

Planning Proposal for a new Residential Development

**2-22 William Street,
Granville**

TRAFFIC AND PARKING ASSESSMENT REPORT

9 December 2015

Ref 15644

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants 

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Document Verification

Location:	2-22 William St, Granville	Job Number		15644	
Revision	Details	Prepared		Approved	
Final	Planning Proposal	By	Date	By	Date
		TY	13/10/15	CP	9/12/15

1. INTRODUCTION

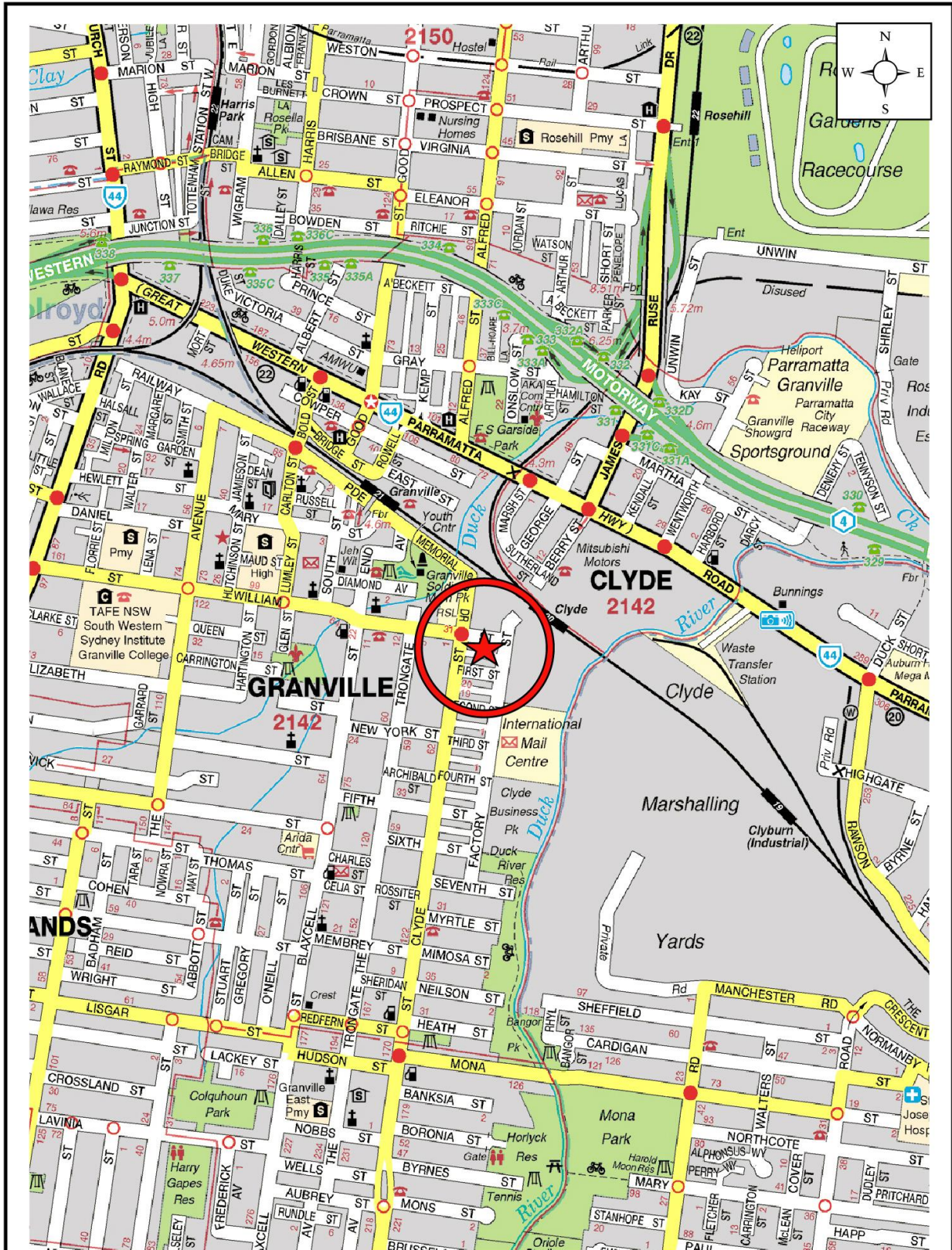
This report has been prepared to accompany a planning proposal to Parramatta City Council for a residential development to be located at 2-22 William Street, Granville (Figures 1 and 2).

The planning proposal seeks to divide the subject site into two sites; No. 2-8 William Street and also No. 10-22 William Street. The planning proposal also involves the demolition of the existing buildings on the site to facilitate the construction of a new residential development, comprising a total of four apartment buildings – i.e. two buildings on both sites.

Off-street parking for the two adjacent sites is to be provided in two respective basement car parking areas. The car parking and vehicular access arrangements will ultimately be designed in accordance with Council's requirements as well as the relevant standards and guidelines.

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

- describes the site and provides details of the planning proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- reviews the public transport services available in the vicinity of the site
- estimates the traffic generation potential of the planning proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the planning proposal in terms of road network capacity
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.



VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants



LOCATION FIGURE 1



2. PROPOSED DEVELOPMENT

Site

The subject site is comprised of seven adjacent allotments, bounded by William Street, Clyde Street, Factory Street and a rear service lane. The site has street frontages approximately 36 metres in length to both Clyde Street & Factory Street and approximately 105 metres to both William Street & the rear service lane. The site occupies an area of approximately 3,700m².

No. 2 William Street is currently occupied by an old residential flat building comprised of 6 residential units. An open, unmarked concrete car parking area is provided for residents behind the building, accessed directly via the rear service lane.

Nos 4-10 & 22 William Street are occupied by five residential dwelling houses, each comprised with a vehicle garage accessed directly via the rear service lane.

No. 12 William Street is currently occupied by a factory building with a floor area estimated to be approximately 850m². Vehicular access to the site is provided via the rear service lane and also a single driveway in William Street.

Proposed Development

The planning proposal seeks to divide the subject site into two sites and demolish the existing buildings in order to facilitate the construction of two new residential apartment developments.

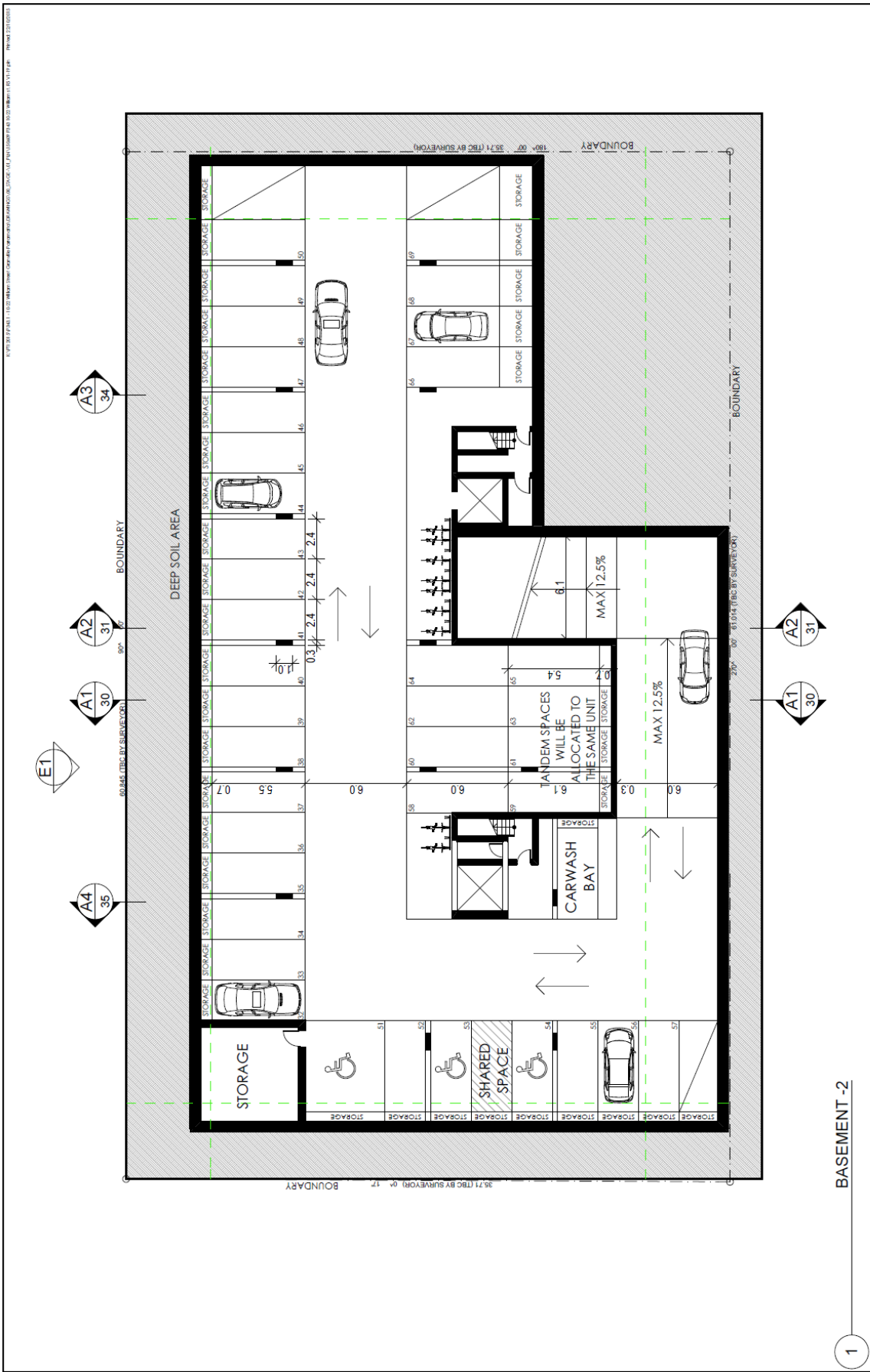
A total of 108 apartments are proposed in four new buildings on the two sites as follows:

	Site 1	Site 2
	10-22 William St, Granville	2-8 William St, Granville
1 bedroom apartments:	14	10
2 bedroom apartments:	45	34
3 bedroom apartments:	4	1
TOTAL APARTMENTS:	63	45

Off-street car parking for both sites is to be provided in separate basement car parking areas, with respective vehicular access driveways located in William Street. The car parking and vehicular access arrangements will ultimately be designed in accordance with Council's requirements as well as the relevant standards and guidelines.

Garbage collection is expected to be collected from the garbage collection room which is located on the ground floor level at the rear of the site fronting the rear service lane.

Plans of the proposed development have been prepared by *Project Tourism International Architecture Pty Ltd* and are reproduced in the following pages.



1

BASEMENT -2

DATE	FEB 2015
DRAWN BY	AB
CHECKED BY	PI
PROJECT NO.	P3431
SCALE	1:200 @ A3
NO.	A
REV.	PP
DATE	38
NO.	D

PROJECT ADDRESS

10-22 WILLIAM STREET,
GRANVILLE

PROJECT TITLE

BASEMENT -2 PLAN

CLIENT

SID ARIDA

Project Systems International Architecture Pty Ltd
100 St. Johns Street, Suite 100, Sydney NSW 1513
Phone: 02 9550 1000 Fax: 02 9550 1001
www.projectsystems.com.au

DATE

BY

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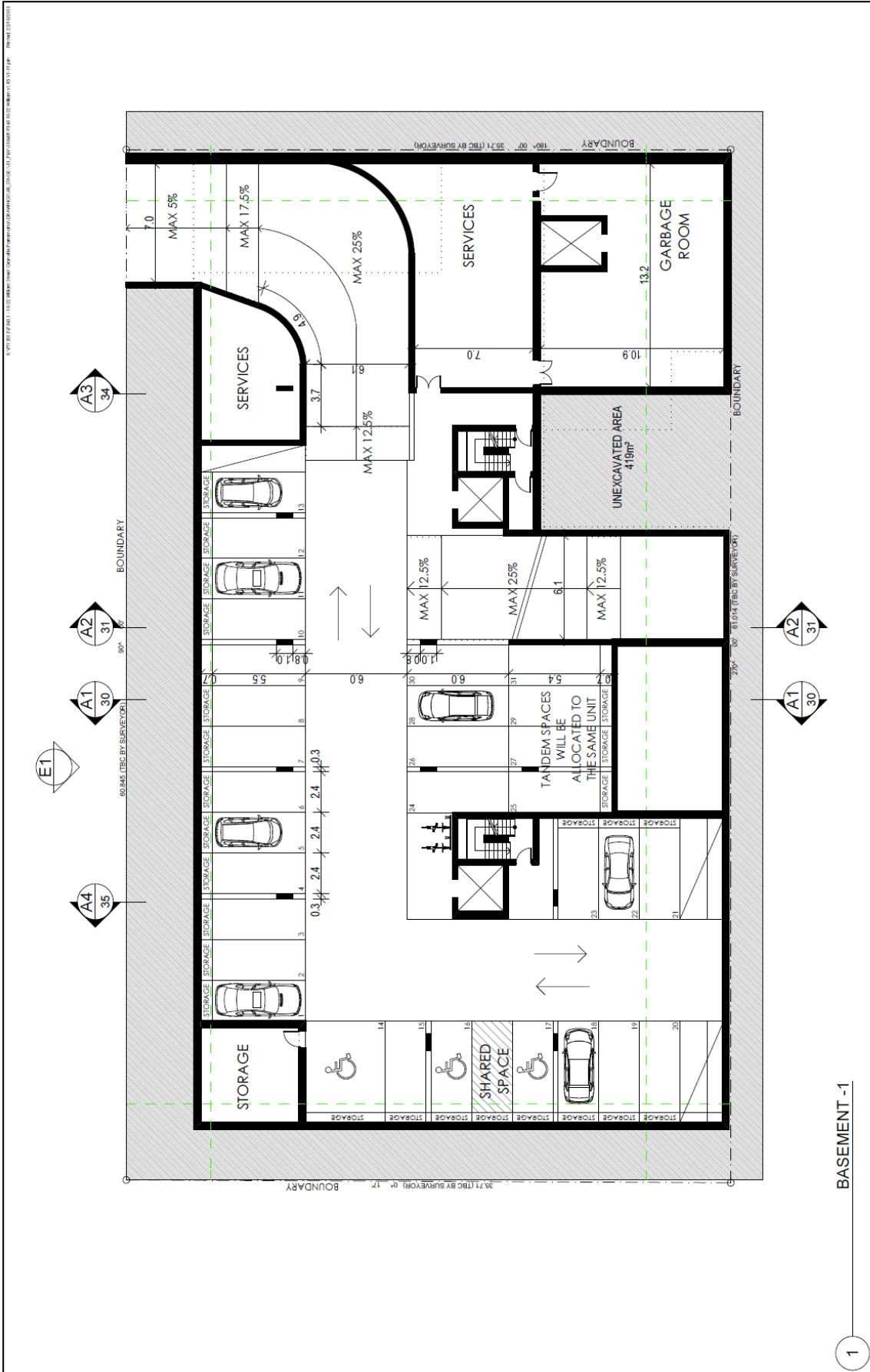
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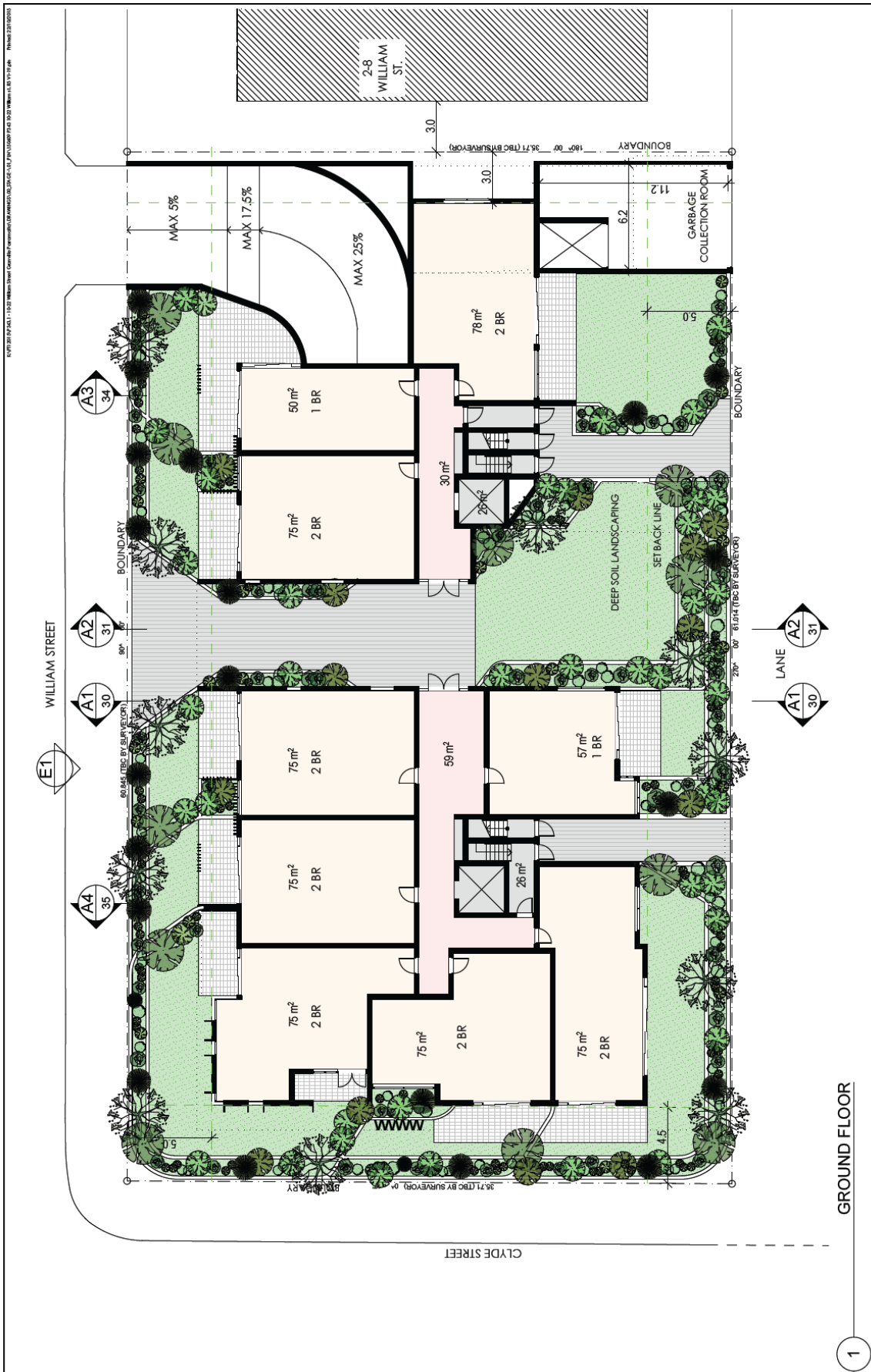
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BASEMENT - 1

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E		AB	22/10/15				
<small>NOTE: 1. Dimensions to walls of structures on the below site plan. 2. Dimensions shown with cornered ends are subject to change. 3. This drawing is to be read in conjunction with the specifications and engineer's drawings.</small>				<small>This drawing is the copyright of Project System International and is not to be used for any other purpose without the written consent of Project System International. Project System International Pty Ltd 100 West Street, Sydney, NSW 2000, Australia Ph: 02 9530 8100 Fax: 02 9530 8101</small>			
SITE: SID ARIDA ADDRESS: 10-22 WILLIAM STREET, GRANVILLE DRAWING TITLE: BASEMENT - 1 PLAN		DATE: FEB 2015 DRAWN BY: AB CHECKED BY: PI PROJECT REF: P3433 SCALE: 1:200 @ A3		SURVEYOR: N 		APPR: A PP: 37 D: TRNG:	

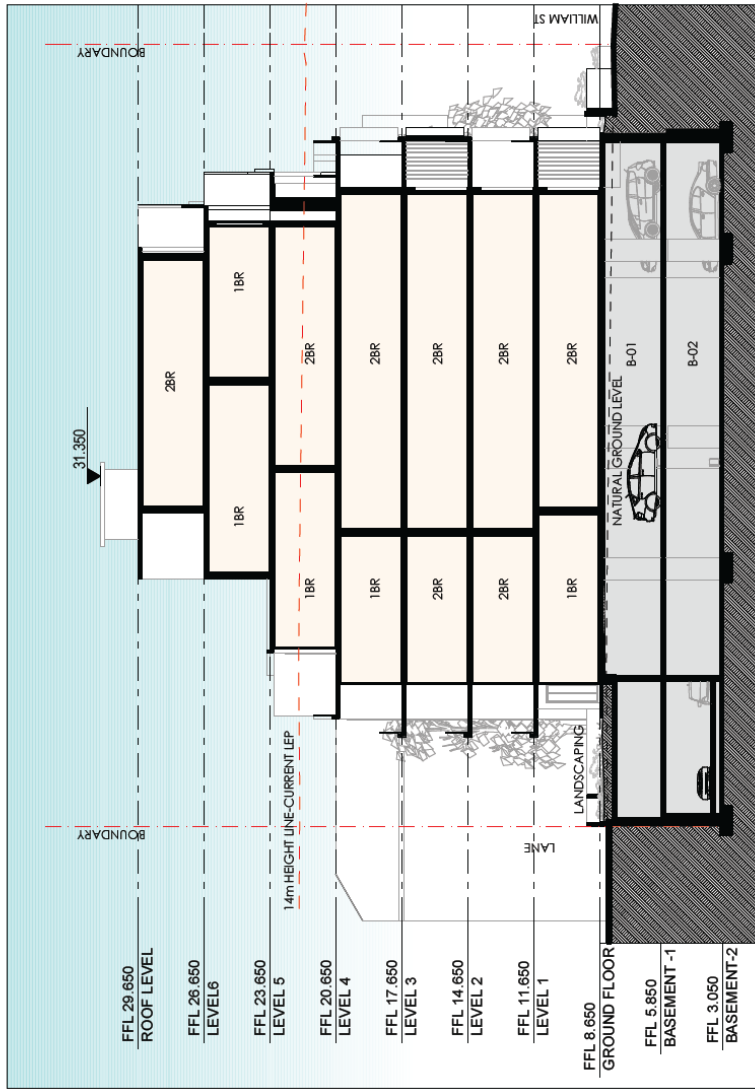


GROUND FLOOR

<p>NOTE</p> <p>1. This drawing is the property of Project Systems International and shall remain the property of Project Systems International. It is to be used only for the specific project and site mentioned herein. It is not to be used for any other project or site without the written consent of Project Systems International.</p> <p>2. The drawings are to be read in conjunction with the specifications and engineering drawings.</p> <p>3. The drawings are to be read in conjunction with the specifications and engineering drawings.</p> <p>4. The drawings are to be read in conjunction with the specifications and engineering drawings.</p>		<p>DATE: FEB 2015</p> <p>DRAWN BY: AB</p> <p>CHECKED BY: PI</p> <p>PROJECT NO: P3431</p> <p>SCALE: 1:200 @ A3</p> <p>DATE: 23</p> <p>PP</p>																									
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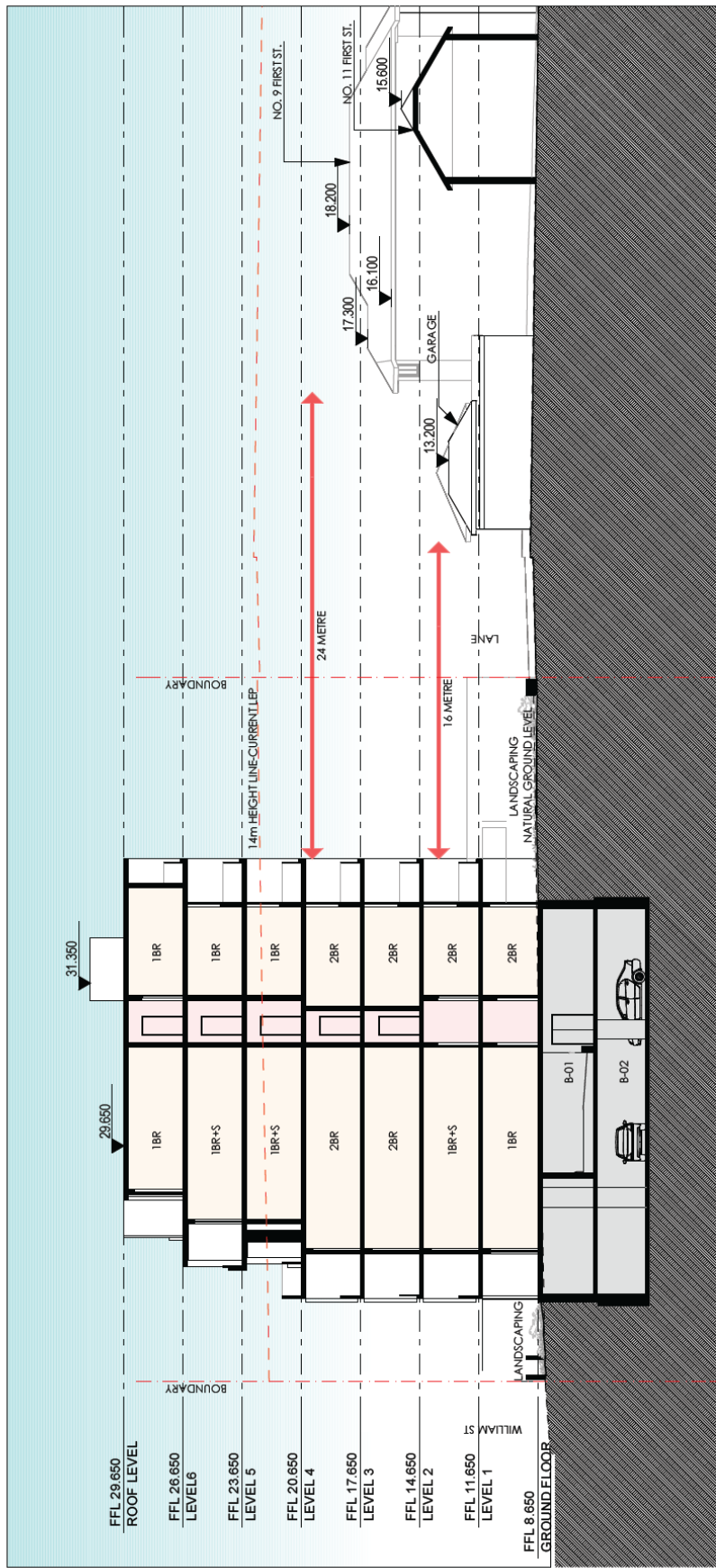
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<p>NOTE</p> <p>1. Contractor to verify all dimensions on site before any stop</p> <p>2. All dimensions to be taken in accordance to AS/NZS 4586</p> <p>3. All dimensions to be taken in accordance to AS/NZS 4586</p> <p>4. All dimensions to be taken in accordance to AS/NZS 4586</p>		<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>PLANNING PROPOSAL</td> <td></td> <td></td> </tr> <tr> <td>C</td> <td>SENT TO CONSULTANTS</td> <td></td> <td></td> </tr> <tr> <td>D</td> <td>SENT TO CONSULTANTS</td> <td></td> <td></td> </tr> </tbody> </table>		REV	DESCRIPTION	BY	DATE	B	PLANNING PROPOSAL			C	SENT TO CONSULTANTS			D	SENT TO CONSULTANTS		
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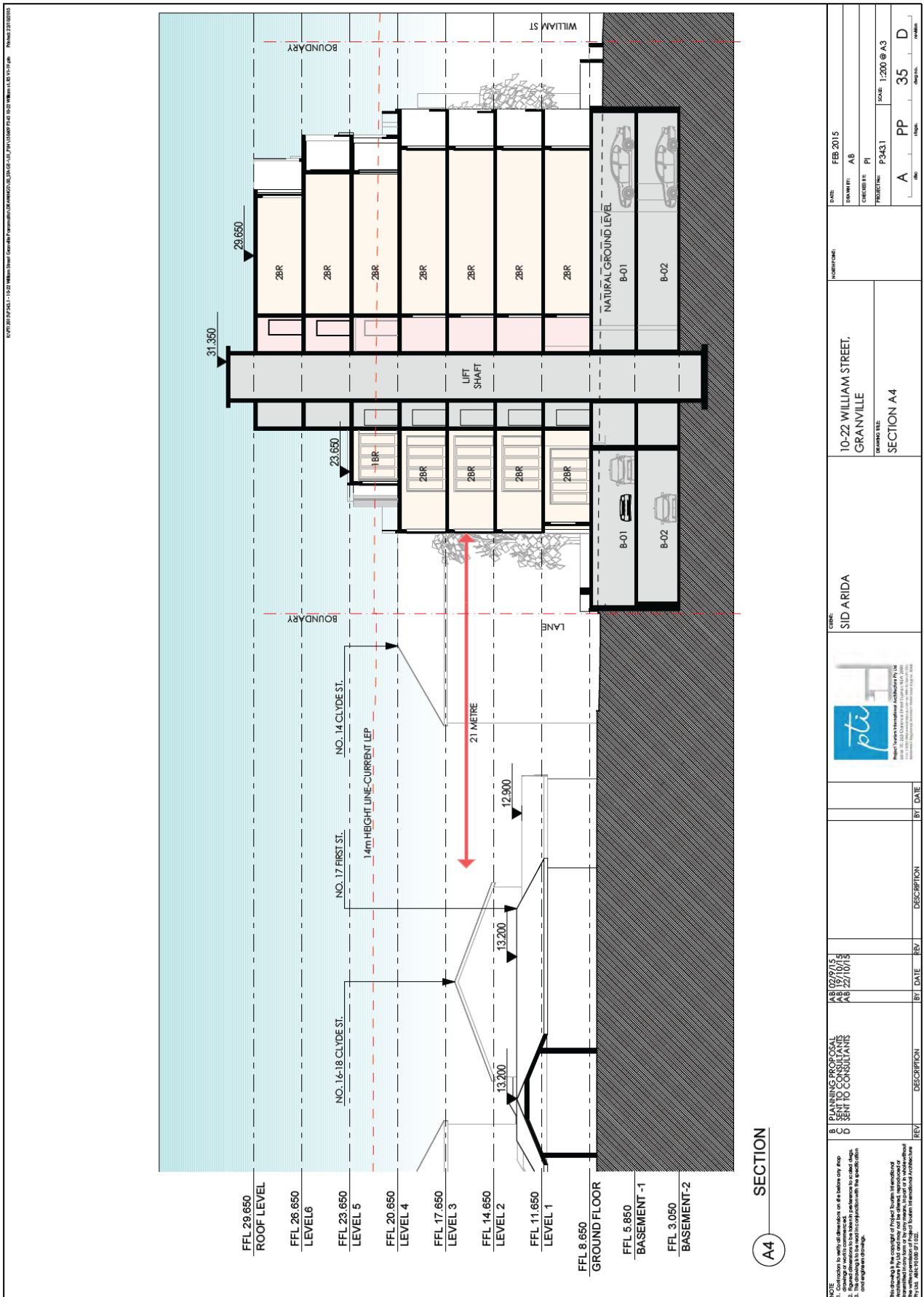
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A3 SECTION

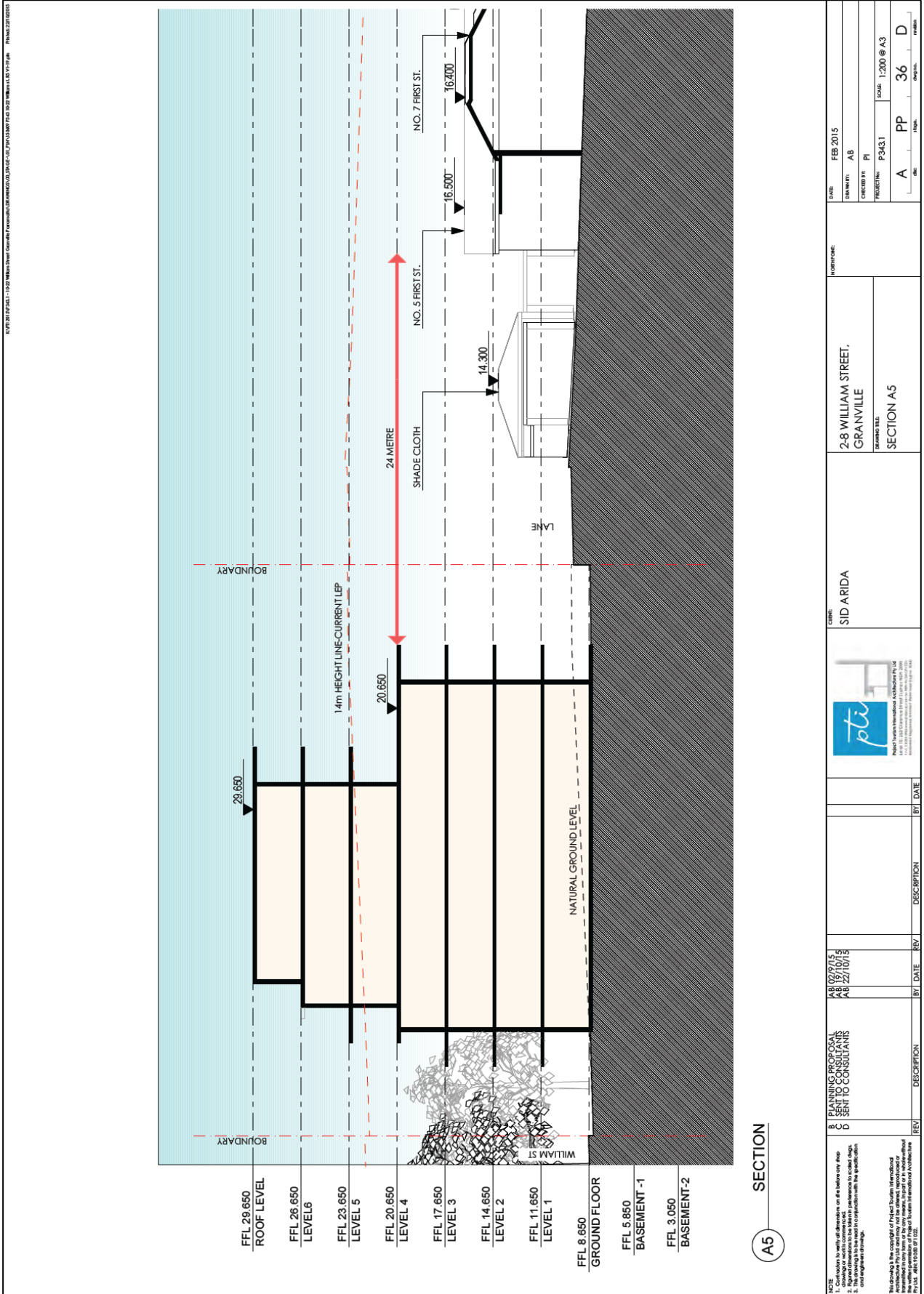
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SECTION A4

<p>DATE: FEB 2015 DRAWN BY: AB CHECKED BY: PI PROJECT No: P3431 SCALE: 1:200 @ A3</p>		<p>NO. 16-18 CLYDE ST. NO. 17 FIRST ST. NO. 14 CLYDE ST.</p>		<p>DATE: FEB 2015 DRAWN BY: AB CHECKED BY: PI PROJECT No: P3431 SCALE: 1:200 @ A3</p>	
<p>10-22 WILLIAM STREET, GRANVILLE</p>		<p>SID ARIDA</p>		<p>SECTION A4</p>	
<p>PROJECT: Sydney International Architecture Pty Ltd 10/100 Pitt Street Sydney NSW 2000 PH: 61 2 9550 1111 WWW: www.sidarida.com.au</p>		<p>REV</p>		<p>BY DATE DESCRIPTION</p>	
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<p>NOTE: 1. Corrections to work of dimensions on site before any prep. 2. Structural dimensions to be taken in accordance to scaled drawings. 3. All dimensions are in millimetres unless otherwise stated. 4. All heights are to finished ground level.</p>		<p>REV</p>		<p>BY DATE DESCRIPTION</p>	
<p>This drawing is the copyright of Project Sydney International and is not to be reproduced or used in any form without the written permission of Project Sydney International Pty Ltd. Project Sydney International Pty Ltd 10/100 Pitt Street Sydney NSW 2000 PH: 61 2 9550 1111 WWW: www.sidarida.com.au</p>		<p>REV</p>		<p>BY DATE DESCRIPTION</p>	



A5 SECTION

<p>NOTE</p> <p>1. Contractor to verify all elevations on site before any top</p> <p>2. Rigged elevations to be shown preference to actual usage.</p> <p>3. All elevations to be shown in accordance with the specific design and engineering drawings.</p> <p>4. Notwithstanding the copyright of Project Building Information Architecture Pty Ltd, drawings may not be altered, reproduced or used in any form without the written permission of Project Building Information Architecture Pty Ltd. which shall be at user's cost.</p>		<p>REV</p> <table border="1"> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> </tr> <tr> <td>B</td> <td>PLANNING PROPOSAL</td> <td>AB</td> <td>02/9/15</td> </tr> <tr> <td>C</td> <td>SENT TO CONSULTANTS</td> <td>AB</td> <td>19/10/15</td> </tr> <tr> <td>D</td> <td>SENT TO CONSULTANTS</td> <td>AB</td> <td>22/10/15</td> </tr> </table>		REV	DESCRIPTION	BY	DATE	B	PLANNING PROPOSAL	AB	02/9/15	C	SENT TO CONSULTANTS	AB	19/10/15	D	SENT TO CONSULTANTS	AB	22/10/15	<p>DATE</p> <p>FEB 2015</p> <p>DRAWN BY</p> <p>AB</p> <p>CHECKED BY</p> <p>PI</p> <p>PROJECT NO.</p> <p>P343.1</p> <p>SCALE</p> <p>1:200 @ A3</p>	
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<p>CLIENT</p> <p>SID ARIDA</p>		<p>PROJECT NAME</p> <p>2-8 WILLIAM STREET, GRANVILLE</p> <p>DRAWING NO.</p> <p>SECTION A5</p>		<p>DATE</p> <p>FEB 2015</p> <p>DRAWN BY</p> <p>AB</p> <p>CHECKED BY</p> <p>PI</p> <p>PROJECT NO.</p> <p>P343.1</p> <p>SCALE</p> <p>1:200 @ A3</p>																	

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.

Parramatta Road is classified by the RMS as a *State Road* and provides the key east-west road link in the area, linking Sydney CBD and Granville. It typically carries two traffic lanes in each direction in the vicinity of the site, with opposing traffic flows separated by a central median island. Kerbside parking is generally prohibited along both sides of the road.

Bold Street, Railway Parade, Memorial Drive and Clyde Street are classified by the RMS as *Regional Roads* which provide the key north-south road link in the area, linking Parramatta Road to Rawson Road/Wellington Road/Ferdell Street. The route typically carries one traffic lane in each direction in the vicinity of the site, with kerbside parking generally permitted along both sides of these roads.

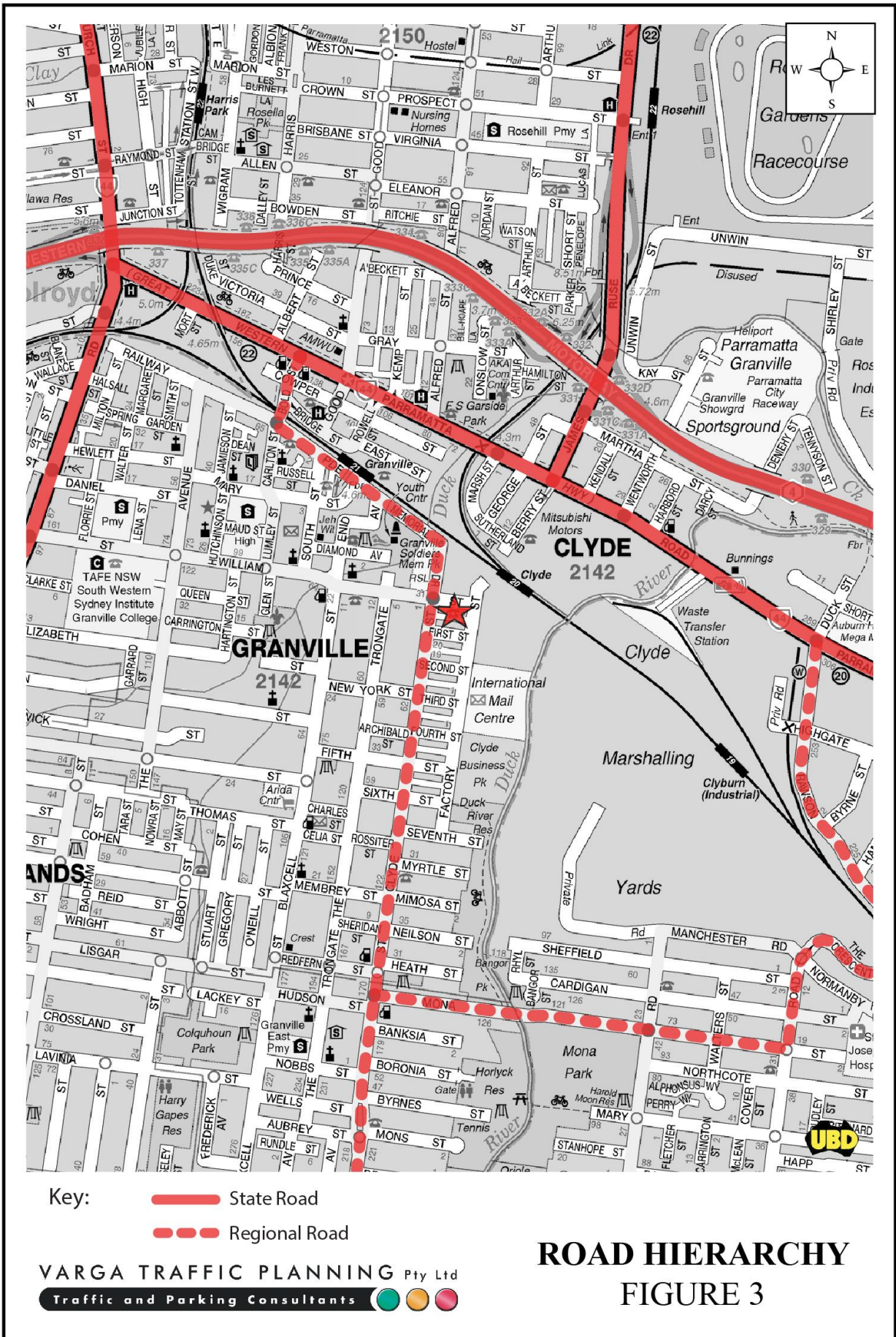
William Street and Factory Street are local, unclassified roads which are primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted along both sides of both roads.

The rear service lane behind the site connects between Clyde Street and Factory Street, and is used primarily to provide rear pedestrian and vehicular access to properties fronting William Street (i.e. the subject site) and First Street. Kerbside parking is not formally restricted, though access to existing properties are required to be maintained at all times.

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 50 km/h SPEED LIMIT which applies to William Street, Clyde Street, Factory Street and all other local roads in the area





- TRAFFIC SIGNALS in William Street where it intersects with Clyde Street/Memorial Drive, with all turning movements permitted.

Existing Public Transport Services

The existing public transport services available to the site are illustrated on Figure 5.

The subject site is conveniently located within 150 metres walking distance (approx. 2 minutes) to the Clyde Railway Station. Clyde Station is a major railway interchange that services the T1 North Shore, Northern & Western Line, T2 Airport, Inner West & South Line and T6 Carlingford Line which operates between Carlingford, Richmond, Macarthur, Campbelltown, Liverpool, Emu Plains and Sydney CBD.

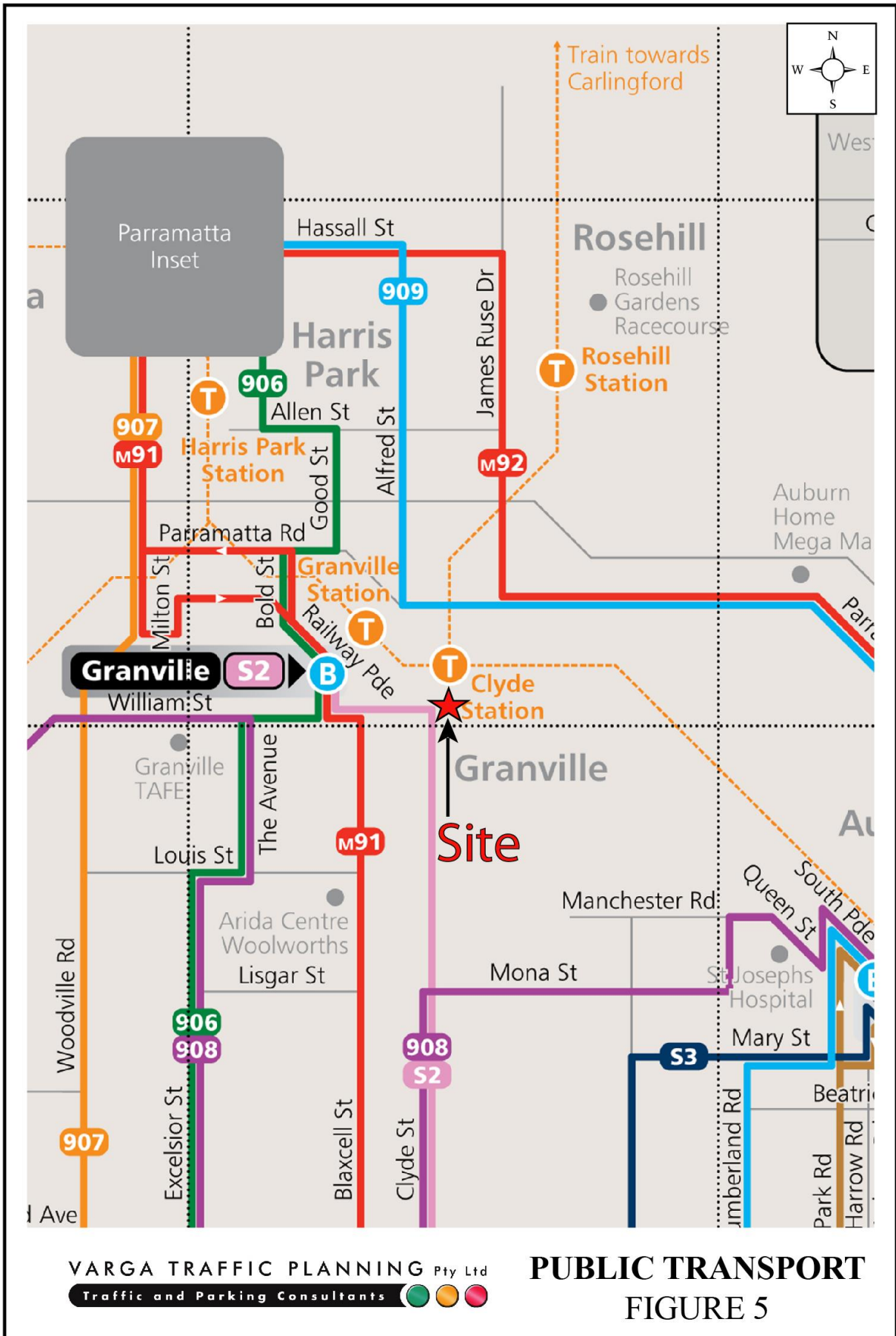
Furthermore, bus stops are located along both sides of Blaxcell Street, approximately 400m walking distance from the site, which are serviced by the high-frequency intra-regional *Metrobus M91* service between Parramatta and Hurstville. The *M91* service operates seven days per week with weekday services every 15 minutes (every 10 minutes during the morning and afternoon peak) and weekend services every 20 minutes.

On the above basis, it is considered that the site is well served by existing public transport services.

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak hour traffic surveys undertaken as part of this planning proposal traffic study. The traffic surveys were undertaken in William Street where it intersects with Clyde Street/Memorial Drive on Thursday 8th October, 2015. The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- two-way traffic flows in William Street, past the site frontage, are typically in the order of 150 vehicles per hour (vph) during peak periods



- two-way traffic flows in William Street west of Clyde Street are typically in the order of 360 vph during peak periods
- two-way traffic flows in Memorial Drive are typically in the order of 800 vph during peak periods
- two-way traffic flows in Clyde Street are typically in the order of 1,050 vph during peak periods.

Projected Traffic Generation

An indication of the traffic generation potential of the planning 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 planning proposal:

High Density Residential Flat Buildings in Sub-Regional Centres

0.29 peak hour vehicle trips/dwelling

The RMS *Guidelines* also make the following observation in respect of high density residential flat buildings:

Definition

A high density residential flat building refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than 5 levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use.

Factors

The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.

Application of the above traffic generation rates to the 108 residential apartments outlined in the planning proposal yields a traffic generation potential of approximately 31 peak hour vehicle trips.

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.

Application of the traffic generation rates nominated in the RMS *Guidelines* to the existing buildings on the site yields a traffic generation potential of approximately 17 peak hour vehicle trips as set out below:

	Existing Landuse	RMS Traffic Generation Rate	Traffic Generation Potential
No. 2 William St	6 × residential units	0.85 vph/dwelling	5.1 vehicle trips
No. 4-10 & 22 William St	5 × residential dwellings	0.6 vph/dwelling	3.0 vehicle trips
No. 12 William St	Factory (~850m ²)	1.0 vph/100m ² GFA	8.5 vehicle trips
TOTAL: 16.6 peak hour vehicle trips			

Accordingly, it is likely that the planning proposal will result in a *nett increase* in the traffic generation potential of the site of approximately 15 peak hour vehicle trips 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:	31.3 vehicle trips
Less Existing Traffic Generation Potential:	-16.6 vehicle trips
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	14.7 vehicle trips

For the purposes of this assessment however, it has been assumed that *all* of the projected future traffic flows of 31 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 planning proposal is minimal, consistent with the Council’s zoning objectives of the subject

site 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/planning 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 analysis of the William Street, Clyde Street and Memorial Drive intersection is summarised in Table 3.1 below, revealing that:

- the intersection currently operates at *Level of Service "B"* under the existing traffic demands with total average vehicle delays in the order of 21 seconds/vehicle

- under the projected future traffic demands expected to be generated by the planning proposal, the intersection is expected to continue to operate at *Level of Service "B"*, with increases in average vehicle delays of *less than* 1 second/vehicle.

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

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF WILLIAM STREET, CLYDE STREET & MEMORIAL DRIVE					
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand		
	AM	PM	AM	PM	
Level of Service	B	B	B	B	
Degree of Saturation	0.318	0.320	0.326	0.326	
Average Vehicle Delay (secs/veh)					
Clyde Street (south)	L	18.0	17.0	18.6	17.1
	T	14.8	14.6	15.3	14.6
	R	20.2	20.3	20.7	20.3
William Street (east)	L	62.2	50.5	57.4	49.5
	T	58.9	47.0	54.6	46.2
	R	64.0	53.0	59.8	52.2
Memorial Drive (north)	L	17.8	17.8	18.3	17.8
	T	15.2	15.6	15.7	15.8
	R	19.7	20.7	20.3	20.8
William Street (west)	L	32.1	31.8	31.4	32.0
	T	27.7	27.2	27.0	27.4
	R	35.0	35.5	34.4	35.6
TOTAL AVERAGE VEHICLE DELAY		20.8	21.5	21.8	21.6

WIL_CLYX

WIL_CLYP

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 signals¹ 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 6 and comprise:

- NO STOPPING restrictions in the vicinity of the Clyde Street/Memorial Drive/William Street intersection
- NO PARKING restrictions along both sides of Memorial Drive
- generally UNRESTRICTED kerbside along all four site frontages and elsewhere throughout the local area.

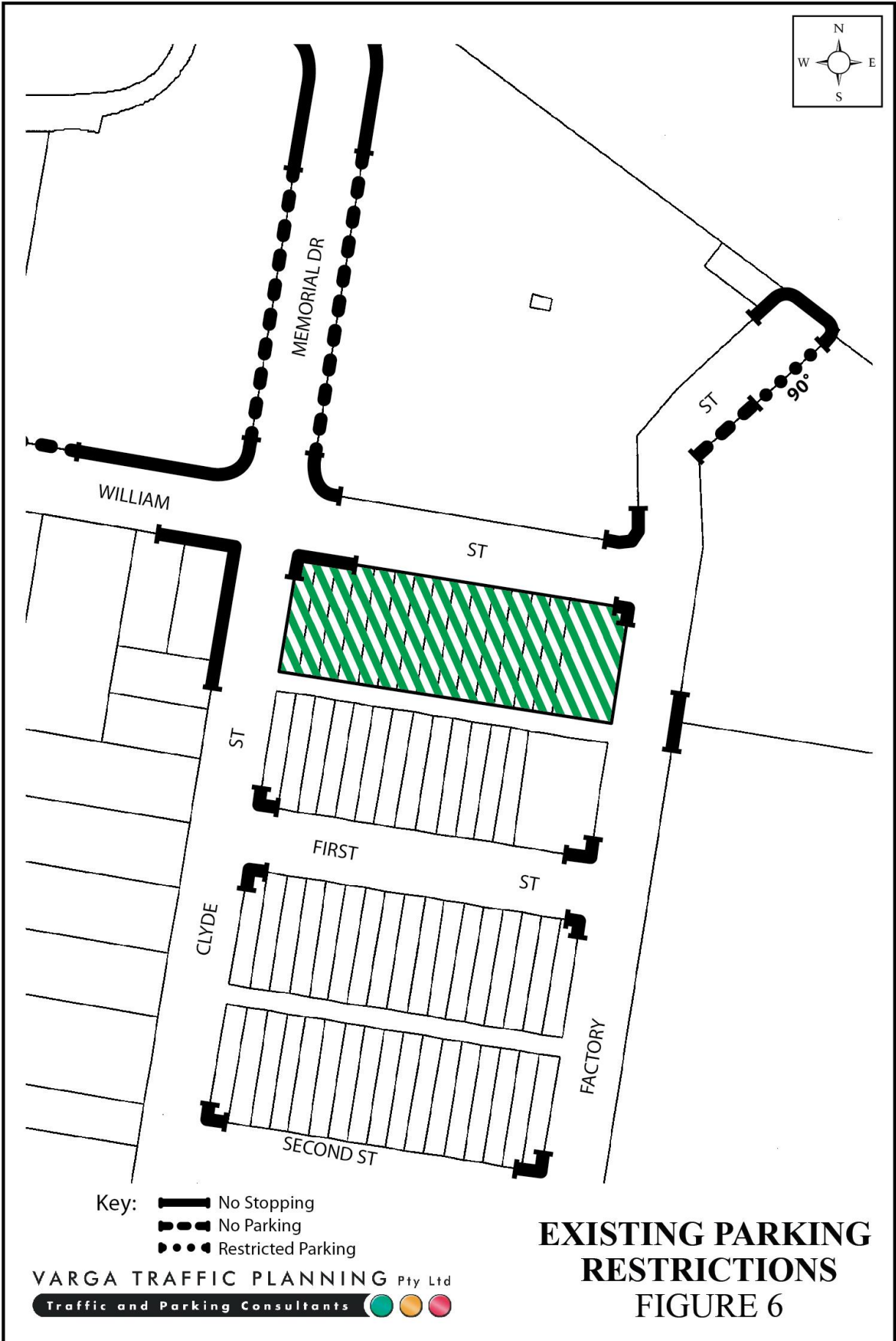
Off-Street Car Parking Provisions

The off-street car parking requirements applicable to the planning proposal are specified in *State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development (Amendment No 3), 2015* in the following terms:

30 Standards that cannot be used to refuse development consent or modification of development consent

- (1) If an application for the modification of a development consent or a development application for the carrying out of development to which this Policy applies satisfies the following design criteria, the consent authority must not refuse the application because of those matters:
 - a) if the car parking for the building will be equal to, or greater than, the recommended minimum amount of car parking specified in Part 3J of the Apartment Design Guide.

Reference is therefore made to the *Apartment Design Guide 2015, Section 3J – Bicycle and Car Parking* document which nominates the following car parking requirements applicable to residential developments located within 800 metres of a railway station in the Sydney metropolitan area:



Objective 3J-1

Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas

For development in the following locations:

- on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or
- on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre

the minimum car parking requirements for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less.

The car parking needs for a development must be provided off street.

Given the subject site is located within 150 metres of the Clyde Railway Station, comparison needs to be drawn between the off-street car parking requirements for residential flat buildings outlined in the *Parramatta DCP 2011* and also the *RMS Guidelines* to determine the *lesser* requirement. The relevant car parking rates outlined in those documents are reproduced below:

Parramatta DCP 2011 - Residential Flat Buildings (within 400m of a railway station)

1 space per 1 or 2 bedroom unit

1.2 spaces per 3 bedroom unit

2 spaces per 4 bedroom unit

Plus 0.25 space per dwelling for visitor parking

A car wash bay which may also be a visitor space

RMS Guidelines – High Density Residential Flat Buildings in Sub-Regional Centres

0.6 spaces per 1 bedroom unit

0.9 spaces per 2 bedroom unit

1.4 spaces per 3 bedroom unit

1 space per 5 units for visitor parking

Application of the above car parking requirements to the development proposal yields a minimum off-street car parking requirement of 67 and 47 spaces for Sites 1 and 2 respectively, as set out below:

Site 1: 10-22 William Street, Granville

	Parramatta DCP 2011	RMS Guidelines
Residents:	63.8 spaces	54.5 spaces
Visitors:	15.8 spaces	12.6 spaces
Total:	79.6 spaces	67.1 spaces
Lesser Car parking Requirement: 67.1 spaces		

Site 2: 2-8 William Street, Granville

	Parramatta DCP 2011	RMS Guidelines
Residents:	45.2 spaces	38.0 spaces
Visitors:	11.3 spaces	9.0 spaces
Total:	56.5 spaces	47.0 spaces
Lesser Car parking Requirement: 47.0 spaces		

That projected future car parking requirement will ultimately be satisfied in two separate basement car parking areas proposed on the site.

The geometric design layout of the future car parking facilities will also ultimately 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*.

Conclusion

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

- the planning proposal is expected to have a traffic generation potential of approximately 31 peak hour vehicle trips (for both sites combined) and is consistent with the zoning objectives of the site

- 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 and bicycle parking spaces can ultimately be provided on the site and in accordance with the relevant standards and guidelines, subject to the number of basement levels being excavated
- garbage collection is expected to be collected from the garbage collection room which is located on the ground floor level at the rear of the site fronting the rear service lane.

It is therefore concluded that the planning proposal will not have any unacceptable traffic, parking or servicing implications.

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 : 5796 GRANVILLE Clyde St
Day/Date : Thursday 8th October 2015

Lights	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Time Per	L	I	R	L	I	R	L	I	R	L	I	R	
0630 - 0645	5	44	5	2	10	34	15	90	0	0	2	3	210
0645 - 0700	12	43	1	1	13	29	16	94	2	1	1	1	214
0700 - 0715	13	73	2	0	7	15	20	92	2	1	1	2	228
0715 - 0730	8	73	0	4	9	31	19	124	2	0	4	5	279
0730 - 0745	5	82	0	2	3	21	24	127	0	0	5	4	273
0745 - 0800	5	50	0	8	15	35	24	102	2	0	2	7	250
0800 - 0815	15	74	4	2	10	36	29	103	3	0	3	5	284
0815 - 0830	14	74	1	4	8	38	27	102	0	0	5	9	282
0830 - 0845	17	41	4	7	7	37	50	92	3	1	6	2	267
0845 - 0900	11	69	1	4	4	58	57	91	0	1	6	4	306
0900 - 0915	13	52	4	3	5	40	55	82	3	0	6	4	267
0915 - 0930	5	51	0	7	2	30	30	73	1	0	3	4	206
Period End	123	726	22	44	93	404	366	1172	18	4	44	50	3066

Heavies	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Time Per	L	I	R	L	I	R	L	I	R	L	I	R	
0630 - 0645	0	3	0	0	0	0	0	7	0	0	0	0	10
0645 - 0700	3	4	1	0	0	0	0	1	0	1	0	1	11
0700 - 0715	0	1	0	0	0	0	0	2	1	1	0	1	6
0715 - 0730	1	8	0	0	0	0	0	1	1	1	0	1	13
0730 - 0745	0	3	0	0	0	1	1	1	0	1	0	0	7
0745 - 0800	0	4	0	0	0	0	0	3	1	0	0	0	8
0800 - 0815	0	0	0	0	0	0	0	5	0	0	0	0	5
0815 - 0830	0	3	0	0	0	1	0	2	1	0	0	0	7
0830 - 0845	2	2	0	0	0	1	3	1	0	0	0	0	9
0845 - 0900	0	2	0	0	1	0	0	1	1	1	0	1	7
0900 - 0915	0	4	0	0	0	1	1	2	0	2	0	0	10
0915 - 0930	0	3	0	0	0	2	0	3	3	1	0	0	12
Period End	6	37	1	0	1	5	3	31	9	8	0	4	105

Combined	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Time Per	L	I	R	L	I	R	L	I	R	L	I	R	
0630 - 0645	5	47	5	2	10	34	15	97	0	0	2	3	220
0645 - 0700	15	47	2	1	13	29	16	95	2	2	1	2	225
0700 - 0715	13	74	2	0	7	15	20	94	3	2	1	3	234
0715 - 0730	9	81	0	4	9	31	19	125	3	1	4	6	292
0730 - 0745	5	85	0	2	3	22	25	128	0	1	5	4	280
0745 - 0800	5	54	0	8	15	35	24	105	3	0	2	7	258
0800 - 0815	15	74	4	2	10	36	29	108	3	0	3	5	289
0815 - 0830	14	77	1	4	8	39	27	104	1	0	5	9	289
0830 - 0845	19	43	4	7	7	37	51	95	4	1	6	2	276
0845 - 0900	11	71	1	4	5	58	57	92	1	2	6	5	313
0900 - 0915	13	56	4	3	5	41	56	84	3	2	6	4	277
0915 - 0930	5	54	0	7	2	32	30	76	4	1	3	4	218
Period End	129	763	23	44	94	409	369	1203	27	12	44	54	3171

Lights	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Peak Time	L	I	R	L	I	R	L	I	R	L	I	R	
0630 - 0730	38	233	8	7	39	109	70	400	6	2	8	11	931
0645 - 0745	38	271	3	7	32	96	79	437	6	2	11	12	994
0700 - 0800	31	278	2	14	34	102	87	445	6	1	12	18	1030
0715 - 0815	33	279	4	16	37	123	96	456	7	0	14	21	1086
0730 - 0830	39	280	5	16	36	130	104	434	5	0	15	25	1089
0745 - 0845	51	239	9	21	40	146	130	399	8	1	16	23	1083
0800 - 0900	57	258	10	17	29	169	163	388	6	2	20	20	1139
0815 - 0915	55	236	10	18	24	173	189	367	6	2	23	19	1122
0830 - 0930	46	213	9	21	18	165	192	338	7	2	21	14	1046
PEAK HOUR	57	258	10	17	29	169	163	388	6	2	20	20	1139

Heavies	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Peak Per	L	I	R	L	I	R	L	I	R	L	I	R	
0630 - 0730	4	16	1	0	0	0	0	11	2	3	0	3	40
0645 - 0745	4	16	1	0	0	1	1	5	2	4	0	3	37
0700 - 0800	1	16	0	0	0	1	1	7	3	3	0	2	34
0715 - 0815	1	15	0	0	0	1	1	10	2	2	0	1	33
0730 - 0830	0	10	0	0	0	2	1	11	2	1	0	0	27
0745 - 0845	2	9	0	0	0	1	1	13	3	0	0	0	29
0800 - 0900	2	7	0	0	1	1	1	11	3	1	0	1	28
0815 - 0915	2	11	0	0	1	2	2	8	3	3	0	1	33
0830 - 0930	2	11	0	0	1	3	2	9	5	4	0	1	38
PEAK HOUR	2	7	0	0	1	1	1	11	3	1	0	1	28

Combined	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Peak Per	L	I	R	L	I	R	L	I	R	L	I	R	
0630 - 0730	42	249	9	7	39	109	70	411	8	5	8	14	971
0645 - 0745	42	287	4	7	32	97	80	442	8	6	11	15	1031
0700 - 0800	32	294	2	14	34	103	88	452	9	4	12	20	1064
0715 - 0815	34	294	4	16	37	124	97	466	9	2	14	22	1119
0730 - 0830	39	290	5	16	36	132	105	445	7	1	15	25	1116
0745 - 0845	53	248	9	21	40	147	131	412	11	1	16	23	1112
0800 - 0900	59	265	10	17	30	170	164	399	9	3	20	21	1167
0815 - 0915	57	247	10	18	25	175	191	375	9	5	23	20	1155
0830 - 0930	48	224	9	21	19	168	194	347	12	6	21	15	1084
PEAK HOUR	59	265	10	17	30	170	164	399	9	3	20	21	1167



R.O.A.R DATA

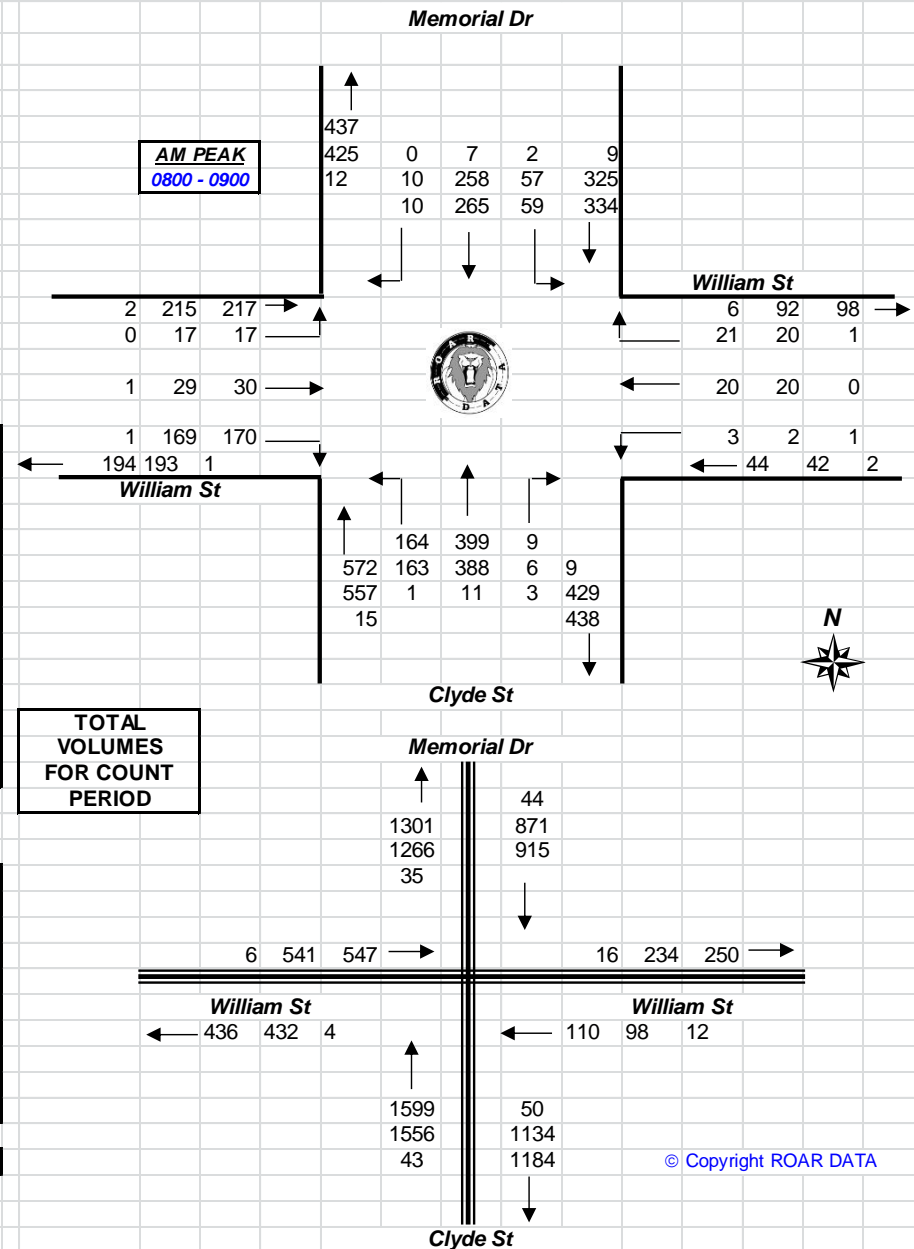
Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
 Job No/Name : 5796 GRANVILLE Clyde St
 Day/Date : Thursday 8th October 2015

Peds	NORTH	WEST	SOUTH	EAST	TOT
	Memorial Dr	William St	Clyde St	William St	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
0630 - 0645	0	3	3	0	6
0645 - 0700	0	0	1	3	4
0700 - 0715	3	2	0	0	5
0715 - 0730	1	1	1	3	6
0730 - 0745	2	1	0	6	9
0745 - 0800	1	1	7	7	16
0800 - 0815	2	1	2	5	10
0815 - 0830	1	3	0	5	9
0830 - 0845	0	1	0	1	2
0845 - 0900	2	1	4	2	9
0900 - 0915	1	2	1	0	4
0915 - 0930	1	2	3	2	8
Period End	14	18	22	34	88

Peds	NORTH	WEST	SOUTH	EAST	TOT
	Memorial Dr	William St	Clyde St	William St	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
0630 - 0730	4	6	5	6	21
0645 - 0745	6	4	2	12	24
0700 - 0800	7	5	8	16	36
0715 - 0815	6	4	10	21	41
0730 - 0830	6	6	9	23	44
0745 - 0845	4	6	9	18	37
0800 - 0900	5	6	6	13	30
0815 - 0915	4	7	5	8	24
0830 - 0930	4	6	8	5	23
PEAK HR	5	6	6	13	30





R.O.A.R. DATA

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Client : Varga Traffic Planning

Job No/Name : 5796 GRANVILLE Clyde St

Day/Date : Thursday 8th October 2015

Lights	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Time Per	L	I	R	L	I	R	L	I	R	L	I	R	
1530 - 1545	5	89	7	1	7	37	31	96	0	1	16	32	322
1545 - 1600	6	91	7	1	2	32	45	80	0	0	4	18	286
1600 - 1615	3	77	5	2	5	38	45	97	1	1	10	15	299
1615 - 1630	2	81	4	5	4	39	58	107	1	1	3	8	313
1630 - 1645	1	77	6	2	2	43	47	70	0	0	5	11	264
1645 - 1700	1	86	2	5	3	34	45	89	1	0	5	7	278
1700 - 1715	1	87	3	3	3	31	55	100	0	0	11	24	318
1715 - 1730	1	79	8	6	0	38	56	107	0	0	5	16	316
1730 - 1745	4	89	4	6	3	41	41	97	0	1	6	12	304
1745 - 1800	3	82	7	5	4	47	46	80	0	2	10	15	301
1800 - 1815	10	59	4	1	2	40	48	101	0	1	11	18	295
1815 - 1830	4	79	3	4	1	28	45	83	0	2	6	12	267
Period End	41	976	60	41	36	448	562	1107	3	9	92	188	3563

Lights	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Peak Time	L	I	R	L	I	R	L	I	R	L	I	R	
1530 - 1630	16	338	23	9	18	146	179	380	2	3	33	73	1220
1545 - 1645	12	326	22	10	13	152	195	354	2	2	22	52	1162
1600 - 1700	7	321	17	14	14	154	195	363	3	2	23	41	1154
1615 - 1715	5	331	15	15	12	147	205	366	2	1	24	50	1173
1630 - 1730	4	329	19	16	8	146	203	366	1	0	26	58	1176
1645 - 1745	7	341	17	20	9	144	197	393	1	1	27	59	1216
1700 - 1800	9	337	22	20	10	157	198	384	0	3	32	67	1239
1715 - 1815	18	309	23	18	9	166	191	385	0	4	32	61	1216
1730 - 1830	21	309	18	16	10	156	180	361	0	6	33	57	1167
PEAK HOUR	9	337	22	20	10	157	198	384	0	3	32	67	1239

Heavies	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Time Per	L	I	R	L	I	R	L	I	R	L	I	R	
1530 - 1545	0	2	0	0	0	0	0	0	1	0	0	0	3
1545 - 1600	1	0	0	0	0	0	0	0	1	1	0	0	3
1600 - 1615	0	1	0	0	0	0	0	1	1	0	0	0	3
1615 - 1630	0	1	0	0	0	0	0	0	0	1	0	0	2
1630 - 1645	2	0	0	0	0	0	0	0	0	0	0	0	2
1645 - 1700	0	0	0	0	0	0	0	1	1	0	0	0	2
1700 - 1715	0	0	0	0	0	0	0	0	0	1	0	0	1
1715 - 1730	0	1	0	0	0	0	0	1	0	0	0	0	2
1730 - 1745	0	0	0	0	0	0	1	0	1	0	0	0	2
1745 - 1800	0	0	0	0	0	0	0	0	2	1	0	0	3
1800 - 1815	0	0	0	0	0	0	0	0	1	0	1	0	2
1815 - 1830	0	4	0	0	0	0	0	1	1	0	0	0	6
Period End	3	9	0	0	0	0	1	4	9	4	1	0	31

Heavies	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Peak Per	L	I	R	L	I	R	L	I	R	L	I	R	
1530 - 1630	1	4	0	0	0	0	0	1	3	2	0	0	11
1545 - 1645	3	2	0	0	0	0	0	1	2	2	0	0	10
1600 - 1700	2	2	0	0	0	0	0	2	2	1	0	0	9
1615 - 1715	2	1	0	0	0	0	0	1	1	2	0	0	7
1630 - 1730	2	1	0	0	0	0	0	2	1	1	0	0	7
1645 - 1745	0	1	0	0	0	0	1	2	2	1	0	0	7
1700 - 1800	0	1	0	0	0	0	1	1	3	2	0	0	8
1715 - 1815	0	1	0	0	0	0	1	1	4	1	1	0	9
1730 - 1830	0	4	0	0	0	0	1	1	5	1	1	0	13
PEAK HOUR	0	1	0	0	0	0	1	1	3	2	0	0	8

Combined	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Time Per	L	I	R	L	I	R	L	I	R	L	I	R	
1530 - 1545	5	91	7	1	7	37	31	96	1	1	16	32	325
1545 - 1600	7	91	7	1	2	32	45	80	1	1	4	18	289
1600 - 1615	3	78	5	2	5	38	45	98	2	1	10	15	302
1615 - 1630	2	82	4	5	4	39	58	107	1	2	3	8	315
1630 - 1645	3	77	6	2	2	43	47	70	0	0	5	11	266
1645 - 1700	1	86	2	5	3	34	45	90	2	0	5	7	280
1700 - 1715	1	87	3	3	3	31	55	100	0	1	11	24	319
1715 - 1730	1	80	8	6	0	38	56	108	0	0	5	16	318
1730 - 1745	4	89	4	6	3	41	42	97	1	1	6	12	306
1745 - 1800	3	82	7	5	4	47	46	80	2	3	10	15	304
1800 - 1815	10	59	4	1	2	40	48	101	1	1	12	18	297
1815 - 1830	4	83	3	4	1	28	45	84	1	2	6	12	273
Period End	44	985	60	41	36	448	563	1111	12	13	93	188	3594

Combined	NORTH			WEST			SOUTH			EAST			TOT
	Memorial Dr			William St			Clyde St			William St			
Peak Per	L	I	R	L	I	R	L	I	R	L	I	R	
1530 - 1630	17	342	23	9	18	146	179	381	5	5	33	73	1231
1545 - 1645	15	328	22	10	13	152	195	355	4	4	22	52	1172
1600 - 1700	9	323	17	14	14	154	195	365	5	3	23	41	1163
1615 - 1715	7	332	15	15	12	147	205	367	3	3	24	50	1180
1630 - 1730	6	330	19	16	8	146	203	368	2	1	26	58	1183
1645 - 1745	7	342	17	20	9	144	198	395	3	2	27	59	1223
1700 - 1800	9	338	22	20	10	157	199	385	3	5	32	67	1247
1715 - 1815	18	310	23	18	9	166	192	386	4	5	33	61	1225
1730 - 1830	21	313	18	16	10	156	181	362	5	7	34	57	1180
PEAK HOUR	9	338	22	20	10	157	199	385	3	5	32	67	1247



R.O.A.R DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
 Job No/Name : 5796 GRANVILLE Clyde St
 Day/Date : Thursday 8th October 2015

Peds	NORTH Memorial Dr	WEST William St	SOUTH Clyde St	EAST William St	TOT
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
1530 - 1545	1	4	1	7	13
1545 - 1600	0	5	5	3	13
1600 - 1615	11	5	3	11	30
1615 - 1630	0	4	2	4	10
1630 - 1645	0	1	2	2	5
1645 - 1700	0	2	10	3	15
1700 - 1715	1	2	6	6	15
1715 - 1730	0	14	2	5	21
1730 - 1745	2	4	1	3	10
1745 - 1800	2	1	2	2	7
1800 - 1815	4	4	3	1	12
1815 - 1830	0	7	6	3	16
Period End	21	53	43	50	167

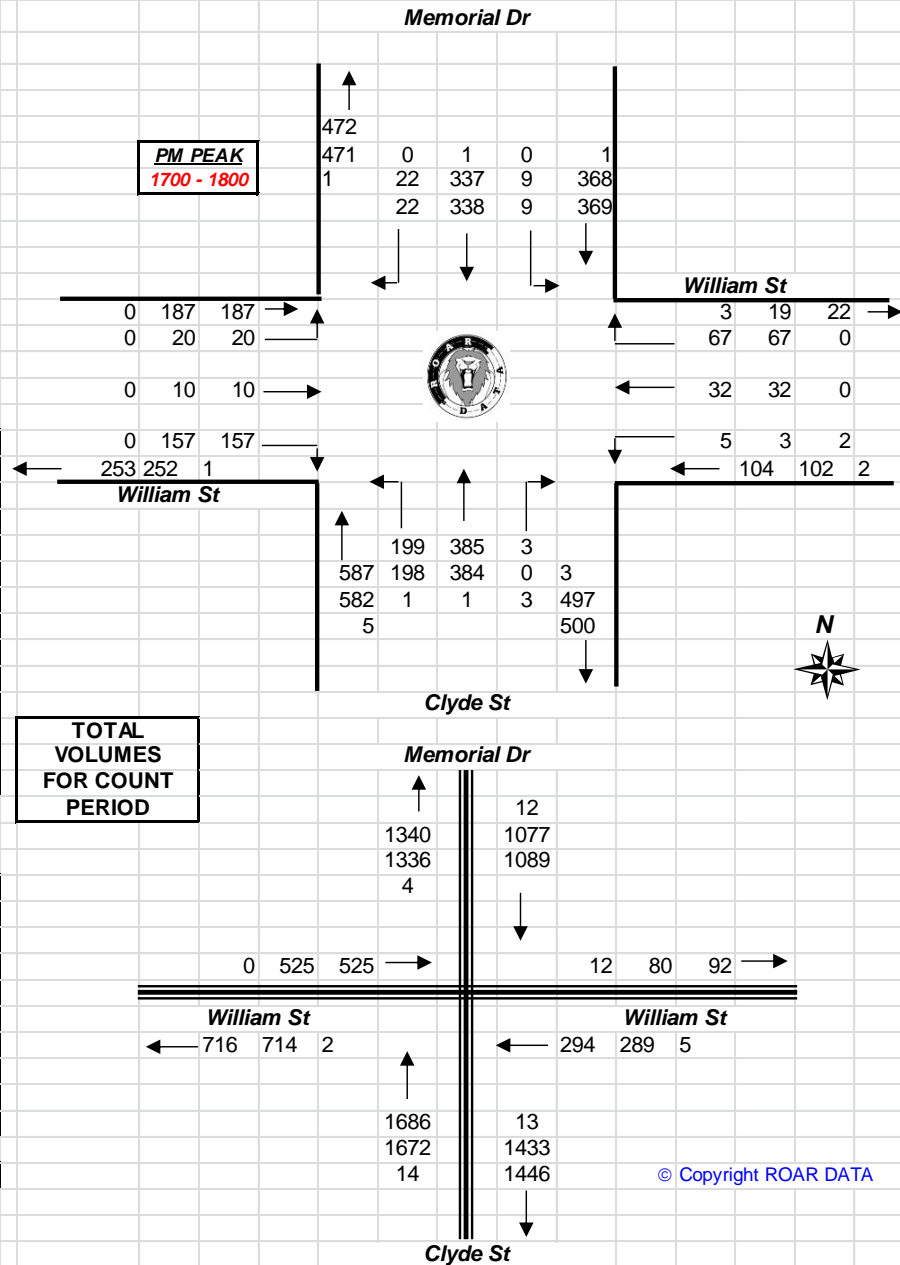
Peds	NORTH Memorial Dr	WEST William St	SOUTH Clyde St	EAST William St	TOT
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
1530 - 1630	12	18	11	25	66
1545 - 1645	11	15	12	20	58
1600 - 1700	11	12	17	20	60
1615 - 1715	1	9	20	15	45
1630 - 1730	1	19	20	16	56
1645 - 1745	3	22	19	17	61
1700 - 1800	5	21	11	16	53
1715 - 1815	8	23	8	11	50
1730 - 1830	8	16	12	9	45

PEAK HR	5	21	11	16	53
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1

2

3



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R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
Job No/Name : 5796 GRANVILLE Clyde St
Day/Date : Thursday 8th October 2015

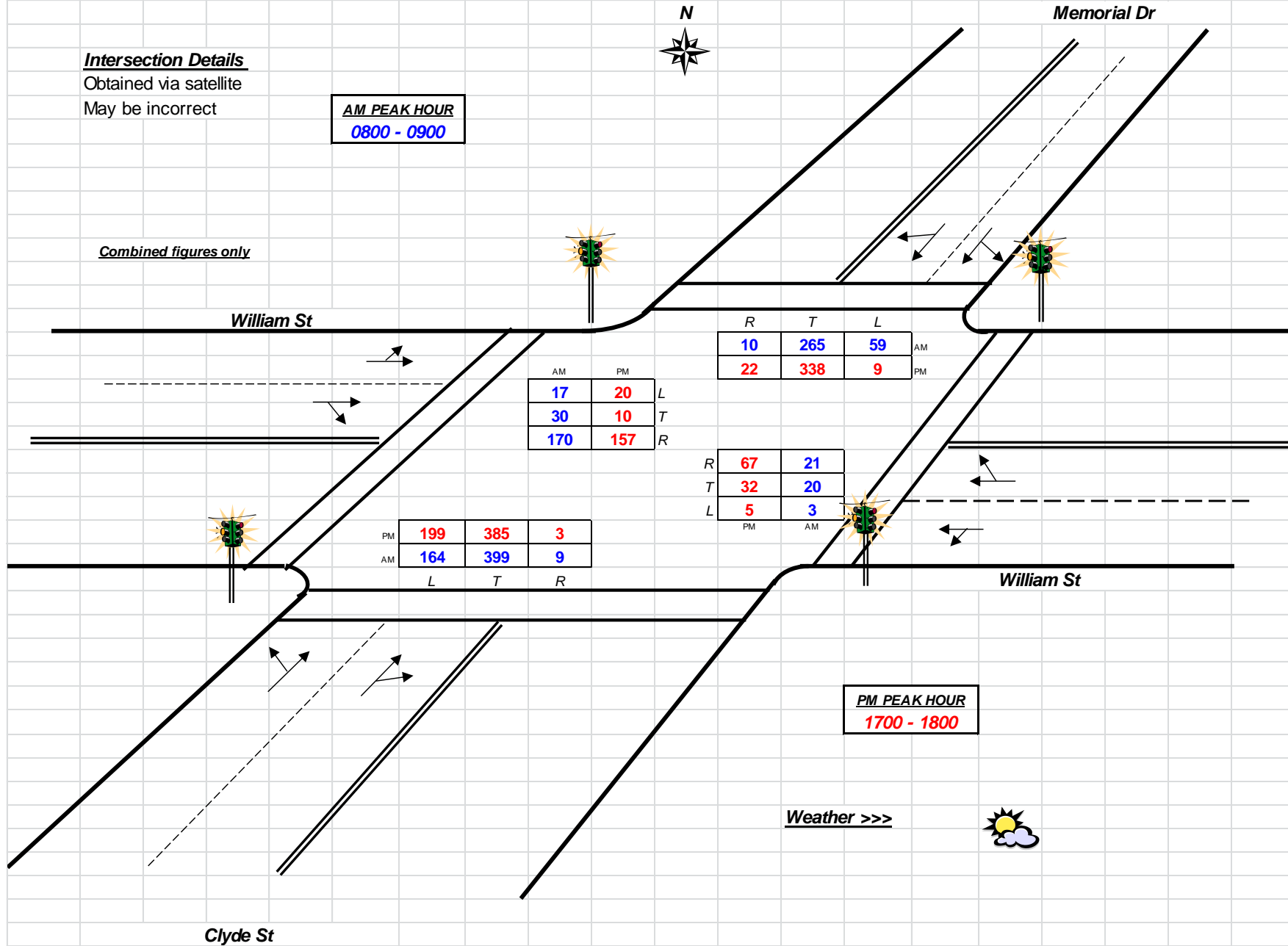
Intersection Details

Obtained via satellite

May be incorrect

AM PEAK HOUR
0800 - 0900

Combined figures only



	AM	PM	
L	17	20	L
T	30	10	T
R	170	157	R

	R	T	L	
AM	10	265	59	AM
PM	22	338	9	PM

	L	T	R
PM	199	385	3
AM	164	399	9

	R	T	L
PM	67	21	
AM	32	20	
	5	3	

PM PEAK HOUR
1700 - 1800

Weather >>>



Clyde St