Bushfire Assessment

Proposed Rezoning – 582 Old Northern Road, Dural

Prepared for
Rockeman Town Planning

6 March 2015

DOCUMENT TRACKING

Item	Detail
Project Name	Bushfire Assessment , Proposed Rezoning, 582 Old Northern Road, Dural
Project Number	1049
Project Manager	David Peterson Ph: 4302 1221 Suite 5, 1-5 Baker Street Gosford NSW 2250
Prepared by	Meaghan MacDonald and David Peterson
Approved by	David Peterson
Status	DRAFT
Version Number	1
Last saved on	6 March 2015

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd.

Contents

Figures

Tables

1 Introduction

1.1 Background

This report has been prepared by Eco Logical Australia (ELA) at the request of Rockeman Town Planning (RTP) to inform the Planning Proposal to rezone Lot 2 DP 565718, 582 Old Northern Road, Dural NSW (subject land) from RU6 Rural Transition to R3 Medium Density Residential under The Hills Local Environmental Plan 2012.

1.2 Location and Description of Subject Land

The subject land is approximately 1.65 ha in size and is located within The Hills Shire Council Local Government Area (LGA). Mapped in **Figure 1**, the study area is situated within the north-eastern corner of Old Northern Road and Derriwang Road intersection. The subject land is entirely surrounded by cleared and managed lots including Old Northern Road to the south and east, and Derriwong Road to the west.

As evident from

Figure 2, the subject land is currently being used to store and sell timber which operates primarily within the central and southern portion of the allotment. The remainder of the subject land contains very low to moderate condition Shale/Sandstone Transition Forest and exotic vegetation.

A site inspection of the subject land was undertaken by David Peterson and Meaghan MacDonald of ELA on 12 February 2015.

1.3 Aims and Objectives of Bushfire Assessment

The aim of this study is to investigate the capability and general suitability of the site for future residential development with the appropriate bushfire protection measures as guided by the relevant legislation and policy into bushfire planning and design of new development in NSW. The findings and recommendations are to inform a Planning Proposal to appropriately rezone the site.

The objectives of this study are therefore to:

1. Provide statements as to the capability of the site to achieve the required minimum bushfire protection measures for future development, namely subdivision and the construction of dwellings;
2. Satisfy the legislative requirements for assessment of rezoning bushfire prone land for residential purposes under the *Environmental Planning and Assessment Act 1979*;
3. Investigate the application of Asset Protection Zone (APZ) building setbacks to vegetation/bushland and report on the location and dimensions of any required APZ;
4. Provide advice on the potential impact of the NSW Rural Fire Service '10/50 Vegetation Clearing' policy on any retained trees or vegetation;
5. Provide guidance on the access and egress requirements for residential development in bushfire prone land; and
6. Provide guidance on other bushfire protection measures such as the provision of utilities.

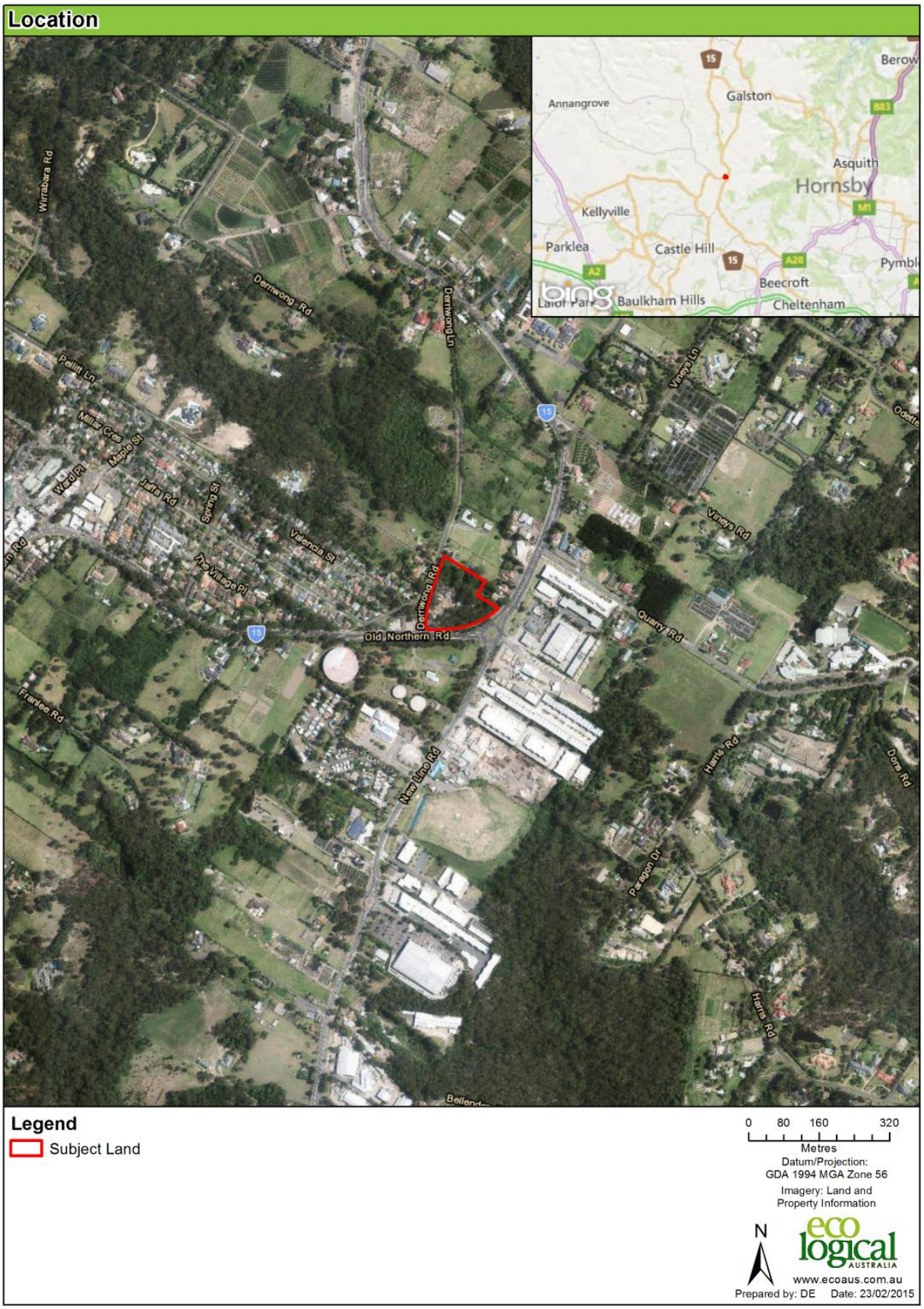


Figure 1: Aerial overview of subject land and surrounding area

Figure 2: Aerial overview of subject land

2 Assessment Requirements

The subject land has been identified as containing bushfire prone land as mapped by The Hills Shire Council (**Figure 3**) and certified by the NSW Rural Fire Service (RFS) under a requirement of the *Rural Fires Act 1997*. In NSW, bushfire prone lands are those identified that could support a bushfire or are potentially likely to be subject to bushfire attack and are generally lands that contain or are within 100 m of significant stands of bushland.

When investigating the capability of bushfire prone land to be rezoned for residential purposes, local councils must have regard to s.117 (2) Direction 4.4 – 'Planning for Bush Fire Protection' of the *Environmental Planning and Assessment Act 1979*. The objectives of Direction 4.4 are:

- *To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bushfire prone areas; and*
- *To encourage sound management of bushfire prone areas.*

Direction 4.4 instructs councils on the bushfire matters which need to be addressed when drafting LEPs. This includes:

- *Consultation with the Commissioner of the RFS and take into account any comments so made;*
- *Draft LEPs shall have regard to Planning for Bushfire Protection 2006 (PBP); and*
- *Compliance with numerous bushfire protection provisions where development is proposed.*

After the rezoning stage, future subdivision of land and the construction of buildings also require an assessment against PBP. These assessments are based on a final development application for these uses.

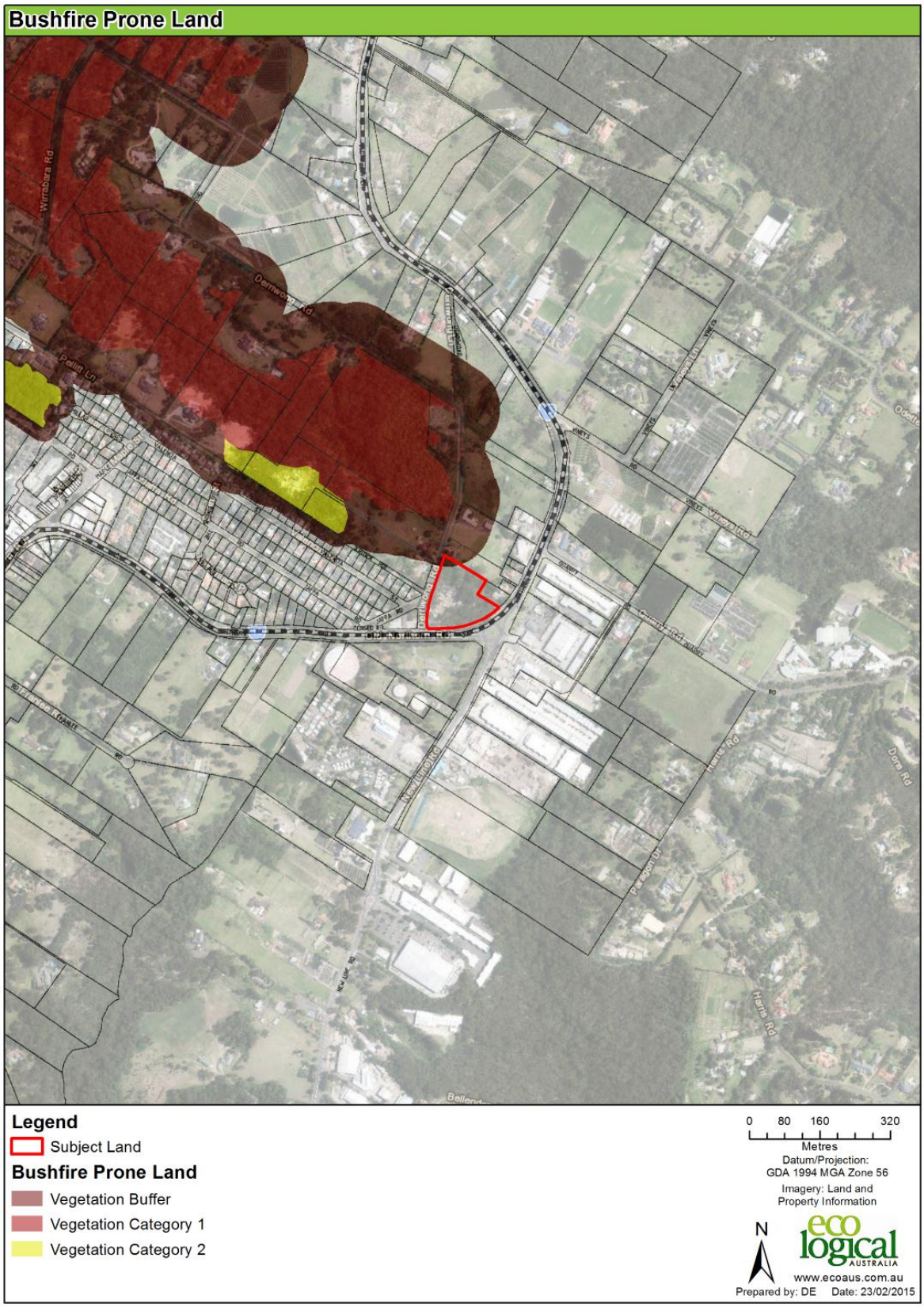


Figure 3: Bushfire Prone Land Map showing the study area

3 Methods and Approach

This bushfire assessment followed the methods and approach outlined in **Table 1** below.

Table 1: Methods and Approach

Method and Approach	Task	Considerations
Review	A literature review of relevant reports and studies occurred.	THSC Bush Fire Prone Land Map; 582 Old Northern Rd, Flora and Fauna Assessment Report (Eco Logical Australia, 2014)
Desk top analysis	Review and analysis of all available mapping layers in GIS relevant to bushfire hazard.	GIS layers include: satellite imagery; vegetation mapping; topographical data (e.g. contours).
Site Visit	Site visit undertaken 12 February 2015.	Data confirmed and collected in field: slope, vegetation, access, existing surrounding developments and infrastructure.
Assessment	Determine all relevant bushfire protection measures.	Assessment in accordance with PBP methodology, Direction 4.4 of EP&A Act and RFS requirements.
Reporting	Preparation of bushfire assessment.	Carry out all necessary reporting required for rezoning and Planning Proposals for development of bushfire prone land.

4 Bushfire Hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone location and dimension. The following sub-sections provide an account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

The bushfire hazard assessment was based desktop analysis, the findings within an ecology assessment completed for the site in 2014 by ELA and a site assessment undertaken 12 February 2015 by two ELA bushfire consultants.

4.1 Vegetation Communities Influencing Bushfire

The 'predominant vegetation' influencing fire behaviour approaching future developable areas has been assessed strictly in accordance with the methodology specified within PBP.

The bushfire hazard exists to the north-west of the subject land as displayed in **Figure 4**. A separation distance of 60 m exists between the edge of the hazard and the nearest boundary of the subject land. The Hills Shire Council Vegetation Cover Map (30 June 2014) classifies the vegetation to the north-west as Sandstone Gully Forest therefore classified as 'Forest' under PBP 2006.

The subject land and the hazard are separated by managed lands and Derriwong Road, a two-lane sealed road.

A map displaying the current coverage of vegetation onsite is provided in **Figure 5** which has been sourced from the Flora and Fauna report completed by Eco Logical Australia (March 2014). **Figure 5** also illustrates the proposed vegetation buffer to be retained around the boundary of the site with the remainder of the site to be cleared.

ELA validated the presence of Shale Sandstone Transition Forest (SSTF) on site which is of low to low-moderate condition as a result of past clearing of the native shrub and ground cover and infestation of exotic weeds.

The proposal includes retaining a vegetated perimeter buffer varying from 5 to 15 m to provide a natural aesthetic screen for near-by residents as shown in **Figure 5**. The vegetated buffer results in a 0.3 ha of SSTF being retained within the study area, although the majority of the vegetation being retained is highly disturbed and fragmented.

The vegetated landscape screen is not considered a bushfire hazard due to its small width, small total area and large separation from the bushfire hazard to the north-west. The vegetation that will be retained on site will simply be a landscaping feature.

4.2 Slopes Influencing Bushfire

The 'effective slope' influencing fire behaviour approaching the subject land has been assessed strictly in accordance with the methodology specified within PBP. This is conducted by measuring the worst-case scenario slope where the vegetation occurs over a 100 m transect measured outwards from the development boundary. The PBP slope classes are listed in **Table 2** below.

The bushfire hazard to the north-west of the subject land is classified as within the PBP slope class '>0-5 downslope' as shown on **Figure 4**.

Table 2: PBP slope classes

Upslope or Downslope	PBP Slope Class
Upslope / Flat Land	Flat land and all upslope land leading away from the development
Downslope	>0-5 degrees downslope leading away from the development
	>5-10 degrees downslope leading away from the development
	>10-15 degrees downslope leading away from the development
	>15-18 degrees downslope leading away from the development

Figure 4: Bushfire hazard assessment

Figure 5: Current vegetation communities on site and proposed vegetation buffer

5 Bushfire Protection Measures

PBP requires the assessment of a suite of bushfire protection measures that in total afford an adequate level of protection. The measures required to be assessed for rezoning are listed in **Table 3** below and are discussed in detail in the remainder of this section. This section demonstrates that the study area can accommodate the required bushfire protection measures and achieve the Direction 4.4 objectives and RFS requirements.

Table 3: PBP bushfire protection measures

Bushfire Protection Measure	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ setbacks from vegetation including prescriptions of vegetation management within the APZ.
Access	Assessment to include access and egress in and out of a developable area such as alternate access, operational response and evacuation options. APZ perimeter access to be considered as is design standards of public roads and any fire trails.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire fighting.
Building construction standards	Provide a guide on the application of construction standards for future buildings.

5.1 Asset Protection Zones

5.1.1 APZ Location and Dimension

Using the vegetation and slope data discussed in Section 4, APZs suitable for residential subdivision have been calculated for the subject land. The APZ assessment is based on future use being residential subdivision and not for Special Fire Protection Purposes (SFPP). APZs for SFPP are considerably larger as SFPPs include vulnerable developments such as schools, child care centres, accommodation, retirement villages and other uses listed under s100B (6) *Rural Fires Act 1997*.

As shown in **Figure 4** and evident from **Figure 4**, the available APZ far exceeds the minimum requirements. The APZ is in place as surrounding cleared and managed lots including Derriwong Road. Additional APZ establishment or vegetation removal is not required in the APZ to support the proposal.

As discussed in Section 4.1, the screening buffer proposed for the perimeter of the subject land is not considered a bushfire hazard and therefore a specific APZ is not required between the buffer and future dwellings.

Table 4: Asset Protection Zone (APZ) calculation

Direction from Subject Land Interface	Predominant Vegetation	Effective Slope	PBP APZ	AS3959 BAL-29 APZ	Available / Proposed APZ	Comment
North-west	Forest	>0-5º downslope	25 m	32 m	60 m	Available APZ far exceeds requirements. Additional APZ establishment or vegetation removal not required
Remaining directions	Managed	Upslope / flat	N/A	N/A	N/A	There is no bushfire hazard in the remaining directions within 100 m of the subject land therefore an APZ is not required.

5.1.2 Vegetation Management within Subject Land

The management of the subject land will differ between the perimeter landscape screen and the remainder that will be developed. The screen can be managed so as to retain the remnant trees and be revegetated. The remainder of the subject land will be cleared for development and is to comply with the specifications of an Inner Protection Area (IPA) as described by PBP. The following is a guide to achieve this:

- No tree or tree canopy is to occur within 2 m of future dwelling rooflines;
- The presence of a few canopy trees is acceptable provided that they are well spread out (10 m spacings is a good guide);
- Shrubs and understorey vegetation should be avoided;
- Any landscaping, gardens or plantings should preferably be low flammability species such as local rainforest species and contained within highly managed and well-defined garden beds located away from glazing; and
- Ground fuel is to be maintained to less than 4 tonnes per hectare of fine fuel (4 t/ha is equivalent to a 1 cm thick layer of leaf litter and fine fuel means any dead or living vegetation of less than 6 mm in diameter, e.g. twigs less than a pencil in thickness).

5.1.3 Potential impact of '10/50 Vegetation Clearing' policy

The subject land is identified as eligible to apply the '10/50 Vegetation Clearing' policy (10/50) as it contains bushfire prone land as shown in **Figure 3**. The 100 m bushfire prone land buffer extends into the property for approximately only 40 m in the north-western corner. Only the future lot(s) in that area impacted by the 100 m bushfire prone land buffer will be eligible to apply 10/50. Depending on how the future boundary lines are designed and the size of those lots containing the buffer, the eligibility of clearing under 10/50 can be greatly reduced from what it is currently. For example, if the buffer is contained within one, smaller lot then only dwellings within that lot will have eligibility to clear under 10/50. Any 10 m building setback from the proposed landscape screen to prevent clearing of the trees under 10/50 should only be applied to dwellings within those lots impacted by the buffer. A setback won't be required in the remaining lots not impacted by the buffer.

5.2 Access

PBP requires an access design that enables safe evacuation away from an area whilst facilitating adequate emergency and operational response to the area requiring protection. The following sections present the bushfire planning requirements for access in bushfire prone land.

5.2.1 Safe Access and Egress

The proposed access from the subject land to Derriwong Road is adequate due to the site being surrounded by cleared land and the existing large separation distance between the site and the hazard to the north-west.

5.2.2 Perimeter Roads

Derriwong Road acts as the perimeter access between the subject land and the hazard. Additional perimeter road provisions are not required to support the proposal.

5.2.3 Road Design and Construction Standards

The proposed access road is to comply with the PBP acceptable solution design standards as listed in **Table 5** below. Future residential subdivision within the site should be able to comply with these standards.

Table 5: Design and construction for public roads (RFS 2006; pg 21)

Performance Criteria	Acceptable Solutions
• *Firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)*	• *Public roads are two-wheel drive, all weather roads*
• *Public road widths and design that allows safe access for firefighters while residents are evacuating an area*	• *Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with PBP Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle) which require a minimum trafficable surface of 6.5 metres* • *The perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas* • *Traffic management devices are constructed to facilitate access by emergency services vehicles* • *Public roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard* • *Curves of roads (other than perimeter roads) are a minimum inner radius of six metres* • *Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient* • *There is a minimum vertical clearance to a height of four metres above the road at all times*
• *The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles*	• *The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly*

Performance Criteria	Acceptable Solutions
	indicated load rating
• *Roads that are clearly sign posted (with easy distinguishable names) and buildings / properties that are clearly numbered*	• *Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression* • *Public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression*
• *There is clear access to reticulated water supply*	• *Public roads up to 6.5 metres wide provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression* • *One way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression*
• *Parking does not obstruct the minimum paved width*	• *Parking bays are a minimum of 2.6 metres wide from kerb to kerb edge to road pavement. No services or hydrants are located within the parking bays* • *Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road*

5.3 Water Supply and other Utilities

5.3.1 Water Supply and Hydrants

The furthest point from any future dwellings to a hydrant is to be less than 90 m (with a tanker parked in-line) in accordance with PBP and *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (Standards Australia 2005). The reticulated water supply is to comply with the following acceptable solutions within Section 4.1.3 of PBP:

- Hydrants are not located within any road carriageway;
- All above ground water and gas service pipes external to the building are metal, including and up to any taps; and
- The PBP provisions of parking on public roads are met.

5.3.2 Electrical and Gas Supplies

In accordance with PBP, electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in "*Guideline for managing vegetation near power lines*" issued by Department of Energy, Utilities and Sustainability (ISSC 3, December 2005).

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2008 The storage and handling of LP gas* (Standards Australia 2008).

5.4 Building Construction Standards

The application of building construction standards for bushfire protection under *AS 3959-2009 Construction of buildings in bushfire-prone areas* (Standards Australia 2009) is to be considered at the development application stage for individual dwellings and buildings. An assessment under AS 3959-2009 is not required at the rezoning or subdivision stages.

AS 3959-2009 contains six BALs each with a prescribed suite of design and construction specifications aimed at preventing ignition during the passing of a bushfire front. The BALs are introduced below:

- BAL-Low: The threat does not warrant application of construction standards. Developments with BAL-Low are generally not within bushfire prone land (greater than 100 m from bushland);
- BAL-12.5: Addresses background radiant heat at lower levels and ember attack;
- BAL-19: Addresses mid-range radiant heat and ember attack;
- BAL-29: Addresses high range radiant heat and ember attack;
- BAL-40: Addresses extreme range of radiant heat and potential flame contact and ember attack; and
- BAL-FZ: Addresses construction within the flame zone. New subdivided lots are not permitted within the flame zone in NSW.

NSW has a minor variation to AS 3959-2009 which requires consideration in future development applications. The variation is contained within the document 'PBP Appendix 3 Addendum' (RFS 2010).

Only those buildings within 40 m of the north-western corner of the subject land will require compliance with BAL-12.5. The remainder will be BAL-LOW.

6 Conclusion

6.1 Statement of Capability

This bushfire assessment demonstrates that the study area is capable of accommodating future subdivision and land development with the appropriate bushfire protection measures.

6.2 Recommendations and Conclusion

The recommendations of this bushfire assessment are discussed within Section 5 – Bushfire Protection Measures. They are summarised below:

Recommendation 1 (Section 5.1.2): The subject land outside of the landscape screen is to comply with the specifications of an Inner Protection Area (IPA) as described within Section 5.1 of this report.

Recommendation 2 (Section 5.1.3): The future lot layout is to be designed in order to reduce the potential impact of the RFS '10/50 Vegetation Clearing' policy as described in Section 5.1.3;

Recommendation 3(Section 5.2): The access road is to comply with the NSW Rural Fire Service document '*Planning for Bush Fire Protection* 2006' as listed in Section 5.2 of this report;

Recommendation 4 (Section 5.3): Hydrant water supply should be installed in accordance with Australian Standard AS 2419.1.

Recommendation 5 (Section 5.3): Electrical services should be underground and if overhead lines are used, overhanging branches should be trimmed according to "*Vegetation Safety Clearances*" issued by Ausgrid (NS179, December 2010);

Recommendation 6 (Section 5.3): Gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia 2008).

Recommendation 7 (Section 5.4): Any building within 40 m of the north-western corner of the subject land will require compliance with BAL-12.5. The remainder will be BAL-LOW.

This bushfire assessment demonstrates that the subject land is capable of accommodating future residential subdivision and associated land use with the appropriate bushfire protection measures and bushfire planning requirements prescribed by s.117 (2) Direction 4.4 – 'Planning for Bush Fire Protection' (EP&A Act) and *Planning for Bushfire Protection* (RFS 2006).

FPA AUSTRALIA
Certified Business
Bushfire Planning & Design

Meaghan MacDonald
Bushfire Consultant

David Peterson
Principal Bushfire Consultant
FPAA BPAD Certified Practitioner No. BPD-L3-18882

References

Eco Logical Australia 2014. *582 Old Northern Road – Flora & Fauna Assessment Report*. Prepared for Architecture Design Service.

Eco Logical Australia 2014. *582 Old Northern Road* Memorandum Report to *Flora & Fauna Assessment Report. Prepared for* Architecture Design Service.

Department of Energy, Utilities and Sustainability (ISSC 3, December 2005) *Guideline for managing vegetation near power lines*.

NSW Rural Fire Service (RFS). 2006. *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.* Australian Government Publishing Service, Canberra.

Standards Australia 2009. *Construction of buildings in bushfire-prone areas, AS 3959,* Second edition 1999 and Amendment 1, 2000, Standards Australia International Ltd, Sydney

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2008. *The storage and handling of LP Gas*, AS/NZS 1596:2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

THSC, 2014. The Hills Shire Council Vegetation Cover Map Sheet 6. The Hills Shire Council.

THSC, 2012. The Hills Shire Council Bushfire Prone Land Map Sheet 7. The Hills Shire Council.

ecological AUSTRALIA

HEAD OFFICE
Suite 4, Level 1
2-4 Merton Street
Sutherland NSW 2232
T 02 8536 8600
F 02 9542 5622

SYDNEY
Level 6
299 Sussex Street
Sydney NSW 2000
T 02 8536 8650
F 02 9264 0717

ST GEORGES BASIN
8/128 Island Point Road
St Georges Basin NSW 2540
T 02 4443 5555
F 02 4443 6655

CANBERRA
Level 2
11 London Circuit
Canberra ACT 2601
T 02 6103 0145
F 02 6103 0148

NEWCASTLE
Suites 28 & 29, Level 7
19 Bolton Street
Newcastle NSW 2300
T 02 4910 0125
F 02 4910 0126

NAROOMA
5/20 Canty Street
Narooma NSW 2546
T 02 4476 1151
F 02 4476 1161

COFFS HARBOUR
35 Orlando Street
Coffs Harbour Jetty NSW 2450
T 02 6651 5484
F 02 6651 6890

ARMIDALE
92 Taylor Street
Armidale NSW 2350
T 02 8081 2681
F 02 6772 1279

MUDGEE
Unit 1, Level 1
79 Market Street
Mudgee NSW 2850
T 02 4302 1230
F 02 6372 9230

PERTH
Suite 1 & 2
49 Ord Street
West Perth WA 6005
T 08 9227 1070
F 08 9322 1358

WOLLONGONG
Suite 204, Level 2
62 Moore Street
Austinmer NSW 2515
T 02 4201 2200
F 02 4268 4361

GOSFORD
Suite 5, Baker One
1-5 Baker Street
Gosford NSW 2250
T 02 4302 1220
F 02 4322 2897

DARWIN
16/56 Marina Boulevard
Cullen Bay NT 0820
T 08 8989 5601

BRISBANE
51 Amelia Street
Fortitude Valley QLD 4006
T 07 3503 7193

1300 646 131
www.ecoaus.com.au

Proposed Residential Development

582 & 582A Old Northern Road, Dural

TRAFFIC AND PARKING ASSESSMENT REPORT

21 May 2015

Ref 15016

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

Suite 6, 20 Young Street, Neutral Bay NSW 2089 - PO Box 1868, Neutral Bay NSW 2089
Ph: 9904 3224 Fax: 9904 3228

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

1. INTRODUCTION

This report has been prepared to accompany a planning proposal to The Hills Shire Council for a residential development to be located at 582 & 582A Old Northern Road, Dural (Figures 1 and 2).

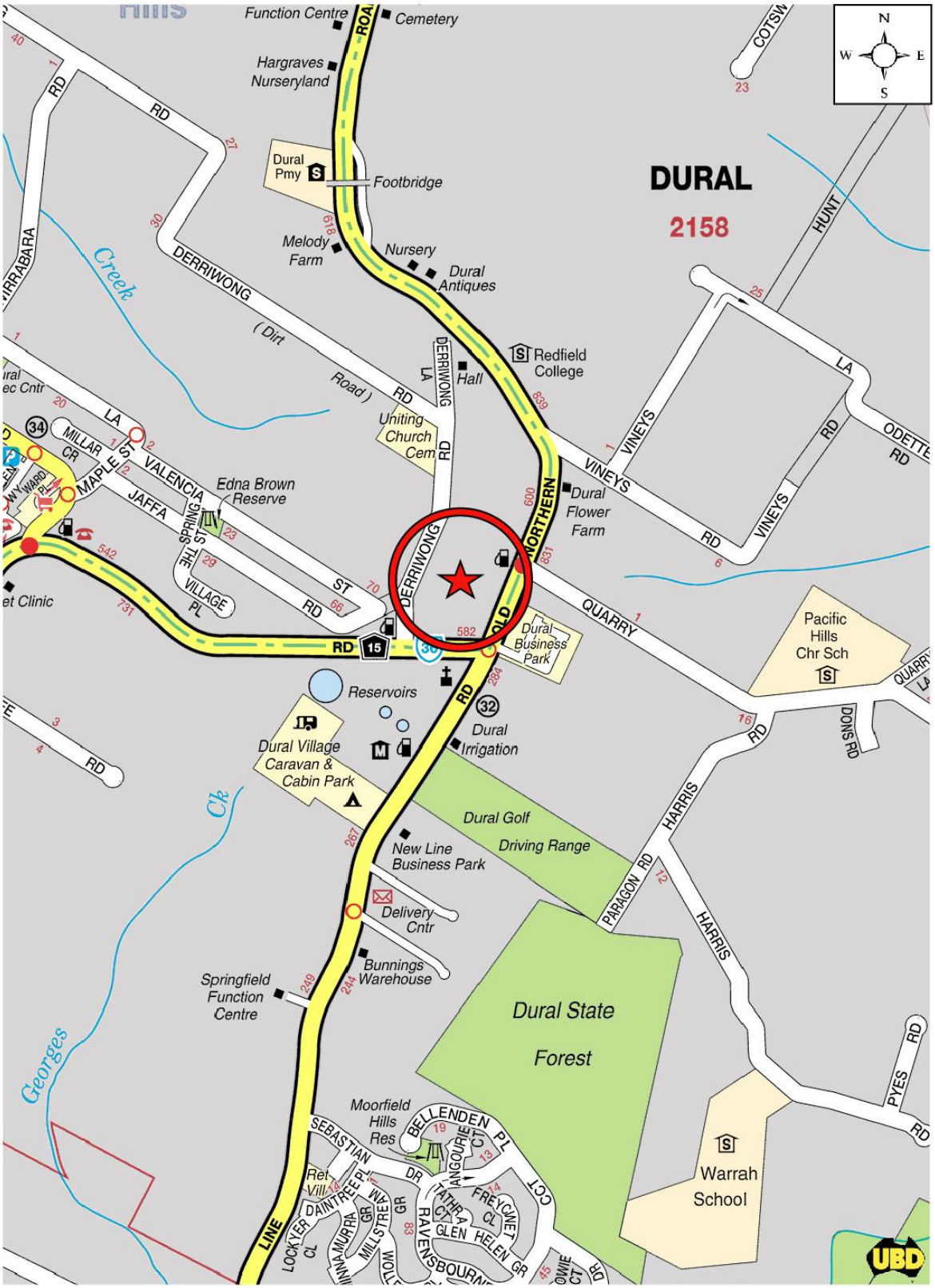
The subject site is currently occupied by *Sydney Timber Supplies* and a home business. Vehicular access to Sydney Timer Supplies is provided via a single two-way driveway located in Old Northern Road, just east of Derriwong Road. Vehicular access to the home business is also provided via a single two-way driveway to Old Northern Road, just north of the roundabout.

The planning proposal involves the *rezoning* of the subject site from *RU6 Transition Zone* to *R3 Medium Density Residential*, to permit the construction of a new medium density housing development.

The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

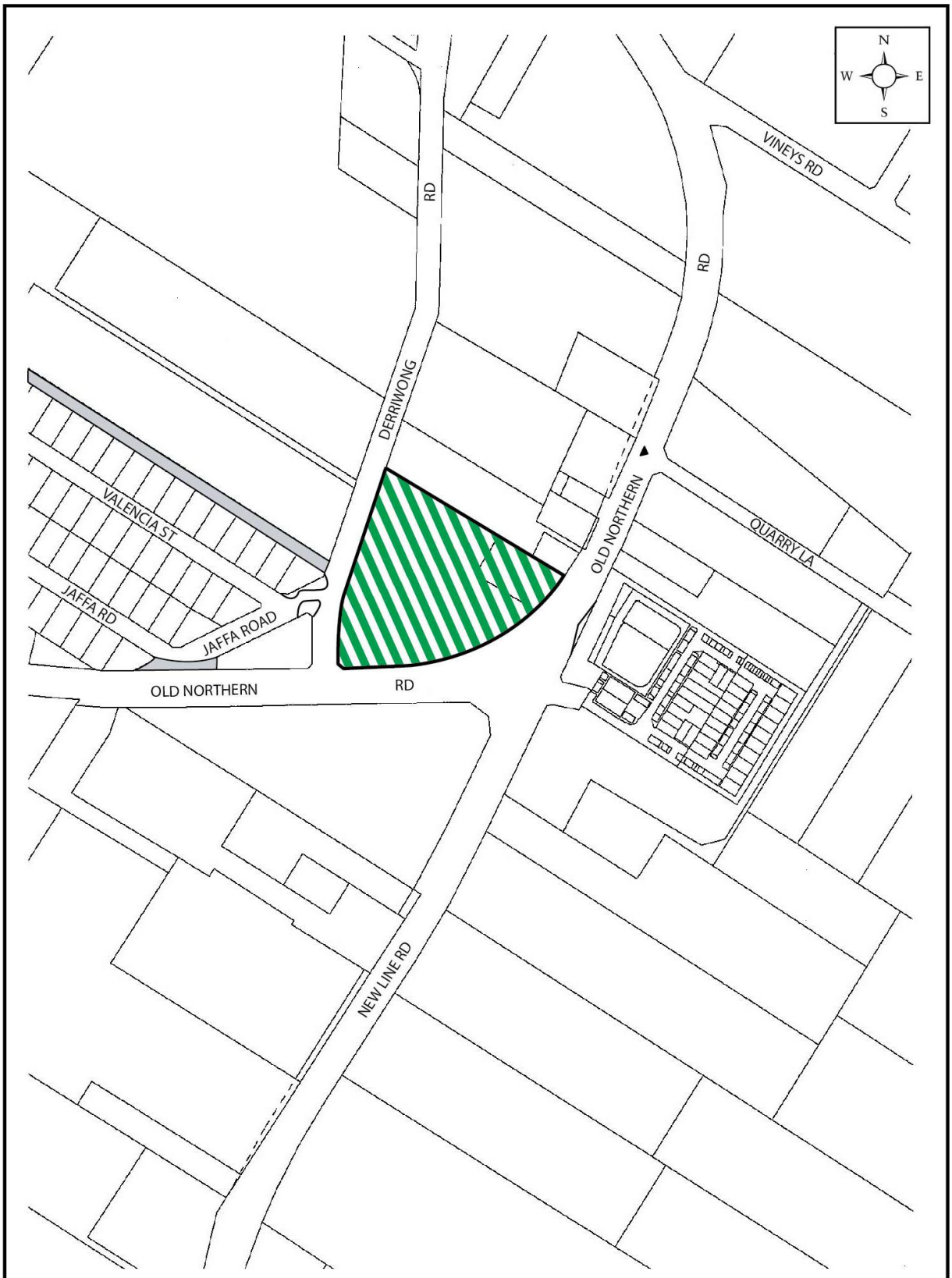
- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed car parking facilities for compliance with the relevant codes and standards

- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.



VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

LOCATION
FIGURE 1


N
W
E
S
VINEYS RD
RD
DERRIWONG
RD
OLD NORTHERN
QUARRY LA
VALENCIA ST
JAFFA RD
JAFFA ROAD
OLD NORTHERN
RD
NEW LINE RD
Road Closure / Unformed Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
SITE
FIGURE 2

2. PROPOSED DEVELOPMENT

Site

The subject site is located at the north-western corner of the Old Northern Road and New Line Road intersection. The site has a frontage of approximately 210m in length to Old Northern Road and approximately 170 metres in length to Derriwong Road. The site occupies an area of approximately 1.85 hectares.

The subject site is currently occupied by *Sydney Timber Supplies* and a home business, each with an entry/exit driveway to Old Northern Road.

Proposed Development

The planning proposal involves the *rezoning* of the subject site from *RU6 Transition Zone* to *R3 Medium Density Residential* to permit the construction of a new medium density housing development on the site

A total of 57 residential townhouses are envisaged by the planning proposal, off-street car parking will be accommodated in residential garages, private driveways and open car parking areas which will ultimately be designed in accordance with Council's requirements.

Vehicular access to the site is to be provided via a new access road which will connect with the northern end of the Derriwong Road site frontage. The proposed new access road will have a road reservation width of 16.5m with a road pavement width between kerbs of 6.5m.

A Concept Plan has been prepared for the purposes of the planning proposal by *Nuovo Design Studio Pty Ltd* and is reproduced in the following pages.

DWELLING FOOTPRINT LEGEND:

A1	X 6	8m X 7m = 56m² (2 STOREY = ~112m²) PRIVATE OPEN SPACE ALLOWANCE = 42m²
A2	X 47	10m X 7m = 70m² (2 STOREY = 130~140m²) PRIVATE OPEN SPACE ALLOWANCE = 42m²
A3	X 4	10m X 10m = 100m² (2 STOREY = 150~170m²) PRIVATE OPEN SPACE ALLOWANCE = 60m²

BUILDING DENSITY

6 x 2.1 = 12.6 persons
47 x 2.7 = 126.9 persons
4 x 3.5 = 14 persons

LEGEND

- COMMON OPEN SPACE
- PRIVATE OPEN SPACE
- ENVIRONMENTAL PROTECTION ZONE (EPZ)
- VEGETATION BUFFERE
- LANDSCAPE
- PEDESTRIAN PATH
- TREE TO BE REMOVED
- TREE TO BE RETAINED

1 / - SUBDIVISION 1:1000

ISSUE FOR SUBMISSION

C	20/05/2015	FOR SUBMISSION
B	04/05/2015	FOR REVIEW
A	20/04/2015	PRELIMINARY CONCEPT

nuovo design studio
WA p: po box 5210 chullora postshop chullora
WA e: wageeh@nuovodesignstudio.com.au
WA w: www.nuovodesignstudio.com.au

DRIVAS PROPERTY GROUP

SUBDIVISION PROPOSAL

582 OLD NORTHERN ROAD
DURAL

Drawing Name
SUBDIVISION PLAN

Drawing Number
04

PP-616
DRAWN: WA
DATE: 20/05/2015
SCALE: 1:1000
C

VARGA TRAFFIC PLANNING PTY LTD

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 3.

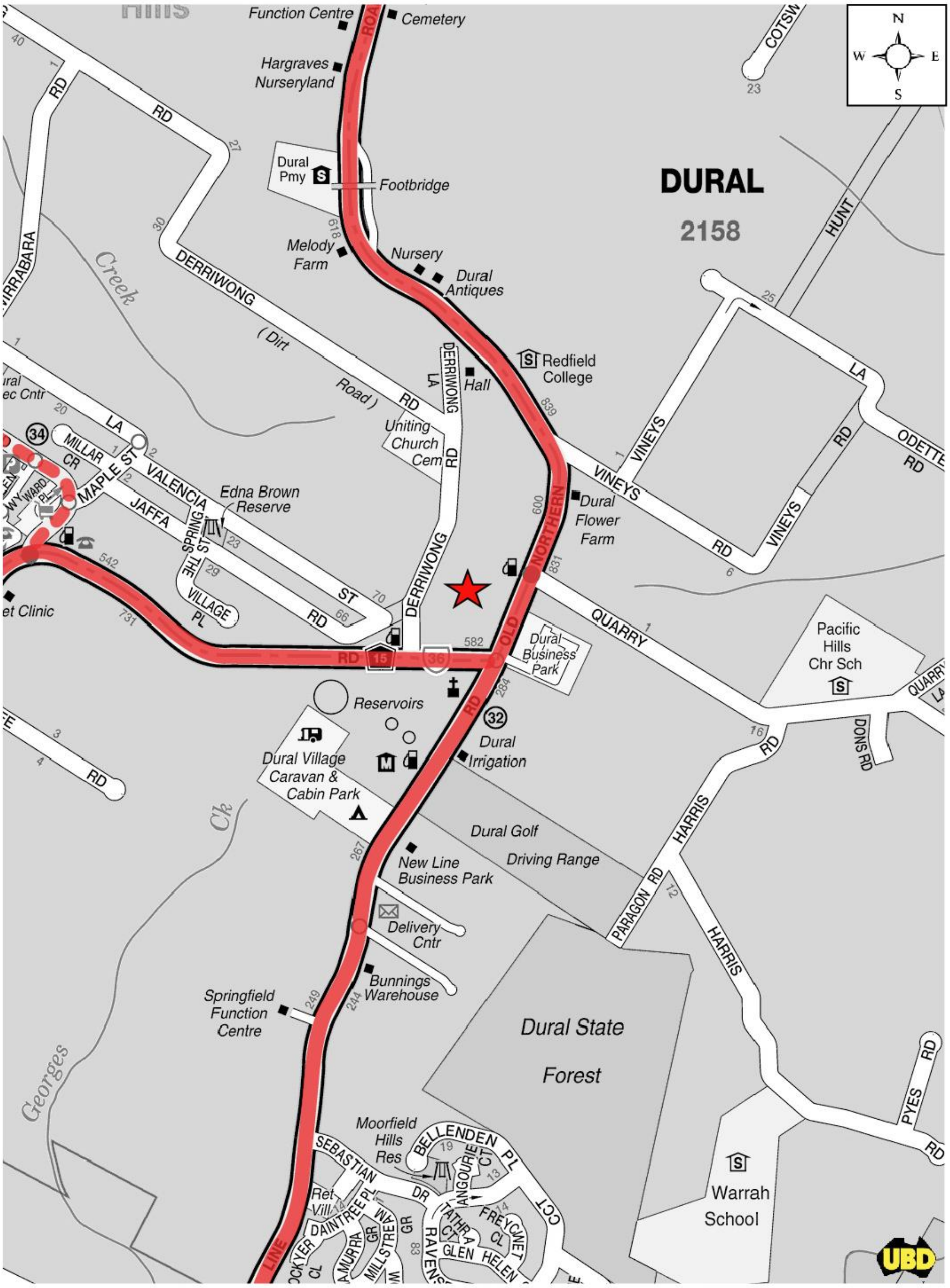
Old Northern Road is classified by the RMS as a *State Road* and provides the key north-south road link in the area, linking Wisemans Ferry to Baulkham Hills. It typically carries one traffic lane in each direction, and widens to two traffic lanes in each direction within the vicinity of the subject site.

Derriwong Road is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted along both sides of the road.

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 60 km/h SPEED LIMIT which applies to Old Northern Road
- a 50 km/h SPEED LIMIT which applies to Derriwong Road and all other local roads in the area
- a ROUNDABOUT in Old Northern Road where it intersects with New Line Road
- a NO ENTRY BUSES EXCEPTED restriction from Derriwong Road into Jaffa Road and vice versa.



Key:

State Road

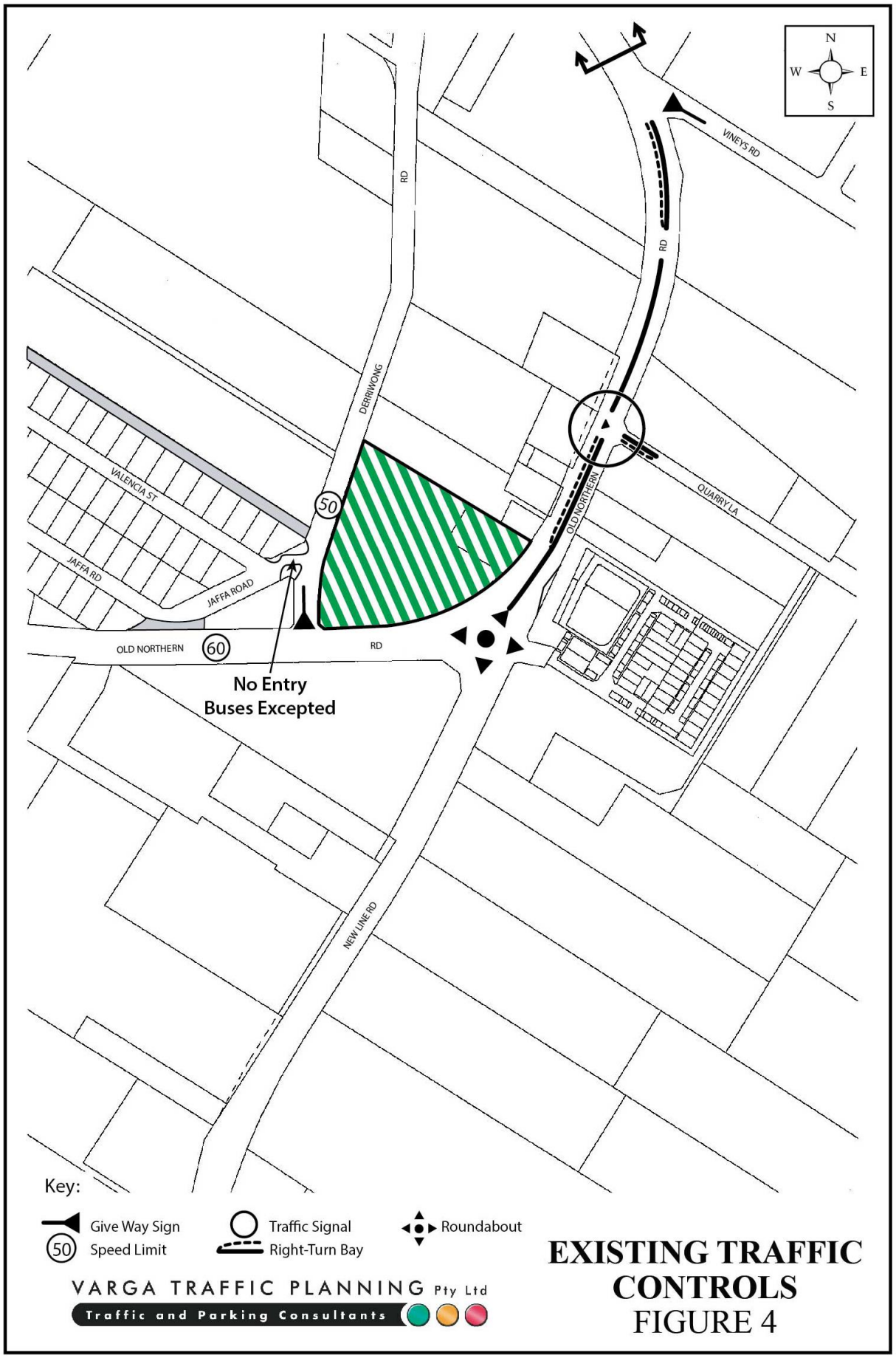
Regional Road

VARGA TRAFFIC PLANNING Pty Ltd

Transport, Traffic and Parking Consultants

ROAD HIERARCHY

FIGURE 3


N
W
E
S
VINEYS RD
RD
DERRIWONG
VALENCIA ST
50
JAFFA RD
JAFFA ROAD
OLD NORTHERN
60
RD
No Entry
Buses Excepted
OLD NORTHERN
QUARRY LA
NEW LINE RD
Key:
Give Way Sign
50
Speed Limit
Traffic Signal
Right-Turn Bay
Roundabout
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this traffic study.

The traffic surveys were undertaken in Old Northern Road where it intersects with Derriwong Road on *4th February, 2015* between 7:00am to 9:00am and 4:00pm to 6:00pm.

Traffic surveys were also undertaken at the existing site access driveway in Old Northern Road serving *Sydney Timber Supplies*, and at the buses only link with Jaffa Road where it intersects with Derriwong Road.

The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- two-way traffic flows in Old Northern Road are typically in the order of 2,000 vehicles per hour (vph) during peak periods

- two-way traffic flows in Derriwong Road are typically less than 60 vph during peak periods

- the traffic flows recorded at the *Sydney Timber Supplies* site access were 5 vph in the AM peak period (1 in & 5 out) and 8 vph in the PM peak period (1 in & 7 out)

- 1 bus was recorded proceeding from Derriwong Road to Jaffa Road, and 2 buses were recorded proceeding from Jaffa Road onto Derriwong Road in the AM peak period

- there were no bus movements recorded at the Jaffa Road and Derriwong Road intersection in the PM peak period.

Projected Traffic Generation

An indication of the traffic generation potential of the development proposal is provided by reference to the Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002).*

The RMS *Guidelines* are based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the development proposal:

Medium Density Residential – Larger Units and Townhouses
0.5-0.65 peak hour vehicle trips/dwelling

Application of the above traffic generation rates to the 57 residential townhouses envisaged as outlined in the planning proposal yields a traffic generation potential of approximately 37 vehicles per hour during commuter peak periods.

That projected future level of traffic generation potential should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the *nett increase (or decrease)* in traffic generation potential of the site expected to occur as a consequence of the development proposal when compared with the previously approved development on the site.

As noted above, traffic surveys show that the existing *Sydney Timber Supplies* site generated between 5 and 8 vehicle trips per hour during commuter peak periods. The home business is expected to have negligible traffic generation potential, and has been therefore excluded from this assessment.

Accordingly, it is likely that the proposed development will result in a *nett increase* in the traffic generation potential of the site of approximately 31 vph as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential of the Site as a Consequence of the Development Proposal

Projected Future Traffic Generation Potential:	37.1 vehicle trips
Less Existing Traffic Generation Potential:	-6.0 vehicle trips
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	**31.3 vehicle trips**

For the purposes of this assessment however, it has been assumed that *all* of the projected future traffic flows of 37 peak hour vehicle trips will be new or *additional* to the existing traffic flows currently using the adjacent road network.

That projected increase in the traffic generation potential of the site as a consequence of the development proposal is minimal and will clearly not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated by the following section of this report.

Traffic Implications - Road Network Capacity

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA program which is widely used by the RMS and many LGA's for this purpose. Criteria for evaluating the results of SIDRA analysis are reproduced in the following pages.

The results of the SIDRA capacity analysis of the Old Northern Road/Derriwong Road intersection are summarised on Table 3.1 below, revealing that:

- the Old Northern Road/Derriwong Road intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of 8.2 seconds/vehicle

- under the projected future traffic demands expected to be generated by the development proposal, the Old Northern Road/Derriwong Road intersection will continue to operate at *Level of Service "A",* with increases in average vehicle delays of ***less than*** 1 second/vehicle.

The results of the SIDRA capacity analysis of the Derriwong Road/site access intersection are summarised on Table 3.2 below, revealing that under the projected future traffic demands expected to be generated by the development proposal, the Derriwong Road/Site Access intersection will operate at *Level of Service "A",* with total average vehicle delays in the order of 1.6 seconds/vehicle.

In the circumstances, it is clear that the proposed development will not have any unacceptable traffic implications in terms of road network capacity.

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF OLD NORTHERN ROAD/DERRIWONG ROAD

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	**PM**	**AM**	**PM**
Level of Service		A	A	A	A
Degree of Saturation		0.339	0.405	0.357	0.466
Average Vehicle Delay (secs/veh)					
Old Northern Road (east)	T	17.7	10.5	15.1	10.9
	R	33.4	22.2	29.9	24.6
Derriwong Road (north)	L	7.6	6.9	7.7	6.9
	R	70.9	80.0	78.7	85.3
Old Northern Road (west)	L	5.5	5.5	5.5	5.5
	T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY		**8.2**	**5.8**	**7.3**	**6.4**
		OLD_DERX		OLD_DERP	

TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF DERRIWONG ROAD/SITE ACCESS			
Key Indicators		**Projected Development Traffic Demand**	
		AM	**PM**
Level of Service		A	A
Degree of Saturation		0.024	0.034
Average Vehicle Delay (secs/veh)			
Derriwong Road (south)	T R	0.1 4.6	0.1 4.6
Site Access (east)	L R	0.1 0.7	0.0 0.7
Derriwong Road (north)	L T	4.6 0.0	4.6 0.0
TOTAL AVERAGE VEHICLE DELAY		**0.5**	**1.6**

DER_ACCP

Criteria for Interpreting Results of Sidra Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation.	Good operation.
B	15 to 28	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory but accident study required.
D	43 to 56	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

[1] *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

4. PARKING IMPLICATIONS

Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 5 and comprise:

- generally UNRESTRICTED roadside parking in Old Northern Road for a distance of approximately 60m from Derriwong Road along the site frontage

- generally NO STOPPING restrictions along the remaining length of Old Northern Road along the site frontage

- generally UNRESTRICTED kerbside parking throughout the local area, including along the Derriwong Road site frontage.

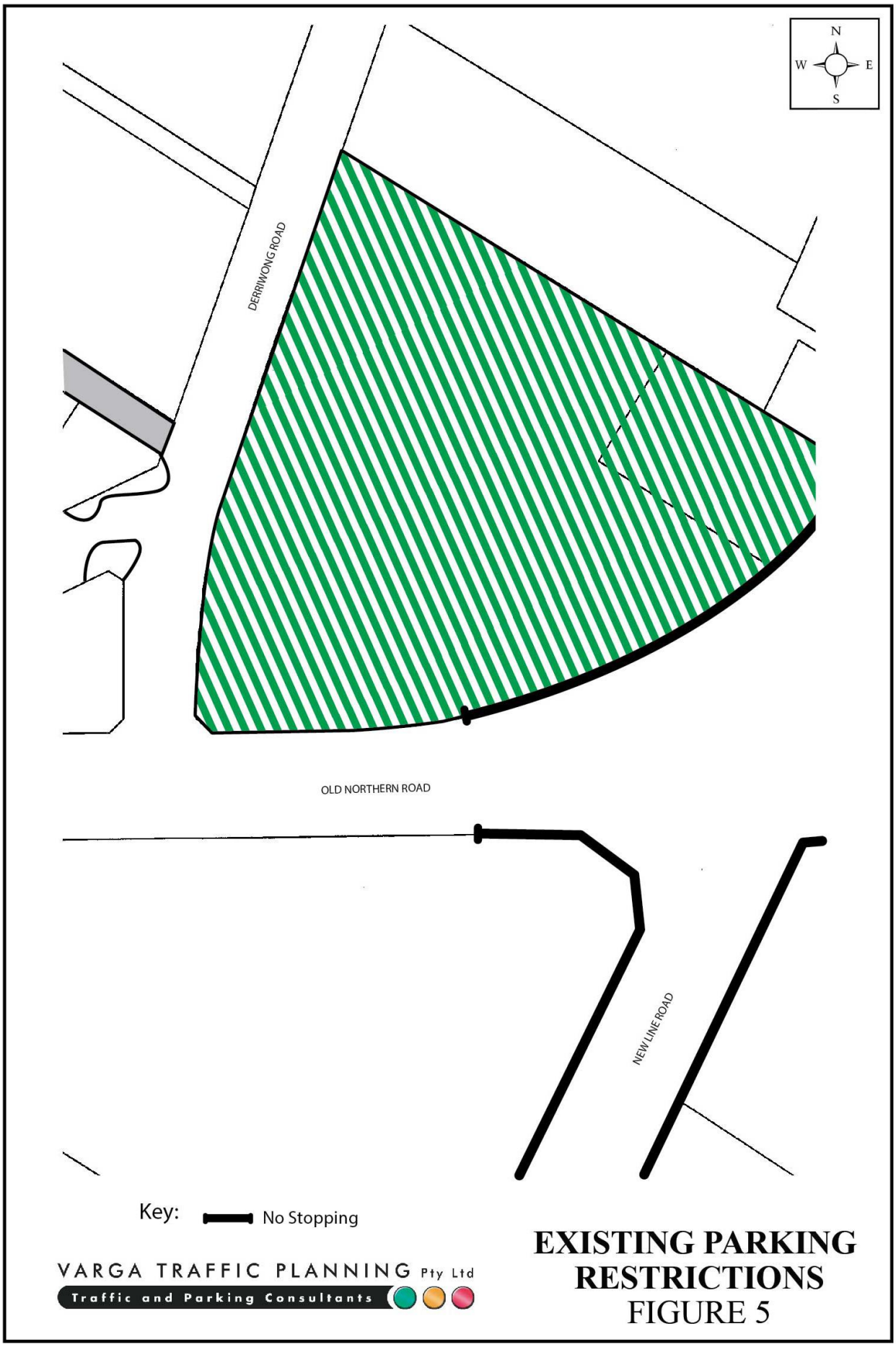
Off-Street Car Parking Provisions

The off-street car parking requirements applicable to the development proposal are specified in *The Hills Development Control Plan C1 – Parking* document in the following terms:

Residential Flat Buildings and Multi Dwelling Housing	
1 bedroom	1.0 spaces per dwelling
2 or 3 bedrooms	2.0 spaces per dwelling
Visitors	2.0 spaces per 5 dwellings

Application of the above car parking requirements to the 57 residential townhouses (assumed to have 2 or more bedrooms) envisaged as outlined in the planning proposal yields an off-street car parking requirement of 114 resident spaces and 23 visitor spaces.

Preliminary concept plans, which have been prepared for the purposes of this planning proposal indicate that the required number of car parking spaces can ultimately be provided on the site in accordance with Council's Parking Code requirements.


N
W
E
S
DERRIWONG ROAD
OLD NORTHERN ROAD
NEW LINE ROAD
Key:
No Stopping
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING PARKING RESTRICTIONS
FIGURE 5

The geometric design layout of the proposed car parking facilities shall be designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* and *Parking Facilities Part 6 - Off-Street Parking for People with Disabilities AS2890.6* in respect of parking bay dimensions, aisle widths, ramp grades and widths, and overhead clearances.

Accordingly, it is clear that the off-street car parking requirements applicable to the developments envisaged by the planning proposal can be provided on the site as specified in both Council's Parking Code as well as the Australian Standards and it is therefore concluded that the planning proposal will not have any unacceptable parking implications.

Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- the proposed road reservation width of 16.5m and road pavement width of 6.5m is consistent with dimensional requirements of a local road

- the proposed development is expected to have a traffic generation potential of approximately 37 vehicles per hour during commuter peak periods

- there is adequate capacity in the surrounding road network to cater for the traffic generated by the development

- preliminary concept plans, which have been prepared for the purposes of this planning proposal indicate the required number of car parking spaces can ultimately be provided on the site and in accordance with the relevant standards and Guidelines.

APPENDIX A

TRAFFIC SURVEY DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 5482 DURAL Derriwong Rd

Day/Date : Wednesday / 4th February 2015

Lights

	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	195	2	1	5	4	128	**335**
0715 - 0730	213	3	3	3	3	146	**371**
0730 - 0745	225	0	1	7	6	146	**385**
0745 - 0800	257	2	1	7	3	155	**425**
0800 - 0815	263	1	1	7	0	192	**464**
0815 - 0830	294	2	2	6	2	207	**513**
0830 - 0845	242	1	1	7	4	234	**489**
0845 - 0900	260	3	1	8	0	209	**481**
Per End	**1949**	**14**	**11**	**50**	**22**	**1417**	**3463**

Heavies

	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	8	0	0	0	0	10	**18**
0715 - 0730	7	0	0	0	0	11	**18**
0730 - 0745	7	0	0	0	0	10	**17**
0745 - 0800	14	0	0	1	0	3	**18**
0800 - 0815	10	0	0	0	0	13	**23**
0815 - 0830	4	0	0	1	0	11	**16**
0830 - 0845	4	0	0	0	2	8	**14**
0845 - 0900	15	0	0	0	0	8	**23**
Per End	**69**	**0**	**0**	**2**	**2**	**74**	**147**

Combined

	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	203	2	1	5	4	138	**353**
0715 - 0730	220	3	3	3	3	157	**389**
0730 - 0745	232	0	1	7	6	156	**402**
0745 - 0800	271	2	1	8	3	158	**443**
0800 - 0815	273	1	1	7	0	205	**487**
0815 - 0830	298	2	2	7	2	218	**529**
0830 - 0845	246	1	1	7	6	242	**503**
0845 - 0900	275	3	1	8	0	217	**504**
Per End	**2018**	**14**	**11**	**52**	**24**	**1491**	**3610**

Lights

	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	890	7	6	22	16	575	**1516**
0715 - 0815	958	6	6	24	12	639	**1645**
0730 - 0830	1039	5	5	27	11	700	**1787**
0745 - 0845	1056	6	5	27	9	788	**1891**
0800 - 0900	1059	7	5	28	6	842	**1947**
PEAK HR	**1059**	**7**	**5**	**28**	**6**	**842**	**1947**

Heavies

	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	36	0	0	1	0	34	**71**
0715 - 0815	38	0	0	1	0	37	**76**
0730 - 0830	35	0	0	2	0	37	**74**
0745 - 0845	32	0	0	2	2	35	**71**
0800 - 0900	33	0	0	1	2	40	**76**
PEAK HR	**33**	**0**	**0**	**1**	**2**	**40**	**76**

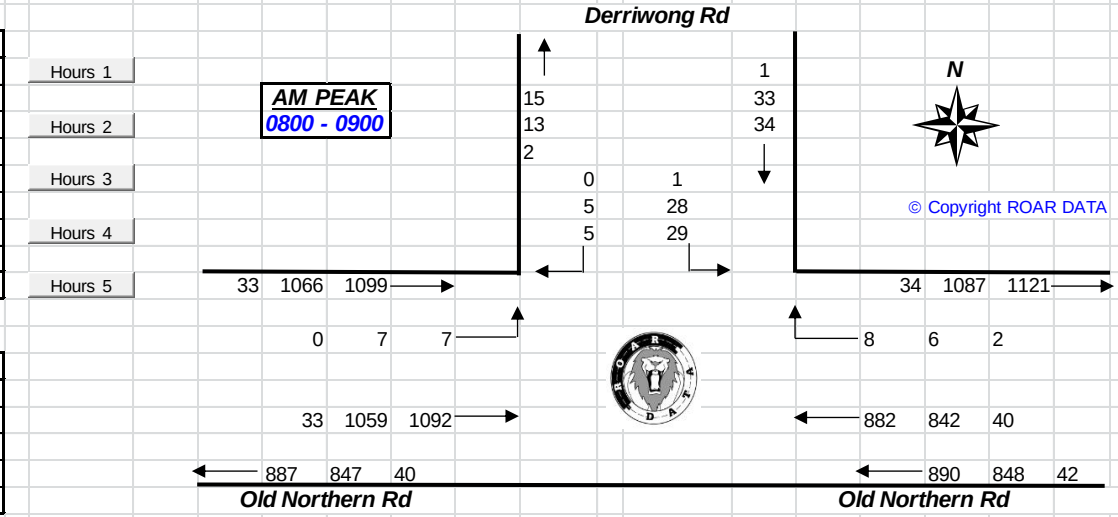
Combined

	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	926	7	6	23	16	609	**1587**
0715 - 0815	996	6	6	25	12	676	**1721**
0730 - 0830	1074	5	5	29	11	737	**1861**
0745 - 0845	1088	6	5	29	11	823	**1962**
0800 - 0900	1092	7	5	29	8	882	**2023**
PEAK HR	**1092**	**7**	**5**	**29**	**8**	**882**	**2023**

Peds

	WEST	NORTH	EAST	
Time Per	Old	Derriwong	Old	TOT
0700 - 0715	0	0	0	**0**
0715 - 0730	0	2	0	**2**
0730 - 0745	0	0	0	**0**
0745 - 0800	0	4	0	**4**
0800 - 0815	0	2	0	**2**
0815 - 0830	0	1	0	**1**
0830 - 0845	0	2	0	**2**
0845 - 0900	0	0	0	**0**
Per End	**0**	**11**	**0**	**11**

	WEST	NORTH	EAST	
Peak Per	Old	Derriwong	Old	TOT
0700 - 0800	0	6	0	**6**
0715 - 0815	0	8	0	**8**
0730 - 0830	0	7	0	**7**
0745 - 0845	0	9	0	**9**
0800 - 0900	0	5	0	**5**
PEAK HR	**0**	**5**	**0**	**5**



R.O.A.R DATA

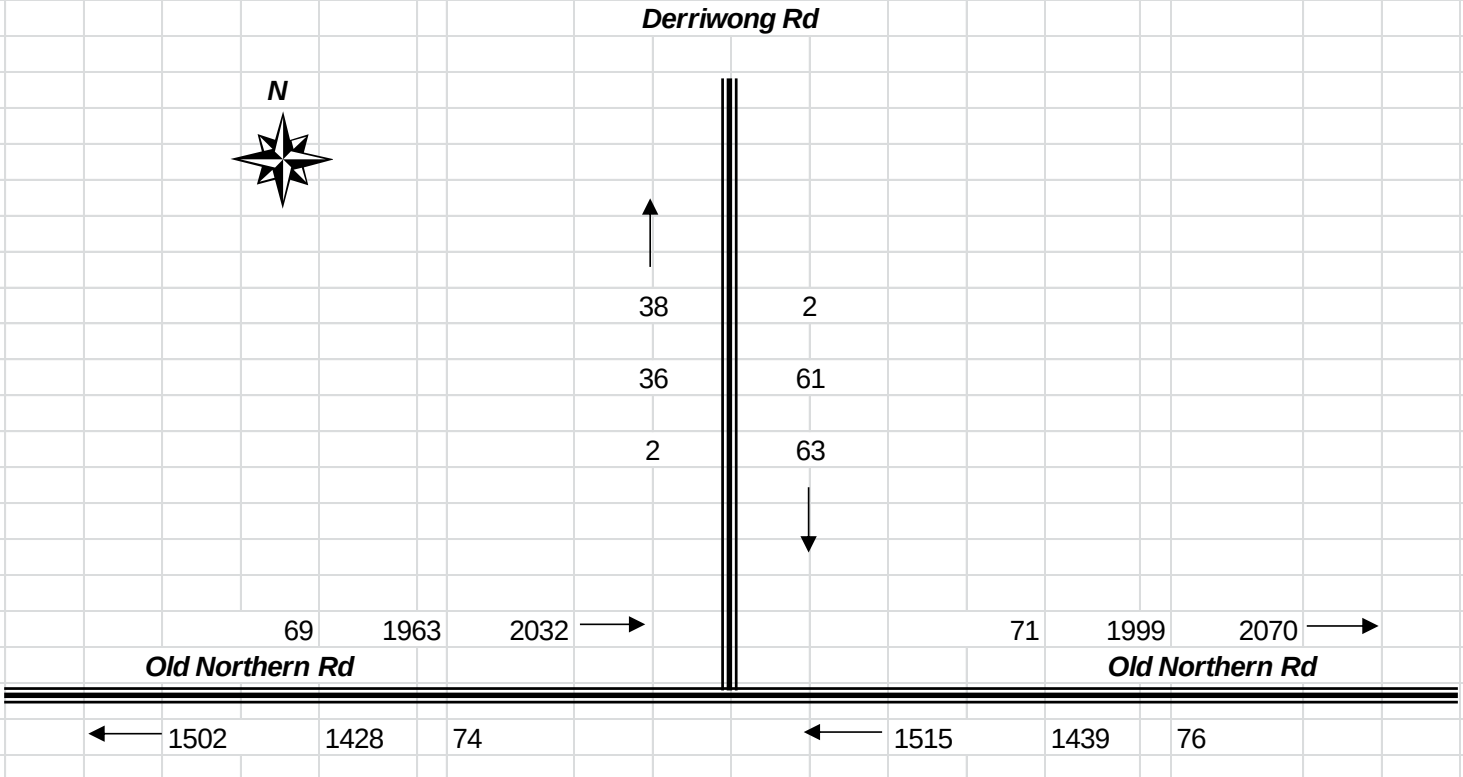
Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client	:	Varga Traffic Planning
Job No/Name	:	5482 DURAL Derriwong Rd
Day/Date	:	Wednesday / 4th February 2015

TOTAL VOLUMES FOR COUNT PERIOD

AM

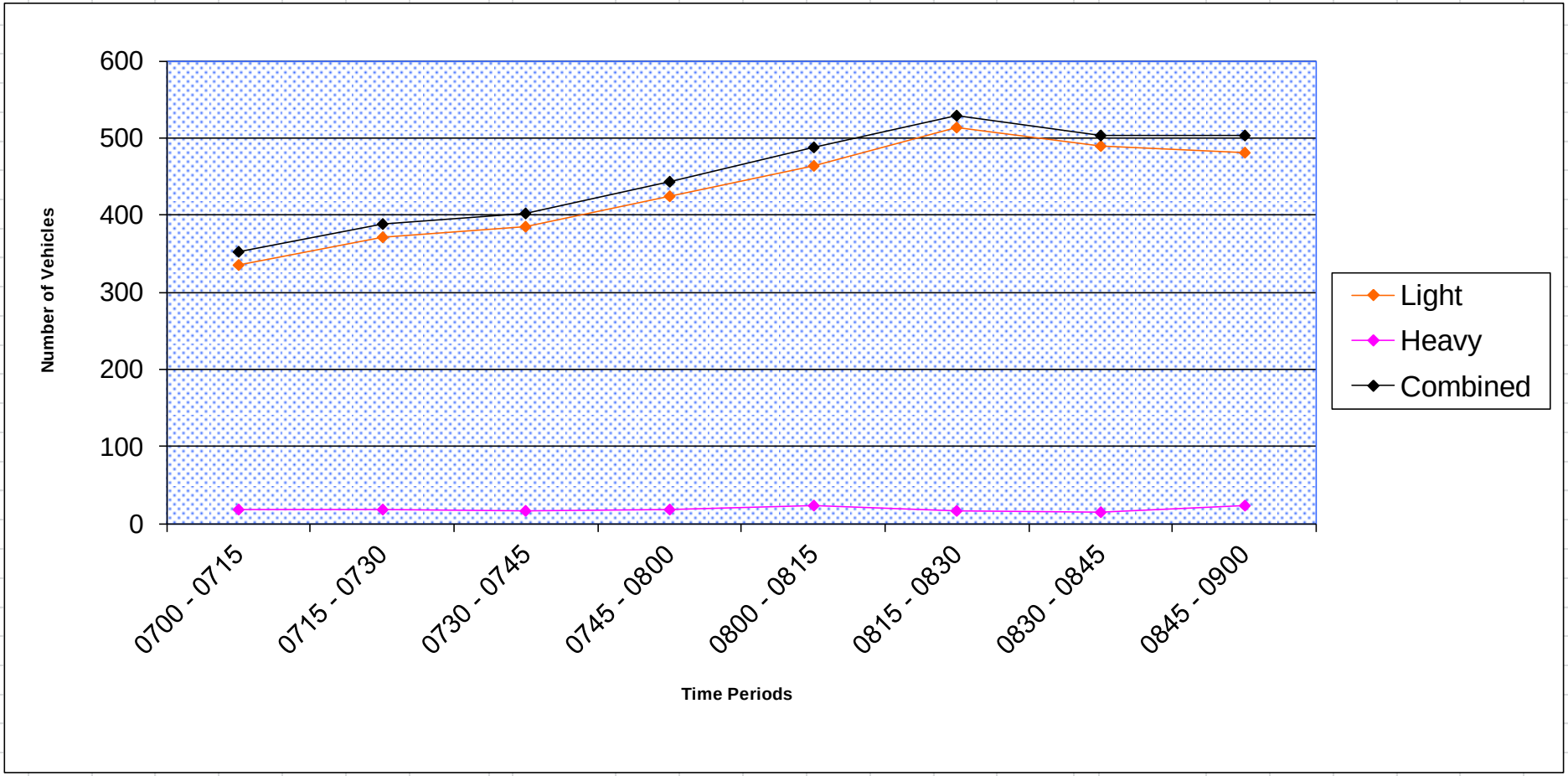


R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	:	Varga Traffic Planning
Job No/Name	:	5482 DURAL Derriwong Rd
Day/Date	:	Wednesday / 4th February 2015

AM

Derriwong Rd / Old Northern Rd



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

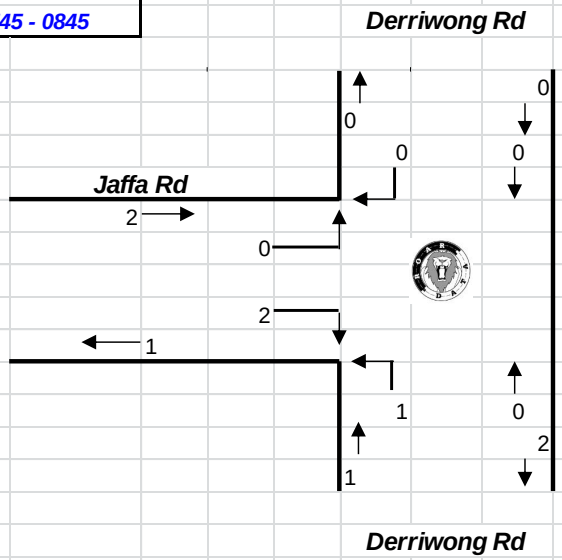
Client	: Varga Traffic Planning
Job No/Name	: 5482 DURAL Derriwong Rd
Day/Date	: Wednesday / 4th February 2015

Buses Only	WEST Jaffa Rd		NORTH Derriwong Rd		SOUTH Derriwong Rd		
Time Per	L	R	R	T	L	T	TOT
0700 - 0715	0	0	0		0		0
0715 - 0730	0	0	0		0		0
0730 - 0745	0	0	0		0		0
0745 - 0800	0	1	0		0		1
0800 - 0815	0	0	0		0		0
0815 - 0830	0	1	0		0		1
0830 - 0845	0	0	0		1		1
0845 - 0900	0	0	0		0		0
Period End	**0**	**2**	**0**	**0**	**1**	**0**	**3**

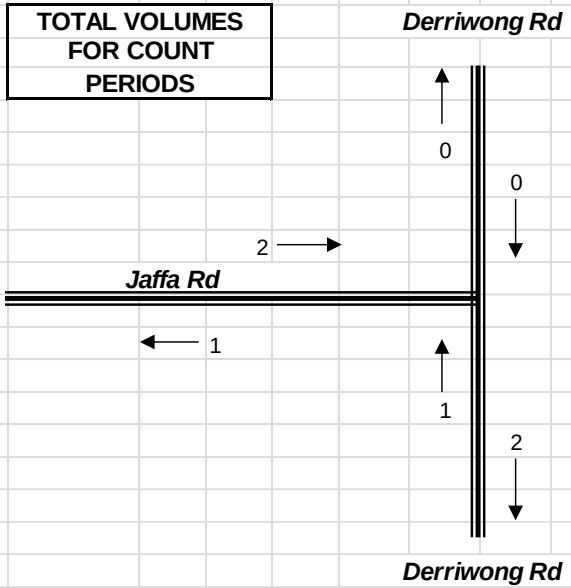
Buses Only	WEST Jaffa Rd		NORTH Derriwong Rd		SOUTH Derriwong Rd		
Peak Per	L	R	R	T	L	T	TOT
0700 - 0800	0	1	0	0	0	0	1
0715 - 0815	0	1	0	0	0	0	1
0730 - 0830	0	2	0	0	0	0	2
0745 - 0845	0	2	0	0	1	0	3
0800 - 0900	0	1	0	0	1	0	2
PEAK HR	**0**	**2**	**0**	**0**	**1**	**0**	**3**

AM PEAK HOUR

0745 - 0845



TOTAL VOLUMES FOR COUNT PERIODS



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

TIMBER SUPPLIES

Client : Varga Traffic Planning

Job No/Name : 5482 DURAL Derriwong Rd

Day/Date : Wednesday / 4th February 2015

Lights

Time Per	WEST Old T	WEST Old L	NORTH Timber R	NORTH Timber L	EAST Old R	EAST Old T	TOT
0700 - 0715		0	0	0	0		**0**
0715 - 0730		0	0	0	0		**0**
0730 - 0745		2	0	0	1		**3**
0745 - 0800		2	1	0	1		**4**
0800 - 0815		0	0	0	0		**0**
0815 - 0830		0	0	0	0		**0**
0830 - 0845		0	0	1	0		**1**
0845 - 0900		0	0	0	1		**1**
Per End	**0**	**4**	**1**	**1**	**3**	**0**	**9**

Heavies

Time Per	WEST Old T	WEST Old L	NORTH Timber R	NORTH Timber L	EAST Old R	EAST Old T	TOT
0700 - 0715		0	0	0	0		**0**
0715 - 0730		0	0	0	0		**0**
0730 - 0745		0	0	0	0		**0**
0745 - 0800		0	0	0	0		**0**
0800 - 0815		0	0	0	0		**0**
0815 - 0830		0	0	0	0		**0**
0830 - 0845		0	0	0	0		**0**
0845 - 0900		0	0	0	0		**0**
Per End	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined

Time Per	WEST Old T	WEST Old L	NORTH Timber R	NORTH Timber L	EAST Old R	EAST Old T	TOT
0700 - 0715	0	0	0	0	0	0	**0**
0715 - 0730	0	0	0	0	0	0	**0**
0730 - 0745	0	2	0	0	1	0	**3**
0745 - 0800	0	2	1	0	1	0	**4**
0800 - 0815	0	0	0	0	0	0	**0**
0815 - 0830	0	0	0	0	0	0	**0**
0830 - 0845	0	0	0	1	0	0	**1**
0845 - 0900	0	0	0	0	1	0	**1**
Per End	**0**	**4**	**1**	**1**	**3**	**0**	**9**

Lights

Peak Per	WEST Old T	WEST Old L	NORTH Timber R	NORTH Timber L	EAST Old R	EAST Old T	TOT
0700 - 0800	0	4	1	0	2	0	**7**
0715 - 0815	0	4	1	0	2	0	**7**
0730 - 0830	0	4	1	0	2	0	**7**
0745 - 0845	0	2	1	1	1	0	**5**
0800 - 0900	0	0	0	1	1	0	**2**
PEAK HR	**0**	**4**	**1**	**0**	**2**	**0**	**7**

Heavies

Peak Per	WEST Old T	WEST Old L	NORTH Timber R	NORTH Timber L	EAST Old R	EAST Old T	TOT
0700 - 0800	0	0	0	0	0	0	**0**
0715 - 0815	0	0	0	0	0	0	**0**
0730 - 0830	0	0	0	0	0	0	**0**
0745 - 0845	0	0	0	0	0	0	**0**
0800 - 0900	0	0	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined

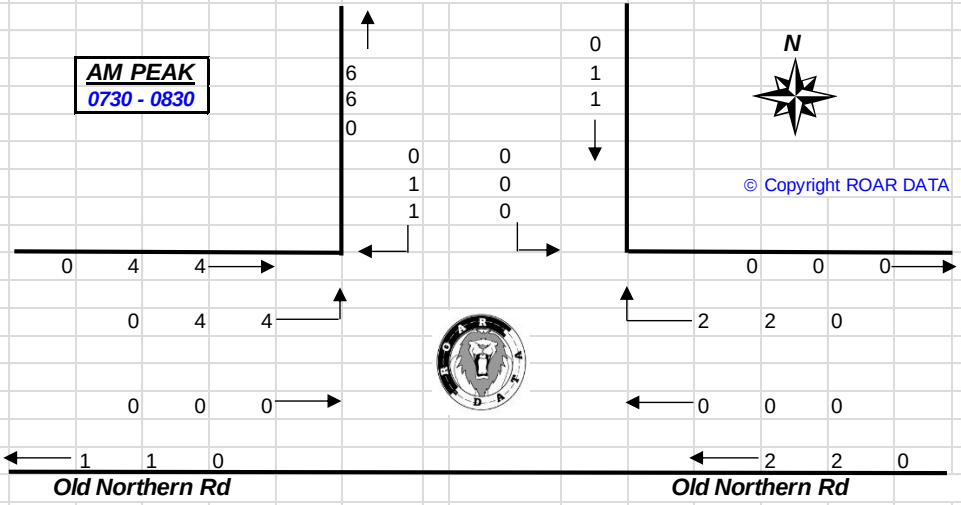
Peak Per	WEST Old T	WEST Old L	NORTH Timber R	NORTH Timber L	EAST Old R	EAST Old T	TOT
0700 - 0800	0	4	1	0	2	0	**7**
0715 - 0815	0	4	1	0	2	0	**7**
0730 - 0830	0	4	1	0	2	0	**7**
0745 - 0845	0	2	1	1	1	0	**5**
0800 - 0900	0	0	0	1	1	0	**2**
PEAK HR	**0**	**4**	**1**	**0**	**2**	**0**	**7**

Peds

Time Per	WEST Old	NORTH Timber	EAST Old	TOT
0700 - 0715				**0**
0715 - 0730				**0**
0730 - 0745		NOT		**0**
0745 - 0800		REQUIRED		**0**
0800 - 0815				**0**
0815 - 0830				**0**
0830 - 0845				**0**
0845 - 0900				**0**
Per End	**0**	**0**	**0**	**0**

Peak Per	WEST Old	NORTH Timber	EAST Old	TOT
0700 - 0800	0	0	0	**0**
0715 - 0815	0	0	0	**0**
0730 - 0830	0	0	0	**0**
0745 - 0845	0	0	0	**0**
0800 - 0900	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**

Timber Supplies



R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

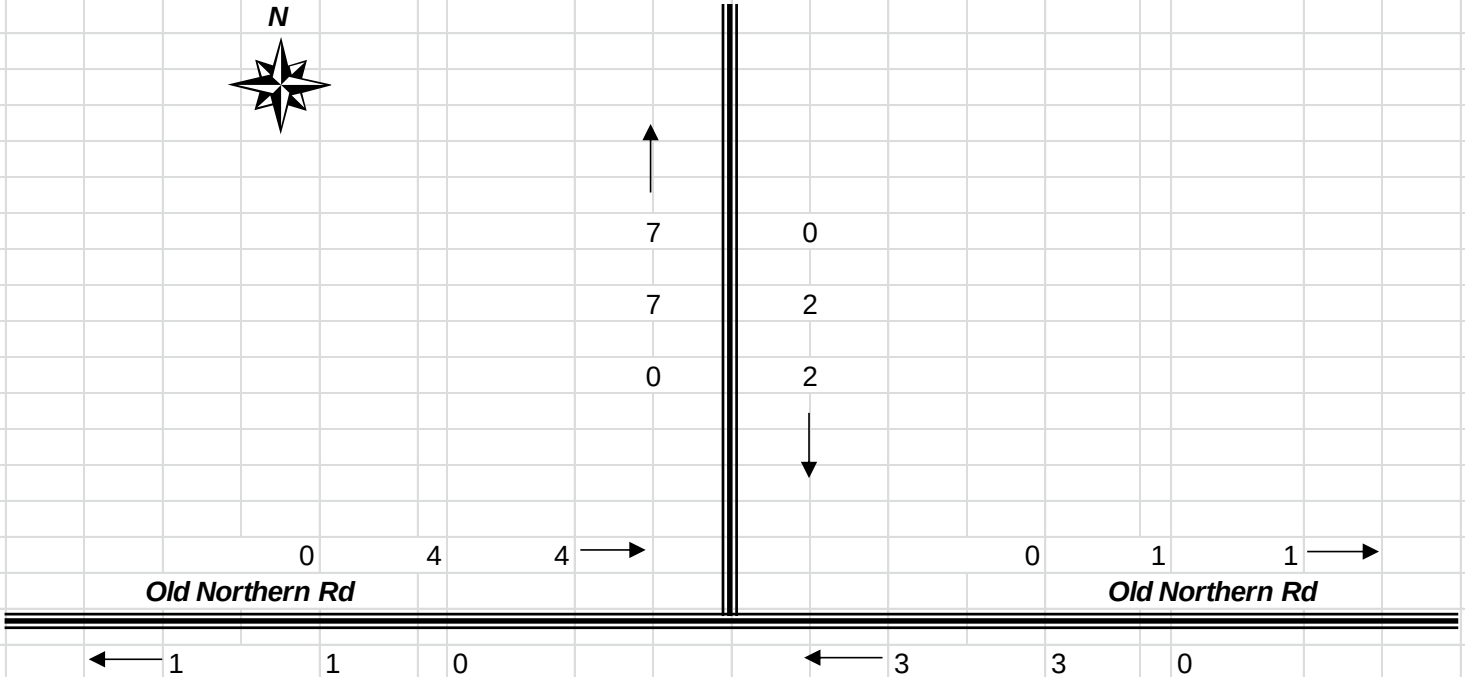
Client	:	Varga Traffic Planning
Job No/Name	:	5482 DURAL Derriwong Rd
Day/Date	:	Wednesday / 4th February 2015

TIMBER SUPPLIES

TOTAL VOLUMES FOR COUNT PERIOD

AM

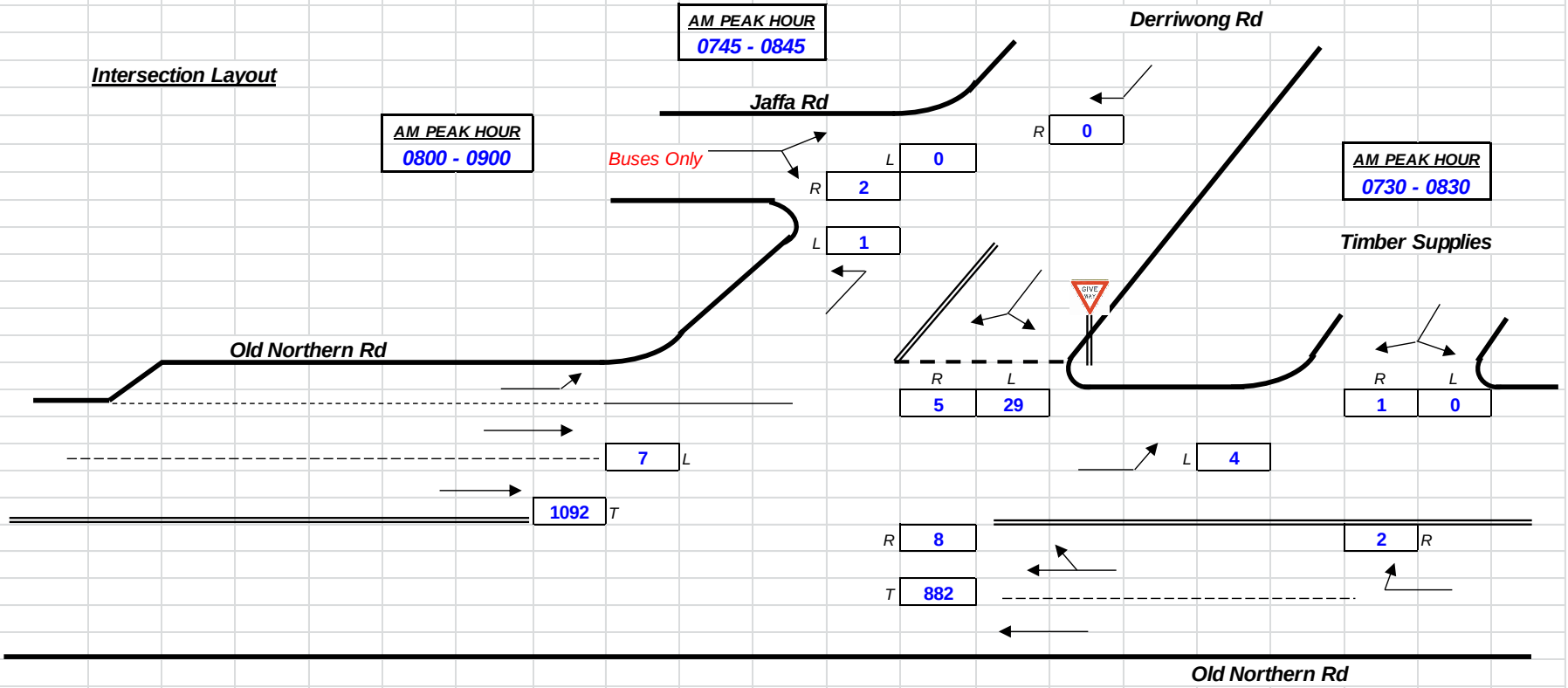
Timber Supplies



R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 5482 DURAL Derriwong Rd
Day/Date	: Wednesday / 4th February 2015

Intersection Layout



Combined Figures only

Weather >>>

N

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 5482 DURAL Derriwong Rd

Day/Date : Wednesday / 4th February 2015

Lights	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	208	1	0	5	6	253	**473**
1615 - 1630	246	3	3	5	3	258	**518**
1630 - 1645	229	3	0	4	9	255	**500**
1645 - 1700	202	1	1	6	6	236	**452**
1700 - 1715	237	2	0	9	7	266	**521**
1715 - 1730	218	2	0	3	4	253	**480**
1730 - 1745	264	3	1	1	2	219	**490**
1745 - 1800	205	1	4	5	5	185	**405**
Per End	**1809**	**16**	**9**	**38**	**42**	**1925**	**3839**

Heavies	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	13	0	0	0	0	6	**19**
1615 - 1630	7	0	0	0	0	3	**10**
1630 - 1645	7	0	0	0	0	4	**11**
1645 - 1700	13	0	0	0	0	5	**18**
1700 - 1715	5	0	0	0	0	3	**8**
1715 - 1730	3	0	0	0	0	4	**7**
1730 - 1745	3	0	0	0	0	3	**6**
1745 - 1800	2	0	0	0	0	1	**3**
Per End	**53**	**0**	**0**	**0**	**0**	**29**	**82**

Combined	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	221	1	0	5	6	259	**492**
1615 - 1630	253	3	3	5	3	261	**528**
1630 - 1645	236	3	0	4	9	259	**511**
1645 - 1700	215	1	1	6	6	241	**470**
1700 - 1715	242	2	0	9	7	269	**529**
1715 - 1730	221	2	0	3	4	257	**487**
1730 - 1745	267	3	1	1	2	222	**496**
1745 - 1800	207	1	4	5	5	186	**408**
Per End	**1862**	**16**	**9**	**38**	**42**	**1954**	**3921**

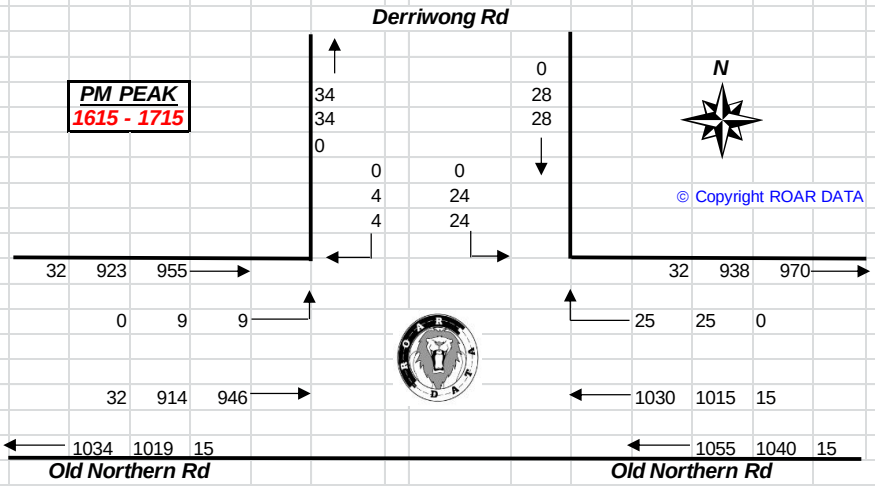
Lights	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	885	8	4	20	24	1002	**1943**
1615 - 1715	914	9	4	24	25	1015	**1991**
1630 - 1730	886	8	1	22	26	1010	**1953**
1645 - 1745	921	8	2	19	19	974	**1943**
1700 - 1800	924	8	5	18	18	923	**1896**
PEAK HR	**914**	**9**	**4**	**24**	**25**	**1015**	**1991**

Heavies	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	40	0	0	0	0	18	**58**
1615 - 1715	32	0	0	0	0	15	**47**
1630 - 1730	28	0	0	0	0	16	**44**
1645 - 1745	24	0	0	0	0	15	**39**
1700 - 1800	13	0	0	0	0	11	**24**
PEAK HR	**32**	**0**	**0**	**0**	**0**	**15**	**47**

Combined	WEST		NORTH		EAST		
	Old		*Derriwong*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	925	8	4	20	24	1020	**2001**
1615 - 1715	946	9	4	24	25	1030	**2038**
1630 - 1730	914	8	1	22	26	1026	**1997**
1645 - 1745	945	8	2	19	19	989	**1982**
1700 - 1800	937	8	5	18	18	934	**1920**
PEAK HR	**946**	**9**	**4**	**24**	**25**	**###**	**2038**

Peds	WEST	NORTH	EAST	
Time Per	Old	Derriwong	Old	TOT
1600 - 1615	0	2	0	**2**
1615 - 1630	0	0	0	**0**
1630 - 1645	0	0	0	**0**
1645 - 1700	0	0	0	**0**
1700 - 1715	0	1	0	**1**
1715 - 1730	3	1	0	**4**
1730 - 1745	0	1	0	**1**
1745 - 1800	0	0	0	**0**
Per End	**3**	**5**	**0**	**8**

	WEST	NORTH	EAST	
Peak Per	Old	Derriwong	Old	TOT
1600 - 1700	0	2	0	**2**
1615 - 1715	0	1	0	**1**
1630 - 1730	3	2	0	**5**
1645 - 1745	3	3	0	**6**
1700 - 1800	3	3	0	**6**
PEAK HR	**0**	**1**	**0**	**1**

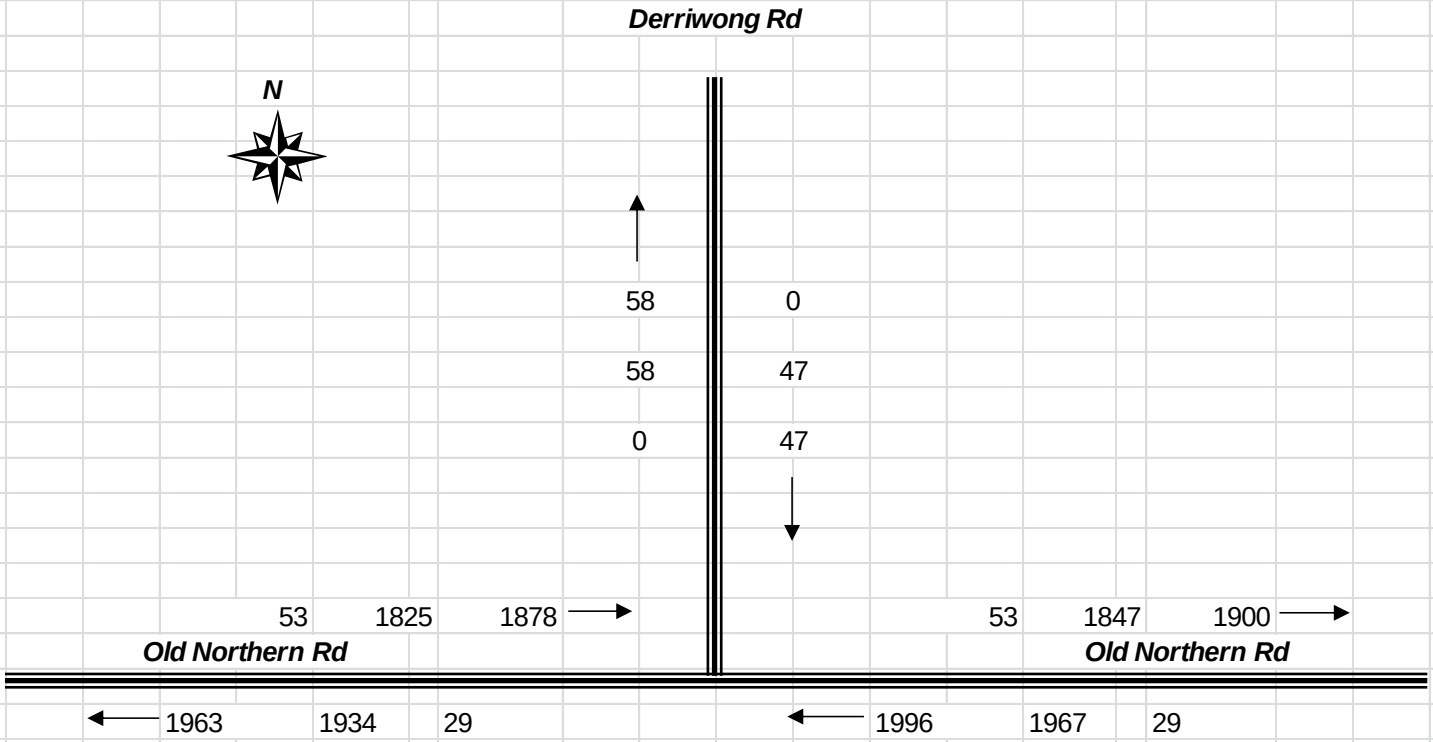


R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	:	Varga Traffic Planning
Job No/Name	:	5482 DURAL Derriwong Rd
Day/Date	:	Wednesday / 4th February 2015

TOTAL VOLUMES FOR COUNT PERIOD

PM

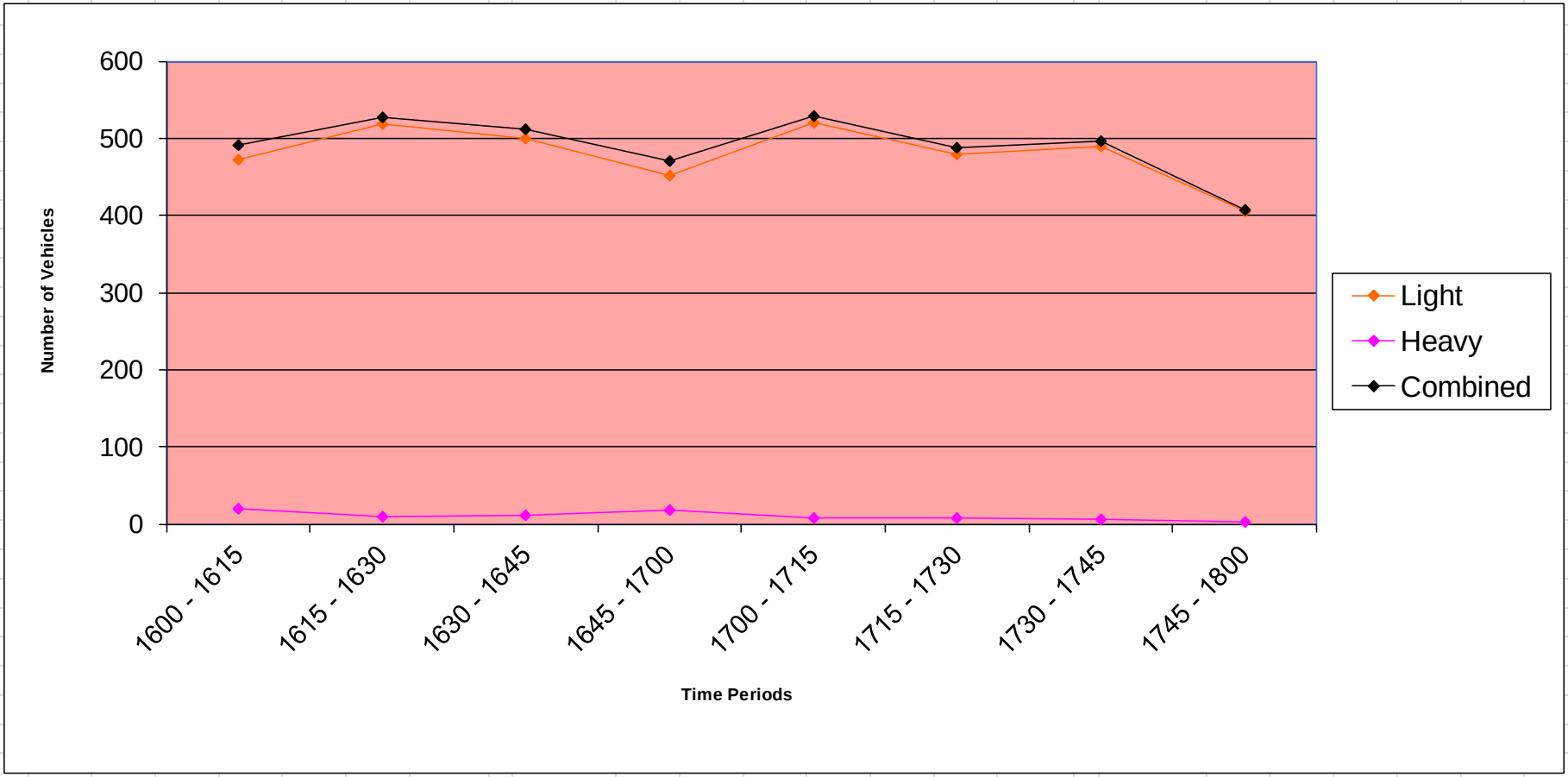


R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	:	Varga Traffic Planning
Job No/Name	:	5482 DURAL Derriwong Rd
Day/Date	:	Wednesday / 4th February 2015

PM

Derriwong Rd / Old Northern Rd



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

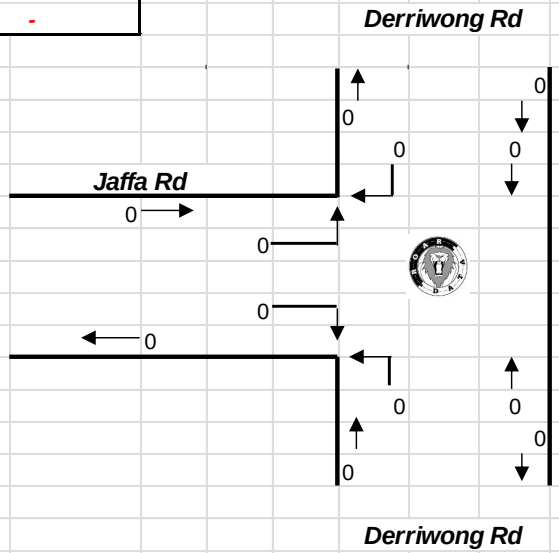
Client	: Varga Traffic Planning
Job No/Name	: 5482 DURAL Derriwong Rd
Day/Date	: Wednesday / 4th February 2015

Buses Only	WEST Jaffa Rd		NORTH Derriwong Rd		SOUTH Derriwong Rd		
Time Per	L	R	R	T	L	T	TOT
1600 - 1615	0	0	0		0		**0**
1615 - 1630	0	0	0		0		**0**
1630 - 1645	0	0	0		0		**0**
1645 - 1700	0	0	0		0		**0**
1700 - 1715	0	0	0		0		**0**
1715 - 1730	0	0	0		0		**0**
1730 - 1745	0	0	0		0		**0**
1745 - 1800	0	0	0		0		**0**
Period End	**0**	**0**	**0**	**0**	**0**	**0**	**0**

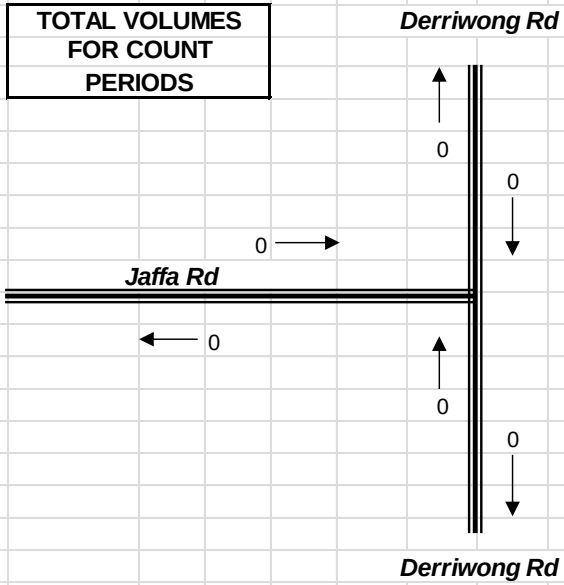
Buses Only	WEST Jaffa Rd		NORTH Derriwong Rd		SOUTH Derriwong Rd		
Peak Per	L	R	R	T	L	T	TOT
1600 - 1700	0	0	0	0	0	0	**0**
1615 - 1715	0	0	0	0	0	0	**0**
1630 - 1730	0	0	0	0	0	0	**0**
1645 - 1745	0	0	0	0	0	0	**0**
1700 - 1800	0	0	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PM PEAK HOUR

-



TOTAL VOLUMES FOR COUNT PERIODS



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

TIMBER SUPPLIES

Client : Varga Traffic Planning

Job No/Name : 5482 DURAL Derriwong Rd

Day/Date : Wednesday / 4th February 2015

Lights	WEST		NORTH		EAST		
	Old		*Timber*		*Old*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615		1	0	1	0		**2**
1615 - 1630		0	1	1	1		**3**
1630 - 1645		1	0	2	0		**3**
1645 - 1700		0	0	1	0		**1**
1700 - 1715		0	0	2	0		**2**
1715 - 1730		0	0	0	0		**0**
1730 - 1745		0	0	0	0		**0**
1745 - 1800		0	0	0	0		**0**
Per End	**0**	**2**	**1**	**7**	**1**	**0**	**11**

Heavies	WEST		NORTH		EAST		
	Old		*Timber*		*Old*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615		0	0	0	0		**0**
1615 - 1630		0	0	0	0		**0**
1630 - 1645		0	0	0	0		**0**
1645 - 1700		0	0	0	0		**0**
1700 - 1715		0	0	0	0		**0**
1715 - 1730		0	0	0	0		**0**
1730 - 1745		0	0	0	0		**0**
1745 - 1800		0	0	0	0		**0**
Per End	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined	WEST		NORTH		EAST		
	Old		*Timber*		*Old*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	0	1	0	1	0	0	**2**
1615 - 1630	0	0	1	1	1	0	**3**
1630 - 1645	0	1	0	2	0	0	**3**
1645 - 1700	0	0	0	1	0	0	**1**
1700 - 1715	0	0	0	2	0	0	**2**
1715 - 1730	0	0	0	0	0	0	**0**
1730 - 1745	0	0	0	0	0	0	**0**
1745 - 1800	0	0	0	0	0	0	**0**
Per End	**0**	**2**	**1**	**7**	**1**	**0**	**11**

Lights	WEST		NORTH		EAST		
	Old		*Timber*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	0	2	1	5	1	0	**9**
1615 - 1715	0	1	1	6	1	0	**9**
1630 - 1730	0	1	0	5	0	0	**6**
1645 - 1745	0	0	0	3	0	0	**3**
1700 - 1800	0	0	0	2	0	0	**2**
PEAK HR	**0**	**1**	**1**	**6**	**1**	**0**	**9**

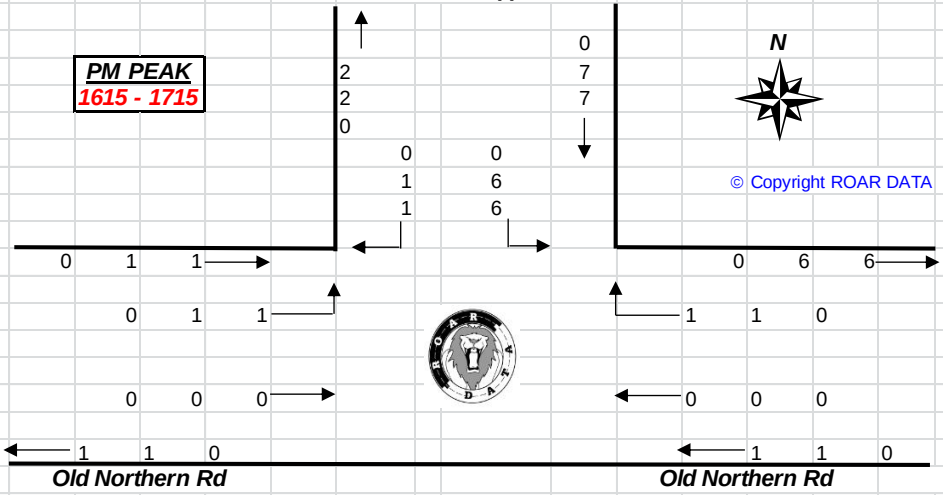
Heavies	WEST		NORTH		EAST		
	Old		*Timber*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	0	0	0	0	0	0	**0**
1615 - 1715	0	0	0	0	0	0	**0**
1630 - 1730	0	0	0	0	0	0	**0**
1645 - 1745	0	0	0	0	0	0	**0**
1700 - 1800	0	0	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined	WEST		NORTH		EAST		
	Old		*Timber*		*Old*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	0	2	1	5	1	0	**9**
1615 - 1715	0	1	1	6	1	0	**9**
1630 - 1730	0	1	0	5	0	0	**6**
1645 - 1745	0	0	0	3	0	0	**3**
1700 - 1800	0	0	0	2	0	0	**2**
PEAK HR	**0**	**1**	**1**	**6**	**1**	**0**	**9**

Peds	WEST	NORTH	EAST	
Time Per	Old	Timber	Old	TOT
1600 - 1615				**0**
1615 - 1630				**0**
1630 - 1645		NOT		**0**
1645 - 1700		REQUIRED		**0**
1700 - 1715				**0**
1715 - 1730				**0**
1730 - 1745				**0**
1745 - 1800				**0**
Per End	**0**	**0**	**0**	**0**

	WEST	NORTH	EAST	
Peak Per	Old	Timber	Old	TOT
1600 - 1700	0	0	0	**0**
1615 - 1715	0	0	0	**0**
1630 - 1730	0	0	0	**0**
1645 - 1745	0	0	0	**0**
1700 - 1800	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**

Timber Supplies



R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

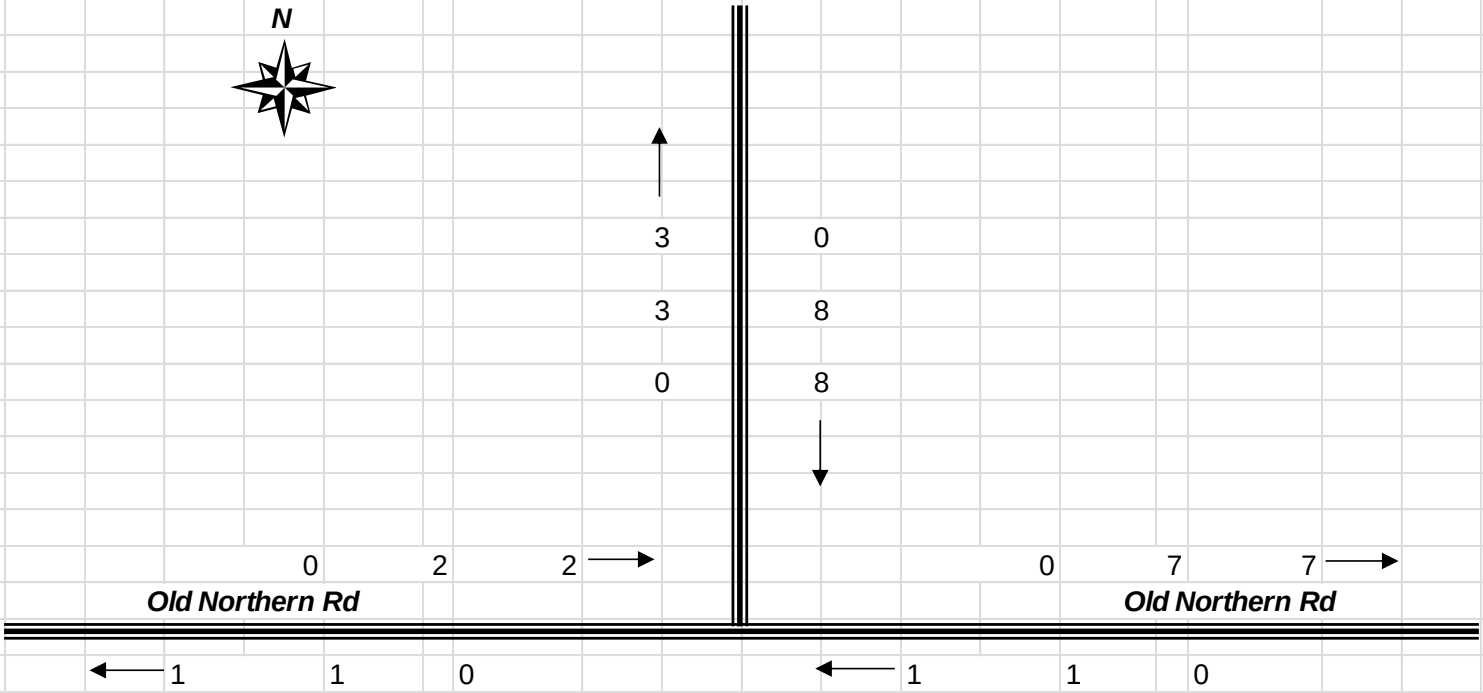
Client	:	Varga Traffic Planning
Job No/Name	:	5482 DURAL Derriwong Rd
Day/Date	:	Wednesday / 4th February 2015

TIMBER SUPPLIES

TOTAL VOLUMES FOR COUNT PERIOD

PM

Timber Supplies



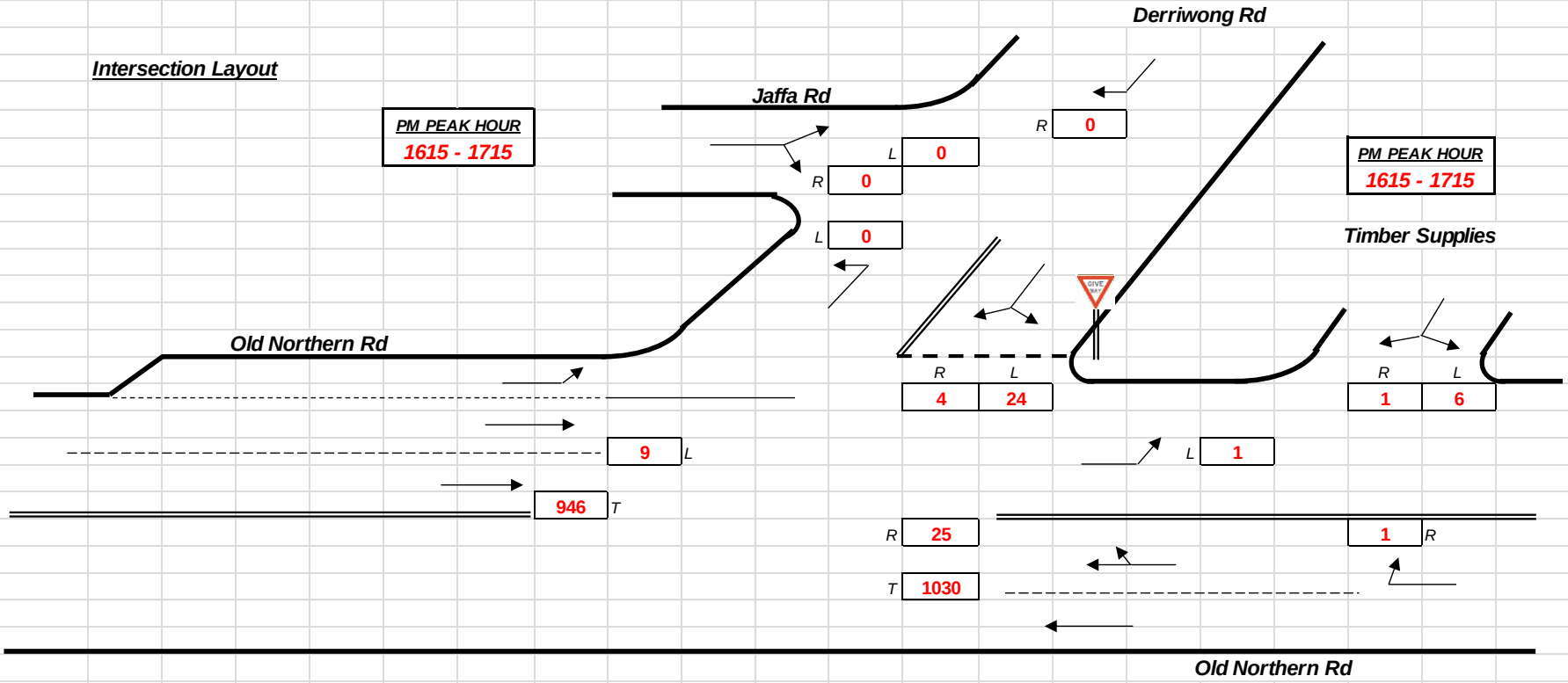
R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 5482 DURAL Derriwong Rd
Day/Date	: Wednesday / 4th February 2015

Intersection Layout



Combined Figures only

N

Weather >>>

Case Number: 145210

20 May 2015

Rockeman Town Planning
c/- Billbergia Pty Ltd

FEASIBILITY LETTER

Developer:	**Rockeman Town Planning**
Your reference:	**4136**
Development:	**582 Old Northern Road, Dural (Lot 2 DP565718)**
Development Description:	**Rezoning Application to change use from industrial to R3 Medium Density. Expected to get 100 dwelling units over the site with new roads. No plans available yet.**
Your application date:	**13 April 2015**

Dear Applicant

This Feasibility Letter (Letter) is a guide only. It provides general information about what Sydney Water's requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. **The information is accurate at today's date only.**

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (Coordinator).

Sydney Water will then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed) or
- Certificate.

These documents will be the definitive statement of Sydney Water's requirements.

There may be changes in Sydney Water's requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development eg the development description or the plan/ site layout, after today, the requirements in this Letter could change when you submit your new application; and

- if you decide to do your development in stages then you must submit a new application (and pay another application fee) for each stage.

What You Must Do To Get A Section 73 Certificate In The Future.

To get a Section 73 Certificate you must do the following things. You can also find out about this process by visiting www.sydneywater.com.au > Plumbing, building & developing > Developing > Land development.

1. **Obtain Development Consent from the consent authority for your development proposal.**

2. **Engage a Water Servicing Coordinator (Coordinator).**

   You must engage your current or another authorised Coordinator to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another Coordinator (at any point in this process) you must write and tell Sydney Water.

   For a list of authorised Coordinators, either visit www.sydneywater.com.au > Plumbing, building & developing > Developing > Providers > Lists or call **13 20 92.**

   The Coordinator will be your point of contact with Sydney Water. They can answer most questions that you might have about the process and developer charges and can give you a quote or information about costs for services/works (including Sydney Water costs).

3. **Developer Works Deed**

   After the Coordinator has submitted your new application, they will receive the Sydney Water Notice and Developer Works Deed. You and your accredited Developer Infrastructure Providers (Providers) will need to sign and lodge both copies of the Deed with your nominated Coordinator. After Sydney Water has signed the documents, one copy will be returned to the Coordinator.

   The Deed sets out for this project:

   - your responsibilities;
   - Sydney Water's responsibilities; and
   - the Provider's responsibilities.

   You must do all the things that we ask you to do in that Deed. This is because your development does not have sewer services and you must construct and pay for the following works extensions under this Deed to provide these services.

   Note: The Coordinator must be fully authorised by us for the whole time of the agreement.

4. **Water and Sewer Works**

   4.1 **Water**

   Your development must have a frontage to a water main that is the right size and can be used for connection.

Sydney Water has assessed your application and found that:

- Preliminary investigation indicates that the trunk water system has adequate capacity to service the proposed development.
- The proposed development will require extensions from the existing 250 mm CICL main in Old Northern Road and the 100mm CICL main in Derriwong Road.
- At Section 73 stage the WSC/Designer will need to ensure that a concept plan with proposed connection points is submitted.
- The submitted design will be sized and configured according to the Water Supply Code of Australia. Evidence of Code compliance should be attached with the design.
- Detailed requirements will be provided at Section 73 phase.

- **You must construct water main extensions within the proposed roads to provide frontage for each lot in your development**. The terms of the Deed define this extension as 'Major Works'.

- The existing water property service and 25mm meter will be unsuitable for reuse in the proposed development and must be removed. Your Coordinator will be able to provide further advice regarding this.

- **Property Service (Main to Meter) Installation Details**

The property service connection must be carried out by a Sydney Water listed Driller and the installation of the property service must either be carried out or supervised by a licensed plumber. They must meet the:

(a) Administrative requirements of the New South Wales Code of Practice for Plumbing and Drainage; and
(b) Sydney Water Property Service (Main to Meter) Installations Technical Requirements.

- **Before the Certificate can be issued, your Coordinator must give Sydney Water certification that the property service works comply with Sydney Water's requirements.**

4.2 **Sewer**

Your development must have a sewer main that is the right size and can be used for connection. That sewer must also have a connection point within your development's boundaries.

Sydney Water has assessed your application and found that:

- Preliminary investigation indicates that the wastewater system has adequate capacity to

service the proposed development.

- An extension of the wastewater system will be required from the adjacent wastewater mains which will provide a point of connection at least 1m inside all the proposed lot boundaries.
- At Section 73 stage the WSC/Designer will need to ensure that a concept plan with proposed connection points is submitted.
- The submitted design will be sized and configured according to the Sewerage Code of Australia. Evidence of Code compliance should be attached with the design.
- Detailed requirements will be provided at Section 73 phase.

- **You must construct a waste water main extension to serve your development**. The terms of the Deed define this extension as 'Major Works'.

- You must use Sydney Water's new **Technical Specifications for Leak Tight Sewer Systems** to plan, design and construct the sewer. This specification must be used in conjunction with (and have precedence over) the Sewerage Code of Australia, WSA02-2002 (Sydney Water Edition).

Funding of works

Under Sydney Water's 'Funding of infrastructure to service growth' policy we may agree to contribute towards a portion of the cost of the works you are required to build. Your Water Service Coordinator can advise you in relation to this policy, the likelihood of Sydney Water sharing a portion of the cost and the process you need to satisfy Sydney Water's probity requirements.

The funding assessment will be made at the detailed design stage, prior to any construction works commencing. A firm commitment would not be made by Sydney Water until we:

- Have reviewed the detailed design and;
- Have reviewed the detailed construction quotations needed to meet our probity requirements and;
- Come to an agreement on the amount.

5. Ancillary Matters

5.1 Asset adjustments

After Sydney Water issues this Notice (and more detailed designs are available), Sydney Water may require that the water main/sewer main/stormwater located in the footway/your property needs to be adjusted/deviated. If this happens, you will need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of

this Notice and you will need to complete it **before we can issue the Certificate**. Sydney Water will need to see the completed designs for the work and we will require you to lodge a security. The security will be refunded once the work is completed.

5.2 Entry onto neighbouring property

If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use Sydney Water's **Permission to Enter** form(s) for this. You can get copies of these forms from your Coordinator or the Sydney Water website. Your Coordinator can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

5.3 Costs

Construction of these **future** works will require you to pay project management, survey, design and construction costs **directly to your suppliers**. Additional costs payable to Sydney Water may include:

- water main shutdown and disinfection;
- connection of new water mains to Sydney Water system(s);
- design and construction audit fees;
- contract administration, Operations Area Charge & Customer Redress prior to project finalisation;
- creation or alteration of easements etc; and
- water usage charges where water has been supplied for building activity purposes prior to disinfection of a newly constructed water main.

Note: Payment for any Goods and Services (including Customer Redress) provided by Sydney Water will be required prior to the issue of the Section 73 Certificate or release of the Bank Guarantee or Cash Bond.

Your Coordinator can tell you about these costs.

Multi-level individual metering requirements

Your development must either allow for or provide individual metering. This means that you must:

1. comply at all times and in all respects with the requirements of Sydney Water's "*Multi-level Individual Metering Guide*" (version dated 6 August 2014);

2. provide and install plumbing and space for individual metering in accordance with Sydney Water's "*Multi-level Individual Metering Guide*";

3. if and when you implement a strata/ stratum plan (or strata/ stratum subdivide) you must:
    a. engage an Accredited Metering Supplier ("**AMS**") to provide individual metering in accordance with the "*Multi-level Individual Metering Guide"* and meet the cost of the meters and metering system;
    b. transfer the meters and metering system to Sydney Water once the Testing Certificate has been issued by Sydney Water to the AMS and the AMS has confirmed that payment for the meters and metering system has been paid in full.

Before the Section 73 Certificate can be issued, you will be required to sign an undertaking to show that you understand and accept these metering requirements and associated costs.

Visit www.sydneywater.com.au > Plumbing, Building & Developing > Plumbing > Meters & metered standpipes to see the *Multi-level individual metering guide* and find out more.

OTHER THINGS YOU MAY NEED TO DO

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement of Sydney Water in the future because of the impact of your development on our assets. You must read them before you go any further.

Stamping and approval of your building plans

Please note that your building plans must be stamped and approved. This can be done at a Quick Check agency. For an agency list visit www.sydneywater.com.au > Plumbing, building & developing > Building > Quick Check agents or call 13 20 92.

This is not a requirement of the Certificate but the approval is needed because construction/ building works may impact on existing Sydney Water assets (e.g. water and sewer mains). In any case, these works MUST NOT commence until Sydney Water has granted approval.

Your Coordinator can tell you about the approval process including:

- Possible requirements;
- Costs; and
- Timeframes.

Note: You must obtain our written approval before you do any work on Sydney Water's systems. Sydney Water will take action to have work stopped on the site if you do not have that approval. We will apply Section 44 of the *Sydney Water Act 1994.*

Backflow Prevention Water supply connections

A backflow prevention containment device appropriate to the property's hazard rating must be installed at the property boundary. The device is to be installed on all water supplies entering the property, regardless of the supply type or metering arrangements. It is needed to reduce the risk of contamination by backflow from these supplies.

A licensed plumber with backflow accreditation can advise you of the correct requirements for your property. To view a copy of Sydney Water's Backflow Prevention Policy and a list of backflow accredited plumbers visit www.sydneywater.com.au > Plumbing, building & developing > Plumbing > Backflow prevention.

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of Sydney Water's system to provide that flow in an emergency. Sydney Water's Operating Licence directs that Sydney Water's mains are only required to provide domestic supply at a minimum pressure of 15 m head.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to a Sydney Water water main. This work must meet Sydney Water's standards in the Plumbing Code of Australia (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Disused Sewerage Service Sealing

Please do not forget that you must pay to disconnect all disused private sewerage services and seal them at the point of connection to a Sydney Water sewer main. This work must meet Sydney Water's standards in the Plumbing Code of Australia (the Code) and be done by a licensed drainer. The licensed drainer must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Soffit Requirements

Please be aware that floor levels must be able to meet Sydney Water's soffit requirements for property connection and drainage.

Other fees and requirements

The requirements in this Notice relate to your Certificate application only. Sydney Water may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs;
- the installation of backflow prevention devices; and
- council fire fighting requirements. (It will help you to know what the fire fighting requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

No warranties or assurances can be given about the suitability of this document or any of

its provisions for any specific transaction. It does not constitute an approval from Sydney Water and to the extent that it is able, Sydney Water limits its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

END