Ardill Payne & PARTNERS

ENGINEERS PLANNERS SURVEYORS ENVIRONMENTAL PROJECT MANAGEMENT

TRAFFIC IMPACT ASSESSMENT

Proposed Rezoning for Future Residential Subdivision and Development

Lot 100 DP 1201719
Hills Road, Rileys Hill

for:
Monal Pty Ltd

October 2020

BALLINA
45 River Street
PO Box 20
BALLINA NSW 2478
02 6686 3280

GUNNEDAH
Germane House
285 Conadilly Street
GUNNEDAH NSW 2380
02 6742 9955

Document Control Sheet

Filename:	8174_Traffic Impact Assessment_Rezoning (Oct 2020)				
Job No.:	8174				
Job Captain:	Paul Snellgrove				
Author:	Tony Cromack				
Client:	Monal Pty Ltd				
File/Pathname	S:\01 Jobs\8100-8199\8174 DA.SEE Rezoning & Subdiv. - Hills Rd, Rileys Hill\03 Town Planning\8174 - Amended PP (October 2020)\8174_Traffic Impact Assessment_Rezoning (Oct 2020).docx				
Revision No:	Date:	Checked By		Issued By	
		Name	Signed	Name	Signed
0	2.07.18	P Snellgrove		T Cromack	
1	16.03.2020	P Snellgrove		P Snellgrove	
2	6.10.2020	P Snellgrove		P Snellgrove	

Revision No:	Description
0	Original Issue
1	Subdivision layout and lot yield amended
2	Subdivision layout and lot yield amended

Table of Contents

List of Tables

1. Introduction

Ardill Payne and Partners (APP) has been commissioned by Monal Pty Ltd to prepare a Traffic Impact Assessment in respect of Lot 100 DP 1201719 at Hills Road, Riley's Hill. The study has been undertaken to support and inform a planning proposal for rezoning of part of the 8.3ha site to a village zone to permit future residential subdivision and development.

The Department of Planning issued a conditional Gateway Determination (dated 16th February 2018) in respect of the subject land as follows:

"Planning Proposal (Department Ref: PP_2018_RICHM_001_00): to rezone part of Lot 100 DP 1201719 at Hills Road, Rileys Hill from RU1 Primary Production to RU5 Village and change the minimum lot size from 40 hectares to 600m^2 to enable the land to be developed for low density residential purposes."

A Traffic Impact Assessment (dated 2nd July 2018) was prepared to address part of Condition 1 and was based on the *'Draft Subdivision Layout Plan Option 1'* prepared by APP (Drawing No. POS1, dated 18/08/2016) which was indicative only and identified a potential yield of 70 x residential lots with roads and reserve/stormwater management areas.

1. Prior to community consultation the following site investigations are to be undertaken and the planning proposal amended if necessary to reflect the outcomes of the site investigations. The site investigations are to be included in the material used for community consultation:
    a. an ecological assessment;
    b. a preliminary site contamination assessment including soil sampling as appropriate and to the satisfaction of Council;
    c. an Aboriginal cultural heritage assessment;
    d. an assessment of the potential impacts of the Rileys Hill Quarry operations, including a land use conflict risk assessment for potential blasting, noise, traffic and vibration impacts, should the operation of the quarry be resumed;
    e. a traffic impact assessment;
    f. a flood study;
    g. a bushfire hazard risk assessment;
    h. an infrastructure servicing plan; and
    i. an acid sulfate soils assessment.

2. Prior to community consultation the planning proposal is to be amended as follows:
    a. the content of the planning proposal is to be amended in accordance with the results of the site investigations require by Condition 1 of this Gateway determination;
    b. maps which show the current and proposed zone and minimum lot size for the land are to be included within the planning proposal; and
    c. a project time line is to be included in the planning proposal;

3. Once the site investigations required by Condition 1 have been undertaken and the planning proposal has been amended in accordance with Condition 2 the planning proposal is to be forwarded to the Department for approval of the form

Richmond Valley PP_2018_RICHM_001_00 (EF18/275)

---

of the proposal for community consultation in accordance with section 57(2) of the Act.

As per Condition 2 above, and as a consequence of on-going detailed communications with Council in complying with Condition 1 above, the Planning Proposal has been modified such that there has been:

- a significant reduction in the proposed footprint/area of the RU5 zoned land
- an increase in the mapped minimum lot size for the RU5 zoned land from 600m^2 to 800m^2
- the inclusion of an E2 – Environmental Conservation Zone over part of the land with a 2ha minimum lot size over the E2 and RU1 zoned land

As a consequence of the above, there has been a significant reduction in the potential lot yield as originally proposed, from 70 x residential lots down to 35 x residential lots (which will be zoned RU5) and 1 x single dwelling opportunity lot (which will be zoned part RU1 and part E2).

This amended Traffic Impact Assessment has been prepared to support/inform the community consultation process for the Planning Proposal as per Condition 3 above and provides details regarding the current traffic, the level of service provided by surrounding roads and the impact the proposed development will have on these roads.

1.1 The Site

The site is located in the village of Rileys Hill, approx. 3.6km west of the Pacific Highway at Broadwater.

Figure 1: Site Plan

Figure 2: Locality Plan

Table 1 describes the site identification details.

Table 1 – Site Identification Details

Site Address	Hills Road, Rileys Hill
Total Site Area	8.3ha
Proposed RU5 Rezone Area	Approx. 4.3ha
Title	Lot 100 DP 1201719
Local Government Area	Richmond Valley Council
Existing Land Use	The subject land is vacant and is largely cleared grassland (grazing land) and has levels ranging between 4.5-15m AHD
Surrounding Environment	Existing residential to the north. Scattered residential, undulating pasture and forested areas to the east, south and west.

1.2 The Proposal

The further modified proposal involves the following:

- rezoning part of the RU1 – Primary Production sections of the land to part RU5 – Village and part E2 – Environmental Conservation
- increasing the minimum lot size for the proposed RU5 zoned land from 600m^2 to 800m^2
- applying a 2ha minimum lot size to the E2 and RU1 zoned land
- providing 1 x single dwelling opportunity to the E2/RU1 zoned section of the lot

The objective of the proposal is to enable the RU5 zoned land to be subdivided and developed for residential purposes.

The expected yield from the RU5 zoned land with an 800m^2 minimum lot size is now approx. 35 x residential lots rather than the original proposal that identified an indicative yield of approx. 70 x residential lots.

The proposed development will link to the existing road network via Hills Road.

A Concept Subdivision Plan is included in **Attachment 1.**

2. Existing Conditions

2.1 Hills Road

Hills Road is a 2 lane, 2-way bitumen sealed road. The road is approx. 3.5m wide for the first 120m, with grassed shoulders both sides. It then widens to approx. 5.5m for the next 265m to the site entrance, with kerb and gutter on the western side and a grassed shoulder on the eastern side. From this point south, the road reverts to a gravel/bitumen track roughly 3m wide.

The road is in average condition and has a posted speed limit of 50km/hr.

Figure 1: Hills Road looking north, showing both road standards

Figure 2: Hills Road south of the site entrance

2.2 Rileys Hills Road

Rileys Hill Road through the village is generally a 2 lane, 2-way bitumen sealed road. Average width is approx. 6m with grassed shoulders each side. There is some localised widening at house frontages and at the Echidna Place intersection.

The road is in relatively good condition and has a posted speed limit of 50km/hr through the village.

Figure 3: Rileys Hill Road looking south-west from Hills Road

2.3 Rileys Hill Road / Hills Road Intersection

The intersection of Hills Road with Rileys Hill Road is a typical rural T-intersection. There is a crest in Rileys Hill Road east of the intersection (approx. at the Bells Road intersection) which limits sight distance. The included angle of the intersection is approx. 55°, however there is sufficient width of bitumen at the intersection to accommodate compliant approach angles and vehicle movements. There are no dedicated turn lanes or widenings at the intersection.

Figure 4: Rileys Hill Road looking north-east from Hills Road

Figure 5: Rileys Hill Road/Hills Road intersection, from Hills Road approach

2.4 Public Transport

The nearest scheduled bus service is at the Pacific Highway (Northern Rivers Bus Lines Route 660). However, school bus services may use the local roads. There is a bus shelter on Rileys Hill Road north-east of the Hills Road intersection (see Figure 4 above).

2.5 Pedestrians

Pedestrian volumes in the area of the subject land are generally low and typical of residential areas. There are no pedestrian footpaths located in the vicinity.

2.6 Accident History

Based on the *'Transport for NSW Centre for Road Safety'* website, for the period 2014 to 2018, there have been no recorded crashes on Hills Road or Rileys Hill Road. There are also no recorded crashes at the intersection of Rileys Hill Road with the Pacific Highway.

3. Traffic Assessment

This traffic assessment has been prepared on the basis that the maximum likely yield from the rezoning of the site is 36 lots (refer Section 1).

3.1 Existing Traffic Counts

A 2013 traffic count for Rileys Hill Road was obtained from Richmond Valley Council, and is shown in **Table 2**. Population growth rates in the Shire since 2013 are in the order of 0.5%. This growth rate has been applied to the 2013 traffic counts.

Table 2 – Existing Traffic Counts

Date	Street	Description	Count	Volume	Extrapolated Volume
2013	Rileys Hill Road	Approx. 300m south of Echidna Place	AADT	75.4	78.1
			Av. Peak Hr*	7.5	7.8

Traffic volumes on the eastern side of the Rileys Hill village are expected to be higher, probably in the order of 470 vpd (approx. 47 vph) taking into account the traffic generated by the existing village.

3.2 Estimated Existing Traffic – Hills Road

No traffic counts are available for Hills Road. The existing traffic volume for this road is therefore estimated based on the number of existing dwellings and the traffic generation rates in Section 3.3.

Table 3 – Estimated Existing Traffic – Hills Road

Street	Description	Development Unit	Count	Volume
Hills Road	At Rileys Hill Road int.	33 low res dwellings	AADT	244
			Av. Peak Hr*	24.4

** Average Peak Hour rates are based on 10% of AADT.*

3.3 Proposed Traffic Generation

This assessment is based on the RMS *'Guide to Traffic Generating Developments'* (2002). Updated traffic generation rates were sourced from the RMS *'Technical Direction TDT 2013/04: Guide to Traffic Generating Developments, Updated Traffic Surveys'*. The generation rates are summarised in **Table 4.**

Table 4 – Traffic Generation Rates

Development level	Source	AADT	Peak Hour Vehicle Trips Volume
Low Density Residential Dwellings	RMS	7.4 trips/dwelling	0.78 trips/dwelling

(According to the RMS Guide, a trip is defined as a one-way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to/from a land use is counted as two trips).

Annual average daily traffic (AADT) and peak vehicle trip volumes per hour generated by the proposed development can be estimated based on the expected yield (approx. 36 low density residential lots) and the generation rates shown in **Table 4**. The proposed traffic generation is summarised in **Table 5**.

Table 5 – Proposed Traffic Generation

Development level	Rate	Predicted daily traffic	Predicted peak hourly traffic
Detached Dwellings	36	266	28.08

3.4 Trip Distribution and Modal Split

Subdivision traffic will travel via Hills Road. At Rileys Hill Road, the majority of traffic will turn right and head to the Pacific Highway and Broadwater via the most direct route. The trip distributions are approx. as follows:

- 90% north
- 10% south

Conversely, most traffic entering the subdivision will be from the north.

With limited scheduled bus services currently operating within the area, most vehicle trips will be by private car.

4. Impacts of Proposed Development

The impacts of the proposed development are assessed in accordance with the RMS *'Guide to Traffic Generating Developments'* (2002).

4.1 Impact on Traffic Efficiency

To aid interpretation of the impacts on traffic flows, the RMS Guide provides acceptable ranges of peak vehicle flows for various Levels of Service (LOS) experienced on the road. The intention is to at least maintain the existing Level of Service for the streets adjacent to the site.

Mid-block road capacity Levels of Service are defined by the RMS for urban roads (shown in **Table 6**), and rural roads (shown in **Table 7**), with the highest Level of Service being Level A and service deteriorating to Level E.

Table 6 – Urban Road Peak Hour Flows per Direction

Level of Service	One Lane (veh/hr)
A	200
B	380
C	600
D	900
E	1400

Table 7: Two-Way Peak Hour Flows on Two Lane Rural Roads

Terrain	Level of Service	10% Heavy Vehicles (veh/hr) – 80km/h [1]	10% Heavy Vehicles (veh/hr) – 100km/h
Level	B	504	560
	C	828	920
	D	1332	1480
	E	2151	2390

Note 1: Capacities for 80km/h are between 85-95% of the capacities for 100km/h.

The following performance standards are recommended:

Weekday Peak Hour Flows

Major Roads: Level of Service C

Minor Roads: Level of Service C (desirable)

Recreational Peak Hours (weekends)

Major Roads: Level of Service D

Minor Roads: Level of Service D (desirable)

Existing peak traffic movements (one way) on Hills Road are approx. 12.2vph (from **Table 3**). Therefore, the current Level of Service for this urban road is Level A:

- Additional traffic movements of approx. 14vph (one way) (from **Table 5**) will not alter the Level of Service on this road.

Existing peak traffic movements (one way) on Rileys Hill Road are approx. 23.5vph (from **Section 3.1**). Therefore, the current Level of Service for this road in its urban environment is Level A. In its rural environment, the Level of Service is Level B or better:

- Additional traffic movements of approx. 14vph (one way) (from **Table 5**) will not alter the Level of Service on this road.

The proposed development will not reduce the Level of Service on adjoining streets to below acceptable performance standards.

4.2 Impact on Intersections

Sight distances will be assessed for a reaction time of 2.0 seconds.

The minimum safe intersection sight distance (SISD) which should be provided on the major road at any intersection, with a design speed of 50km/hr, is 97m (Table 3.2, Austroads *'Guide to Road Design – Part 4A'*).

The recommended minimum approach sight distance (ASD) which should be provided on each leg of an intersection, for a design speed of 50km/hr, is 55m (Table 3.1, Austroads *'Guide to Road Design – Part 4A'*).

Grade correction for a 6% downgrade adds 5m to the sight distances (Table 3.4, Austroads *'Guide to Road Design – Part 4A'*).

The existing Rileys Hill Road/Hills Road intersection is a typical rural T-intersection. The intersection is Give Way sign controlled. The available sight distance from Hills Road north-east along Rileys Hill Road is approx. 90m, and south-west is in excess of 200m. The available approach sight distance in Hills Road is approx. 120m. Therefore, the intersection meets desirable minimum standards for ASD in all directions. SISD is slightly deficient in the north-east approach.

Given the low traffic volumes, both pre and post development, it is considered that a SIDRA analysis of the intersection is not warranted.

The following recommendations are made to improve the definition of this intersection:

- provide some widening of Hills Road at the intersection to improve the approach angle
- add centre line marking in all approaches
- retain existing Give Way sign and line marking
- install advance warning signs in both approaches on Rileys Hill Road (for example, 'Side Road Intersection Ahead')

Therefore, it is concluded that, with the implementation of the above recommendations, the existing Rileys Hill Road/Hills Road intersection will continue to perform satisfactorily, and within acceptable performance standards, with the increase in traffic from the proposed development.

4.3 Impact on Amenity

Table 4.6 of the RMS Guide specifies the following recommended environmental capacity performance standards for residential streets:

- for a local street – the maximum speed shall be 40km/hr and the environmental goal shall be 200vph (maximum peak hour volume shall be 300vph)

Table 4.6 takes into account both amenity and safety considerations.

After development, the estimated peak hour volume on Hills Road will increase from 24.4vph to a maximum of 55.6vph. Surrounding residents will experience an increase in traffic and a reduction in residential amenity, however the predicted traffic volumes are well within the environmental capacity of a 'local street'.

4.4 Impact on Safety

There have been no recorded traffic accidents on the local streets in the vicinity of the subject land in the last five years.

It is noted that due to Hills Road currently being a 'No Through Road' and a low speed environment, it has become common practice for children to play on or near the road. Traffic volumes will approximately triple with full occupancy of the proposed development, increasing the accident risk along the road.

The following recommendations are made to improve safety, which would relate to the future subdivision of the land (post development):

- Install advance warning signs in both approaches on Rileys Hill Road (for example, 'Side Road Intersection Ahead').
- Install speed restriction signs (50 km/hr) and 'Children Ahead' symbolic signs on the entry to Hills Road.

Subject to completion of the recommended upgrades, the additional peak hour traffic movements are unlikely to raise any significant adverse safety issues for local transport and users of the local road network.

4.5 Impact on Public Transport

Most vehicle trips will be by private car. The proposed development will generate additional demand for public transport services, especially school bus services. These services will be catered for by the bus companies based on demand, and can easily be accommodated within the proposed development if required.

4.6 Impact on Pedestrians and Cyclists

There is adequate room on the road verges for the safe movement of pedestrians. Cyclists will continue to use the existing road carriageway.

Richmond Valley Council's *'Pedestrian Access and Mobility Plan – Casino, Coraki, Evans Head, Woodburn and Broadwater'* (2011) does not propose any new path networks in Rileys Hill.

4.7 Impact of Other Proposed Developments in the Vicinity

There are no known other development proposals in the area.

5. Design Standards

Northern Rivers Local Government (NRLG) *'Development Design Specification D1: Geometric Road Design (Urban and Rural)'* (August 2013), Table D1.5, provides the following design characteristics of roads in residential subdivisions:

- Access Street – carriageway width 6m; road reserve width 14m; verge width 3m minimum each side; mountable kerbs; max. 100 vpd; no footpath required.
- Local Street – carriageway width 7-9m; road reserve width 15-17m; verge width 3.5m minimum each side; mountable kerbs; max 2,000 vpd; pathways network dependent.

Table D1.27 provides the following design characteristics for rural roads:

- Minor road up to 150 AADT – 6m seal; 0.5m shoulders.
- Minor road up to 150-500 AADT – 6m seal; 1.0m shoulders.
- Minor road up to 500-1000 AADT – 7m seal; 1.0m shoulders.
- Major road over 1000 AADT – 7.5m seal; 1.5m shoulders
- Rural residential – 6m seal; 1.0m shoulders.

5.1 Hills Road

Hills Road is considered a residential street. The existing width of bitumen in Hills Road varies from 3.5m (northern section off Rileys Hill Road) to 5.5m (through the built up area in the approach to the subject site). Existing number of lots serviced is 33 lots (estimated traffic volume 244 vpd). Therefore, the existing classification of Hills Road is 'local street'.

Potential number of lots serviced (after proposed development) is 69 lots (estimated traffic volume 511 vpd). Classification after proposed development would remain as 'local street'.

It is recommended that Hills Road be upgraded to a minimum 7m wide carriageway with mountable kerb both sides, which would relate to the future subdivision of the land (post development).

5.2 Rileys Hill Road

Rileys Hill Road through the village is essentially a rural residential road, with an existing width of bitumen of typically 6m.

It is proposed that no upgrade works are required in Rileys Hill Road.

5.3 Proposed Internal Roads

Internal roads are classified as 'local streets' and should have a 7-9m wide sealed carriageway in a 15-17m wide road reserve. Mountable kerb should be supplied on both sides. The Bushfire Assessment provided commentary in respect of road requirements per *Planning for Bush Fire Protection 2006.*

5.4 Proposed Intersections

Intersections have been checked for compliance with NRLG '*Development Design Specification D1: Geometric Road Design (Urban and Rural)*' (August 2013):

- Streets intersect at right angles or not less than 70°.
- Minor streets do not intersect major streets on the inside of a curve.
- The intersection of the new internal road with Hills Road shall be designed to assign priority to the new development. The existing road to the south shall be realigned to intersect at a suitable angle with the new road.
- It is recommended that landscaping and signage, which can potentially reduce sight distances, be kept clear of the sight lines at the intersection.
- A full compliance check for circulation of heavy vehicles (buses, garbage trucks) should be undertaken at DA stage.

Figure 6: Location of intersection of new internal road with Hills Road

5.5 Emergency and Service Vehicle Access

Provision should be made at the cul-de-sac heads for the turning of garbage trucks.

Fire service vehicles can access the existing gravel track in the road reserve at the southern end of the southern cul-de-sac of the internal road. This track would serve as a fire trail as defined in *Planning for Bush Fire Protection 2019*.

6. Conclusion and Recommendations

It is concluded that the proposed development will increase the number of daily and peak hourly trips on the local roads. The Level of Service on the surrounding streets will not be reduced by the proposed development and is within acceptable performance standards. The impact of the proposed development on nearby intersections is manageable.

The site is adequately serviced by the available public transport system. School bus services currently operate in the area. While the proposed development will increase the demand for public transport, it is submitted that the existing services are adequate. No additional public transport infrastructure is proposed.

With the below recommendations, which would relate to the future subdivision of the land (post development), the local roads will have the capacity to safely and efficiently service the traffic that will be generated by the future subdivision.

Recommendation 1:

Provide some widening of Hills Road at the intersection to improve the approach angle. Add centre line marking in all approaches.

Recommendation 2:

Install advance warning signs in both approaches on Rileys Hill Road ('Side Road Intersection Ahead').

Recommendation 3:

Install speed restriction signs (50km/hr) and 'Children Ahead' symbolic signs on the entry to Hills Road.

Recommendation 4:

Widen Hills Road to a minimum 7m wide carriageway with mountable kerb both sides.

Recommendation 5:

Landscaping and signage, which can potentially reduce sight distances, be kept clear of the sight lines at all intersections.

Recommendation 6:

The intersection of the new internal road with Hills Road shall be designed to assign priority to the new development. The existing road to the south shall be realigned to intersect at a suitable angle with the new road.

Recommendation 7:

Provision should be made at the cul-de-sacs heads of the internal roads for the turning of garbage trucks.

Recommendation 8:

Ensure that any emergency bushfire access adjacent to Concept Lot 35 meets the provisions of a fire trail as defined in *Planning for Bush Fire Protection 2019.*

7. Scope of Engagement

This report has been prepared by Ardill Payne & Partners (APP) at the request of Monal Pty Ltd for the purpose of a traffic impact assessment for a Rezoning Application with Richmond Valley Council for the future residential subdivision of Lot 100 DP 1201719, Hills Road, Riley's Hill, and is not to be used for any other purpose or by any other person or corporation.

This report has been prepared from the information provided to us and from other information obtained as a result of enquiries made by us. APP accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

APP declares that it does not have, nor expects to have, a beneficial interest in the subject project.

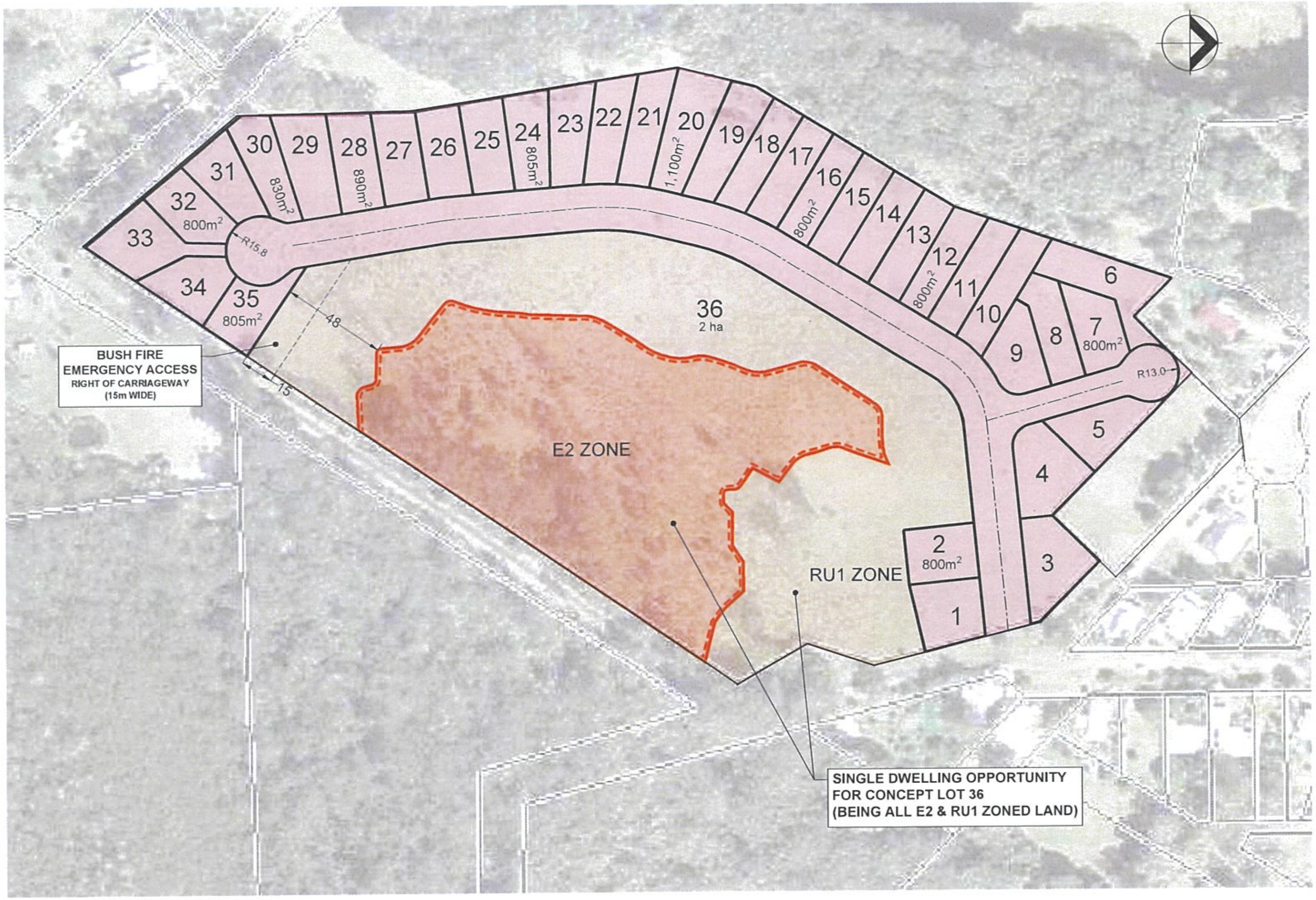
To avoid this advice being used inappropriately it is recommended that you consult with APP before conveying the information to another who may not fully understand the objectives of the report. This report is meant only for the subject site/project and should not be applied to any other.

8. Attachments

Attachment 1 Concept Subdivision Plan

ATTACHMENT 1

Attachment 1: Concept Subdivision Plan



TOTAL LOTS = 36

Area	Zone
41,736 m²	RU5 ZONE MIN LOT SIZE 800m²
21,436 m²	RU1 ZONE MIN LOT SIZE 2 ha
19,456 m²	E2 ZONE MIN LOT SIZE 2 ha

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
P6	02/09/2020	Amended Lot Layout	
P5	15/04/20	Dimensions Amended	
P4	15/04/20	Dimensions Added	
P3	25/02/20	Council Review	
P2	11/02/20	Council Review	
P1	28/05/19	Council Review	

Client: Alan Cardy

Project: Proposed Rezoning
Lots 100 DP1201719
Hills Road, Rileys Hill

Title: Concept Subdivision Layout Plan

Do not scale drawing. Use written dimensions only.
This plan is copyright © All rights reserved.

ARDILL PAYNE & partners
ENGINEERS PLANNERS SURVEYORS
ENVIRONMENTAL PROJECT MANAGEMENT
BALLINA 45 River Street Ph. 02 6686 3280
SOUTH BRISBANE 89 Grey Street Ph. 07 3123 6675
GUNNEDAH 285 Conadilly Street Ph. 02 6742 9955
A.B.N. 51 808 558 977 e-mail: info@ardillpayne.com.au

Designed	EMR	Scale	1:1000 @ A1, 1:2000 @ A3
Drawn	EMR		0 10 20 30 40 50
Checked	PS	File Name	8174 SP1-P6 Rev P6 (02-09-2020).dwg
Approved		Date	APRIL 2019
		Datum	AHD
Job No.	8174	Dwg No.	SP1
		Issue	P6