Proposed Residential Unit Development

4 Highfields Circuit,
Port Macquarie NSW 2444

Traffic Engineering Report

Prepared for 4 Highfields Circuit JV Pty Ltd

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1. Background

The Applicant (4 Highfields Circuit JV Pty Ltd) proposes to develop the subject site shown in Fig 1.1 for residential purposes.

It is understood that the development will fall within the definition of “affordable housing” under NSW Legislation.

Fig 1.1 Location of the Subject Site

2. The Proposed Development

The proposed development is described in Table 2.1.

Table 2.1

Unit Type	No.
Studio	77
1 BR	3
2 BR	1
Total	**81**

Parking	81	
Including	4	Resident Disabled
	1	Visitor Disabled
	10	Other Visitors

Development plans showing proposed car parking areas and associated access are attached to this report.

3. Estimated Traffic Generation and Distribution

Table 3.1 shows estimated traffic generation for the proposed development.

The RTA Guide to Traffic Generating Developments suggests a rate of approximately 0.3vph/unit (in+out) for high density "flat" developments in regional areas. For the purposes of this report and associated estimates a rate of 0.5vph/unit has been adopted. This rate is equivalent to the rate suggested by the NSW Guide for "medium density" residential development.

Table 3.1
Estimated Development Traffic Generation

		AM & PM Peak Hour Trips			
Unit Type	**No.**	**Peak**	**Counter Peak**	**Total**	**Daily Trips (Peak Hour x 10)**
Studio	77	36	3	39	390
1 BR	3	2	0	2	20
2 BR	1	1	0	1	10
Total	**81**	39	3	42	420

Estimated development traffic distributions in peak hours are shown in Fig 3.1 based on traffic generation estimates shown in Table 3.1.

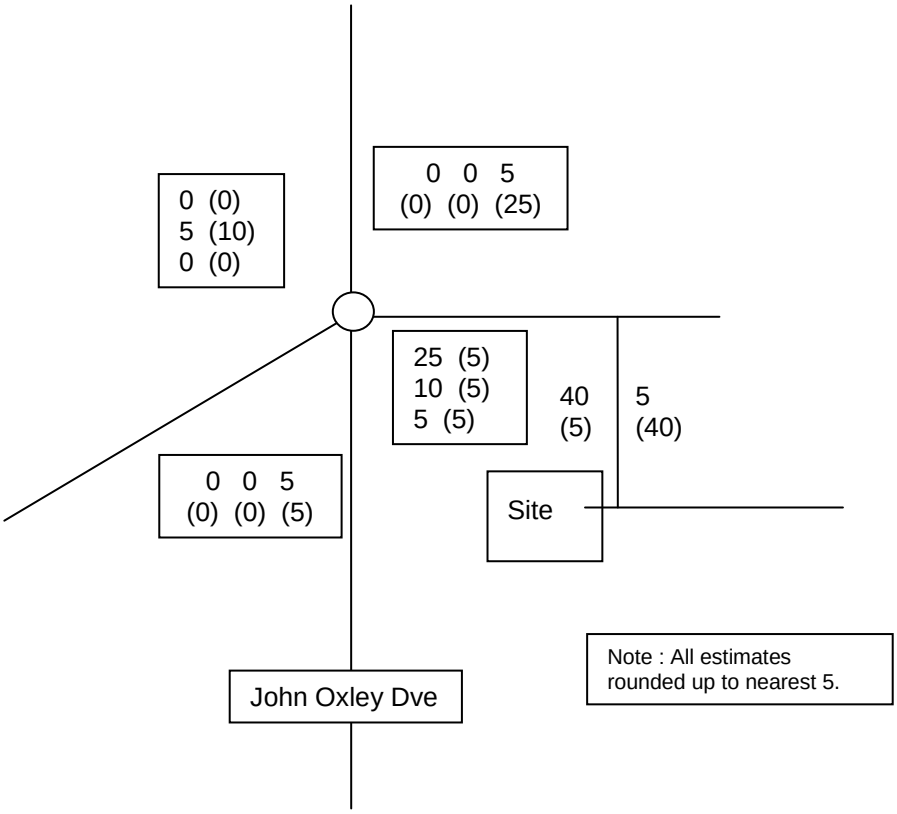


Fig 3.1 Estimated Weekday AM and PM Peak Hour Development Traffic Distribution

4. Estimated Parking Requirements

Council's Development Control Plan (Table 2.5.1) specifies the following parking requirements in respect to parking requirements relevant to for the subject development.

Residential Flat Buildings

1 per 1 or 2 bedroom unit + 1 visitors' space per 4 per units
1.5 per 3-4 bedroom unit + 1 visitors' space per 4 per units

Group Homes

See *SEPP (Affordable Rental Housing) 2009*

The above SEPP states the following in respect to affordable rental housing.

14 Standards that cannot be used to refuse consent

(2) ***General***
A consent authority must not refuse consent to development to which this Division applies on any of the following grounds:

(a) ***parking***

if:

(i) in the case of a development application made by a social housing provider for development on land in an accessible area—at least 0.4 parking spaces are provided for each dwelling containing 1 bedroom, at least 0.5 parking spaces are provided for each dwelling containing 2 bedrooms and at least 1 parking space is provided for each dwelling containing 3 or more bedrooms, or

(ii) in any other case—at least 0.5 parking spaces are provided for each dwelling containing 1 bedroom, at least 1 parking space is provided for each dwelling containing 2 bedrooms and at least 1.5 parking spaces are provided for each dwelling containing 3 or more bedrooms.

Tables 4.1 and 4.2 show the Council and SEPP Affordable Rental Housing parking requirements described above.

Table 4.1 Council Parking Requirements

		Rate / Unit		Spaces Required		
Unit Type	No.	Res Spaces / Unit	Visitors	Res Spaces / Unit	Visitors	Total
Studio	77	1	0.25	77.00	19.25	96.25
1 BR	3	1	0.25	3.00	0.75	3.75
2 BR	1	1	0.25	1.00	0.25	1.25
Total	**81**	1	0.25	81.00	20.25	101.25

Table 4.2 SEPP (Affordable Rental Housing) Min. Parking Requirements

		Rate / Unit		Spaces Required		
Unit Type	No.	Res Spaces / Unit	Visitors	Res Spaces / Unit	Visitors	Total
Studio	77	0.5	0	38.50	0.00	38.50
1 BR	3	0.5	0	1.50	0.00	1.50
2 BR	1	1	0	1.00	0.00	1.00
Total	**81**	1	0	41.00	0.00	41.00

Based on the estimates shown in Table 4.2 the proposed development more than satisfies the SEPP Affordable Rental Housing minimum parking requirement, albeit that it does not satisfy the requirements which Council's DCP would apply to the development in the absence of an "Affordable Rental Housing" definition.

The development shows 81 parking spaces in the following configuration.

Table 4.3
Proposed Parking Supply

Unit Type	No.
Studio	77
1 BR	3
2 BR	1
Total	**81**

Parking	81	
Including	4	Resident Disabled
	1	Visitor Disabled
	10	Other Visitors

Table 4.3 shows the required amount of parking if parking requirements were to be based on Council requirements in combination with the proportion of residential units which qualify as "Affordable Rental Housing". The Table indicates that the parking proposed to be supplied equates to approximately 30% or more of units being defined as "Affordable Rental Housing" under the relevant Act.

Table 4.4
Parking Required Depending on % of Units Qualifying as Affordable Rental Housing

Proportion of Units "Affordable Rental Housing"	Spaces Required
0%	101
10%	95
20%	89
30%	83
40%	77
50%	71
60%	65
70%	59
80%	53
90%	47
100%	41

It is understood that the proposed development will contain “Affordable Rental Housing” to the extent of 20% of all units. It is also understood that 11 of the 81 units will not be provided with a parking space in the development. On that basis the following would need to apply if the proposed parking supply is to be adequate.

- Each parking space (other than visitor parking) would need to be allocated to a specific unit and clearly marked to represent that allocation.

- The Community Title Scheme (CTS) would need to carry the requirement that no owner or tenant is to park a vehicle in a parking space other than the space specifically allocated to the unit.

- The CTS would need to carry the requirement that no unit owner or tenant is to park a vehicle in a space marked for visitors excepting that a visitor attending the unit is allowed to park in a visitor space for a period not exceeding 24 hours or other similar specified maximum period which has the effect to make visitor spaces impractical for the purposes of parking vehicles belonging to an owner or tenant.

- The initial owner (developer) of the development should be required to provide an undertaking that all units will be represented to prospective owners and tenants in such a way as to clearly represent the entitlement (if any) which attaches to each unit in respect to car parking within the development.

Provided that each of the above matters is implemented and having regard to the “Affordable Rental Housing” component of the development, it is our view the proposed parking supply will be appropriate to the nature and situation of the development.

The above view is to an extent supported by the relative lack of on-street parking available in Wrights Road by virtue of the relatively restricted cross section and “No Parking” restrictions which apply along the full extent of the kerb on the side opposite the development.

5. External Traffic Engineering Consequences

The primary traffic engineering consequence to potentially arise from the development will occur at the John Oxley Drive / Oxley Highway intersection which is currently roundabout controlled.

5.1 Oxley Hwy / Wrights Rd Intersection Traffic Volumes

TTM does not have access to existing traffic volume data for the above intersection. However, a report prepared for Council by RoadNet in May 2004 predicted the following 2021 weekday peak hour traffic volumes at the intersection.

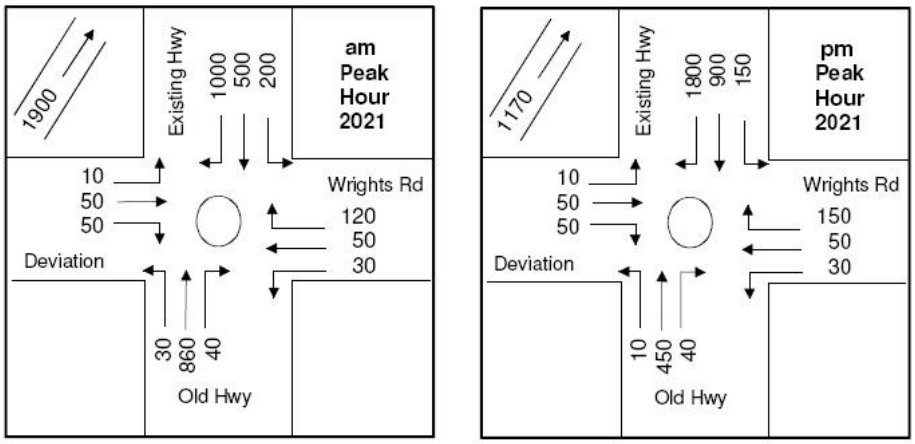


Fig 5.1 Predicted 2021 Weekday Peak Hour Traffic Volumes

Based on the above estimated future traffic volumes the subject development will only contribute approximately 1.5% of traffic to all traffic using the roundabout in 2021.

The RoadNet report concluded that the existing roundabout would operate unsatisfactorily (Level of Service F) in 2021 under the influence of the above traffic volumes.

5.2 Development Contributions

The Oxley Hwy / Wrights Rd roundabout has been the subject of discussion between RMS and Council in recent months as a result of the expectation of continued significant development and associated traffic growth along the John Oxley Drive corridor including traffic increases associated with a proposed 'bulky goods' development on the west side of John Oxley Drive to the immediate south of the roundabout. These discussions between RMS and Council are understood to be continuing.

Whilst the subject development will contribute to traffic volumes at the roundabout, they will be relatively insignificant in the overall increase expected to occur at the roundabout over the next 5 to 10 years.

The insignificant contribution which the development will make to future traffic increases at the roundabout does not justify the subject development being required to contribute towards any intersection upgrade. Further, the relatively low traffic generation character of the development does not justify the development being required to undertake or fund other road and traffic management works other than may be required via a reasonably modest contribution which may be levied via a Section 94 Contribution Plan.

6. Specific Development Design Matters

6.1 Refuse Storage and Collection

It is understood that refuse will be stored within the development in a storage compound near the development frontage.

Refuse will be stored in transportable refuse bins and removed from the site by a private contractor.

6.2 Vehicle Access Ramp Vertical Design

The proposed vertical geometry of the proposed ramp is shown in Fig 6.1.

The ramp has been designed with advice from TTM.

The proposed design satisfies AS2890.1 in respect to grades and change of grade transitions. This includes providing a grade of no greater than 5% for a distance of 6.0m back from the property boundary and 2.0m long grade transitions to ensure that instantaneous grade changes do not exceed 8%.

The maximum ramp grade is 25% which is the maximum allowable grade specified in AS2890.1.

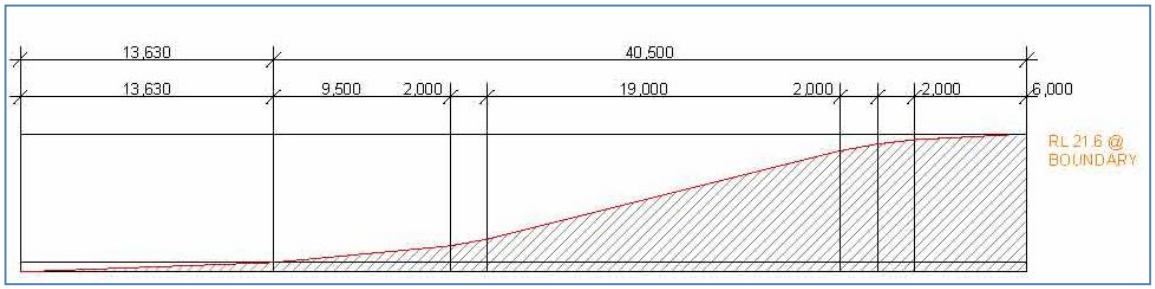


Fig 6.1 Vehicle Access Ramp Vertical Design

6.3 Vehicle Access Ramp Horizontal Design

3.0m wide lanes have been provided to each side of the proposed central median in which an intercom will be located near the property frontage. The width of the central median should be no less than 500mm in width and the card reader/intercom unit should be located no less than 5.0m from the property boundary.

Inspection of the horizontal geometry of the ramp indicates that it would be desirable to adjust the design of the ramp horizontal geometry as shown in Fig 6.2 to ensure that opposing vehicles can pass in the ramp immediately in advance of the entry to the car parking area.

It would also be desirable to increase the availability of manoeuvring space associated with spaces immediately inside the car park entry as shown in Fig 6.2.

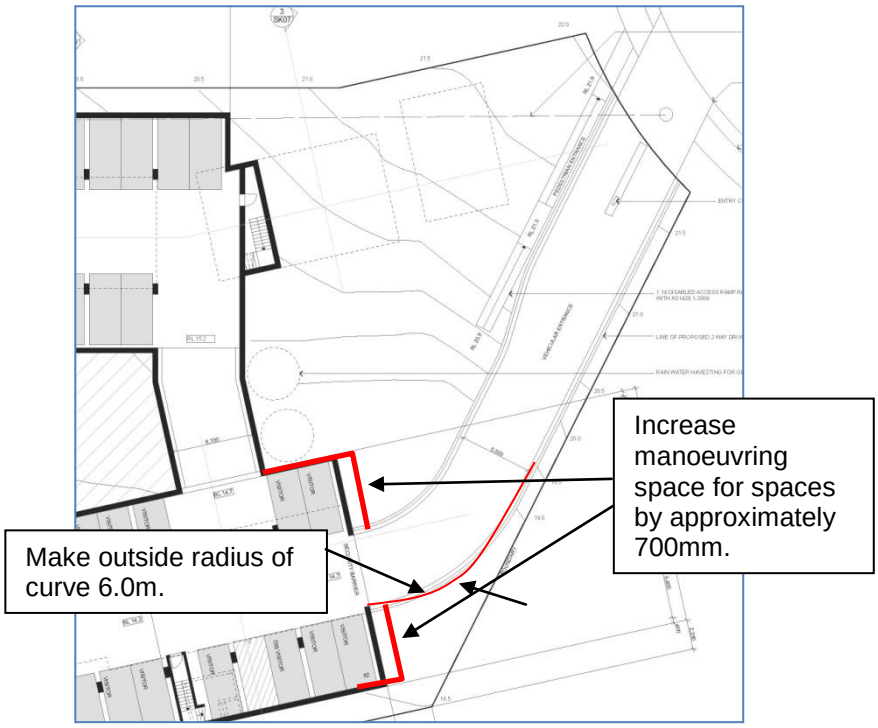


Fig 6.2 Recommended Ramp Design Modification

6.4 Car Parking Area Design

Subject to recommended design modifications described in Section 6.3, the design of parking spaces and aisles etc. satisfies the requirements of AS2890.1, including the requirement for spaces to be widened by 300mm where spaces are located adjacent to walls and other obstructions higher than 150mm.

Whilst it is understood that the development plans provide for a head clearance of no less than 2.50m above disabled parking spaces the development plans do not clearly depict such minimum clearance. The applicant should be required to ensure such a minimum clearance will be provided in combination with a minimum head clearance of no less than 2.20m throughout the car parking area.

6.5 Parking Area Security

It is understood that the parking access and security system will be comprised of the following.

- A security roller door at the bottom of the access ramp.
- In-vehicle RF transmitters distributed to each of the unit owners/occupiers and associated RF readers located in advance of the roller door.
- An intercom at the top of the access ramp to enable communication between visitors and unit owners/occupiers.
- A remote roller door activator in each unit to enable unit owners/occupiers to activate the roller door and so allow visitors to gain access to the car park.
- The roller door will be automatically activated when a vehicle approaches from within the car park to egress the car park. Detection will be via a pair of inductance loops in the car park floor immediately in advance of the roller door situated such as to avoid accidental activation by vehicles manoeuvring in and out of spaces in proximity to the roller door.

The above security system is typical of that installed in residential car parks.

7. Conclusions & Recommendations

Based on the development plans provided to TTM and the analyses/assessments described in this report we are of the view that the development should be approved in respect to traffic engineering matters subject to the following being modified and/or represented in the development plans.

a. Horizontal design modifications to the proposed vehicle access ramp should be made as shown in Fig 6.2 of this report.

b. The applicant should be required to ensure that a minimum clearance of 2.50m will be provided above each disabled parking space in combination with a minimum head clearance of no less than 2.20m throughout the car parking area.

c. The development plans should be modified and notated to indicate the proposed car park security system and associated RF readers and inductance loops as described in Section 6.5 of this report.

d. The intercom located in the central median should be located no less than 5.0m inside the property boundary.

e. The proposed parking supply is appropriate to the nature and situation of the development provided the following are implemented.

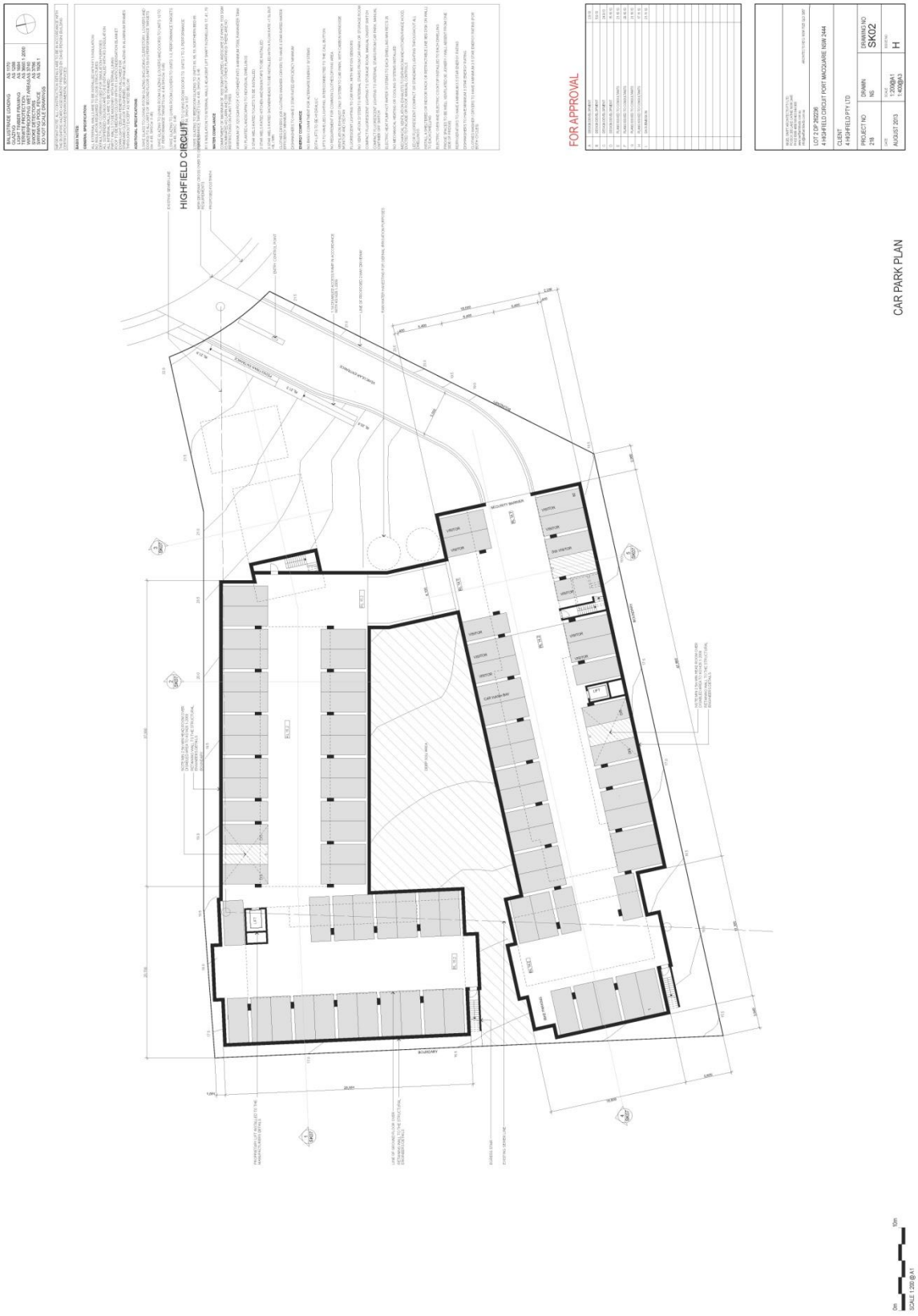
- Each parking space (other than visitor parking) should be allocated to a specific unit and clearly marked to represent that allocation.
- The Community Title Scheme (CTS) should carry the requirement that no owner or tenant is to park a vehicle in a parking space other than the space specifically allocated to the unit.
- The CTS should carry the requirement that no unit owner or tenant is to park a vehicle in a space marked for visitors excepting that a visitor attending the unit is allowed to park in a visitor space for a period not exceeding 24 hours or other similar specified maximum period which has the effect to make visitor spaces impractical for the purposes of parking vehicles belonging to an owner or tenant.
- The initial owner (developer) of the development should be required to provide an undertaking that all units will be represented to prospective owners and tenants in such a way as to clearly represent the entitlement (if any) which attaches to each unit in respect to car parking within the development.

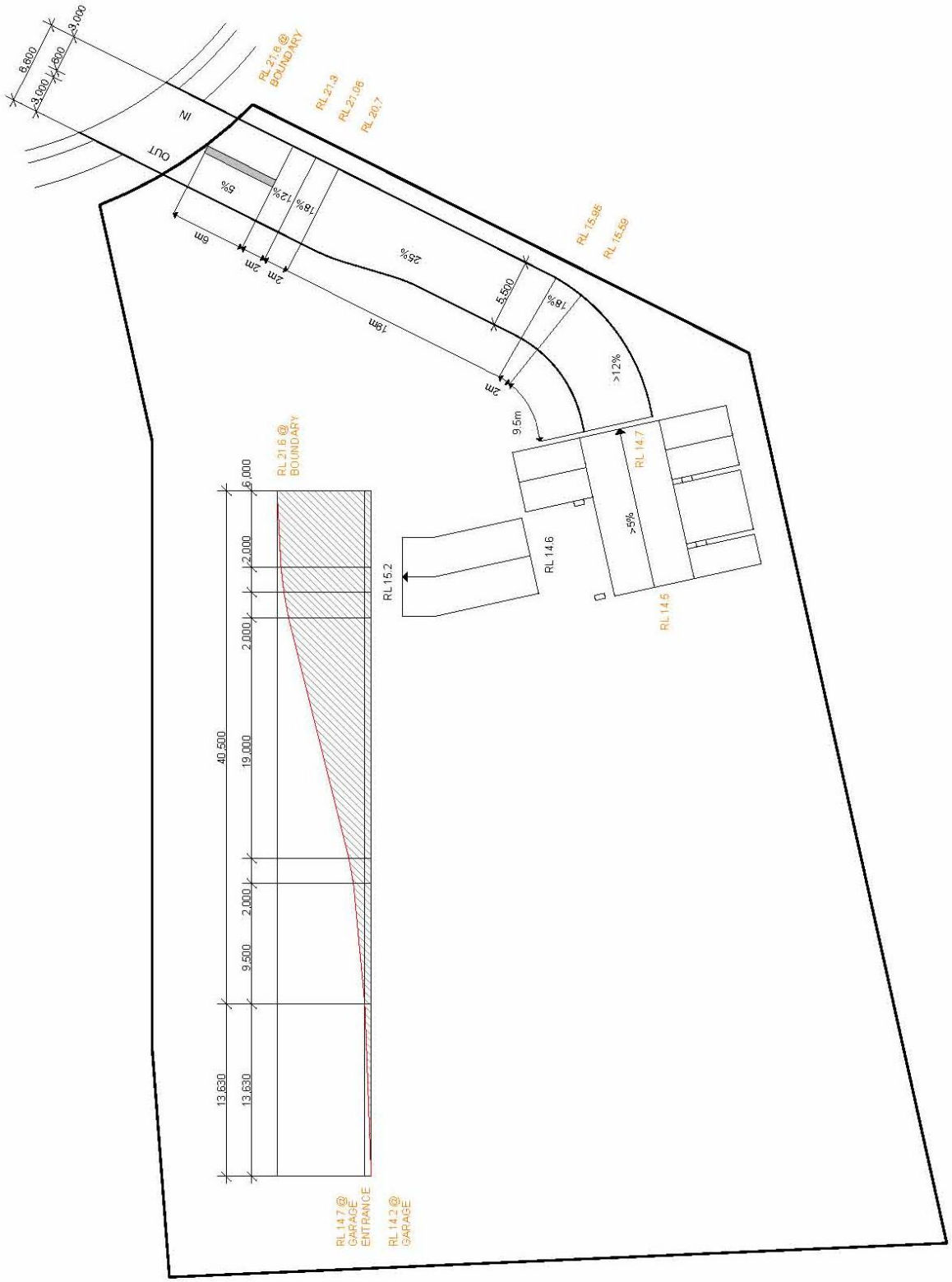
Estimates described in this report indicate that the proposed development will make an insignificant contribution to traffic volumes at the Oxley Hwy / Wrights Rd roundabout. The insignificant contribution which the development will make to future traffic increases at the roundabout does not justify the subject development being required to specifically contribute towards any intersection upgrade. Further, the relatively low traffic generation character of the development does not justify the development being required to undertake or fund other road and traffic management works other than may be required via a reasonably modest contribution which may be levied via a Section 94 Contribution Plan.

It is our view that the development should be approved subject to the above matters (a, b, c & d) being included in the development plans.

Development Plans

Parking and Associated Access


HIGHFIELD CIRCUIT
FOR APPROVAL
CAR PARK PLAN
SCALE 1:200 @ A1


IN
OUT
3.000
1.800
3.000
6.800
RL 21.6 @ BOUNDARY
RL 21.3
RL 21.06
RL 20.7
RL 15.85
RL 15.59
5%
12%
16%
26%
16%
>12%
6m
2m
2m
19m
5.500
2m
9.5m
RL 14.7
>5%
RL 14.6
RL 14.5
RL 21.6 @ BOUNDARY
RL 15.2
6.000
2.000
2.000
19.000
2.000
9.500
13.630
13.630
40.500
RL 14.7 @ GARAGE ENTRANCE
RL 14.2 @ GARAGE