TRAFFIC IMPACT ASSESSMENT REPORT

Report prepared for:

Lot 442 Henry Parkes Drive
Kiama Downs NSW 2533

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V2	8 May 2020	Amendment to rezone	Risden Knightley	Risden Knightley
V3	14 July 2020	Updated layout	Risden Knightley	Risden Knightley

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1. Introduction

1.1 Overview

RJK Consulting Engineers has been commissioned to provide transport engineering advice and to undertake a Traffic Impact Assessment (TIA) relating to the rezoning from Environmental Conservation to Residential for Lot 442 Henry Parkes Drive, Kiama Downs. Specifically, this TIA addresses the access, traffic and parking implications of the development. These are addressed through Chapter 7 of the Kiama Development Control Plan (DCP), 2012.

The proposed Concept Layout Plan is provided in the **Appendix** for reference and generally comprises of the following:

- Vehicular access to the site via a proposed extension to Henry Parkes Drive
- Ring road which can service approx. 30 to 40 residential lots with reserve E2 land.
- Preliminary layout for Lot 442 DP 1201831 Henry Parkes Drive showing the estimated yield (37 lots). The minimum lot area for dual occupancies in Kiama is 600m2, and that of the 37 lots, only two are larger than 600m2. Considering this, the maximum dwellings achieved from this proposal is thirty-nine

The traffic and transport implications of the proposed development are documented in this report.

1.2 Reference Documents & Data Sources

RJK Consulting Engineers have been provided by the client relevant information on the development. These detail an outline of the work and that the development generally proposes no significant change to the existing traffic arrangements.

The following documents have been referenced as part of this study:

- Kiama Municipal Council Development Control Plan (2012);
- State Environmental Planning Policy (Infrastructure) 2007

This TIA report also references general access, traffic and parking guidelines, including:

- NSW Roads & Maritime Services (RMS – formerly RTA) Guide to Traffic Generating Developments (RMS Guide);
- RMS Technical Direction TDT 2013/04a, Guide to Traffic Generating Developments Updated Traffic Surveys (RMS Guide Update);
- Australian Standard 2890.1 (2004): Off-street car parking (AS2890.1);
- Australian Standard 2890.2 (2002): Off-street commercial vehicle facilities (AS2890.2);
- Australian Standard 2890.6 (2009): Off-street parking for people with disabilities (AS2890.6).

2. Site Description

2.1 Site Location & Description

The site is located on Lot 442, DP 1201831 and is situated at the northern end of Henry Parkes Drive in a cul-de-sac. The subject site is identified in **Figure 1.**

The site is slopes toward the north-west and borders properties on Henry Parkes Drive to the south, Newing Circuit to the east, the Minnamurra River to the north and a recreational area with a walking/cycling track the west.

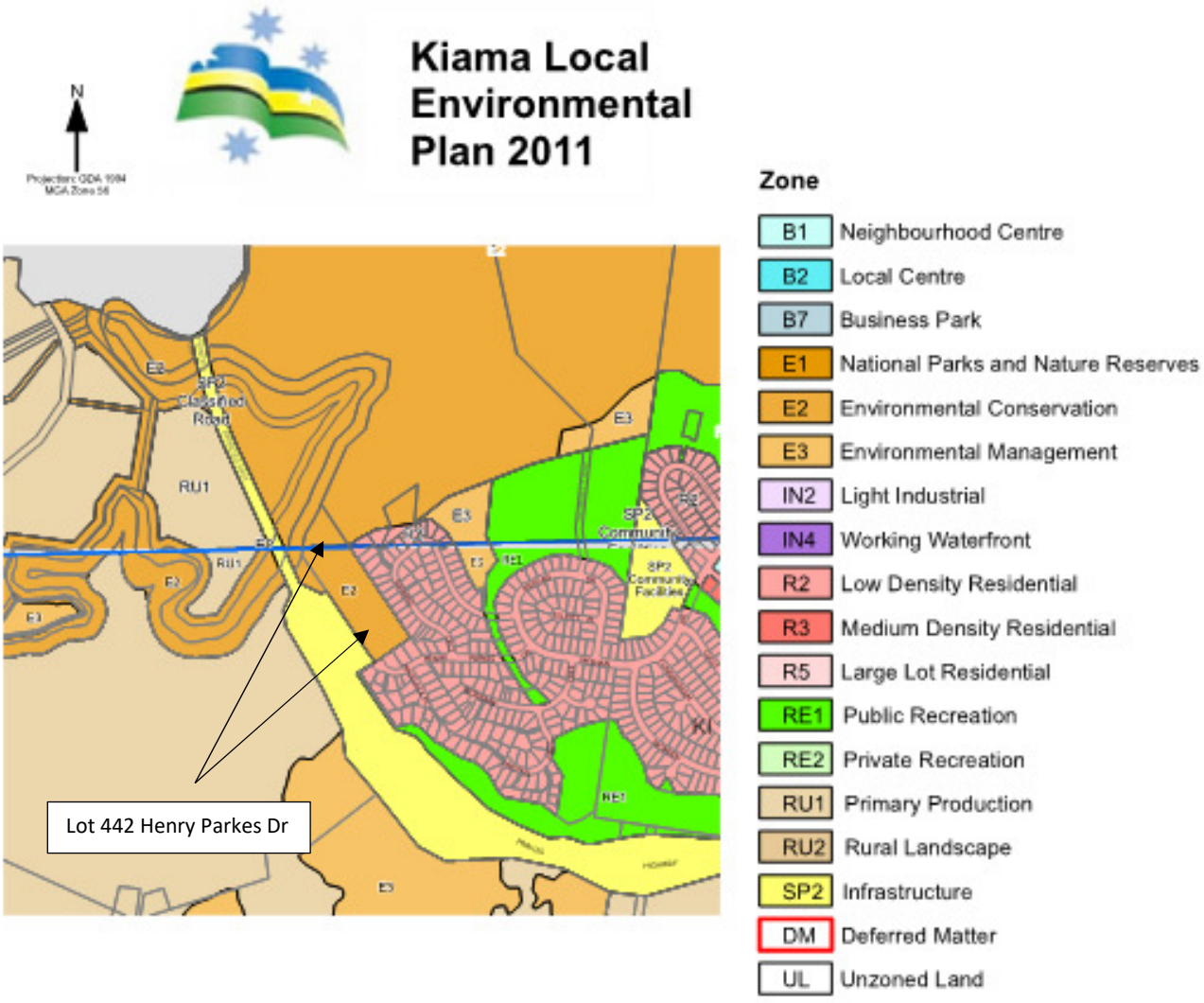
Figure 1 - Site Location

2.2 Site Zoning

The site is situated in an area within the E2 - Environmental Conservation under the Kiama Local Environmental Plan 2011. The planning proposal seeks approval for adjustments to land currently zoned E2 – Environmental Conservation to R2 – Low Density Residential to allow future development opportunities and proposals as desired under the Kiama Local Environmental Plan 2011 and the Development Control Plan 2012.

The proposed development will be in an area neighbouring low density residential zoning to the east and south. Refer **Figure 2**.

Figure 2 - Zoning in and around the site



2.3 Site Photographs

Figure 3 - Site Access

Figure 4 – Cycle/Walking track location to site access

Figure 5 - Looking towards Henry Parkes Dr from site access

3. Proposed Rezoning

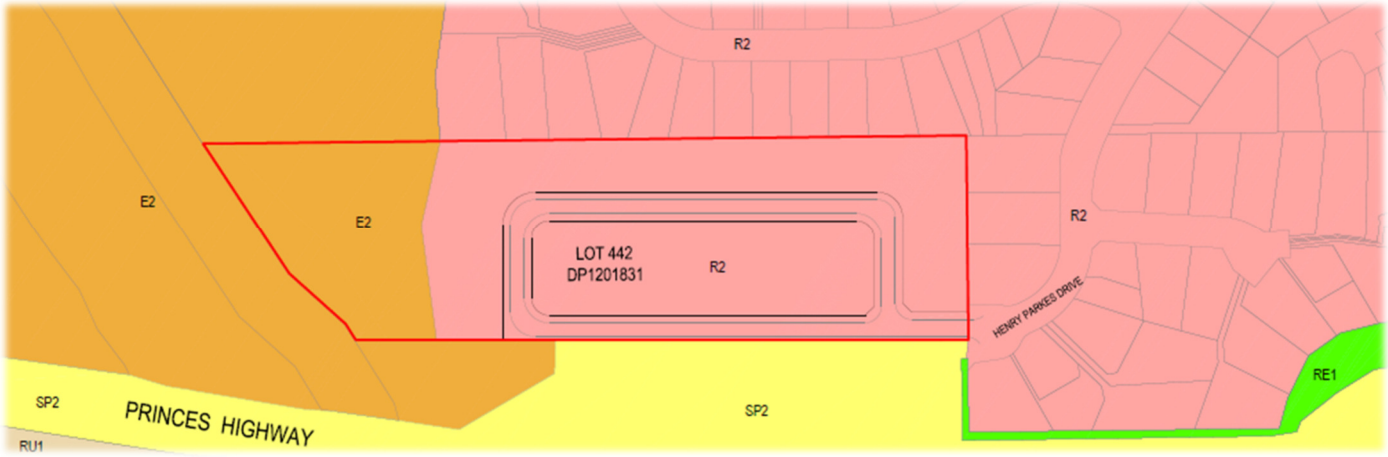
3.1 Rezoning Details

The development as proposed, provides to develop a parcel of land for residential use. The following summarises key aspects of the Proposal.

- Access from the end of a cul-de-sac on Henry Parkes Drive
- Continuation of the downward grade of Henry Parkes Drive at a width of 15m
- A loop road in lieu of a cul-de-sac of approx. 13.5m wide

The traffic and parking implications arising from the proposal are discussed in the following sections. **Figure 6** presents a proposed plan illustrating the proposed development, which shows the general layout and road.

Figure 6 - Proposed Layout



4. Existing Traffic and Parking Conditions

4.1 Road Hierarchy

Henry Parkes Drive

- Classified as access road to surrounding residences*
- Is a two-way carriageway of approx. 15m width
- 50 km/hr signposted
- Unrestricted kerbside parking permitted in the vicinity

Meehan Drive

- Classified as access road for passage to local access roads and residences*
- Is a two-way carriageway of 15m width
- 50 km/hr signposted
- Unrestricted kerbside parking permitted
- Intersects with Riverside Drive

* Access Road – Are local roads to cater for low volume, localised short distance travel and access to properties and cater for traffic up to 100 dwellings. They are the predominant street type in a neighbourhood subdivision. The street would generally comprise two 3m wide travel lanes and a parking lane.

Based on the above the following Characteristics of the road networks are noted as follows:

Street Type	Traffic volume	Target Speed	Carriageway width	Verge Width	Reserve Width	Pavement Type	Parking Provision	Concrete Footpath	Shared Path
Access Street	<300	40	6.5	3.5	13.5	Asphalt	Carriageway	No	No
Access Road	301 - 1000	40	8	3.5	15	Asphalt	Carriageway	1.2m one side	No

4.2 Existing Traffic Management

The surrounding junctions include the following:

- Signalised intersection at Riverside Drive and Meehan Drive
- Giveway Priority controlled intersection of Henry Parkes Drive and Meehan Drive

Additional traffic and pedestrian management controls exist in close proximity to the study area, as follows:

- Pedestrian phases on all legs of signalised intersection at Riverside Drive and Meehan Drive
- Pedestrian refuge island along Meehan Drive

Figure 7 - Local Road Network

4.3 Existing Public Transport Services

There is an existing bus service within an 8 minute walk with connection to Minnamurra train station. The travel time is approx. 18 minutes in total. There is also a bus connection to Bombo train station which is a slightly longer travel time (36 mins).

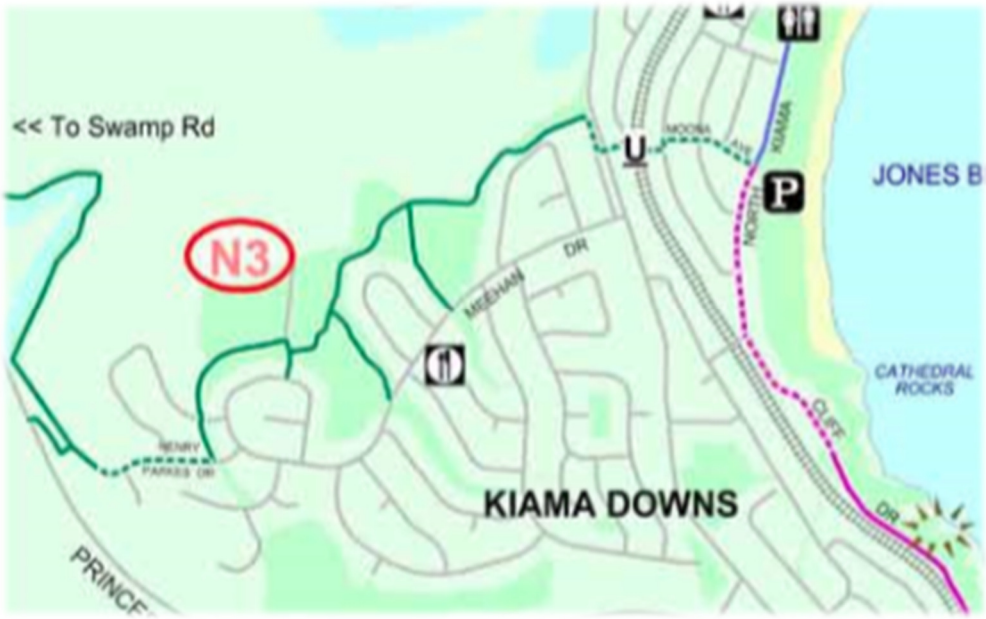
The route to Minnamurra Train Station is shown in Figure 5. It is evident that the site is directly serviced by public transport services at this time.

Figure 8 - Public Transport Services Map

4.4 Bicycle Infrastructure

Figure below shows designated bicycle paths in the vicinity of the site. This plan has been endorsed by Kiama Municipal Council in consultation with the Walking Tracks and Cycleways Committee in 2011.

Figure 9 - Bicycle Infrastructure Map



4.5 Future Road and Infrastructure Upgrades

Other than this development proposed, there are no other significant developments proposed within the vicinity of the site.

It is proposed that the development site will be accessed on the south-eastern end of the property fronting Henry Parkes Drive.

The development proposes to generate a relatively small amount of additional traffic beyond current levels. Traffic counts undertaken in 2012 identified the average combined daily traffic along Meehan Drive as 5,911 vehicles per day (vpd) with a separation of 2,970 vehicles in a north east direction and 2,941 vehicles in a south west direction. Traffic counts undertaken adjacent to 120 Riverside Drive indicated 5,003 vpd suggesting a portion of traffic from Meehan Drive turns north back towards Wollongong.

Based on volume of additional 296 vehicles generated by the new development, along with an inspection of the road and surrounding areas, it is identified that the general operations of the street, as currently operating, will not have any noticeable level of service loss.

5. Planning Proposal

5.1 Zoning

The proposed development involves land currently zoned Environmental Conservation. The planning proposal seeks approval for adjustments to land currently zoned E2 – Environmental Conservation to R2 – Low Density Residential to allow future development opportunities and proposals by changing the zoning to that of low density residential in keeping with the surrounding area.as desired under the Kiama Local Environmental Plan 2011 and the Development Control Plan 2012.

It is estimated that development following rezoning could include 30 to 40 dwellings. The preliminary layout for Lot 442DP 1201831 Henry Parkes Drive shows an estimated yield of 37 lots. The minimum lot area for dual occupancies in Kiama is 600m2, and that of the 37 lots, only two are larger than 600m2. Considering this, the maximum dwellings achieved from this proposal is thirty-nine which is in keeping with the rezoning of between 30 to 40 dwellings. For the purpose of assessing traffic generation, the development will be analysed as low density residential dwellings. This forms a good basis from which the traffic impact is evaluated.

6. Parking Assessment

6.1 Council Parking Requirement

Reference is made to Kiama Municipal Council's Development Control Plan 2012 Chapter 9: Car Parking Requirements, Access, Servicing/Loading Facilities and Traffic Management are outlined which prescribes the following parking rates:

- Residential Dwelling Housing - 1 dedicated space behind the building line and 1 space behind the front boundary

These parking requirements outlined in Council's DCP shall be met by the development within the DA and Construction Certificate stages. It is expected that this parking will be accommodated on-site in a combination of styles to suit the housing types. Limited commercial uses are permitted under the proposed zoning, though any such tenancy would be ancillary to the new residents and general commuters and as such will not generate additional visitor parking demand.

6.2 Compliance with Relevant Codes

Compliance assessments of vehicular access arrangements and internal parking layouts are subject to separate detailed consideration at later DA stages.

6.3 Disabled Parking

The required disabled parking should comply with those requirements set out in Council's DCP and the Building Code of Australia (BCA).

6.4 Bicycle & Motorcycle Parking Requirements

Bicycle and motorcycle parking requirements are subject to later DA stages.

6.5 Servicing & Loading

Council's DCP outlines the following delivery/service truck requirements applicable to the proposal's possible development yield under Section 7 of Chapter 11: Waste Management.

7. Traffic Assessment

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections. For the purpose of assessment at the planning proposal stage, this includes determining existing mid-block and turning volume capacity for local traffic network and analyzing the resulting performances following orderly development in accordance with the proposed rezoning controls.

7.1 Traffic Generation

In order to analyse the impact of the development on the existing transport infrastructure, it is necessary to assess the number of trips likely to be generated to and from the site and where they are likely to travel. To determine an appropriate rate to forecast trip generation information has been sought from;

- RTA Guide to Traffic Generating Developments;
- Austroads Guide to Traffic Management Part 12; and
- Department of Main Roads' Road Planning and Design Manual: Chapter 3.

The estimated traffic generation activity for the proposed residential development of 30 – 40 dwellings is based on the RMS "Guide to Traffic Generating Developments", which assumes a worst case of a high proportion of private vehicle trips. Given the access to public transport, the proposed residential users would have a lower traffic generation rate than these.

The development comprises of between 30 to 40 allotments. Traffic generated from the site is likely to provide a minor increase in vehicle movements along Henry Parkes Drive and the wider network. The traffic generation rates estimated by the RMS guide are stated below:

3.3.1 Dwelling houses Weekday peak hour vehicle trips = 0.85 per dwelling

With all factors considered, the above rates give a reasonable estimate of per-dwelling type traffic generation for the purpose of traffic assessment. The residential peak traffic split has been assumed as 20% in / 80% out during the AM and 80% in / 20% out during the PM.

The above rates give a moderate estimate of per-dwelling class traffic generation for the purposes of assessing traffic.

The traffic generation is summarised below:

Relevant RMS Guide Land Use Category	Scale	Rate	Traffic Generation	AM Traffic Direction	PM Traffic Direction
Residential	40 max	0.85 per dwelling	296 trips	6 in; 28 out	28 in; 6 out

As highlighted above, the traffic generation for the proposal represents a worst case scenario for the conceptual development which is 296 weekday peak hourly vehicle trips.

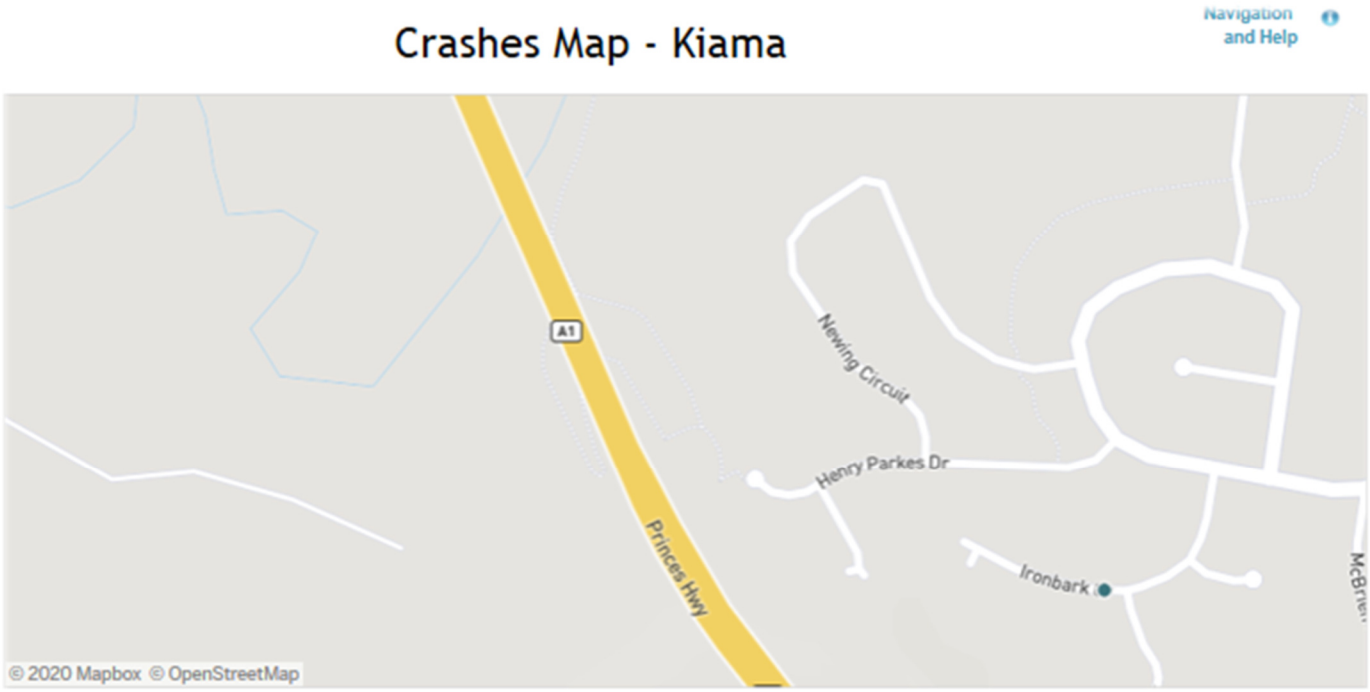
7.2 Traffic Assignment

The traffic assignment adopted has been based on the existing surveys and the close proximity of the site to the classified roads of Meehan Drive and Riverside Drive. Journey-to-Work data published by the Bureau of Transport Statistics was also used to determine common areas people travelling to Kiama reside and where Kiama residents travel to go to work. This data was used to estimate the percentage of traffic travelling to and from the proposed site from the north, south, west, northeast and southeast.

7.3 Crash History

NSW Centre for Road Safety advised no crashes near the proposed development for the period 2014 – 2018. This implies that the current traffic volumes and general arrangements for the surrounding area and the site, are currently operating satisfactory. See **Figure 10** for Crash History Map

Figure 10 -Crash History Map



7.4 Road Safety Review

Based on sight observations and the information regarding crash history, the road network in this area appears to function satisfactorily and provides appropriate width and manoeuvrability which is keeping with the road hierarchy and the limited traffic numbers.

Due to the development not being a major contributor resulting in a significant increase in traffic volumes being generated, further off-site impacts are not considered.

8. Locality Integration

8.1 Pedestrian & Bicycle Paths

It is understood that any development of the site would include pedestrian paths within the site. In addition, there is potential of linking these paths and the site to the surrounding places of interest such as nearby beaches, Kiama Town Centre, Kiama and Bombo railway station and local parklands.

8.2 Public Transport

As detailed in Section 4.3, Minnamurra Railway Station is located a short walk and bus ride from the development. Trains are provided by Transport for NSW and run generally every 20 minutes during peak commuter periods being early morning and afternoons, providing frequent services to other centres such as Sydney and Wollongong. It is expected that the site's proximity to the railway station would be a prominent benefit to potential purchasers and tenants of any future residential development on the site. Usage of the railway station is currently 300 trips per average weekday (Source: Compendium of Sydney Rail Travel Statistics (2012) prepared by NSW Bureau Of Transport Statistics (BTS)) and this is likely to increase following any development. The journey to work data released by the BTS (2011 Journey to Work Data Tables 12 and 13 based on the 2011 BTS Travel Zone (TZ) and 2011 Australian Standard Geographical Classification (ASGC) Standard Area 3 (SA3) boundaries) suggests that less than 10% of Kiama residents currently catch the train to work.

In addition to train services, a bus stop is located on the corner of Meehan Drive and McBrien Street. This bus stop is serviced by route 71 which is provided by Transport for NSW and generally run at a frequency of approximately 1 service per hour throughout the day. For the estimated development there is unlikely to be significant demand for additional regional or local bus services, however some demand will be generated. The existing proximity to bus stops with hourly servicing on weekdays is likely to be sufficient for residential development. An upgrade of the bus stops to include a shelter for each is highly recommended and would provide a public benefit impact on liveability, safety and amenity of the local area.

9. Conclusion

This Traffic Impact Assessment (TIA) has been prepared by Risden Knightley of RJK Consulting Engineers for Lot 442 Henry Parkes Drive, Kiama Downs within Kiama Municipal Council, New South Wales. The intention of the Traffic Impact Assessment is to support a Rezone Application and provide improved facilities for users of the development.

In view of the foregoing analysis of the proposed conceptual development, the following conclusions can be made:

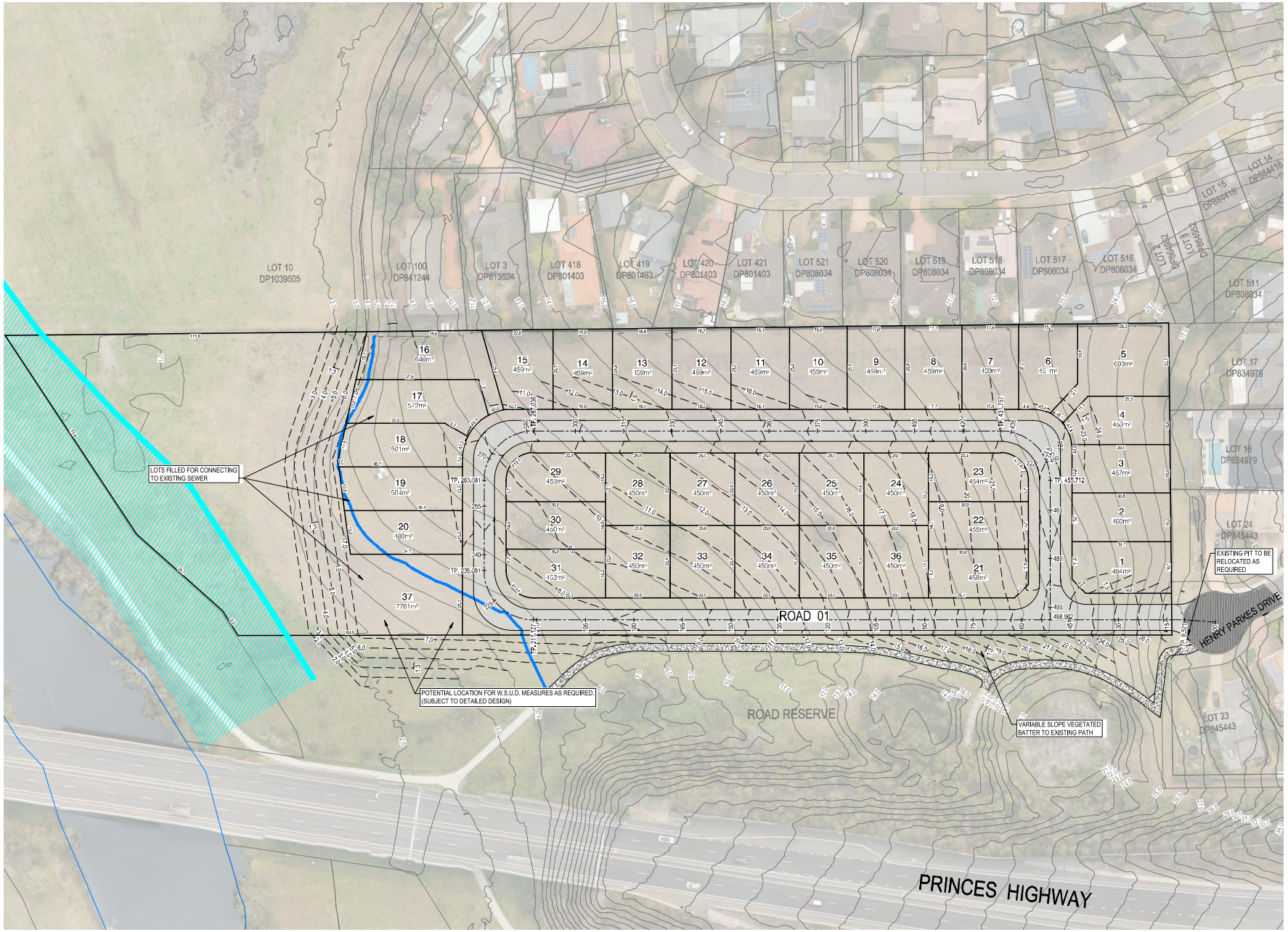
- The proposed rezoning of the subject site would introduce new vehicular traffic to the local precinct of approximately 296 trips per hour in the peak hour.
- The proposed rezoning from environmental to residential is supported on grounds of traffic impact, safety and residential amenity. It is therefore concluded that the proposed development is supportable on traffic planning grounds and the proposed development will operate satisfactorily. This report demonstrates that the proposed development can be satisfactorily accommodated within the existing road network and the future road hierarchy adopted for the area.

I, Risden Knightley as a qualified chartered engineer and Fellow of Engineers Australia, conclude based on the assessment of information available, that the traffic aspects associated with the proposed rezone are adequate and meet the requirements for traffic, safety and service. I also note that there appears to be no other potential adverse effects on existing traffic situations, subject to the recommendations and conclusions noted.

Risden Knightley

BE (Civil), Ass Dip Civil Eng, FIEAust, CC 2539X

10. Appendix



PROPOSED

LEGEND

40m RIPAVIAN BUFFER

PAVEMENT

7.0 CONTOURS (1m)

EXISTING

APPROX. 100 YEAR FLOOD LEVEL

S SEWER

W WATER

T TELECOM.

7.0 CONTOURS (1m)

A1 PLOT 600 12 6 0 6 12 18 24 1200 A3 PLOT

No.	AMENDMENT	APPROVED	DATE	AMENDED BY
3	AMENDED FOR COUNCIL	K.M.	07.05.2020	C.T.
2	AMENDED FOR APPROVAL	K.M.	07.02.2020	C.T.
1	PRELIMINARY ISSUE	K.M.	07.02.2020	C.T.

FOR APPROVAL
(NOT FOR CONSTRUCTION)

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APPROVED	K.M.	DATE	07.05.2020
CHECKED	S.W.	DATE	07.05.2020
DESIGNED BY	S.W.		
DRAWN BY	C.T.		
CAD FILE	g:\isc00072 henry parkes dr - kiama downs\Acad\current drawings\Civil\15-PP\ISC00072-PP-C010.dwg		
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PROJECT
CONCEPTUAL CIVIL STRATEGY
PROPOSED REZONING
HENRY PARKES DRIVE
JAMBEROO

DRAWING TITLE
CONCEPTUAL GRADING PLAN

PROJECT No.	DRAWING No.	AMDT
ISC00072-PP	C010	3