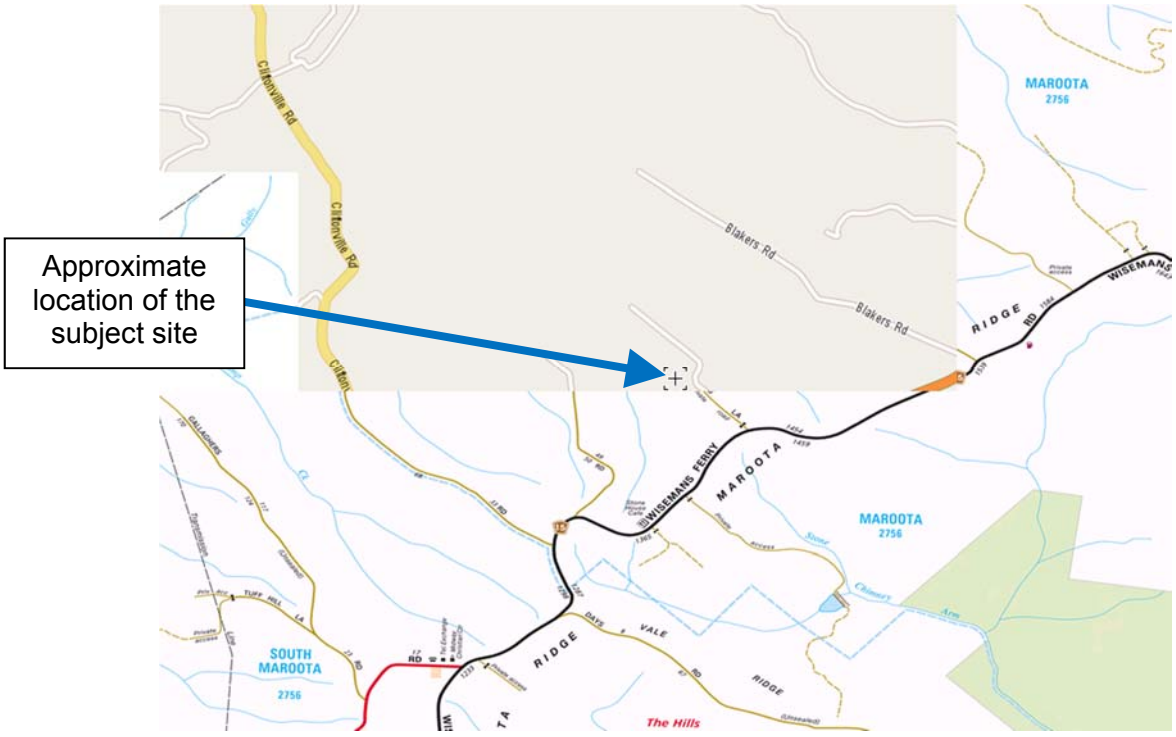


Image 04: Extract from street-directory.com.au

8.03 Vegetation

The vegetation identified as being a potential bushfire hazard is located within the neighbouring allotments to the northeast, southwest and northwest and the subject property (proposed lot 1) to the west.

The vegetation posing a hazard to the western aspect within the proposed residual lot and neighbouring allotment to the southwest was found to comprise of trees 10 - 20 metres in height having a 30 - 50% canopy foliage cover and an understorey of shrubs and grasses. The vegetation to the western aspect was found to be mapped as 'Shale/Sandstone Transition Forest (Shale)' on The Hills Council vegetation mapping. Although Shale Transition Forest is regarded as a Woodland under Keith, the higher canopy percentage would indicate a Forest designation for this vegetation although fuel loadings observed onsite would suggest a more Woodland level of fuel loading. As a precautionary approach and to build into the proposal an extra degree of protection the vegetation posing a hazard to the west was determined to be Forest.

The vegetation posing a hazard to the eastern aspect (northeast) was found to comprise of trees 10-20 metres in height having a 40-60% canopy foliage cover and an understorey of low trees, shrubs and grasses. This area was found to be mapped as 'Sandstone Ridgetop Woodland' and 'Sandstone Gully Forest' on The Hills Council vegetation mapping. As was found within the vegetation to the western aspects, Fuel Canopy percentages would suggest a Forest designation with slightly higher ground fuels present to the northeast. Again a precautionary approach, the vegetation posing a hazard to the northeast was determined to be Forest.

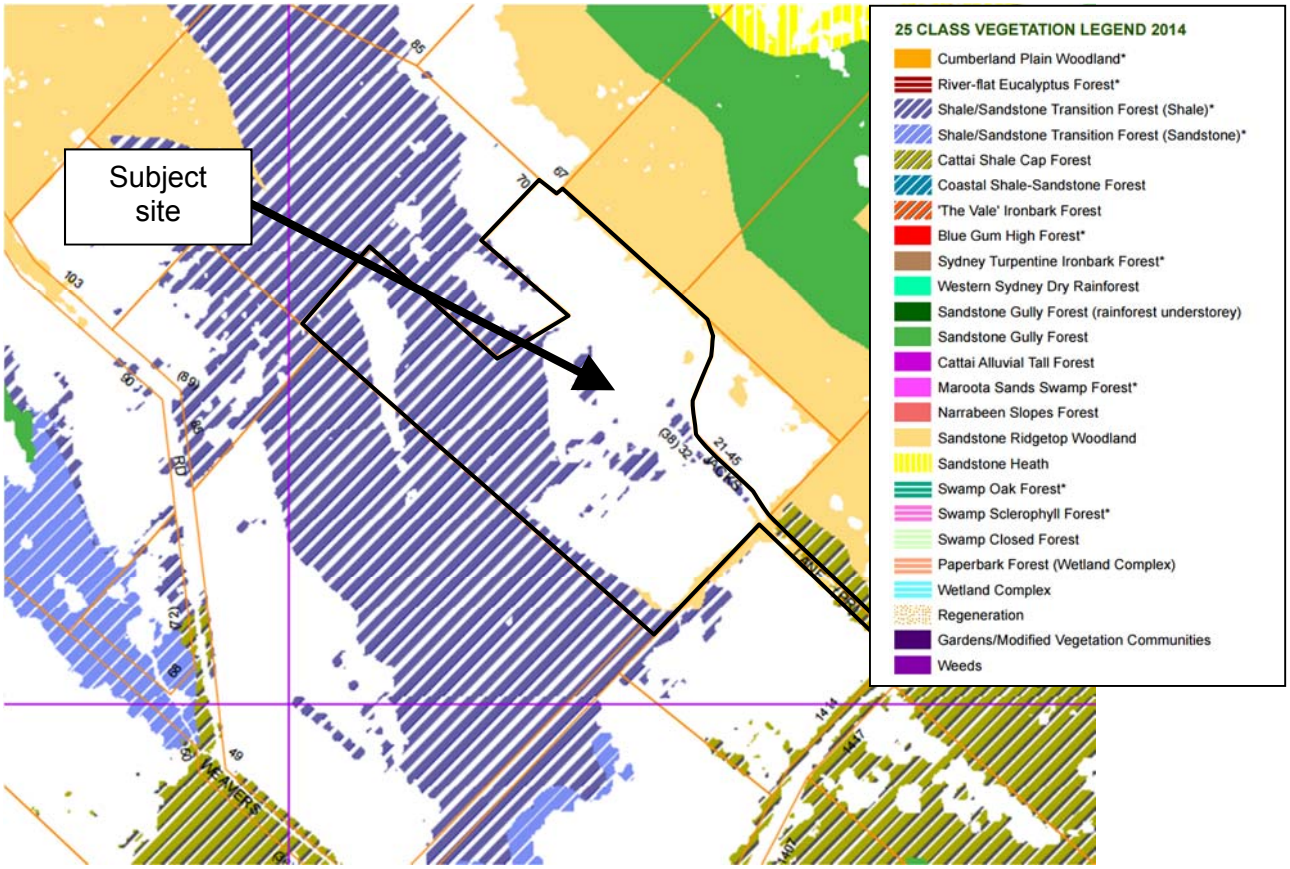


Image 05: Extract from The Hills Council vegetation mapping

Photograph 02: view of the 'Forest' to the western aspect of the subject site

Photograph 03: view of the 'Forest' to the northeastern aspect of the subject site

8.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour within the hazard must be assessed for at least 100 metres from the available building footprints to determine the minimum required Asset Protection Zones.

The slope that would most significantly influence bushfire behaviour was determined onsite and verified from topographic mapping to be:

- 0 - 5 degrees down slope within the hazard to the northwest (and southwest of lots 2, 3 & 4)
- 10 - 15 degrees down slope within the hazard to the northeast of Lots 2, 3 & 4 & southwest of lots 5 & 6

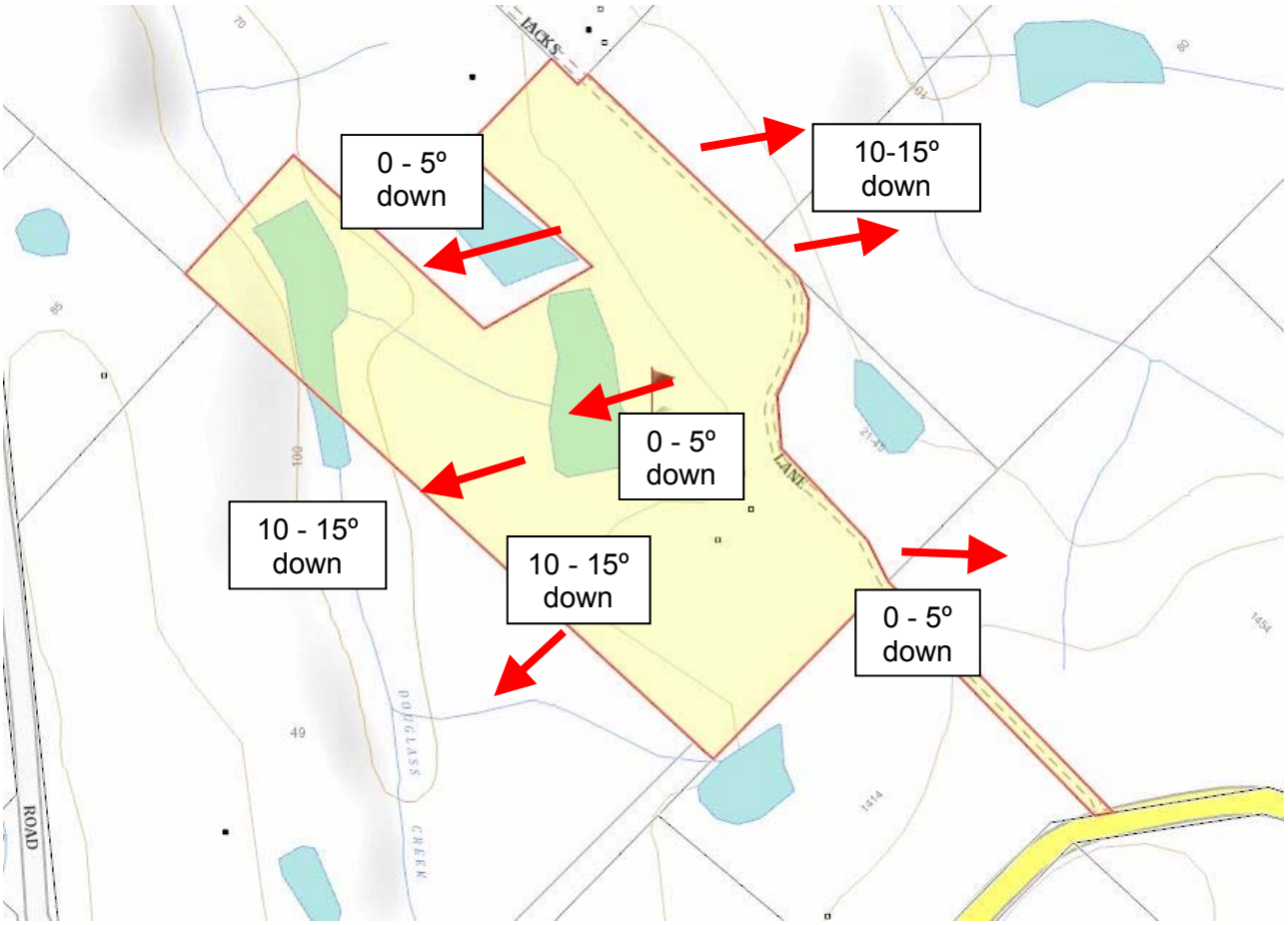


Image 06: Extract from NSW Dept. Lands – SixMaps 2016

8.05 Asset Protection Zones

The minimum required Asset Protection Zones (APZ) for proposed new allotments were determined from Table A2.4 of Planning for Bush Fire Protection 2006 and detailed in the compliance table in section 7.0 of this report.

The proposed new allotments can accommodate a building footprint achieving or exceeding the minimum required Asset Protection Zones under Appendix 2 of Planning for Bush Fire Protection 2006. The available Asset Protection Zones will consist of maintained land within the subject property and land considered 'equivalent to an APZ' being the developed portion of Jacks Lane and maintained grounds within neighbouring private rural-residential allotment.

The location of the available building envelopes are greater than 200 metres from a public through road and in this light consideration has been given to the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas'. The available building envelopes have been designed so that they exceed the minimum required setbacks from Appendix 2 PBP 2006 and achieve BAL 29 rating under AS3959 – 2009, however in accordance with this publication the future dwellings will be constructed to BAL 40.

All Asset Protection Zones will be maintained as an Inner Protection Area as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

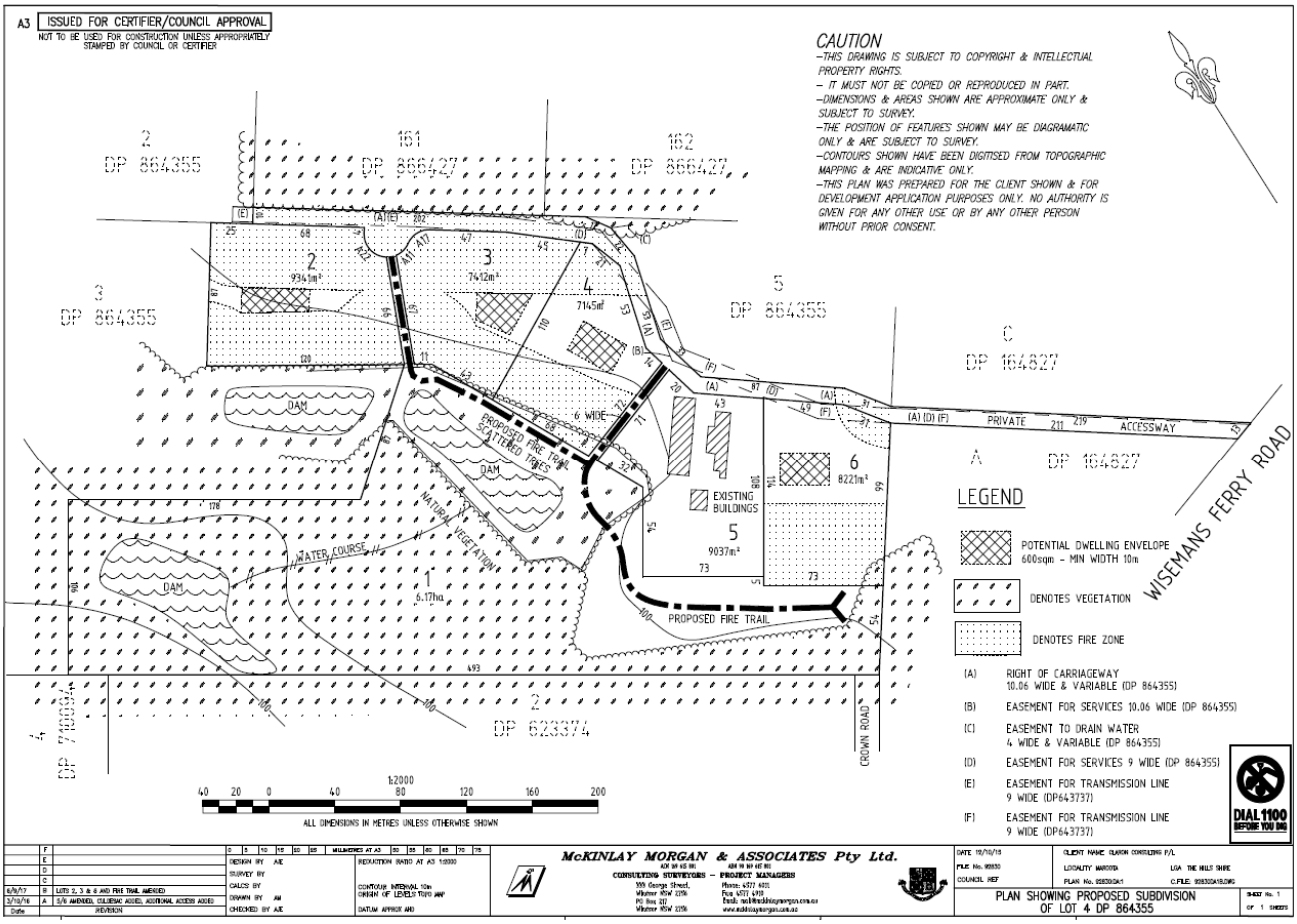


Image 07: Extract from the proposed subdivision plan prepared by McKinlay Morgan & Associates (Plan No. 92830: DA:1, dated 12/10/15 REV: B 6/9/17)

8.06 Fire Fighting Water Supply

There are no reticulated water mains or hydrants available within this area. The subject property was found to contain a large dam which can be utilised for the replenishment of attending fire services.

The most distant external point of the available building footprints are located greater than 70 metres from a hydrant and therefore a 10,000 Static Water Supply is required to be provided within each new allotment.

In consideration of the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas' the water supply within the proposed lots must be dedicated solely for fire fighting purposes. We recommend that a restriction to user be included to ensure a 10,000 litre static water supply is applied as a dedicated source at the time of any future dwelling construction within these allotments.

The existing buildings within the proposed Lot 5 are serviced with 2 x 20,000 litre concrete water tanks and one (1) 10,000 litre poly tank. Supply is also supplemented by an electric pump from the existing dam.

Photograph 04: View northwest from the existing dam within the subject site

Photograph 05: Existing water tank adjacent to the existing dwelling within the subject site

8.07 Property Access – Fire Services & Evacuation

The subject site has street frontage to Jacks Lane to the northeast / east. All proposed rural / residential allotments will have street frontage to Jacks Lane.

Jacks Lane will be upgraded to provide a 6.5 metre trafficable width along the property's frontages. From Lot 6 to Wisemans Ferry Road the access will also be upgraded generally to 6.5 metres wide however will slightly narrow where it passes the existing electrical poles. At the poles passing is only slightly restricted over very short periods at long intervals. As this is a straight section of road a clear line of site is available in both directions and therefore the narrowing for short periods is considered acceptable. In the event this road is being impacted by fire or smoke no private vehicle or fire appliance would enter this section of Jacks Lane. Emergency management plans could be enforced for each allotment detailing early relocation of safe refuge onsite to avoid an unnecessary late relocation of occupants along Jacks Lane.

The location of the available building envelopes are greater than 200 metres from a public through road and in this light consideration has been given to the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas' (Fact Sheet 1/17, version 1 – June 2017). In this regard additional bushfire protections measures have been provided to ensure an acceptable level of bushfire safety.

Any new private access drive from Jacks Lane to the individual dwellings must comply with the requirements for Property Access as detailed in section 4.1.3(2) of Planning for Bush Fire Protection 2006.

There is also a compliant 12 metre turning head adjacent to lots 2 & 3 proposed. Furthermore turning provisions will be available at the entry drive to each property and at the time of future consent for a dwelling in each allotment within each property to enable access and egress of fire services.

Access for fire services and opportunities for occupant evacuation will be considered adequate for this property and can comply with the requirements of PBP 2006 and NSW RFS publications.

Photograph 06: View southeast along Jacks Lane (subject site right of photo)

9.0 Site & Bushfire Hazard Determination

9.01 *Planning for Bush Fire Protection* - 2006

Planning for Bush Fire Protection – 2006 (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject site has been identified as being bushfire prone land therefore it is appropriate to apply PBP and AS3959 – 2009 (for any dwelling construction).

9.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2009 'Construction of buildings in bushfire-prone areas' provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the *Planning for Bush Fire Protection* – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

9.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m^2)	Level of construction under AS3959-2009
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

9.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed future development located at 32-34 Jacks Lane, Maroota was assessed against the requirements of *Planning for Bush Fire Protection* 2006 noting the following:

a) The building footprints exceed the minimum required Asset Protection Zones.
b) Recommendations to maintain the Asset Protection Zones within the subject property can be included in future development consent.
c) Future water supply can satisfy the requirements for Services as detailed in section 4.1.3 of PBP.
d) The proposed access drives and roads can satisfy the performance requirements for Property Access as detailed in section 4.1.3 (1 & 2) of PBP 2006.
e) The future dwellings while providing the setbacks for BAL 29 construction will be constructed to BAL 40.
f) Increase APZs above the minimum Appendix 2 requirements to ensure the buildings are suitable as a safe refuge within an area determined to be BAL 29 but constructed to BAL 40.
g) Dedicated water supply within proposed Lots will be conditioned as part of the consent.

9.05 Viable Construction Method

The objectives of *Planning for Bush Fire Protection* – 2006 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

No new dwellings are proposed as part of this application. An independent assessment will be required under s79BA of the *Environmental Planning and Assessment Act* 1997 at the time of an application for the construction of a dwelling within the newly created allotments.

Due to the location of the available building envelopes being greater than 200 metres from a public through road the minimum APZ have been increased to target BAL 29 setbacks however the construction of the future dwellings will be BAL 40 to allow for an increased confidence on these structures.

A restriction to user or positive covenant (e.g. section 88B instrument under the Conveyancing Regulation 2013) shall be placed on each title to ensure any future purchaser or dwelling application includes these requirements in the ensuing consent conditions.

The existing dwelling is required to be retrofitted to improve their resilience against smoke and ember attack. This is to be achieved by enclosing all openings or covering openings with a non-corrosive metal mesh screen (steel, bronze or aluminium) with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

10.0 Recommendations

Following rezoning of the subject site the following recommendations should be applied within the consent conditions for the subsequent subdivision of the subject site.

The recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

General

1. That the proposed development complies with the subdivision plan prepared by McKinlay Morgan & Associates (Plan No. 92830: DA:1, dated 12/10/15 REV: B 6/9/17)

Construction – existing dwelling within Lot 5 only

2. That where applicable all openable windows on the existing dwelling be screened with aluminium, steel or bronze metal mesh having an aperture size of ≤ 2.0 mm in such a way that the entire opening remains screened when in the opened position.
3. That where applicable all vents and weepholes on the existing dwelling be screened with aluminium, steel or bronze metal mesh having an aperture size of ≤ 2.0 mm in such a way that the entire opening is screened.
4. That where applicable all external hinged doors on the existing dwelling have draught excluders fitted having a flammability index of not more than 5.

Construction

5. That a restriction to user be included to ensure that the minimum construction requirement for any future dwelling within the available building envelopes is constructed to BAL 40 under section 8 of AS3959-2009 'Construction of Buildings in Bushfire Prone Areas'

Asset Protection Zones

6. That all grounds not built upon within the proposed Lots 2, 3, 4, 5 and 6, be maintained as an Asset Protection Zone (Inner Protection Area).

Maintenance of the Asset Protection Zones is to be in accordance with the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of Planning for Bush Fire Protection 2006.

Landscaping

7. That any new landscaping within the subject property is to comply with Appendix 5 'Landscaping and Property Maintenance' of *Planning for Bush Fire Protection* 2006.

Access

8. That the upgrade of Jacks Lane is to comply with Public Road as detailed in section 4.1.3 (2) of *Planning for Bush Fire Protection* 2006 in particular to 6.5 metre trafficable width with the exception of the narrowing at the power poles between lot 6 and Wisemans Ferry Road.

9. That the construction of any future access drives within the rural residential allotments complies with the requirements for Property Access as detailed in section 4.1.3 (2) of *Planning for Bush Fire Protection* 2006, in particular:

   - A minimum carriageway width of four metres.
   - A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches.
   - Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
   - The minimum distance between inner and outer curves is six metres.
   - The crossfall is not more than 10 degrees.
   - Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.
   - Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius (or suitable turning provisions for a fire appliance).

Services

10. That electricity and gas are to comply with section 4.1.3 of Planning for Bush Fire Protection 2006 as follows:

<u>Electricity:</u>

- Where practicable, new electrical transmission lines are underground.
- Where overhead electrical transmission lines are proposed:
  - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and
  - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

Water supply

11. That a restriction to user be included to ensure a 10,000 litre dedicated water supply is provided within each proposed allotment at the time of any dwelling construction. The water supply shall have;

- A suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a gate or Ball valve is provided.
- Gate or Ball valve and pipes are adequate for water flow and are metal rather than plastic.
- Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.
- Above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters.
- All above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.

Management

12. Arrangements are to be established in a “Community Management Statement” (e.g. body corporate by-laws) that the owners (e.g. Executive) consider fire management strategies of the development that takes into account the following:

(a) Continued management of Asset Protection Zones and fire trails (including green waste disposal practices).

(b) Acknowledgement of hazard reduction proposals approved by the District NSW RFS and the District Bush Fire Management Committee that involve the association land.

(c) Consultation should occur between the Community Executive and the local District NSW RFS to confirm contact details and legalities involved with permissions for fire management works on association land together with any other community engagement advice for the cluster.

(d) Preparation of a Bush Fire Survival Plan for each household that stipulates their leave early or stay and defend course of action.

(e) Vegetative waste disposal mechanisms for large bush blocks that apply for the local area.

11.0 Conclusion

Given that the property is deemed bushfire prone under The Hills Council's Bushfire Prone Land Map any future development would need to meet the requirements of *Planning for Bush Fire Protection* 2006 and of the construction requirements of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009 if any are applicable. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject site.

The subject site is known as 32-34 Jacks Lane, Maroota (Lot 4 DP 864355) and is a large allotment zoned RU1 – Primary Production. The subject site has street frontage to Jacks Lane to the northeast and abuts other private rural allotments to the all other aspects.

Compliance with Planning for Bush Fire Protection 2006 must be achieved for any future subdivision to be approvable and as such site constraints should be determined at this planning proposal stage and the sites capacity to comply with these requirements should be demonstrated.

The required Asset Protection Zones (APZ) for the future subdivision were determined from Appendix 2 of *Planning for Bush Fire Protection* 2006. A potential subdivision of the site into five (5) rural-residential allotments and one (1) association allotment has been included for the purpose of assessing the sites compatibility for the purposes of rezoning to allow future rural-residential development.

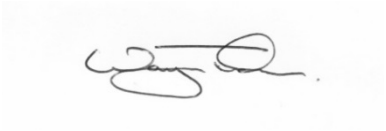
The available building footprints within these proposed new allotments exceed the minimum requirements of PBP 2006. The access design and the provisions of future services (water, gas and electricity) can also meet the performance requirements of section 4.1.3 of PBP 2006.

The location of the available building envelopes are greater than 200 metres from a public through road and in this light consideration has been given to the NSW RFS Community Resilience publication 'Multi lot residential subdivision in bushfire prone areas' (Fact Sheet 1/17, version 1 – June 2017). In this regard additional bushfire protections measures have been provided to ensure an acceptable level of bushfire safety.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is my opinion that the site and the proposed subdivision provided as part of this planning proposal has the capacity to comply with the requirements of PBP 2006. By applying this guideline it will provide a reasonable and satisfactory level of bushfire protection to the subject development and also satisfy both the Rural Fire Service's requirements and those of Council in this area.

Should you have any enquiries regarding this project please contact our office.

Prepared by
Building Code & Bushfire Hazard Solutions



Wayne Tucker
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Ass Dip Applied Science
Manager - Bushfire Section
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9399

Disclaimer:

Quote from *Planning for Bush Fire Protection* 2006, '*Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above..*'

Similarly the interpretations and opinions provided by Building Code and Bushfire Hazard Solutions in regard to bushfire protection are also given in the same good faith.

12.0 Annexure 01

List of Referenced Documents

a) *Environmental Planning and Assessment Act* 1979

b) *Rural Fires Act* 1997 as amended

c) '*Planning for Bush Fire Protection*' 2006 - NSW Rural Fire Services & Planning NSW

d) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2009 (as - amended) – Standards Australia

e) 'The Hills Council's Bushfire Prone Land Map'

f) Subdivision by McKinlay Morgan & Associates (Plan No. 92830: DA:1, dated 12/10/15 REV: B 6/9/17)

g) Acknowledgements to:

NSW Department of Lands – SixMaps
Street-directory.com.au
Googlemaps
The Hills Council Vegetation Mapping

Attachments

Attachments: Nil

Brent Winning

From: Susan hobley <Sue.hobley@biodesign.com.au>
Sent: Thursday, 19 February 2015 11:12 AM
To: Graeme Bell; Brent Winning
Subject: RE: 32 jacks lane maroota nsw re proposedrural cluster housing
Attachments: Shale Sandstone Transition Forest in the Sydney Basin Bioregion (Shale Sandstone Transition Forest in the Sydney Basin Bioregion) _ Conservation project _ NSW Environment & Heritage.pdf; FDShaleSandstoneCEEC.pdf; 150219_32 Jacks Lane Invoice.pdf

Dear Graeme, Faye, Tanya and Brent

I have now completed my assessment of the biodiversity status of the native vegetation on 32 Jacks Lane. My approach was to assess the following indicators: (i) condition of the vegetation as indicated by disturbances such as weed invasion; (ii) potential resilience as indicated by the size and extent of the vegetated area and its connectivity to other large areas of native vegetation; (iii) biodiversity of the bushland as indicated by the number of indigenous plant species and distinguishable assemblages found to be present; and (iv) habitat significance as indicated by the presence of listed threatened species.

(i) The vegetation is generally in excellent condition, being largely free of weed invasion except for a few confined areas where weeds should be relatively easy to bring under control.

(ii) The bushland on the site is somewhat fragmented by the access paths but these do not impede the movement of most fauna and plant propagules. It can therefore be considered to be acceptably well-connected within the site. It is connected to the large stand of vegetation to the north and north-west that also extends to the west and south-west of the site. Because I did not survey beyond the site, I can only speculate, based on the aerial photos, that the bushland beyond the site is not seriously fragmented.

(iii) I found a high number of native plant species and that reveals a good level of biodiversity in the site's flora. I surveyed 79 species out of a potential (but not necessarily expected to be present on every site) 375 species listed as occurring in Shale Sandstone Transition Forest (High Sandstone Influence). Thus, in my limited survey I found more than 21% of the Shale Sandstone Transition Forest (High Sandstone Influence) species to be present on this site. This is a high level of biodiversity for the size of the area I surveyed and the scale of the sampling I carried out. In addition, I noted that the site has a high diversity of distinctive plant assemblages for such a small area – I found or noted at least 9 or 10 different plant assemblages that reflect the effects of the site's varied topography and drainage systems and there may be more. In other words, the site has a good variety of environments to support different plants.

(iv) No threatened plant species were found. It is possible that listed threatened plant species Wahlenbergia multicaulis (Tadgell's Bluebell) and/or Hibbertia superans occurs on the site but their flowering time is over and I observed none. I would need to conduct a more intensive survey of the site to try to find them.

Thus, the biodiversity values of the bushland on the site are considered to be high and significant.

Additional findings are:

1. The vegetation is mapped by Baulkham Hills Shire Council as "Map Unit 1: Shale Sandstone Transition Forest (Low Sandstone Influence)". Ground-truthing revealed this to be incorrect: the vegetation should be described as "Map Unit 2: Shale Sandstone Transition Forest (High Sandstone Influence)".
2. Shale Sandstone Transition Forest in the Sydney Basin Bioregion (all categories) is listed under the Threatened Species Act (1995) as a "Critically Endangered Ecological Community" in NSW and under the Federal "Environment Protection and Biodiversity Act" as "Endangered". Attached is the NSW Scientific Committee's Determination that details the remaining extent of this community. This means that the vegetation on the site is of high conservation value and any proposed clearing of it would require an impact assessment under these Acts. I have also attached the "Action Statement" prepared by the NSW Office of Environment And Heritage that outlines actions aimed at the recovery of this ecological community. You should note that the second dot point states: **OEH will seek and encourage investment, *including via voluntary* acquisition or conservation agreements, to be preferentially targeted to the priority conservation lands.** And the fourth which states: **Local councils will have regard to the priority conservation lands in identifying areas for inclusion in environment protection and regional open space zones.**

My findings are limited in that I did not randomly sample the site but instead walked mostly along existing paths that provide easy access and the areas associated with them are likely to be the most disturbed and therefore contain

lower biodiversity than the undisturbed areas. Furthermore, carrying out a survey in mid-February is limiting in terms of species that flower at other times of the year – there will likely be many more species that I did not see on account of this. Thus, it can be expected that there is a higher level of biodiversity in the bushland on the site than I surveyed.

In terms of the consequences for biodiversity that could be expected by continuing use of the cleared, farmed area of the property it can be expected that:

1. Weed problems will continue and probably increase.
2. Pasture grass will be promoted adjacent to native vegetation, preventing measures such as buffer plantings and control of run-off that would improve the prospects for the bushland.
3. The dams are currently naturalised wetlands with several *different indigenous* wetland plant species present (the two dams have different assemblages of species) but they are liable to disturbances from farm irrigation and stock watering. These could adversely impact on their biodiversity values.
4. The intrusion into the bushland by farm stock would diminish its biodiversity and increase weed invasion.
5. Extraction industries would be highly damaging to the vegetation.

In terms of a rezoning application it could be argued that:

1. A Conservation Agreement could be included on the land title that would ensure the bushland was not subject to future development
2. A Vegetation Management Plan could be required as part of any development application and *this would* improve the condition of the bushland through providing for such actions as weed control, buffer zones, and a fire regime.

.y invoice for this work is attached.

Please feel free to discuss this with me or ask any questions.

Regards
Sue Hobley

Bio Design & Associates Pty Ltd
39 Lamb Street , Lilyfield NSW 2040
PO Box 1685 Rozelle NSW 2039
p: (02) 9810 5500 M: 0403 072 484
e: sue.hobley@biodesign.com.au
www.biodesign.com.au

Fraser Ecological Consulting

abn 797 637 40114

665 Scenic Road

Macmasters Beach NSW 2257

telephone 042323 8193

Flora and Fauna Assessment

32-34 Jacks Lane

MAROOTA

24th October 2016

SUMMARY

Fraser Ecological Consulting has been contracted by Mr Graeme Bell to prepare an impact assessment of the proposed subdivision on the terrestrial ecology located at 32 Jacks Lane Maroota in the Hills Shire Council local government area. The planning proposal relates to the proposed new zoning (RU2 - Rural Landscape) to allow for the future cluster subdivision of the subject site into five (5) new rural-residential allotments and one (1) association /residual allotment having no building rights.

This assessment has been conducted in accordance with Commonwealth and State legislation.

Commonwealth legislation (*Environment Protection and Biodiversity Conservation (EPBC) Act 1999*) requires that actions judged to significantly impact upon matters of National Environmental Significance are to be assessed via a formal referral process. This assessment report determines whether a referral to be made to the Department of the Environment, Water, Heritage and the Arts for further assessment is required.

State legislation (*Environmental Planning and Assessment Act 1979*) requires that actions judged to significantly impact upon threatened species, populations or ecological communities, or their habitats listed under the *Threatened Species Conservation Act (1995)* trigger the preparation of a Species Impact Statement.

This assessment report applies considerations under Section 5A of the EPA Act (1979) and determines whether a significant impact is likely to occur and, correspondingly, whether a Species Impact Statement is required.

The site for the proposed development comprises of land predominantly absent of native vegetation. Remnant bushland mapped as Shale Sandstone Transition Forest Endangered Ecological Community listed under the *Threatened Species Conservation Act 1995* surrounds the proposed subdivision. This development application includes offering Council a residual lot of this endangered vegetation type comprising 5.71 ha of the entire 11.84-hectare property. The residual lot would be down slope of the newly created allotments. It is unlikely that future development on proposed Lots 2, 3, 4, 5 & 6 would have a significant impact upon the health of surrounding good quality bushland and will not interfere with local wildlife corridor functions.

The major conclusion arising from this Flora and Fauna Impact Assessment is that the proposed works are unlikely to result in a significant impact on any listed species or communities providing that the applicant actively implements the recommendations from this assessment. Therefore, in accordance with the EPA Act (1979), TSC Act (1995) and FM Act (1994), a Species Impact Statement is not required.

Disclaimer

This document may only be used for the purposes for which it was commissioned.

Fraser Ecological Consulting accepts no liability or responsibility in respect of any use or reliance upon this report by any third party.

Unauthorised use of this report in any form is prohibited.

Licensing

When conducting flora and fauna surveys, consultants are required to possess licences to ensure that works are completed in an appropriate manner. Fraser Ecological Consulting is licensed under s.132c and s.91 of the NSW National Parks and Wildlife Act (1974) from the NSW Office of Environment & Heritage. This allows Alex Fraser to undertake scientific investigations, collect specimens of protected flora and fauna across NSW in service and non-service areas and undertake bushland restoration works in EECs. This licence requires that all survey results are reported to the NSW NPWS for inclusion into the Atlas of NSW Wildlife.

Alex Fraser also holds an Animal Research Authority under the Animal Research Act (1995), as administered by NSW Agriculture. Surveys are approved and supervised by an Animal Care and Ethics Committee, applying the standards as detailed in the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes (NHMRC 1997).

1. Introduction

1.1. Introduction

This terrestrial ecological assessment was commissioned by Mr Graeme Bell to accompany the subdivision application with the Hills Shire Council for the property at 32 Jacks Lane Maroota.

The terrestrial ecological assessment:

- Identifies key flora and fauna habitats within the subject site;
- Reviews literature and databases relevant to the subject site;
- Describes the methodology and results of the survey;
- Addresses potential impacts on flora and fauna and their habitats resulting from the proposed development;
- Proposes appropriate mitigation measures; and
- Provides an assessment of the likelihood of significant impacts on threatened species and populations, and endangered ecological communities, according to Section 5A of the NSW EPA Act, TSC ACT, Commonwealth EPBC Act. This was done to determine the need for an SIS or an application under the EPBC Act.

Activities specifically related to the preparation of this report included:

- Identification of weed and indigenous native species recorded from the subject site including APZ area required in bushland south of the existing cleared lots
- Assessment of impacts of the proposed development
- Outlining the applicant's responsibilities including weed control and environmental safeguards before, during and post construction.

1.2 Site characteristics

The study site is located approximately 50km north-west of the Sydney CBD situated in the Hills Shire Council LGA and within the Sydney Basin Bioregion (Figure 1). Jacks Lane occurs on ridge line at similar elevation to the nearest cross road Wisemans Ferry Road and is located 4km west of Old Northern Road (Figure 2). Jacks Lane It is a privately owned road, that is owned by the applicant (Graeme Bell).

The site is an irregular rectangular shape and covers an area of approximately 11.84 hectares (Figure 1) comprising of existing cleared grazing land and dwelling for an area of approximately 5 hectares which is the focus area for the proposed development (described further in Section 1.5).

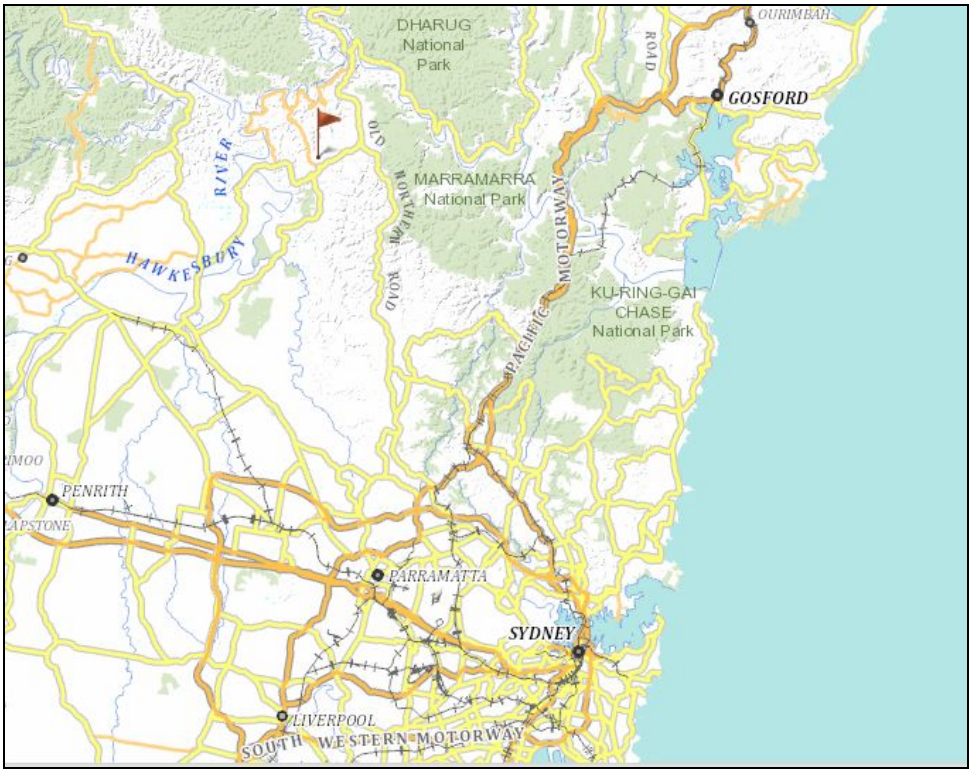


Figure 1: The site (red) in relation to the Sydney CBD and basin

Figure 2: Aerial map of the site (red) in relation to the surrounding locality

Figure 3: Aerial map of the site showing site boundaries in red (Source: Department of Lands SIX maps website accessed 30/9/2016)

1.3 Soils and Geology

Vegetation within the catchment is a result of the interaction of many environmental factors including the underlying geology, soil, rainfall, temperature, aspect and fire regime.

The site contains two soil types including Hawkesbury Sandstone and accumulated silt and clay from eroded soils (derived from Wianamatta Shale ridgetops).

On the Hawkesbury Sandstone the most extensive soils are grey and yellow-brown inform sands to sandy yellow leached gradational soils. They are strongly acidic and are characteristically deficient in phosphate and are often locally deficient in nitrogen. They also have poor water holding capacity. Shallow skeletal sands are common on the ridges, but in the gullies, sands may be metres deep, enriched by soil removed from the upper slopes, silt and organic matter. Where the shaley Narrabeen sandstone has been exposed in the deeper gullies, eroded shales form deep clay rich soils and these rich soils are accompanied by a change in vegetation. Shale lenses occur in both Hawkesbury and Narrabeen groups; their soils typically have sandy top soils overlying usually yellow clay subsoils (Ryan et al 1996).

1.4 Climate

The climate of the area is temperate and influenced by hot dry summers and mild to cool winters. The nearest Maroota (Old Northern Road) station shows a mean annual rainfall of 1036mm (Bureau of Meteorology website accessed 30/9/2016).

Summary statistics for all years — Information about climate statistics

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	96.5	112.4	103.3	85.1	59.2	92.2	46.2	52.9	54.0	65.6	80.3	79.9	913.9
Lowest	0.0	0.0	2.1	0.0	1.5	0.0	0.0	0.0	0.4	0.6	0.0	0.0	353.9
5th %ile	9.6	11.0	13.6	8.9	7.8	8.9	1.6	0.7	4.2	7.2	7.7	3.1	554.9
10th %ile	22.0	19.9	23.6	14.0	11.2	10.4	6.2	4.4	8.0	10.4	17.7	12.2	577.7
Median	73.6	81.5	84.0	59.8	43.7	55.2	26.3	22.5	41.4	53.7	68.8	76.5	903.0
90th %ile	178.1	232.9	194.2	159.3	113.8	237.8	112.2	140.9	123.0	153.1	155.0	174.3	1184.5
95th %ile	221.4	265.9	231.3	257.5	142.6	313.5	147.7	182.0	153.9	173.9	182.9	210.5	1513.2
Highest	395.5	464.9	437.7	467.2	370.1	445.4	250.6	497.4	174.0	220.3	208.3	375.0	1773.6

Figure 4: Summary rainfall statistics for all years for the Maroota (Old Northern Road) weather station

1.5 Proposed development

The proposed rural cluster subdivision development includes subdivision of the existing property on Lot 4 DP 864355 into 6 new individual lots.

One of the lots will be designated as bushland conservation lot and comprises 5.17 ha (referred to Lot 1 in the proposed plans.

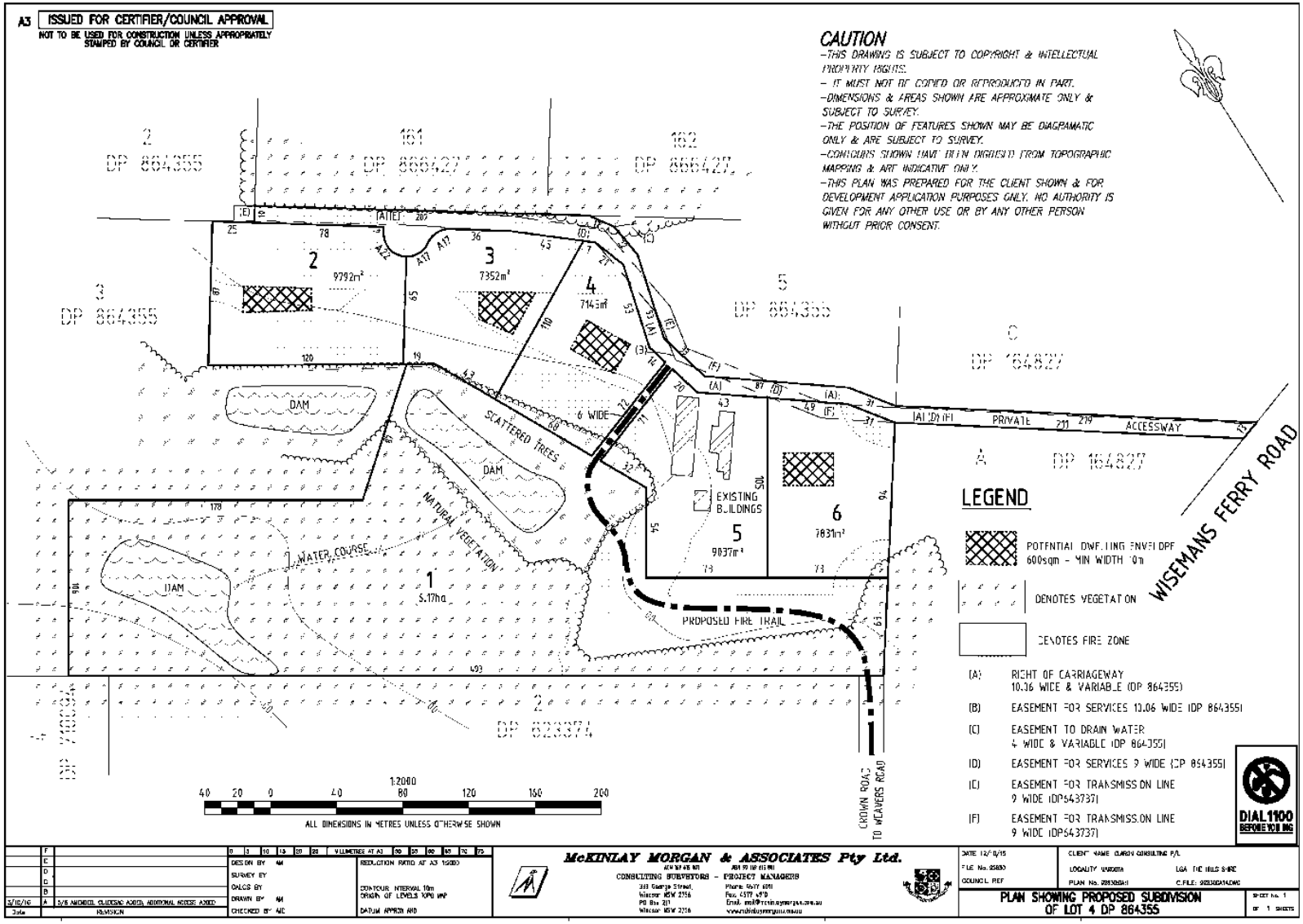
The footprint of the other proposed lots on existing cleared land is shown in Figure 5, and these lots are subject to future rural residential development and comprise the following areas:

- Lot 2 (9792m2)
- Lot 3 (7352 m^2)
- Lot 4 (7143 m^2)
- Lot 5 containing existing dwelling (9037 m^2)
- Lot 6 (7831 m^2)

The proposed subdivision layout prepared by Mckinlay Morgan and Associates Pty Ltd (Dated 12/10/2015) is provided on the following page. The layout of the lots was specifically designed taking into consider the previous bushfire constraints assessment prepared by Building Code and Bushfire Hazard Solutions dated 28/8/2015. The assessment demonstrated that APZs could be achieved around DCP compliant building envelopes (setbacks and minimum size) without requiring the need to remove native vegetation for bushfire protection measures and interfere with the high conservation bushland occurring within proposed Lot 1.

A fire trail is proposed between lots 4 & 5, through to the south-eastern corner of the site and within the unformed road reserve to the gate into Lot 1 DP 162911 is to comply with Fire Trails as detailed in section 4.1.3 (3) of Planning for Bush Fire Protection 2006. Please refer to Bushfire Assessment Report for further details in this regard.

Figure 5: Aerial map indicating the area of cleared proposed for future development in relation to native vegetation (highlighted yellow)


A3 ISSUED FOR CERTIFIER/COUNCIL APPROVAL
NOT TO BE USED FOR CONSTRUCTION UNLESS APPROPRIATELY STAMPED BY COUNCIL OR CERTIFIER
CAUTION
-THIS DRAWING IS SUBJECT TO COPYRIGHT & INTELLECTUAL PROPERTY RIGHTS.
- IT MUST NOT BE COPIED OR REPRODUCED IN PART.
-DIMENSIONS & AREAS SHOWN ARE APPROXIMATE ONLY & SUBJECT TO SURVEY.
-THE POSITION OF FEATURES SHOWN MAY BE DIAGRAMATIC ONLY & ARE SUBJECT TO SURVEY.
-CONTOURS SHOWN HAVE BEEN DIGITISED FROM TOPOGRAPHIC MAPPING & ARE INDICATIVE ONLY.
-THIS PLAN WAS PREPARED FOR THE CLIENT SHOWN & FOR DEVELOPMENT APPLICATION PURPOSES ONLY. NO AUTHORITY IS GIVEN FOR ANY OTHER USE OR BY ANY OTHER PERSON WITHOUT PRIOR CONSENT.
2 DP 864355
161 DP 866427
162 DP 866427
3 DP 864355
5 DP 864355
C DP 164827
A DP 164827
2 9792m²
3 7352m²
4 7145m²
5 9037m²
6 7831m²
1 5.17ha
DAM
DAM
DAM
SCATTERED TREES
NATURAL VEGETATION
WATER COURSE
6 WIDE
EXISTING BUILDINGS
PROPOSED FIRE TRAIL
PRIVATE ACCESSWAY
WISEMANS FERRY ROAD
CROWN ROAD TO WEAVERS RIDGE
LEGEND
POTENTIAL DWELLING ENVELOPE 600sqm - MIN WIDTH 10m
DENOTES VEGETATION
DENOTES FIRE ZONE
(A) RIGHT OF CARRIAGEWAY 10.36 WIDE & VARIABLE (DP 864355)
(B) EASEMENT FOR SERVICES 13.06 WIDE (DP 864355)
(C) EASEMENT TO DRAIN WATER 4 WIDE & VARIABLE (DP 864355)
(D) EASEMENT FOR SERVICES 9 WIDE (DP 864355)
(E) EASEMENT FOR TRANSMISSION LINE 9 WIDE (DP543737)
(F) EASEMENT FOR TRANSMISSION LINE 9 WIDE (DP543737)
1:2000
40 20 0 40 80 120 160 200
ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN
DIAL 1100 BEFORE YOU DIG
McKINLAY MORGAN & ASSOCIATES Pty Ltd.
CONSULTING SURVEYORS - PROJECT MANAGERS
PLAN SHOWING PROPOSED SUBDIVISION OF LOT 4 DP 864355

2. Statutory Framework

The criteria used to assess likely impacts upon threatened species, populations or endangered ecological communities vary between Commonwealth and State jurisdictions. The following describes the legislative requirements for each level.

2.1. Commonwealth

The *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act) is a nationally applicable Act that is administered by the Department of the Environment, Water, Heritage and the Arts. This Act requires approval for actions that are likely to have a significant impact on matters of National Environmental Significance (NES).

There are seven matters of NES that are triggers for Commonwealth assessment and approval. These are:

1. World Heritage properties;
2. National Heritage places;
3. Ramsar wetlands of international importance;
4. Nationally threatened species and communities;
5. Migratory species;
6. Nuclear actions; and
7. Commonwealth marine environment.

Threatened species and ecological communities are listed under Part 13, Division 1, Subdivision A of the EPBC Act 1999. Migratory species are listed under part 13, Division2, Subdivision A of the Act.

The Department of the Environment and Water Resources identifies the following:

"*Under the EPBC Act a person must not take an action that has, will have or is likely to have significant impact on any of these matter of NES without approval from the Commonwealth Environment Minister. There are penalties for taking such an action without approval.*

In general, an action that may need approval under the Act will involve some physical interaction with the environment, such as clearing native vegetation, building a new road, discharging pollutants into the environment, or offshore seismic survey.

If, following a referral, it is determined that that an action is likely to have a significant impact, and approval is therefore required, the action is called a 'controlled action'. The proposal will then undergo a formal assessment and approval process, and cannot proceed unless approval is granted.

If it is determined that an action is not likely to have a significant impact, then the action is not a controlled action. Approval under the EPBC Act is not required and the action may proceed, subject to obtaining any other necessary permits or approvals."

2.2. State

Threatened Species Conservation Act 1995

Section 5A of the (Environmental Planning and Assessment) EPA Act (1979) sets out seven factors that require consideration in terms of the likely significance of the impact of an action.

For the purposes of this Act and, in particular, in the administration of sections 78A, 79C (1) and 112, these seven factors must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats listed under the Threatened Species Conservation (TSC) Act (1995).

If the proposed works are on land that is, or is a part of, critical habitat, or is likely to significantly affect threatened species, populations or ecological communities, or their habitats, a Species Impact Statement (SIS) must be prepared.

An SIS provides an more detailed assessment of threatened biota issues and proposes measures to manage and mitigate adverse impacts on threatened species, populations or ecological communities, or their habitats, resulting from the proposal.

This assessment considers these factors in accordance with the aforementioned legislative requirements. It also provides conclusions in regard to the necessity for a Species Impact Statement.

Water Management Act 2000

Under Part 3 (Approvals], Division 1, Section 91 (2), a controlled activity approval confers a rights on its holder to carry out a specified controlled activity at a specified location in, on or under waterfront land. Waterfont land is defined as:

a) the bed of any river or lake, and any land lying between the bed of the river or lake and in a line drawn parallel to, and the prescribed distance inland of:

- in the case of non-tidal waters, the highest bank or shore above the river or lake, and
- in the case of tidal waters, the mean high water mark of the river or lake, and

b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters, where the prescribed distance is 40 metres of (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance.

Under the WM Act, a controlled activity is defined as:

a) the erection of a building or the carrying out of work (within the meaning of the EPA&A Act), or

b) the removal of material (whither or not extractive material) or vegetation from land, whether by way of excavation or other wise, or

c) the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or

d) the carrying out of any other activity that affects the quantity of or flow of water in a waters sources.

A controlled activity approval will not be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that minimal harm will be done to any waterfront land as a s consequence of carrying out the proposed controlled activity.

3. Methodology

This chapter presents the methods used in conducting the ecological survey and assessment of the conservation importance of the study area.

3.1 Existing records

Records of threatened flora and fauna species and populations, listed in the schedule of the TSC and EPBC Acts, were obtained and reviewed to document known locations threatened and regionally significant fauna within the locality. The source of these records was the National Parks and Wildlife Services' Atlas of Wildlife and the Department of Environment, Water, Heritage and the Arts online Protected Matters Search Tool database (Appendix B) for an area covering approximately 10km radius of the subject site.

3.2. Literature review

A literature review was carried out. Of particular importance were those containing records of species, populations and communities of conservation significance. This background information informed the impact assessment.

The following information was relied upon in regard to local conservation and planning issues for this study.

1. ***Soil landscapes of the Sydney 1: 100 000 Sheet (Hazelton and Tile 1990)***

The subject site has been mapped as occupying the Hawkesbury and Wianamatta soil landscape as already described in Section 1.4.

2. ***The Natural Vegetation of the Sydney 1: 100, 000 Map Sheet (Benson and Howell 1994)***

This survey of the natural vegetation across the Sydney 1:100 00 map sheet classifies the subject as containing Sydney Sandstone Gully Forest (Map Unit Ag).

This mapping has been superseded by mapping by NPWS (2002) and Tozer (2003).

3. ***The Native Vegetation of the Sydney Cumberland Plain: Systematic classification and field identification of communities (Tozer 2003)***

This work was the result of a large and complex mapping program across the Cumberland Plain and some of the hilly country on its edge.

5. Hills Shire Council Vegetation Classification Mapping (updated 2010)

Council's vegetation mapping program commenced in 2000 as part of Council's Sustainable Natural Assets Assessment Program and will continue to be updated as new data becomes available or more detailed survey worked is carried out.

The mapping incorporates aerial photography, vegetation/bushland cover and field survey work. The mapping identifies a variety of vegetation types across the Shire, including endangered ecological communities.

The vegetation mapping is available as 14 tiles for specific areas of the Shire as PDFs from the following link http://www.thehills.nsw.gov.au/vegetation-classification-mapping.html#.TtFPDBzdI1E.

3.3 Desktop survey

A desktop survey was performed to ensure all relevant documentation is considered when preparing the plan. Documents and other information resources utilised include:

- Aerial photographs (Google Maps, NearMaps & DPI Land Information)
- Architectural and Arborist Report
- Native Vegetation of the Cumberland Plain Maps (Tozer 2003)
- Soil Landscapes of the Sydney 1:100,000 Sheet (Hazerton and Tile 1990)

3.4 Field Surveys

A visual inspection was undertaken on the 28/9/2016 to identify and evaluate the current vegetation community occurring on the subject site, identify any threatened flora and fauna species and assess the current nature and extent of fauna habitats. Given the relatively small size of the site one day of surveying was considered an appropriate period of time to assess the native flora and fauna and values of the site.

Features of the vegetation including floristics, structure, extent, type and projective foliage cover, presence of weed species and other significant features were noted and recorded). All flora recorded were predominantly identified to family, genus and species level with confirmation according to *Field Guide to the Native Plants of Sydney* (Robinson, 2003), *Weeds of the south-east: an identification guide for Australia* (Richardson, 2006*), Tree & Shrubs in Rainforest of New South Wales and Southern QLD* (Williams et al 1984), *Native Plants of the Sydney District* (Fairly and Moore 2000) and the Botanic Gardens Trust (2009) *PlantNET* flora database.

It was not possible to determine with certainty all the fauna that utilise habitats in the subject site. This is because of the likely seasonal occurrences of some fauna species, the occasional occurrence of vagrant species, and because some species are difficult to detect because of their timid or cryptic behaviour. Therefore, fauna investigations comprised an assessment of fauna habitats present on site and an indication of their potential to support native wildlife populations and, in particular, threatened species.

The fauna habitat assessment criteria included:

Mammals: extent of ground cover, shrub layer and tree canopy, hollow-bearing trees, substrate type (for burrowing etc), evidence such as droppings, diggings, footprints, scratches on trees, nests, burrow paths and runways.

Birds: structural; features such as the extent and nature of the canopy, understorey and ground strata and flowering character

Reptiles and amphibians: cover shelter, suitable substrate, basking and breeding site availability, reptiles and frogs sough in likely sheltering places

Invertebrates: logs and other debris, leaf and bark accumulations around base of trees, grass clumps, loose soil for burrowing

Wildlife corridor values: Importance of the creek systems and riparian vegetation as movement corridors for fauna, especially birds, aquatic fauna, mammals (e.g. microchiropteran bats) & amphibians

3.5 Assessment of conservation value

Conservation value parameters

The conservation value of flora and fauna habitats on the subject site was determined by reference to the following criteria:

- Representativeness - whether the vegetation communities of the site are unique, typical or common in the bioregion. In addition the criteria takes into account whether or not such vegetation units are presently held in conservation reserves;
- the presence of threatened or regionally significant species on the site;
- the extent of human influence on the natural environment of the site and the condition of habitats (e.g. the presence of weeds, fire frequency, etc.);
- the uniqueness of the natural values of the site;
- the amount of native vegetation to be cleared or modified by the proposed development in relation to what remnant vegetation will remain in the locality; and
- the relative importance of the site as a corridor for the movement of wildlife.

4. Results

Plant species and native vegetation community

The site for the proposed development including the APZs and wastewater treatment area is essentially cleared paddocks with introduced pasture grasses that is currently used for grazing cattle. This area is absent of native isolated paddock trees and the native soil seedbank and does not represent a native vegetation community on proposed Lots 2-6.

Immediately below the cleared paddocks the edges of the dam on the western banks and the proposed development site contain a linear patch of introduced weeds including *Lantana camara* (Lantana), *Senecio madagascarensis* (Fireweeed), *Bidens pilosa* (Cobblers Pegs), *Solanum mauritianum* (Tobacco Plant), Vicia spp. (Vetch), *Pennisetum clandestinum* (Kikuyu), *Hypochaeris radicata* (Catsears), *Andropogon virginicus* (Whiskey Grass) and *Rubus futicososus* (Blackberry).

The dam occurring outside the proposed development areas that will form part of the residual lot protected in perpetuity under a covenant as the proposed Lot 1 (Restricted Development Area). The dam is surrounded by native vegetation that is considered to be in relatively good condition with high native species diversity and minimal weed invasion. The native species recorded in this area includes the following:

- *Eucalyptus oblonga* (Sandstone Stringybark)
- *Eucalyptus globoidea* (White Stringybark)
- *Corymbia eximea* (Yellow Bloodwood)
- *Eucalyptus punctata* (Grey Gum)
- *Eucalyptus paniculala* (Grey Ironbark)
- *Angophora costata* (Smooth-barked Apple)
- *Corymbia gummifera* (Red Bloodwood)
- *Syncarpia glomulifera* (Sydney Turpentine)
- *Angophora bakeri* (Narrow-leaved Apple)
- *Allocasuarina littoralis* (Black She Oak)
- *Themeda australis* (Kangaroo Grass)
- *Pittosporum undulatum (Sweet Pittosporum)*
- *Acacia parramatensis*
- *Kunzea ambigua*
- *Lomandra longifolia*
- *Grevillea mucronulata*
- *Petrophile pulchella*
- *Dodonea triquerta*
- *Imperata cylindrica* (Blady Grass)
- *Entolasia stricta*
- *Pratia purpurascens*
- *Leptospermum polygalifolium*
- *Banksia spinulosa*
- *Dichelachne micrantha*
- *Hardenbergia violacea*
- *Pteridum esculentum*

- *Gompholobium grandiforum*
- *Persoonia pinifolia*
- *Hardenbergia violacea*
- *Petrophile pulchella*
- *Elaeocarpus reticulatus*
- *Xanthosia tridenta*
- *Lomandra obliqua*
- *Pomax umbellate*
- *Cheilanthes siberi*
- *Ozthamnus diosmifolius*
- *Pittosporum revolutum*
- *Lecopogon lanceolatus*
- *Patersonia sericea*
- *Billarderia scandens*
- *Xanthosia tridenta*
- *Clematis aristata*
- *Lepidosperma laterale*
- *Acacia longifolia*
- *Lomatia silaifolia*
- *Exocarpos cupressiformis*
- *Acacia terminalis*

Introduced species in this area also included:

- *Sida rhombifolia*
- Lantana
- Whiskey Grass
- Fireweed
- Small-leaved Privet

The native vegetation outside the proposed allotments were consistent with Council vegetation mapping as Shale Sandstone Transition Forest EEC (Figure 7). This vegetation will also remain unaffected by the proposed development.

The *Noxious Weeds Act 1993* defines the roles of government, councils, private landholders and public authorities in the management of noxious weeds. The Act sets up categorisation and control actions for noxious weeds and imposes penalties for various offences. *Lantana camara* is listed as a Class 4 under *Noxious Weeds Act 1993* for the Hills Shire Council LGA.

In the Hills Shire Council LGA, weed species pose a serious threat to native biodiversity, generally (depending on the type of species) increase the risk of bushfire, reduce productivity in primary industry and can block water courses.

No threatened species listed under the NSW *Threatened Species Conservation Act 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were recorded on site and surrounding vegetation.

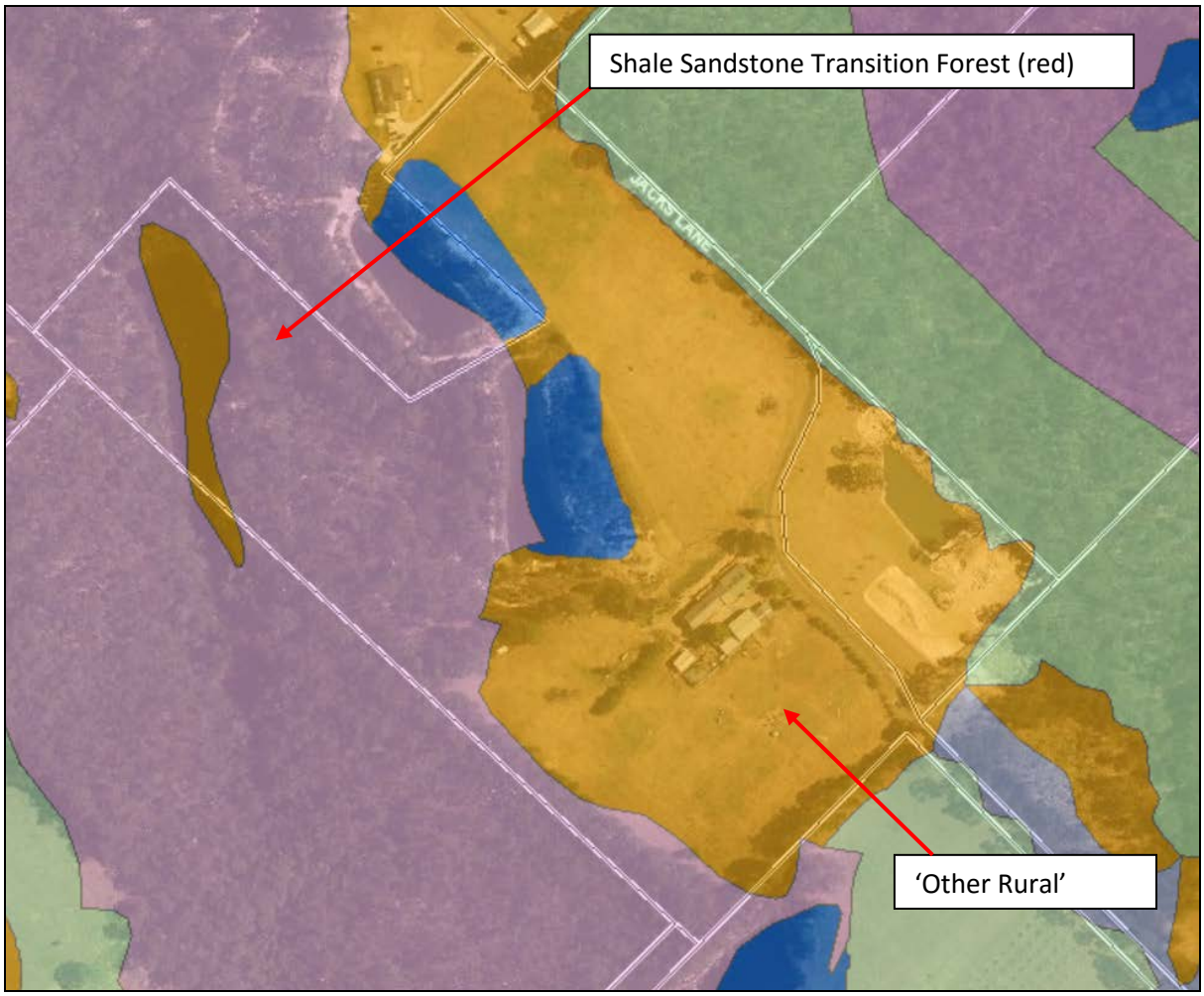


Figure 7: Broad-scale Council vegetation mapping (Source: SIX Maps Vegetation Viewer)

4.3 Fauna habitat and species

The fauna habitat within the proposed development sites are limited to open cleared paddocks of minimal habitat value as isolated trees are absent.

Fauna habitats present within the proposed residual lot 1 containing remnant bushland to be retained comprises:

- Fully structured forest (canopy, sub canopy, shrub and groundcover vegetation)
- Fallen dead timber, leaf litter and rock outcrops
- Good upper canopy connectivity and roosting sites within remnant canopy trees
- Hollow-bearing trees
- Seed, pollen and fleshy fruit resources
- Dams with aquatic vegetation

The main development impact area provides limited fauna habitat value, however, the surrounding bushland provides pristine fauna habitat features. A full list of species of animal that are likely to use these features that have been previously recorded within 5km of the site is shown Appendix A. A detailed targeted fauna survey program was not considered necessary for this assessment due to the perceived minimal impacts likely to occur as a result of the development proposal within the existing cleared area.

Large Forest Owls including threatened Powerful Owl (*Ninox strenua*) may occasionally visit the site depending upon the availability of prey such as Common Ringtail Possum (*Pseudocheirus ringus*), however important breeding habitats in the form of tree hollows are absent. The Sandstone Gully Forest provides refuge for Swamp Wallaby (*Wallabia bicolor*) and other ground-dwelling mammals and reptiles.

The good connectivity of the site and its function as a regional corridor as means that a variety of mobile threatened fauna are likely to be seasonally transient through the site. However, the site does not contain unique or critical habitat features that will be impacted by the proposed development. Appendix C provides a list of fauna previously recorded within 10km of the site.

4.4 State Environmental Planning Policy No.44 – Koala Habitat Protection

The proposed residual lot 1 contains *Eucalyptus punctata* (Grey Gum) which is a known Koala feed tree species. Therefore, SEPP 44 has been considered in this Flora and Fauna Assessment.

Under SEPP 44, 'potential' Koala habitat means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. If potential koala habitat is identified then there is a requirement to

assess the site for the occurrence of core koala habitat. The site does contain 'potential' Koala habitat.

Under the SEPP, 'Core' Koala habitat means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population. No evidence of Koala were observed on site despite targeted searches of indirect evidence of their presence (i.e. scats, tracks and scratches near potential feed trees).

4.5 Corridors and connectivity

The biodiversity value of corridor networks is well known. Landscapes that retain more connections between patches of otherwise isolated areas of vegetation are more likely to maintain more numerous and more diverse populations of various plant and animal species (Lindenmayer and Fischer, 2006). Conversely, a lack of landscape connectivity can have a range of negative impacts on species populations (Lindenmayer and Fischer, 2006). It is thought that if existing remnants are left to persist without sufficient immigration to maintain genetic diversity, continued losses of biodiversity are certain (Parker *et al.* 2008).

The proposed development will not impact upon the corridor function of bushland on site.

4.6 Fauna of Conservation Significance

Commonwealth

Results from the Protected Matters Search Tool and the Atlas of NSW Wildlife database searches revealed a number of EPBC Act (1999) listed species that require consideration as part of this assessment (see Appendix A, B & C).

State

The results of the Atlas of NSW Wildlife/ Bionet (NSW Office of Environment & Heritage 2016) database search indicated that a number of threatened fauna species and population were recorded within 10 kilometres of the subject site (see Appendix A).

A Section 5A Assessment (also known as 'seven part tests') were not required due to the perceived unlikely impacts to occur listed species considered as result of database searches for previous records in the area.

The proposal is unlikely to constitute a significant impact on these species given that:

- NSW Atlas records exist for these species within the same locality
- the proposed works would only remove poor quality habitat for these species
- other areas of better quality habitat will be retained immediately adjacent to within the subject site and surrounding landscape

- the proposal is not likely to fragment habitat to an extent that would prevent dispersal and/or pollination of the local viable population that exists within the sub-catchment

5. Assessment of Ecological Impacts

This chapter evaluates if the proposed development will significantly impact on ecological processes and the conservation value of the subject site and neighbouring bushland areas, especially with respect to threatened biota and migratory fauna species, and their habitats, and on the ecological integrity of the landscape. It also recommends ways in which impacts can be minimised or avoided.

Trees proposed for removal

The proposed development does not propose the removal of any trees.

Overall loss of terrestrial flora and fauna habitat

Biodiversity is the diversity and richness of living things. This includes the variety of plant communities and animal habitats, and the number of different species. Most natural areas support a complex mixture of different species and plant communities. Biodiversity in disturbed areas is generally lower than in more pristine areas. An awareness on native biodiversity emphasis the conservation of the variety of native life, rather just rare or threatened species.

There are three important principles associated with ESD. These are:

- maintenance of native biodiversity
- erring on the side of caution when assessing and taking risks with the biological environment; and
- passing on to future generations a natural environment that is at least as good and enjoyable as our own.
- many species of forest flora and fauna are threatened both nationally and within NSW. This is largely a result of the clearing of this native habitat.

The proposed development is unlikely to result in the loss of biodiversity at a local, regional, state or national level. This is because no bushland will be removed from the site, the highly degraded or modified habitat area to be developed, the unlikelihood of the status of threatened or regionally significant species being significantly placed at risk, and the broader distribution of other fauna and flora species.

Impacts on wildlife corridor

The native vegetation present on the subject site is likely to function as a stepping stone for the movement of mobile fauna such as birds, microchiropteran bats and megachiropteran bats, through the presence of inter connecting canopy connectivity of trees. The proposal will interrupt upper canopy

connectivity but this would not significantly impact upon the movement of wildlife and genetic exchange and dispersal of plant pollen in the local ecosystem.

Impacts on migratory species

Under the EPBC Act, a migratory species is significantly impacted on if a proposal will or is likely to:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycle), destroy or isolate an area of important habitat of the migratory species; or
- result in invasive species that are harmful to the migratory species becoming established in an area of important habitat of the migratory species; or
- seriously disrupt the life cycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of the species.

Significant habitat for migratory species does not exist on site.

Impacts on threatened species

No species listed under the NSW *Threatened Species Conservation Act 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were recorded on site. Threatened flora and fauna previous recorded within 10km of the site (OEH 2011) and have the potential to occur site have been considered in the table provided in Appendix A, B and C.

The proposal will **not** have a significant impact upon the local population of threatened species that may use the site as a marginal foraging area.

Impacts on Endangered Ecological Communities

The proposed development does not propose the removal of any trees. Future development on the site is unlikely to impact upon Shale Sandstone Transition Forest EEC.

6. Conclusion

The proposed works are unlikely to result in a significant impact upon species, populations and communities listed under the *Threatened Species Conservation Act 1995* and a Species Impact Statement is not required.

7. References

Auld, R.A & Medd, R.W 19897. Weeds – an illustrated guide the weeds of Australia. Inkata Press Melbourne

ARBOR 1996. Garden plants that go feral in the Sydney Bushland, Sydney.

Australian Museum (2005) Birds in Backyards. http://birdsinbackyards.net/finder

Bannerman, S.M and Hazelton, P.A. (1990) Soil Landscapes of the Penrith 1:100,000 Sheet. Soil Conservation Service of NSW, Sydney

Barker, J., Grigg, G. C., and Tyler, M. J. (1995) A Field Guide to Australian Frogs. Surrey Beatty & Sons, Chipping Norton

Benson, D. (1992) The natural vegetation of the Penrith 1:100,000 map sheet. Cunninghamia 2(4):541-5962

Benson, D.H. and Howell, J. (1990) Taken for Granted: The Bushland of Sydney and Its Suburbs. Kangaroo Press, Sydney

Benson, D.H. and Howell, J. (1994) The Natural Vegetation of the Sydney 1:100,000 Map Sheet. Cunninghamia 3(4):679-788

Benson, D.H. and Howell, J. (2000) Sydney's Bushland — More than Meets the Eye. Royal Botanic Gardens, Sydney

Benson, D.H., Howell J. and McDougall, L. (1996) Mountain devil to mangrove. Royal Botanic Gardens, Sydney

Beruldsen G (1980) Field Guide to Nests and Eggs of Australian Birds. Rigby: Adelaide

Blakers, M., Davies, S.J.J.F. and Reilly, P.N. (1984) The Atlas of Australian Birds. Globe Press Pty Ltd, Australia

Botanic Gardens Trust (2010) NSW Flora Online (http://plantnet.rbgsyd.nsw.gov.au) . Accessed March 2010

Benson, D and Howell, J., Cunninghamia Volume 3 (4), National Herbarium of NSW, Royal Botanic Gardens Sydney 1994.

Benson, D. and Howell, J. (1994) The natural vegetation of the Sydney 1:100 000 map sheet Cunninghamia 3(4):677-995.

Buchanan, R. 1989. Bush Regeneration. TAFE Publications.

Bureau of Meterology 2011. Climate Averages Sydney Metropolitan Area, Sydney

Churchill, S. (1998) Australian Bats. Reed New Holland, Sydney Australia

Cogger, H. G. (2000) Reptiles and Amphibians of Australia. Reed New Holland, Sydney

Department of Environment and Conservation 2005. Restoring bushland on the Cumberland Plain: Best practice guidelines for the management and restoration of bushland. Department of Environment an4d Conservation. Sydney.

Department of the Environment, Water, Heritage and the Arts 2010. Weeds of National Significance. Canberra ACT.

Department of Environment and Heritage (2006) EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance. Commonwealth of Australia

Duncan, A., Baker, G.B., and Montgomery, N. (eds) (1999) The Action Plan for Australian Bats. Environment Australia, Canberra

Department of Environment, Water, Heritage and the Arts (DATE) Environmental Protection and Biodiversity Conservation Act 1999 – Protected Matters Search Tool [http://deh.gov.au/cgi_bin/erin/ert/epbc] accessed October 2011

Fairley, A. (2004) Seldom Seen - Rare Plants of Greater Sydney. Reed New Holland:Sydney

Fairley, A. and Moore, P. (2002) Native Plants of the Sydney District. Revised edition. Kangaroo Press:Sydney

Flegg, J. (2002) photographic Field Guide – Birds of Australia. Second Edition. Reed New Holland.Sydney.

Fairley, A. Moore, P; Native Plants of the Sydney Distrcit and identification guide: New Holland Sydney 2002

Garnett S., and Crowley, G. (2000) The Action Plan for Australian Birds. National Heritage Trust.

Gibbons, P. and Lindenmayer, D. (2000) Tree Hollows and Wildlife Conservation in Australia. CSIRO Publishing: Canberra

Hazerton and Tile 1990. Soil landscapes of the Wollongong-Port Hacking 1:100 000 Map Sheet. Department of Primary Industries.

Harden, G. (1990) (ed) Flora of New South Wales Vol. 1 NSW University Press

Harden, G. (1991) (ed) Flora of New South Wales Vol. 2 NSW University Press

Harden, G. (1992) (ed) Flora of New South Wales Vol. 3 NSW University Press

Harden, G. (1993) (ed) Flora of New South Wales Vol. 4 NSW University Press

Harden, G. J. (2000) (ed.) Flora of New South Wales Vol. 1. UNSW Press, Kensington, NSW.

Hindell, M.A. and Lee, A.K. 1990. Tree preferences of the koala In: Lee, A.K., Handasyde, K.A. and Sanson, G.D. (eds) Biology of the Koala. Surrey Beatty and Sons, Sydney

Hollands, D. (2003) Eagles, Hawks and Falcons of Australia. Bloomings Books, Melbourne

Kavanagh, R.P. and Peake, P. (1993) Survey procedures for nocturnal forest birds: an evaluation of the variability in census results due to temporal factors, weather and technique. Pp. 86-100 in Australian Raptor Studies, ed. by P. Olsen. Royal Australasian Ornithologists Union, Melbourne

Matheney, N.P and Clark, J.R Trees and Development: A technical guide to preservation of trees during land development. International Society of Arboriculture 1998

Menkhorst, P and Knight, F. (2001) A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne Australia

Menkhorst, P. W. (1995) Eastern Pygmy-possum (pp101-102) in Menkhorst, P. W, (ed.) Mammals of Victoria: distribution, ecology and conservation. Oxford University Press, Melbourne.

NPWS Native Vegetation of the Cumberland Plain Map 1 to 16; NPWS Sydney 2002

NSW Department Infrastructure Planning and Natural Resources 2007. *Guidelines for the preparation of Vegetation Management Plans*, Parramatta.

NSW Rural Fire Service (2006) Planning for Bushfire Protection A Guide for Councils, Planners, Fire Authorities, Developers and Homeowners NSW Rural Fire Service, Sydney.

NSW Department of Environment, Climate Change and Water (2010) Threatened Species Profiles (http://www.threatenedspecies.environment.nsw.gov.au). Accessed November 2011.

NSW National Parks and Wildlife Service (1997) Urban Bushland Biodiversity Survey. Native Flora of Western Sydney. NSW NPWS, Hurstville

NSW National Parks and Wildlife Service (1997) Urban Bushland Biodiversity Survey. Stage 1: Western Sydney. NSW NPWS, Hurstville

NSW National Parks and Wildlife Service (2002) Native Vegetation of the Cumberland Plain - Final Edition. NPWS, Sydney

NSW National Parks and Wildlife Service (2010) Wildlife Atlas website [http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp] accessed March 2010

Pennay, M., Law, B. and Reinhold, L. (2004) Bat calls of NSW: Region based guide to the echolocation calls of Microchiropteran bats. NSW Department of Environment and Conservation, Hurstville.

Pizzey, G. and Knight, F. (1997) Field Guide to the Birds of Australia. Harper Collins Publishers, Hong Kong

Robinson, L. Field Guide to the Native Plants of Sydney; Kangaroo Press, Sydney 2004

Robinson, M. (1993) A Field Guide to Frogs of Australia. Australian Museum / Reed

Rural Fire Service of NSW (2006) Planning for Bushfire Protection. RFS of NSW in co-operation with the NSW Department of Planning

Simpson, K., and Day, N. (1999) Field Guide to the Birds of Australia. Sixth Edition. Penguin Books, Australia

Slater, P., Slater, P. and Slater, R. (1995) The Slater Field Guide to Australian Birds. Lansdowne Publishing, Australia

Strahan, R. (1995) A Photographic Guide to Mammals of Australia. New Holland, Sydney Australia

Swan, G. (1990) A Field Guide to the Snakes and Lizards of New South Wales. Three Sisters Productions, Winmalee NSW

Swan, G., Shea, G., and Sadlier, R. (2004) A Field Guide to Reptiles of New South Wales. Reed New Holland, Sydney

Tame, T. (1992) Acacias of South East Australia. Kangaroo Press Pty Ltd, Kenthurst

Tozer, M.G., Turner, K., Simpson, C., Keith, D.A., Beukers, P., MacKenzie, B., Tindall, D. and Pennay, C. (in press) Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands. Version 1.0. Cunninghamia 11

Tozer, M.G. (2003) The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities. Cunninghamia 8(1):1-75

Triggs, B. (1996) Tracks, Scats and Other Traces: A Field Guide to Australian Mammals. Oxford University Press:Melbourne

Tozer, M. (2003) The Native Vegetation of the Cumberland Plain, western Sydney: Systematic classification and field identification of communities Cunninghamia 8(1):1-75

Wilson, S.K. and Knowles, D.G. (1988) Australia's Reptiles – A Photographic Reference to the Terrestrial Reptiles of Australia. Collins Publishers, Australia

Wrigley, J.W Fagg, M.A Australian Native Plants Cultivation, Use in Landscaping and Propagation; Kangaroo Press, Sydney 2003

APPENDIX A

EPBC Online Protected Matters Search Tool Results

The following report was generated on the 24th October 2016.

Australian Government
Department of the Environment and Energy

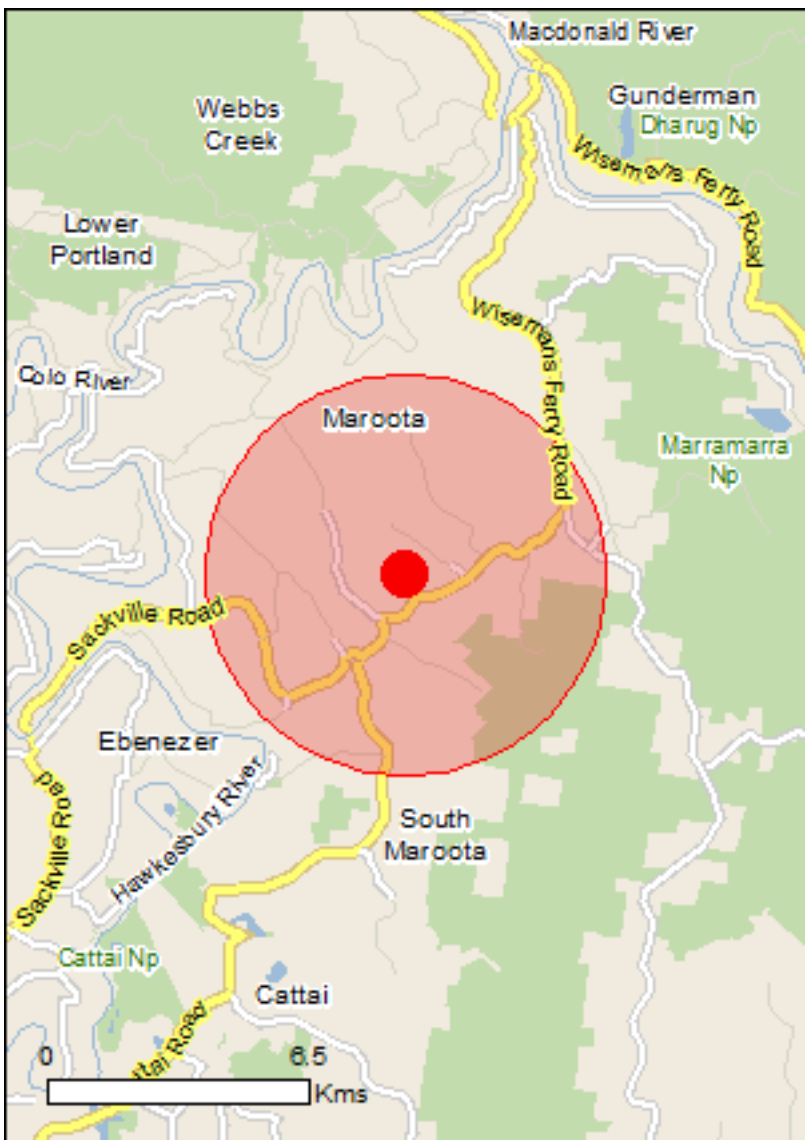
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

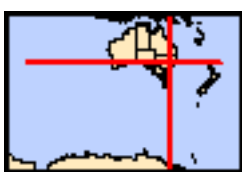
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 24/10/16 20:59:41



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	65
Listed Migratory Species:	34

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	40
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Regional Forest Agreements:	1
Invasive Species:	51
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

APPENDIX B

Threatened flora previously recorded within 10km of the site

APPENDIX B: THREATENED SPECIES PREVIOUSLY RECORDED WITHIN 10KM OF THE SITE

Table A-1: Threatened plants previously recorded within 10km of the subject site (NSW Bionet and EPBC Protected Matters Database)

Scientific Name	Common Name	TSC Act	EPBC Act	ROTAP	Habitat
Olearia cordata		V	V	2Ra	Occurs chiefly from Wiseman's Ferry to Wollombi where it grows on sandstone in dry sclerophyll forest and open shrubland {Harden, 1992 #3}. Specifically this species occurs on exposed Hawkesbury Sandstone ridges in shallow or skeletal soils. Occurs on Gymea and Hawkesbury soil types and may be associated with shale. Associated species include Angophora costata, A. bakeri, Eucalyptus punctata and Corymbia eximia with understorey including Allocasuarina torulosa, Acacia linifolia, Persoonia linearis, Leucopogon muticus and grasses. Also been recorded with E.eugenioides or near Wollemi with E. oblonga, E. notabilis and Leptospermum trinervium. Corymbia gummifera and Angophora euryphylla also noted in northern areas {NSW National Parks and Wildlife Service, 2000 #277}.
Dillwynia tenuifolia		V	V	2Vi	Occurs on the Cumberland Plain from the Blue Mountains to Howes Valley area where it grows in dry sclerophyll woodland on sandstone, shale or laterite {Harden, 2002 #5}. Specifically, occurs within Castlereagh woodlands, particularly in shale gravel transition forest. Associated species include Eucalyptus fibrosa, E. sclerophylla, Melaleuca decora, Daviesia ulicifolia, Dillwynia juniperina and Allocasuarina littoralis {James, 1997 #69}.
Acacia bynoeana	Bynoe's Wattle	E1	V	3V	Occurs south of Dora Creek-Morisset area to Berrima and the Illawarra region and west to the Blue Mountains. It grows mainly in heath and dry sclerophyll forest on sandy soils {Harden, 2002 #5}. Seems to prefer open, sometimes disturbed sites such as trail margins and recently burnt areas. Typically occurs in association with Corymbia gummifera, Eucalyptus haemastoma, E. gummifera, E. parramattensis, E. sclerophylla, Banksia serrata and Angophora bakeri {NSW National Parks and Wildlife Service, 1999 #61}.
Acacia gordonii		E1	E	2K	Occurs in the lower Blue Mountains from Bilpin to Faulconbridge and also in the Glenorie district. Grows on sandstone outcrops and amongst rock platforms in dry sclerophyll forest and heath {Harden, 2002 #5; NSW Scientific Committee, 1997 #298}. Specifically this species occurs in Sydney Sandstone Ridgetop Communities {James, 1997 #69}.
Kunzea rupestris		V	V	2Va	Only known to occur between Glenorie and Maroota where it grows in heath on rock platforms {Harden, 2002 #5}.
Micromyrtus		V	V	2V	Restricted to areas near the Hawkesbury River where it grows in heath in depressions on sandstone rock platforms {Harden,

Scientific Name	Common Name	TSC Act	EPBC Act	ROTAP	Habitat
blakelyi					2002 #5}.
Ancistrachne maidenii		V		2K	Occurs north of Sydney where it grows on sandstone derived soils {Harden, 1993 #4}. Thought to have specific habitat requirements, with populations occurring in distinct bands in areas associated with a transitional geology between Hawkesbury and Watagan soil landscapes {NSW Scientific Committee, 1999 #62}.
Grevillea parviflora		E1			Grows in sandy or light clay soils usually over thin shales, often with lateritic ironstone gravels and nodules. Sydney region occurrences are usually on Tertiary sands and alluvium, and soils edrived from the Mittagong Formation. Soil landscapes include Lucas Heights or Berkshire Park. Occurs in a range of vegetation types from heath and shrubby woodland to open forest. In Sydney it has been recorded from Shale Sandstone Transition Forest and in the Hunter in Kurri Sand Swamp Woodland. however, other communities occupied include Corymbia maculata - Angophora costata open forest in the Dooralong area, in Sydney Sandstone Ridgetop Woodland at Wedderburn and in Cooks River / Castlereagh Ironbark Forest at Kemps Creek.
Persoonia hirsuta ssp. hirsuta		E1		3Ki	Occurs from Gosford to the Royal National Parkand Hill Top to Glen Davis and Putty inland where it grows in woodlands and dry sclerophyll forest on sandstone or very rarely on shale. Typically occurs as isolated individuals or very small populations {NSW Scientific Committee, 1998 #64; Royal Botanic Gardens, 2005 #404}. Habitat in Castle Hill is considered to be "critical habitat" {James, 1997 #69}.
Zieria involucrata		E1	V	2Va	Occurs in the Blue Mountains where it grows in wet sclerophyll forest {Harden, 2002 #5}.
Lasiopetalum joyceae		V	V	2R	Occurs on lateritic to shaley ridgetops of the Hornsby Plateau where it grows in heath and open woodland in sandy soils on sandstone {NSW Scientific Committee, 1999 #18;Harden, 2000 #2;Fairley, 2002 #15}.
Pimelea curviflora var. curviflora		V	V		Confined to coastal areas around Sydney where it grows on sandstone and laterite soils. It is found between South Maroota, Cowan, Narrabeen, Allambie Heights, Northmead and Kellyville, but its former range extended south to the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Usually occurs in woodland in the transition between shale and sandstone, often on Lucas Heights soil landscape {NSW Scientific Committee, 1998 #65; James, 1997 #69; James, 1999 #68; Harden, 2000 #2}.
Tetratheca		V	V	2V	Occurs from Mangrove Mountain to the Blue Mountains where it grows in sandy or rocky heath or scrub {Harden, 1992 #3}.

Scientific Name	Common Name	TSC Act	EPBC Act	ROTAP	Habitat
glandulosa					
Hibbertia superans		E1 P			Flowering time is July to December. The species occurs on sandstone ridgetops often near the shale/sandstone boundary. Occurs in both open woodland and heathland, and appears to prefer open disturbed areas, such as tracksides. The fruit is dehiscent and the seed has a fleshy aril which attracts ants and encourages them to disperse the seeds. The soil seedbank is persistent. Highly sensitive to both frequent and infrequent fire and other disturbance regimes. The recommended minimum fire interval is unknown, however the recommended maximum fire interval is 25 years. An obligate seeder, it is usually killed by fire, sometimes resprouting from the base. Flowers first appear from resprouting material about 2 years after fire.
Leucopogon fletcheri subsp. fletcheri		E1 P			Occurs in dry eucalypt woodland or in shrubland on clayey lateritic soils, generally on flat to gently sloping terrain along ridges and spurs. Flowers August to September. Fruit produced October. Fire response unknown, but Leucopogon fletcheri subsp. brevisepalus is fire tolerant and capable of resprouting following fire.
Amperea xiphoclada var. pedicellata		E4 P			Amperea xiphoclada var. pedicellata was previously widespread in heath, woodland and forest in low-fertility, sandy soils.
Darwinia biflora		V P	V		Occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. Associated overstorey species include Eucalyptus haemastoma, Corymbia gummifera and/or E. squamosa. The vegetation structure is usually woodland, open forest or scrub-heath.
Darwinia fascicularis subsp. oligantha		E2			Occurs around rock platforms and in rocky heath associated with friable sandstone shallow soils. Associated species include Allocasuarina nana, A. distyla, Banksia ericifolia and Caustis flexuosa. Flowers Spring - Summer. Stems are killed by fire and is likely to resprouts from the base. Will also germinate from soil stored seed after fire. Soil stored seed is persistent. Sensitive to too frequent and infrequent fire.
Asterolasia elegans		E1P	E		Occurs on Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest. The canopy at known sites includes Turpentine (Syncarpia glomulifera subsp. glomulifera), Smooth-barked Apple (Angophora costata), Sydney Peppermint (Eucalyptus piperita), Forest Oak (Allocasuarina torulosa) and Christmas Bush (Ceratopetalum gummiferum). Ecological knowledge about this species is very limited.

1: V= Vulnerable, E1= Endangered, E4 = Presumed extinct (*TSC Act 1995*)

2: V= Vulnerable, E1= Endangered, X = Presumed extinct (*EPBC Act 1999*)

3: Plant distribution: 2=Restricted distribution - range extending over less than 100km, 3=Range more than 100km but in small populations. Conservation Status: X=Presumed extinct - not collected for 50 years or the only known populations destroyed, E Endangered = at serious risk in the short term (one or two decades) ,V Vulnerable= at risk over a longer period (20-50 years), R Rare but with no current identifiable threat, K Poorly known species suspected of being at risk. Reservation Status: C= Species is known to occur within a proclaimed reserve, a= Species is considered to be adequately reserved. 1000 or more plants occur within a proclaimed reserve. i= Species is considered to be inadequately reserved. Less than 1000 plants occur within a proclaimed reserve.

APPENDIX C

Threatened fauna previously recorded

within 10km of the site

Table B-2: Threatened fauna previously recorded within 10km of the subject site (NSW Atlas of Wildlife and EPBC Protected Matters Database)

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat
Heleioporus australiacus	Giant Burrowing Frog	V	V	Appears to exist as two distinct populations: a northern population largely confined to the sandstone geology of the Sydney Basin, from Wollemi National Park in the north and extending south to Jervis Bay; and a southern population occurring in disjunct pockets from about Narooma south into eastern Victoria. In the northern population there is a marked preference for sandstone ridgetop habitat and broader upland valleys. In these locations the frog is associated with small headwater creeklines and along slow flowing to intermittent creeklines. The vegetation is typically woodland, open woodland and heath and may be associated with 'hanging swamp' seepage lines and where small pools form from the collected water. They have also been observed occupying artificial ponded structures such as fire dams, gravel 'borrows', detention basins and box drains that have naturalised over time and are still surrounded by other undisturbed habitat. Do not appear to inhabit areas that have been cleared for agriculture or for urban development. Breed in summer and autumn in burrows in the banks of small creeks. Often spends significant periods of time underground during unfavourable conditions and to avoid detection during the day. {Cogger, 2000 #20; NSW National Parks and Wildlife Service, 2001 #47}.
Pseudophryne australis	Red-crowned Toadlet	V		Occurs within 160 km of Sydney where it is restricted to Hawkesbury Sandstone. It breeds in deep grass and debris adjacent to ephemeral drainage lines. When not breeding individuals are found scattered on sandstone ridges under rocks and logs {Cogger, 2000 #20}.
Burhinus grallarius	Bush Stone-curlew	E1		Require sparsely grassed, lightly timbered, open forest of woodland. In southern Australia they often occur where there is a well structured litter layer and fallen timber debris. Feed on a range of invertebrates and small vertebrates, as well as seeds and shoots {NSW National Parks and Wildlife Service, 1999 #53; NSW National Parks and Wildlife Service, 2003 #54}.

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat
Callocephalon fimbriatum	Gang-gang Cockatoo	V		Occurs in wetter forests and woodland from sea level to an altitude over 2000 metres, timbered foothills and valleys, coastal scrubs, farmlands and suburban gardens {Pizzey, 1997 #24}.
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		Occurs in eucalypt woodland and forest with Casuarina/Allocasuarina spp. Characteristically inhabits forests on sites with low soil nutrient status, reflecting the distribution of key Allocasuarina species. The drier forest types with intact and less rugged landscapes are preferred by the species. Nests in tree hollows {Garnett, 2000 #21; NSW National Parks and Wildlife Service, 1999 #55}.
Lophoictinia isura	Square-tailed Kite	V	M	This species hunts primarily over open forest, woodland and mallee communities as well as over adjacent heaths and other low scrubby habitats in wooded towns. It feeds on small birds, their eggs and nestlings as well as insects. Seems to prefer structurally diverse landscapes {Garnett, 2000 #21}.
Ninox connivens	Barking Owl	V		Occurs in dry sclerophyll woodland. In the south west it is often associated with riparian vegetation while in the south east it generally occurs on forest edges. It nests in large hollows in live eucalypts, often near open country. It feeds on insects in the non-breeding season and on birds and mammals in the breeding season {Garnett, 2000 #21}.
Ninox strenua	Powerful Owl	V		A sedentary species with a home range of approximately 1000 hectares it occurs within open eucalypt, casuarina or callitris pine forest and woodland. It often roosts in denser vegetation including rainforest of exotic pine plantations. Generally feeds on medium-sized mammals such as possums and gliders but will also eat birds, flying-foxes, rats and insects. Prey are generally hollow dwelling and require a shrub layer and owls are more often found in areas with more old trees and hollows than average stands {Garnett, 2000 #21}.
Tyto novaehollandiae	Masked Owl	V		Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.
Tyto tenebricosa	Sooty Owl	V		Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests. Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum (*Pseudocheirus peregrinus*) or Sugar Glider (*Petaurus breviceps*). Nests in very large tree-hollows.
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Occurs in moderately wooded habitats and roosts in caves, mine tunnels and the abandoned, bottle-shaped mud nests of Fairy Martins. Thought to forage below the forest canopy for small flying insects {Churchill, 1998 #26}.
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Occurs from the Bundaberg area in south-east Queensland, south through NSW to western Victoria and Tasmania. In NSW, it occurs on both sides of the Great Dividing Range and north-east NSW represents a national stronghold {NSW National Parks and Wildlife Service, 1999 #502}. Occurs in wide

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat
				range of forest types, although appears to prefer moist sclerophyll and rainforest forest types, and riparian habitat. Most common in large unfragmented patches of forest. It has also been recorded from dry sclerophyll forest, open woodland and coastal heathland, and despite its occurrence in riparian areas, it also ranges over dry ridges. Nests in rock caves and hollow logs or trees. Feeds on a variety of prey including birds, terrestrial and arboreal mammals, small macropods, reptiles and arthropods {NSW National Parks and Wildlife Service, 1999 #27; NSW National Parks and Wildlife Service, 1999 #502}.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		Usually roosts in tree hollows in higher rainfall forests. Sometimes found in caves (Jenolan area) and abandoned buildings. Forages within the canopy of dry sclerophyll forest. It prefers wet habitats where trees are more than 20 metres high {Churchill, 1998 #26}.
Miniopterus australis	Little Bent-wing Bat	V		Feeds on small insects beneath the canopy of well timbered habitats including rainforest, Melaleuca swamps and dry sclerophyll forests. Roosts in caves and tunnels and has specific requirements for nursery sites. Distribution becomes coastal towards the southern limit of its range in NSW. Nesting sites are in areas where limestone mining is preferred {Strahan, 1995 #185}.
Miniopterus schreibersii	Eastern Bent-wing Bat	V	C	Usually found in well timbered valleys where it forages on small insects above the canopy. Roosts in caves, old mines, stormwater channels and sometimes buildings and often return to a particular nursery cave each year {Churchill, 1998 #26}.
Mormopterus norfolkensis	Eastern Freetail-bat	V		Thought to live in sclerophyll forest and woodland. Small colonies have been found in tree hollows or under loose bark. It feeds on insects above the forest canopy or in clearings at the forest edge {Churchill, 1998 #26}.
Myotis adversus	Large-footed Myotis	V		Colonies occur in caves, mines, tunnels, under bridges and buildings. Colonies always occur close to bodies of water where this species feeds on aquatic insects {Churchill, 1998 #26}.
Petaurus australis	Yellow-bellied Glider	V		Restricted to tall, mature eucalypt forest in high rainfall areas of temperate to sub-tropical eastern Australia. Feeds on nectar, pollen, the sap of eucalypts and sometimes insects. Preferred habitats are productive, tall open sclerophyll forests where mature trees provide helter and nesting hollows and year round food resources are available from a mixture of eucalypt species {NSW National Parks and Wildlife Service, 1999 #44; NSW National Parks and Wildlife Service, 2003 #45}.
Petrogale penicillata	Brush-tailed Rock-wallaby	E1	V	Occurs in inland and sub-coastal south eastern Australia where it inhabits rock slopes. It has a preference for rocks which receive sunlight for a considerable part of the day. Windblown caves, rock cracks or tumbled boulders are used for shelter. Occur in small groups or "colonies" each usually separated by hundreds of metres {NSW National Parks and Wildlife Service, 2003 #49}.

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat
Cercartetus nanus	Eastern Pygmy-possum	V		Found in a range of habitats from rainforest through sclerophyll forest to tree heath. It feeds largely on the nectar and pollen of banksias, eucalypts and bottlebrushes and sometimes soft fruits. It nests in very small tree holes, between the wood and bark of a tree, abandoned birds nests and shredded bark in the fork of trees (Turner 1995).
Phascolarctos cinereus	Koala	V		Found in sclerophyll forest. Throughout New South Wales, Koalas have been observed to feed on the leaves of approximately 70 species of eucalypt and 30 non-eucalypt species. However, in any one area, Koalas will feed almost exclusively on a small number of preferred species. The preferred tree species vary widely on a regional and local basis. Some preferred species in NSW include Forest Red Gum Eucalyptus tereticornis, Grey Gum E. punctata, Monkey Gum E. cypellocarpa and Ribbon Gum E. viminalis. In coastal areas, Tallowwood E. microcorys and Swamp Mahogany E. robusta are important food species, while in inland areas White Box E. albens, Bimble Box E. populnea and River Red Gum E. camaldulensis are favoured {NSW National Parks and Wildlife Service, 1999 #43; NSW National Parks and Wildlife Service, 2003 #31}.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps. Urban gardens and cultivated fruit crops also provide habitat for this species. Feeds on the flowers and nectar of eucalypts and native fruits including lilly pillies. It roosts in the branches of large trees in forests or mangroves {NSW National Parks and Wildlife Service, 2001 #56; Churchill, 1998 #26}.
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	V		Occurs in eucalypt forest where it feeds above the canopy and in mallee or open country where it feeds closer to the ground. Generally a solitary species but sometimes found in colonies of up to 10. It roosts in tree hollows. Thought to be a migratory species {Churchill, 1998 #26}.
Scoteanax rueppellii	Greater Broad-nosed Bat	V		The preferred hunting areas of this species include tree-lined creeks and the ecotone of woodlands and cleared paddocks but it may also forage in rainforest. Typically it forages at a height of 3-6 metres but may fly as low as one metre above the surface of a creek. It feeds on beetles, other large, slow-flying insects and small vertebrates. It generally roosts in tree hollows but has also been found in the roof spaces of old buildings {Churchill, 1998 #26}.
Hoplocephalus bungaroides	Broad-headed Snake	E1	V	A nocturnal species that occurs in association with communities occurring on Triassic sandstone within the Sydney Basin. Typically found among exposed sandstone outcrops with vegetation types ranging from woodland to heath. Within these habitats they generally use rock crevices and exfoliating rock during the cooler months and tree hollows during summer {Webb, 1994 #51; Webb, 1998 #52}.
Xanthomyza phrygia	Regent Honeyeater	E1		The Regent Honeyeater builds a cup-shaped nest of fibres located in forks in live eucalypt (including Angophora) or she-oak canopy. The Regent Honeyeater mostly feeds on nectar from flowering eucalypts, especially boxes and ironbarks, and from Amyema cambagei. They also feed on the sugary exudates of insects (e.g. lerps) which become an important part of their diet when breeding. Within NSW, breeding sub-populations are fragmented and now occur mainly around the Capertee Valley in central-eastern NSW and the Bundarra-Barraba region in northern inland NSW. Minor and sporadic breeding occurs in other areas such as Warrumbungle National Park, Pilliga forests, Mudgee-Wollar region, and the Hunter and Clarence

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat
				Valleys.
Neophema pulchella	Turquoise Parrot	V		Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Usually seen in pairs or small, possibly family, groups and have also been reported in flocks of up to thirty individuals. Prefers to feed in the shade of a tree and spends most of the day on the ground searching for the seeds or grasses and herbaceous plants, or browsing on vegetable matter. Forages quietly and may be quite tolerant of disturbance. However, if flushed it will fly to a nearby tree and then return to the ground to browse as soon as the danger has passed. Nests in tree hollows, logs or posts, from August to December. It lays four or five white, rounded eggs on a nest of decayed wood dust.
Varanus rosenbergi	Heath Monitor	V		Found in coastal heaths, humid woodlands, wet and dry sclerophyll forests. Mostly a terrestrial species it shelters in burrows, hollow logs and rock crevices {Cogger, 2000 #20}.

1: V= Vulnerable, E1= Endangered, E4 = Presumed extinct (*TSC Act 1995*)

2: V= Vulnerable, E1= Endangered, X = Presumed extinct (*EPBC Act 1999*)

APPENDIX D

RELEVANT QUALIFICATIONS & EXPERIENCE

OF THE AUTHOR

Alex Fraser (Fraser Ecological Consulting) has over 10 years experience in ecological assessment and on-ground bushland restoration management. Previous work roles include ecological consulting with Parsons Brinckerhoff (large infrastructure), NPWS (biodiversity surveys), NSW Department of Environment and Climate Change (SIS DGRs) and Hornsby Shire Council (residential and light industrial development) have focussed primarily on ecological survey, development assessment, project management and policy development for consent authorities. Alex also has practical experience in landscape construction, bushland restoration and property management. A full list of flora and fauna assessments previously undertaken can be provided upon request.

Professional Affiliations include the Australian Association of Bush Regenerators, Ecological Society of Australia, Royal Zoological Society of NSW, Birds Australia, Australasian Bat Society, Urban Feral Animal Action Control Group (Sydney North Councils), Surfrider Foundation & Fred Hollows Foundation.

Relevant qualifications and training:

- Bachelor of Applied Science – Coastal Resource Management (Honours)
- Certificate 3 Natural Area Restoration (Ryde Horticultural College)
- Chemcert (Department of Natural Resources)
- Chainsaw Cross Cutting Techniques (Ryde Horticultural College)
- Certificate 3 Vertebrate Animal Pest Control (NSW DPI, Orange)
- OH&S General Induction for Construction Work (Work Cover NSW)
- Senior First Aid (St. Johns Ambulance Australia)
- Project Management 'the hard and soft skills' (NPWS- 2004)
- Frog, Bat and Reptile: species identification and survey skills (Forests NSW)
- Certificate 3&4 Japanese language proficiency (The Japan Foundation)
- Advanced Open Water SCUBA diver (PADI Australia)
- State Rail Contractor Safety Awareness (State Rail Authority)
- NPWS Scientific Licence (NSW Office of Environment and Heritage)

Mr G.W. & Mrs. F.M.A. Bell & Ms. T. Nicholls
32 -34 Jacks Lane
Maroota NSW
2756
18th April, 2018

The Hills Shire Council
129 Showground Rd
Castle Hill
2154

Re: 32 – 34 Jacks Lane, Maroota – Rezoning Proposal

Dear Sir / Madam,

Please find attached the response we have formulated in addressing the NSW Rural Fire Service's concerns, dated 8th March 2018 re the planning proposal at 32 -34 Jacks Lane Maroota.

In addition to the attached commentary please note that the proposed future subdivision would be able to provide the current residents (3 families) an alternative egress in case of a bushfire emergency. One of the noted objections to rezoning by the RFS is the lack of a secondary egress (which can be provided but was not originally required).

It should also be noted that these adjoining properties at the end of Jacks Lane are contradictorily zoned RU2, allowing development proposals on those properties, without a secondary egress.

Furthermore, restrictions imposed by council (documentation attached) on the property of 32 -34 Jacks Lane, make the current zoning impractical and unreasonable. The existing zoning does not require maintain the important biodiversity of the bushland area on the property.

Additionally, the submitted proposal was prepared on advice from the RFS and was in accordance with their requirements.

Thank you for your consideration in this matter.

G W Bell

AUSTRALIAN BUSHFIRE
CONSULTING SERVICES

0438 668 203
wayne@australianbushfire.com.au
australianbushfire.com.au

BRONZE MEMBER
FPA AUSTRALIA Fire Protection Association Australia

ABN 23 622 676 493
PO Box 212 Berowra Heights 2082

11th April 2018
Reff 18-075

Mr Graeme Bell
32 Jacks Lane
Maroota NSW 2756

RE Proposed rezoning RU1 to RU2 at 32 – 34 Jacks Lane Maroota

Dear Graeme,

Thank you for providinga copy of the response from the NSW Rural Fire Service to The Hills Shire Council for the planning proposal at 32 - 34 Jacks Lane Maroota. As instrcuted I have reviewed the response and providing the following commentary.

I was as surprised as yourself to receive this as it significantly deviates from the Rural Fire Services position presented to us during our pre lodgment negotiations with them. As you are aware we provided a detailed bushfire threat assessment for the planning proposed accomapanied by a plan of proposed future subdivision to the NSW RFS with a formal pre DA application, and following that process I understood only minor changes were necessary.

With respect to the matters now raised I note:

Travel distances of over 200 metres.

The rezoning of this land could result in a future application for a cluster subdivision with travel distances of greater than 200 metres to the public through road. Where travel distances of more than 200 metres are experienced Planning for Bush Fire Protection 2006 (PBP 206) normally requires a secod egress to be considered.

The plan of proposed future subdivision submitted with the Pre DA application showed, amongst other items, a second egress in the form of a fire trail leading to a crown road within the southern corner of the association allotment. The report lodged with the pre DA detailed that gated access was available from the crown road and through other allotments back to Wisemans Ferry Road. We were contacted by the NSW RFS during the Pre DA review and on Friday 4th August 2016 we were advised that:

- The RFS were concerned about providing a secondary egress from lots 2 and 3 that did not involve travel towards the northern hazard. They requested a new fire trail on the western side and around the dam.
- The RFS were not concerned if the second egress to the crown road was deleted from the plans.
- The RFS were not concerned about the short length of the accessway to Wisemans Ferry Road noting that the hazard was not located on the side of road where traditional fire weather causes the most significant impact, the hazard is patchy and disturbed and is not a true forest structure, and the distance to Wisemans Ferry Road adjacent any hazard is relatively short (which I note is only approx 200 metres in length).

I understand that you also had a very similar conversation with the NSW RFS and following that positive conversation the application was progressed to formal lodgement with Council.

When questioned about the need for a second egress I was advised that it was not necessary, rather that the NSW RFS Fast Fact Multi Lot Residential Subdivisions in Bush Fire Prone Areas should apply. It is acknowledged that in this developemnt scenario the dwellings would provide a place of last resort and the "leave early or stay in place" mindset can apply. The Multi Lot Residential Subdivisions Fast Fact was not addresssed within the Pre DA lodgement as it had not been released at that time. The ensuing email from the NSW RFS 10th August 2016 further supported this approach.

It should be noted that there is many examples in this LGA where cluster subdivisions have been approved and there is greater than 200 metres travel to / from a public through road. Indeed approvals where new internal roads provide dead ends greater than 200 metres exist. The nearest similarity is in Blakers Lane where there is an approved subdivision with 590 metre travel to Wisemans Ferry Road. Other examples include developemnt along Spur Place & Shoplands Road Glenorie.

The email rese existing access as a constraint.

Access widths of perimeter roads are inadequate.

The proposed access road was to be 6.5 metres wide, only narrowing where it passes the power poles on the length from Wisemans Ferry Road. The right of carriageway is 10.06 metres wide and incorperated a turning head at the junctions of Lots 2 & 3. There is no reason that, following approval of this planning proposal, the developemnt could provide wider roads along the hazard interface, and this planning proposal could be approved in the knowledge there is a capacity for future development to comply.

It must be noted that the access handle from Wisemans Ferry Road is not a perimeter road and would not be used as a defense line under emergency circumstances. There is grater than 5.5 metre wide clearance existing along its length and there is 5.5 metres trafficable width around the power poles. Draft PBP 2017 suggests that 5.5 metre wide access roads are acceptable. Draft PBP 2017 also only requires perimeter roads and access roads to be linked to the other roads every 500 metres, which would suggest that a travel distance from the most disadvanted point of 250 metres is inconsequential. The length of the access handle to Wisemans Ferry Road that is impacted by vegetation is only approx 200 metres in length.

Recent clearing in the neighbouring allotment to the northeast of Jacks Lane has provided increased separation beyond the above distances (I understand the stockpile of vegetation resulting from this management will be burnt or removed prior to the next fire season, however as it is on a neighbouring allotment this is not a matter for this proposal).

The proposal's deviation from PBP 2006 is only minor and only relates to access matters. There is no reduction in protection measures provided to the occupants staying within a dwelling during the passage of a bushifre. The ability of access to comply with the details within Draft PBP 2017 is available and this planning proposal should be approved in this knowledge.

In response to matters raised during the Pre DA procedure to address the variation in access length the plans were ammended (before and after plans attached) and bushfire protection measures include:

- APZ comply with Appendix 2 PBP 2006.
- APZ increased to comply with BAL 29 construction under AS3959 – 2009.
- Restrictions recommended to ensure that proposed future dwellings will comply with BAL 40 construction.
- A new fire trail was added providing a second egress from Lots 2 and 3 (which also benefits other existing properties in Jacks Lane).
- Dedicated static water supply recommended to be enforced on each new allotment.
- A perimeter fire trail provided behind Lots 5 and 6 with T turning provisions.

Note: A literal application of PBP 2006 and Keith 2004 would allow for the vegetaion to the northwest, which is Shale Sandstone Transitional Forest, to be assessed as a Woodland, however forest classification has been applied as a conservative approach. It must also be noted that there are two large dams within the APZ for Lots 2, 3 and 4 which provides an area completely devoid of any vegetation as well as a significant water resource.

Image 01 NearMap image showing nature of vegetation to the northeast of Jacks Lane

Photograph 01: Image showing recent management along Jacks Land and its neighbour

Photograph 02: Image showing recent management along Jacks Land and its neighbour

Photograph 03: Image showing nature of vegetation to the northeast of Jacks Lane

Fire history.

PBP 2006 makes no dispensation for fire history and requires a development to plan for the 1:50 year fire event. Whether there is a high incidence of fire records or a lack of fire events in entirety makes no difference to the bushfire protection measures applied. Similarly, the document treats aspect the same and makes no differentials to predominant fire paths and prevailing weather conditions normally associated with high fire danger days.

Anecdotal evidence provided to me indicates that during the 2002 bushfire event raised as an example by the RFS there was no property loss along Jacks Lane with no impact at all on 32 Jacks Lane. The adverse fire activity was more concentrated to the north of Blakers Road near the recently approved cluster subdivision. Only one fire appliance was present at Jacks Lane however there was no property damage and one grass fire within another property which was extinguished by a garden hose.

The one death that occurred to the north Blakers Road was a man living in a caravan which provided no structural protection, was surrounded by bushland and the occupant ignored the early evacuation advice when it was provided. The applicant is obtaining documentary to verify this anecdotal detail.

The capacity of the subdivision to comply with the legislated requirements for a 1:50 year fire event including adequate Asset Protection Zones, suitable defendable space, properly constructed buildings that would provide a refuge and place of last resort and adequate services (water) must also be considered in this context.

Incompatible land uses.

The RFS raise concern that the proposed rezoning will also allow other land uses such as bed and breakfast accommodation, camping grounds, caravan parks, centre-based child care facilities, community facilities, dual occupancies, farm stay accommodation, home based child care, places of public worship, and respite day centres.

The RFS correctly identify that some of these uses are Special Fire Protection Purpose (SFPP) Development. These uses all require a future DA and those that are SFPP have compulsory referral requirements to the NSW RFS as integrated development, while all others must be referred to the NSW RFS where Council is not satisfied they comply with Planning for Bush Fire Protection 2006. As such any future uses will be vetted by Council or the RFS, and where considered to be inappropriate development refusal can be recommended at that time.

Strategic approach.

After lodging the Pre DA for this application I became aware of similar comments on strategic planning assessments being raised on nearby applications along Weavers Road. The applicant and I were satisfied that given the timing and content of RFS response and in conjunction with the release of the Fast Fact on Multi Lot Residential Subdivisions in Bush Fire Prone Areas during this Pre DA period, no further strategic concerns needed to be addressed for this project.

Indeed, the RFS Fast Fact states that "Each individual subdivision will need to be assessed on its own merits against the performance requirements of Planning for Bush Fire Protection, with due consideration to the potential risk to occupants." A similar approach should be applied to this planning proposal.

I understand that the planners approach for this proposal is that this site is incorrectly zoned RU1 in the first instance and, with the other restrictions placed on land uses within this property, make it incompatible or impractical for use within its RU1 purpose. The restrictions by Council prohibit poultry farming, pig farming, market gardening, boarding kennels, waste disposal and mushroom farming. The neighbouring properties further north along Jacks Lane are all zoned RU2 and the land uses associated with RU2 are already permissible in this area. This aspect is being address by other experts however it is put forward that this planning proposal is unique and is not necessarily a precursor for similar applications. Rezoning of this site should therefore not be assessed as a strategic planning proposal in this context.

Summary.

Attached to this document is a copy of the NSW RFS email response to the Pre DA application, the subdivision plan lodged with the Pre Da, a marked-up plan prepared for the applicant in response to the Pre DA advice and the ensuing final plan lodged with the planning proposal.

I understand you are disappointed that the current matters raised by the NSW RFS were not provided when they had opportunity during the Pre DA, and you are investigation all options available to you. Earlier advice would have assisted you making more informed decisions and alternate preparation leading up to the planning proposal application to Council.

I have addressed the new issues raised here in. I also understand that, although the NSW RFS had advised us to remove the fire trail through to the Crown Road reserve to the southwest corner, that you are willing to re-include this in the future subdivision and you can accept it as a condition of consent at that time. This planning proposal demonstrates that a second egress can be made available.

I suggest that this review is provided to Council for further consideration of the application.

Australian Bushfire Consulting Services

Wayne Tucker
Managing Director
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Ass Dip Applied Science
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9399

From: Bradley Bourke [mailto:Bradley.Bourke@rfs.nsw.gov.au]
Sent: Thursday, 10 August 2017 9:42 AM
To: Wayne Tucker
Subject: Pre DA request 32 - 34 Jacks Lane Marcota

Good morning Wayne,

As discussed on Friday 4 August 2017, The New South Wales Rural Fire Service (NSW RFS) advises that the proposed development of 32-34 Jacks Lane Marcota will be assessed as a rural residential development with existing access constraints.

The bush fire assessment report prepared for the proposal should reflect the additional performance based requirements for rural residential cluster subdivisions as outlined in the NSW RFS community resilience fast fact titled 'Multi Lot Residential Subdivision in Bush Fire Prone Area' dated December 2016.

I this regard, adequate provisions should be incorporated into the design to allow for access to the hazard interface situated on the western side of the subject site. This access should be designed to provide save alternate access/egress for Lot 2 and 3.

Kind Regards

Bradley Bourke | **Development Assessment & Planning Officer | Planning & Environment Services (East)**

NSW RURAL FIRE SERVICE
Customer Service Centre (East) 42 Lamb Street, Glendenning 2761 | Locked Bag 17 Granville NSW 2142

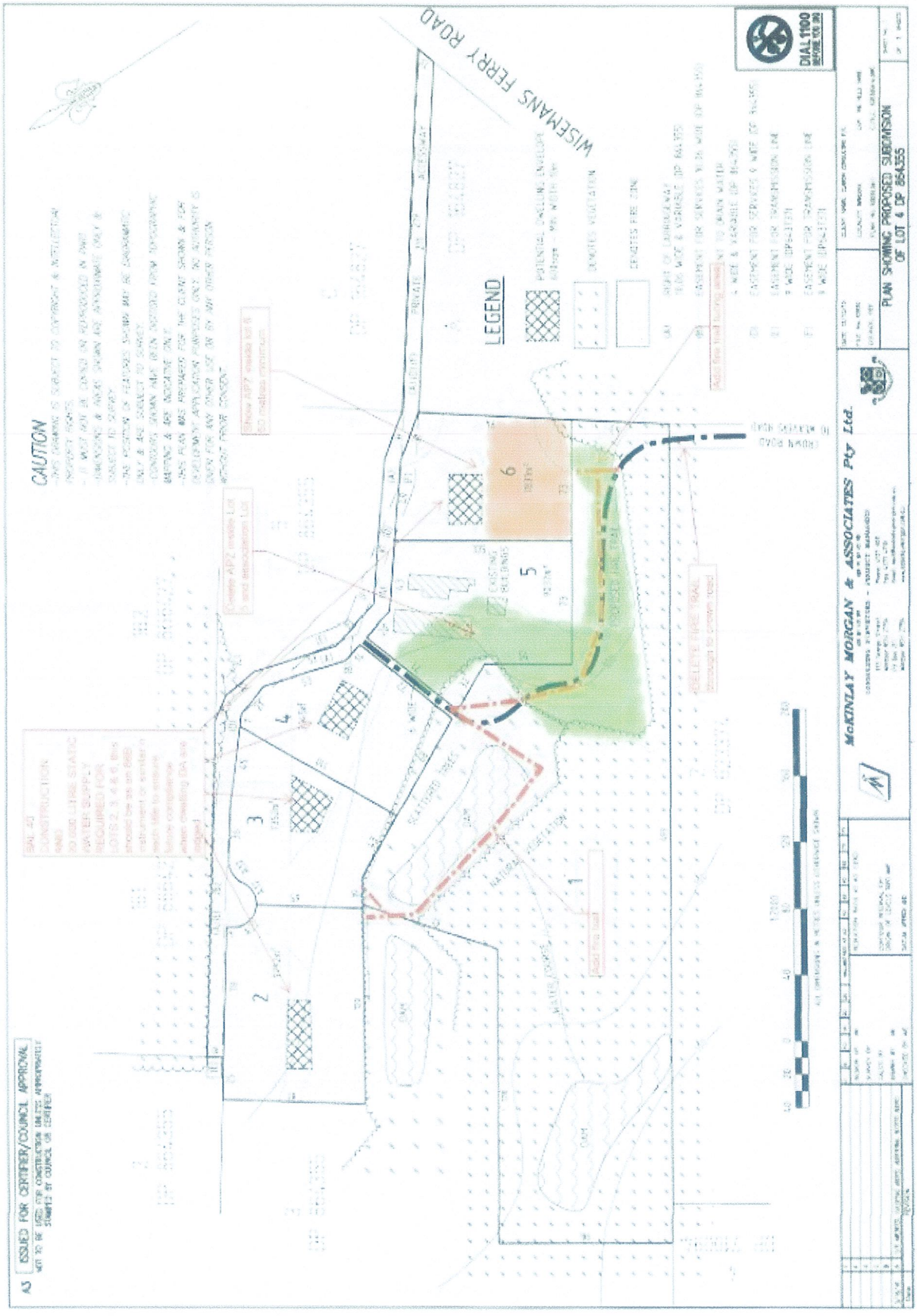
P 1300 679 737 E Bradley.bourke@rfs.nsw.gov.au

www.rfs.nsw.gov.au | www.facebook.com/nswrfs | www.twitter.com/nswrfs

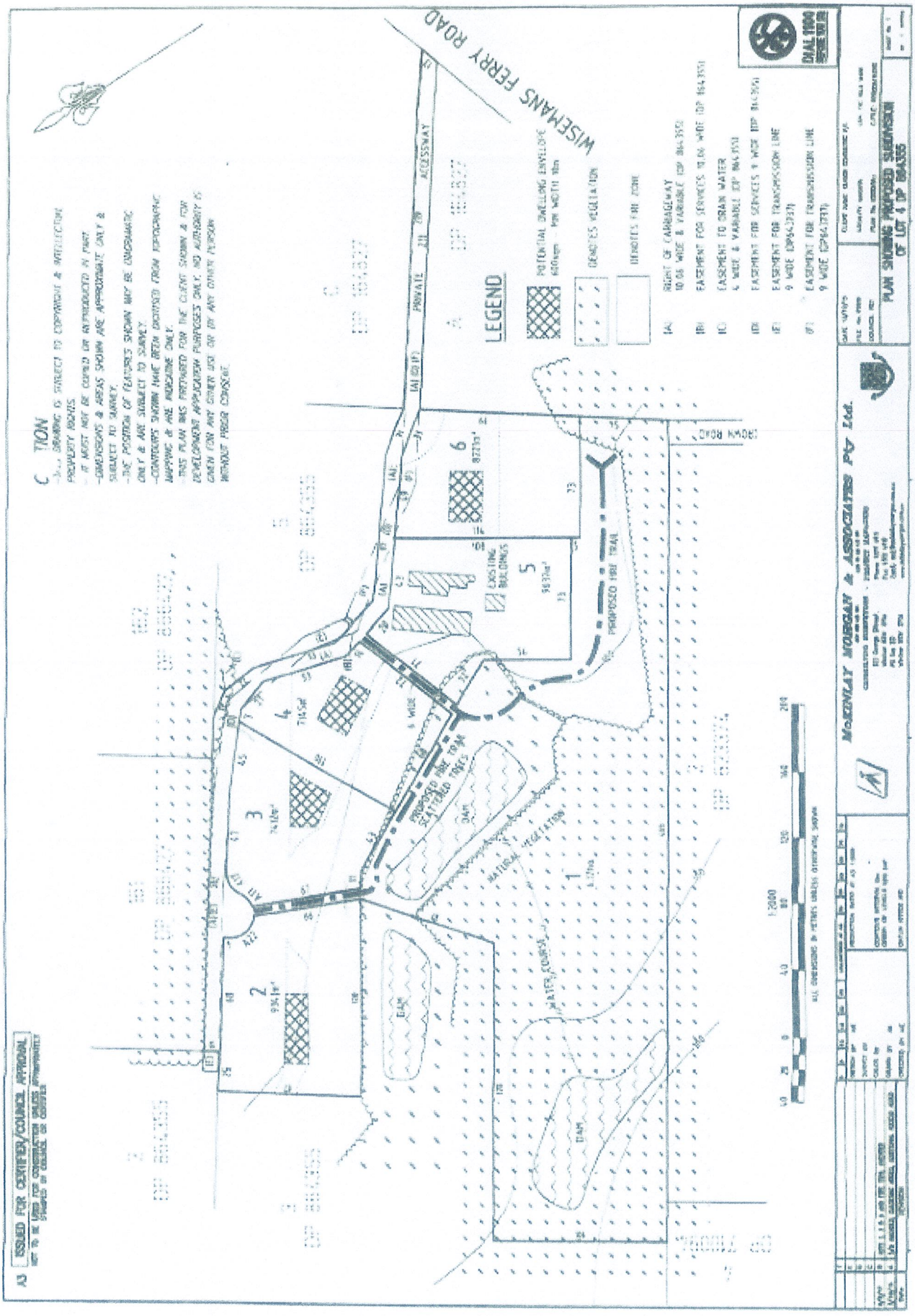
PREPARE. ACT. SURVIVE.

Attachment 02: Pre DA advice received from NSW RFS

Attachment 02: The subdivision plan lodged with the Pre Da application to NSW RFS



Attachment 03: Marked up plan prepared for the applicant in response to the Pre DA advice from the NSW RFS



Attachment 04 Final plan lodged with the planning proposal