Appendix 6 – Traffic and Parking Impact Assessment Prepared by McLaren Traffic Engineering & Road Safety Consultants

TRAFFIC AND PARKING IMPACT ASSESSMENT OF RESIDENTIAL DEVELOPMENT AT 177 RUSSELL AVENUE, DOLLS POINT

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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

16227.01FA - 30th June, 2016

Development Type: Residential Development

Site Address: 177 Russell Avenue, Dolls Point

Prepared for: HELM

Document reference: 16227.01FA

Status	Issue	Prepared By	Checked By	Date
Draft	A	BH	HC	16th June 2016
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Final	A	HC	CM	30th June 2016

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1 INTRODUCTION

M^cLaren Traffic Engineering (MTE) was commissioned by *HELM* to provide a Traffic and Parking Impact Assessment of the proposed Residential Development at 177 Russell Avenue, Dolls Point.

1.1 Description and Scale of Development

The proposed residential development (as depicted in Annexure A) includes the demolition of two existing two-storey residential flat buildings at 177 Russell Avenue, Dolls Point and construction of a 5-storey residential flat building including the following:

- 2 level basement carpark
- 4 x 1 bedroom units
- 13 x 2 bedroom units
- 19 x 3 bedroom units
- Total of 36 apartments

The site layout includes an underground car park with a total of 62 car parking spaces including 4 disabled residential garages and 1 disabled visitor space. Vehicular access to the car park is provided via a two-way driveway from Russell Avenue.

1.2 State Environmental Planning Policy (Infrastructure) 2007

The proposed development does not qualify as a development with relevant size and/or capacity under Clause 104 of the SEPP (Infrastructure) 2007. Accordingly, formal referral to the Roads and Maritime Services (RMS) is not necessary and Rockdale City Council officers can determine this proposal accordingly.

1.3 Site Description

The subject site is currently occupied by two residential flat buildings containing 28 residential units, with frontages to Russell Avenue to the north. The site backs onto the Peter Depena Reserve to the south.

The site is generally surrounded by medium to high density residential dwellings whilst a restaurant is located at the end of Russell Avenue to the east, adjacent Dolls Point beach. Public parking exists east of the adjacent canal for the reserve.

1.4 Site Context

The site location is shown on aerial imagery and a map in **Figure 1** & **Figure 2** respectively.

Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO

Site Location

FIGURE 2: SITE CONTEXT – STREET MAP

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 Road Hierarchy

Russell Avenue has the following characteristics within close proximity to the site:

- Unclassified local road
- Approximately 12m in width facilitating two-way passing and kerbside parking.
- No speed limit signposted - 50km/h applies
- Unrestricted kerbside parking on both sides of the road

Clareville Avenue has the following characteristics within close proximity to the site:

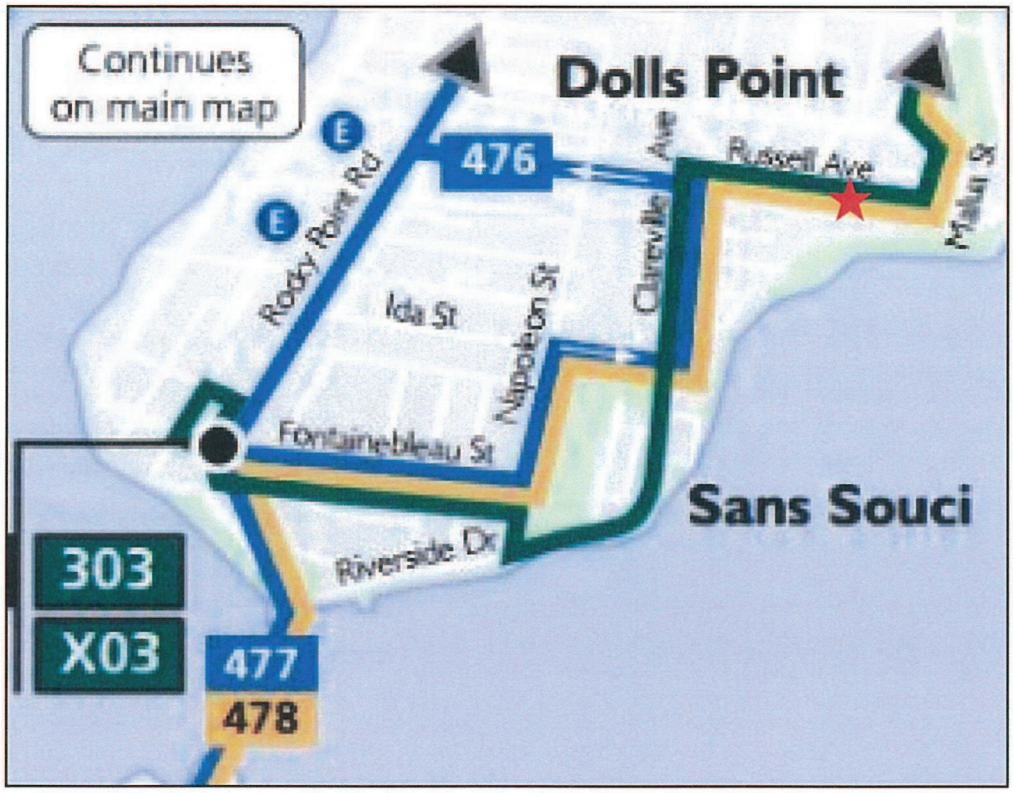
- Unclassified LOCAL road
- Approximately 12m in width facilitating two-way passing and kerbside parking
- No speed limit signposted - 50km/h applies
- 2-hour restricted kerbside parking permitted along both sides of the street.

2.2 Existing Traffic Management

- Round-a-bout controlled intersection of Russel Avenue / Clareville Avenue
- Median controlled entrance to beach car park on Carruthers Drive.
- Pedestrian footpaths exist on both sides of Russell Avenue including along the site frontage.

2.3 Public Transport

The subject site has access to existing bus route 303, X03 and 478 provided by Sydney Buses which runs along Russell Avenue, with the nearest bus stop located on the frontage of the site. The 303 and X03 provide access from Dolls Point / Sans Souci to Eastgardens and the City, whilst the 478 service runs from Miranda and Dolls Point to Rockdale Station.



2.4 Future Road and Infrastructure Upgrades

From Rockdale City Council's Development Application tracker and website, it appears that there is no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

3 PARKING ASSESSMENT

3.1 Council Parking Requirement

Reference is made to *Rockdale City Council 2011 DCP, Part 4.6 – Car Parking, Access and Movement* which designates the following parking rates:

Objectives

> *To provide sufficient, convenient and safe on-site car parking while encouraging alternative modes of transport, such as walking and cycling*

Land Use	*Vehicle*
Multi Dwelling Housing / Residential Flat building / Shoptop Housing	• *1 space / studio, 1 and 2 bedrooms apartments* • *2 spaces/3 bedrooms apartments or more* • *Visitor parking: 1 space/5 dwellings*

Additionally, Council's DCP requires at least one visitor car space to be equipped with car wash facilities for developments with 5 dwellings or more.

TABLE 1: DCP PARKING REQUIREMENTS

Land Use	Type	Scale	Rate	Spaces Required
Residential Flat Building	1 or 2 Bedroom	17	1 space / unit	17
	3+ Bedroom	19	2 space / unit	38
	Visitor	36	1 space / 5 units	7.2 (7)(1)
Total				**62 including 1 car wash**

Notes: (1) The DCP suggests that any parking calculations that are not whole numbers should be rounded up, however in this instance the calculation is 7.2 visitor car spaces and a requirement of 7 spaces is deemed to be appropriate.

As shown above, strict application of the DCP requires a total of **62** car parking spaces for the current development proposal.

The proposed design includes a provision of 30 parking spaces on Basement 1 and a further 32 car parking spaces on Basement 2, a total of 62 car parking spaces within the basement parking levels.

The provision of 62 car parking spaces complies with Council's DPC parking requirements.

3.2 Disabled Parking

The *Rockdale City Council DCP 2011 - 4.6 Social Equity* states that for residential developments of more than 30 units, 10% of units will be adaptable in accordance with AS 4299. It is reasonable to provide at least one adaptable space per adaptable unit making the requirement 4 adaptable spaces.

Based on Rockdale's DCP four adaptable apartments have been provided as 2 bedroom apartments. Each 2 bedroom adaptable apartment has been nominated with a disabled space and a standard space. The current plans identify four (4) enclosed garages able to accommodate the required disabled parking for adaptable units. Headroom within these garages are to be 2.5m.

3.3 Bicycle & Motorcycle Parking Requirements

Rockdale DCP 2011, Part 4.6 – Car Parking, Access and Movement specifies bicycle and motorcycle parking rates for residential flat buildings as follows:

4.6 Car Parking, Access and Movement

Land Use	***Bicycle***	***Motorcycle***
Residential Flat Buildings	*1 space / 10 units*	*1 space / 15 units*

Table 4 below summarises Council's bicycle and motorcycle parking requirements.

TABLE 4: DCP BICYCLE AND MOTORCYCLE PARKING REQUIREMENT

Vehicle	Scale	Rate	Spaces Required
Bicycle	36	1 space / 10 units	3.6 **(4)**
Motorcycle	36	1 space / 15 units	2.4 **(3)**

The proposal requires four (4) bicycle spaces and three (3) motorcycle spaces. Locations for bicycle and motorcycle spaces are shown in Annexure A.

3.4 Servicing and Loading

Rockdale Council's Technical Specification – *Waste Minimisation and Management*, Section 3.2 (11) states the following:

"Where site characteristics, number of bins and length of street frontage allow, bins may be collection from a kerbside location. All bins will be taken to the kerb by Council's Waste Contractor or Building Manager of the development, provided that waste/recycling storage areas are easily accessible and located within 20m of the front boundary, they are returned to the bin area by the Contractor following collection."

It is expected that waste collection will be undertaken kerbside as per the above.

3.5 Car Park Design and Compliance

Refer to **Annexure A** which shows the proposed parking layout that is designed in accordance with AS2890.1 – 2004 & AS2890.6:2009 (or better). Compliance review and swept paths of critical locations are shown in **Annexure B** for reference.

It should be noted that while we have assessed the plans to be compliant with the relevant standards, it is usual that a construction certificate is required prior to construction due to possible changes after D.A approval.

Some enclosed garages for single car spaces provide additional width to enhance driver comfort or increase storage capacity within the enclosed garages. The additional width is also provided for less immobile users (although not necessarily disabled users). The following car park design objections are summarised below:

(a) **Aisle width**: Minimum 5.8 metres.

(b) **Parking bays:** Minimum 2.4 metre width for residents. Minimum 2.5 metre width for visitor parking. A 300mm widening of the parking space is required for each side wall obstruction for car door opening effects. A minimum parking bay length of 5.4 metres is required, unless a small bay which can have the dimensions of 5.0 metres long by 2.3 metres wide.

(c) **Driveway Gradient for User Class 1, 1A or 2 (i.e. Medium to Long Term parkers, such as employees, resident & tenants)**: To satisfy sight lines to pedestrians on footpaths and to comply with under carriage clearance and overhang checks. In this regard driveways serving more than a "domestic dwelling" (i.e. three dwellings that generate less than 3 peak hour trips) but less than 30 peak hour trips need to achieve acceptable performance as follows:

- Provide a 2m by 2.5m sight triangle upon departure to the road boundary to provide adequate sight lines to pedestrians. See Figure 3.3 of AS2890.1-2004.
- Max 1:4 for up to 20m for private car parks
- 1:8 transition over 2 metres for ramps

(d) **Headroom**: Minimum of 2.2m EXCEPT for the area directly above disabled parking spaces and shared zone where minimum headroom of 2.5m is required in accordance with Clause 2.4 of AS2890.6:2009.

(e) The clearance height upon entry to the car park shall be clearly displayed if the height clearance is less than 2.3m.

Disabled parking is in accordance with AS2890.6-2009. The requirements met by the proposed development achieve:

(a) **Parking Bays**: Minimum 2.4m width and a minimum 5.4m bay length.

(b) **Shared Zone**: A shared zone must be located adjacent to the parking bay on either side. A Shared zone must also be included at the front or rear of the parking bay. It should be noted that the aisle can be deemed a shared zone for the front or rear of the parking bay. Where a shared zone separates two parking bays or separates the disabled space

and a wall, a Bollard is to be installed in accordance to Figure 2.3 of AS2890.6 2009. Disabled space of 3.8m is an acceptable practice in accordance with AS4299:1995. Disabled spaces provided within the development are compliant.

(c) **Space Identification:** In accordance with Figure 3.1 of AS2890.6 each dedicated disabled parking bay is to be clearly identified.

Internal circulation has been reviewed and considered satisfactory, with the installation of convex mirrors at ramp locations to improve view lines from within the basement area. Swept paths of critical locations are shown in **Annexure B** for reference.

4 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

4.1 Traffic Generation & Impact

The estimated traffic generation level for the proposed development is based upon the RMS Guide to Traffic Generating Developments October 2002, which assumes a worst case of a high proportion of private vehicle trips. The traffic generation is summarised in Table 2 below.

TABLE 2: TRAFFIC GENERATION OF SITE

Time	Rate	Scale	Traffic Generation	Direction
AM Peak	0.29 per dwelling	36	11 trips	9 out; 2 in
PM Peak	0.29 per dwelling	36	11 trips	2 out; 9 in

As shown above, the peak hour traffic generation is estimated to be 11 vehicle trips. The peak hour vehicle trips will typically occur during the commuter peak hours between 7:00-9:00am and 4:00-6:00pm.

The existing developed site consists of 30 units, which equates to 8 peak hour vehicle trips, however the provision of parking is significantly below what would be required of a modern residential flat building as the existing developed site consists of 8 on-site car spaces. This is likely to generate some 3 to 4 peak hour vehicle trips.

Therefore, the net increase in peak hour traffic generation is likely to be up to 8 peak hour vehicles (11 – 3 = 8), equivalent to 1 additional movement every 7 to 8 minutes on the surrounding road network.

The relatively minor increase of 1 vehicle every 7 to 8 minutes is anticipated to be negligible and represent no appreciable impact in terms of traffic flow efficiency and residential amenity.

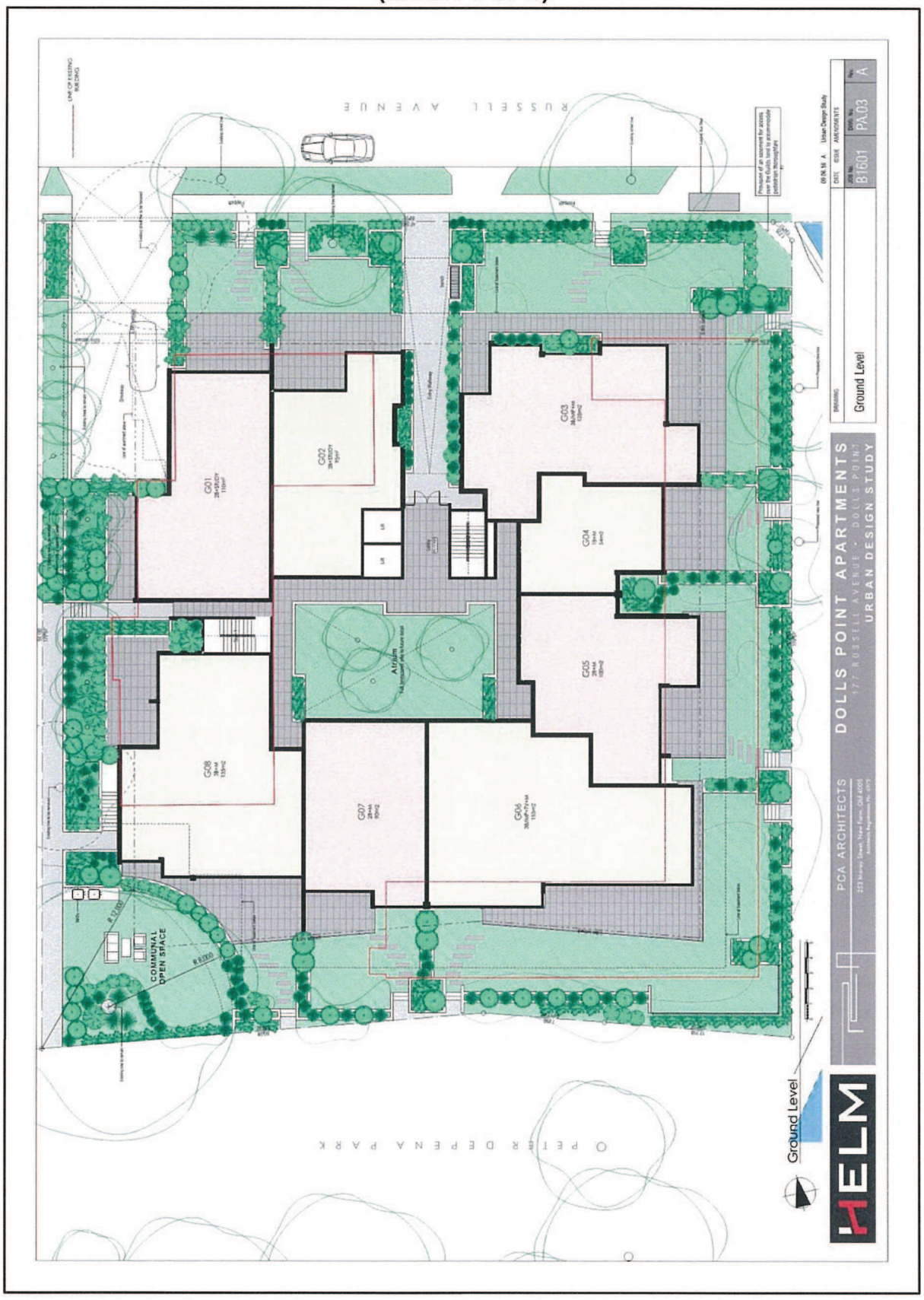
5 CONCLUSION

In view of the foregoing, the subject proposal (as depicted in **Annexure A**) is fully supportable in terms of its traffic and parking impacts. The following outcomes of this traffic impact assessment are relevant to note:

- The supply of 62 car parking spaces complies Council's DCP requirement.
- The provision of four (4) disabled residential garages and one (1) disabled visitor satisfies accessibility requirements for car parking
- The design of the basement car parking area satisfies relevant clauses of AS2890.1:2004 & AS2890.6:2009 where applicable. Swept path tests provided in **Annexure B** demonstrate successful on-site manoeuvring and the ability for forward entry and exit.
- The net traffic generation is equivalent to one additional vehicle every 7 to 8 minutes. This level of additional is anticipated to be negligible and represent no appreciable impact in terms of traffic flow efficiency and residential amenity.

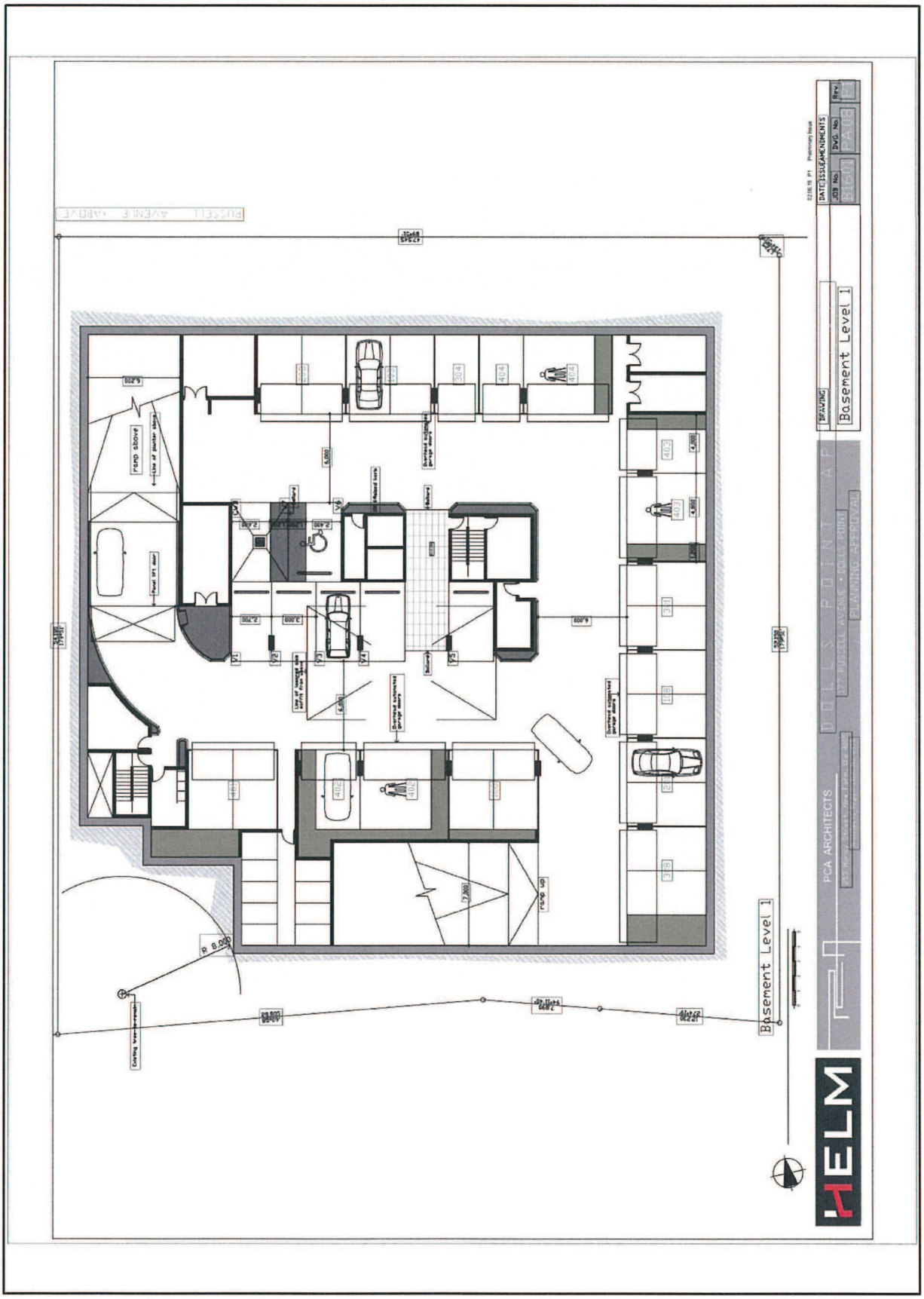
ANNEXURE A: PROPOSED PLAN

(SHEET 1 OF 3)



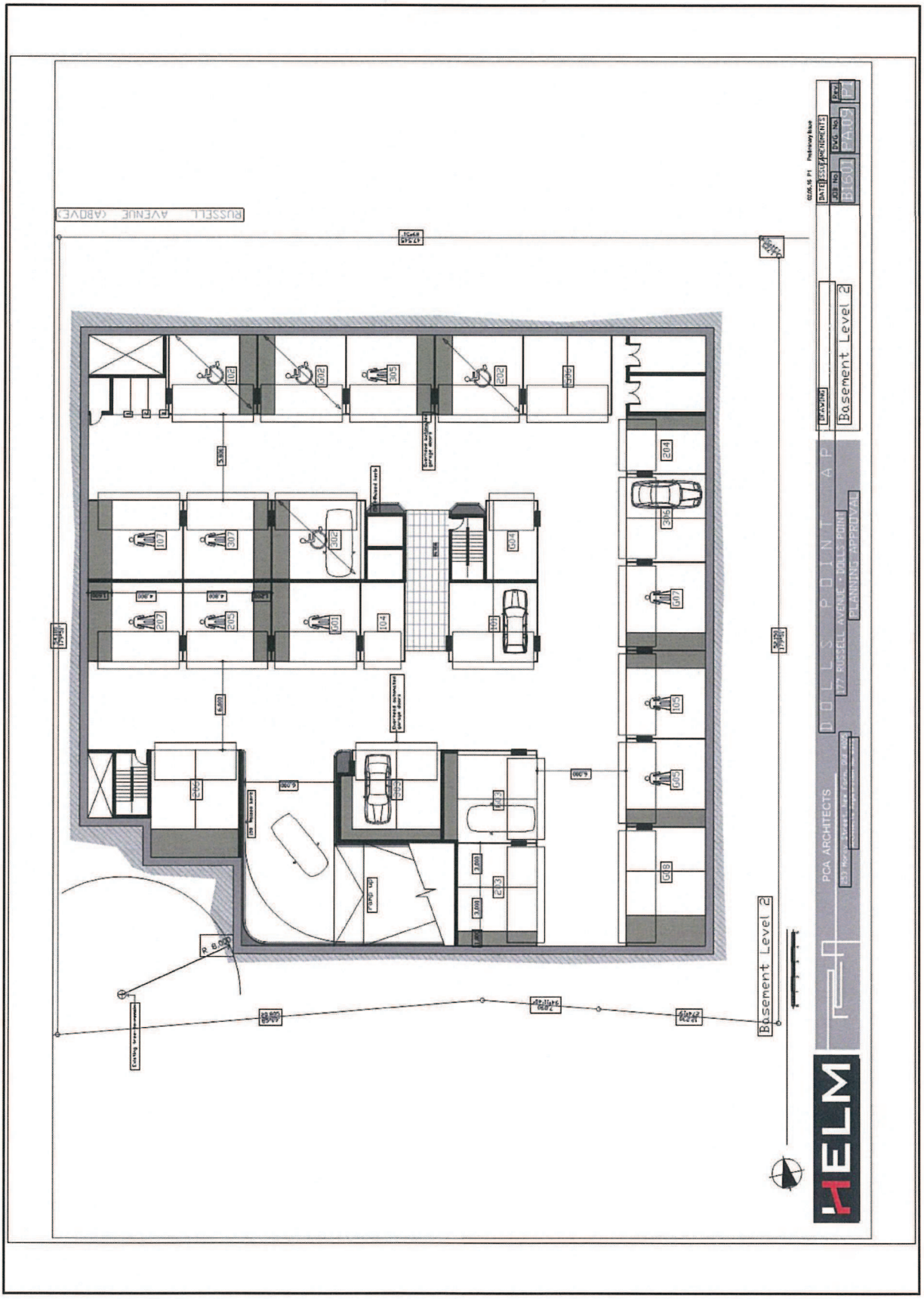
ANNEXURE A: PROPOSED PLAN

(SHEET 2 OF 3)



ANNEXURE A: PROPOSED PLAN

(SHEET 3 OF 3)



ANNEXURE B: SWEPT PATH & COMPLIANCE REVIEW
(Sheet 1 of 5)

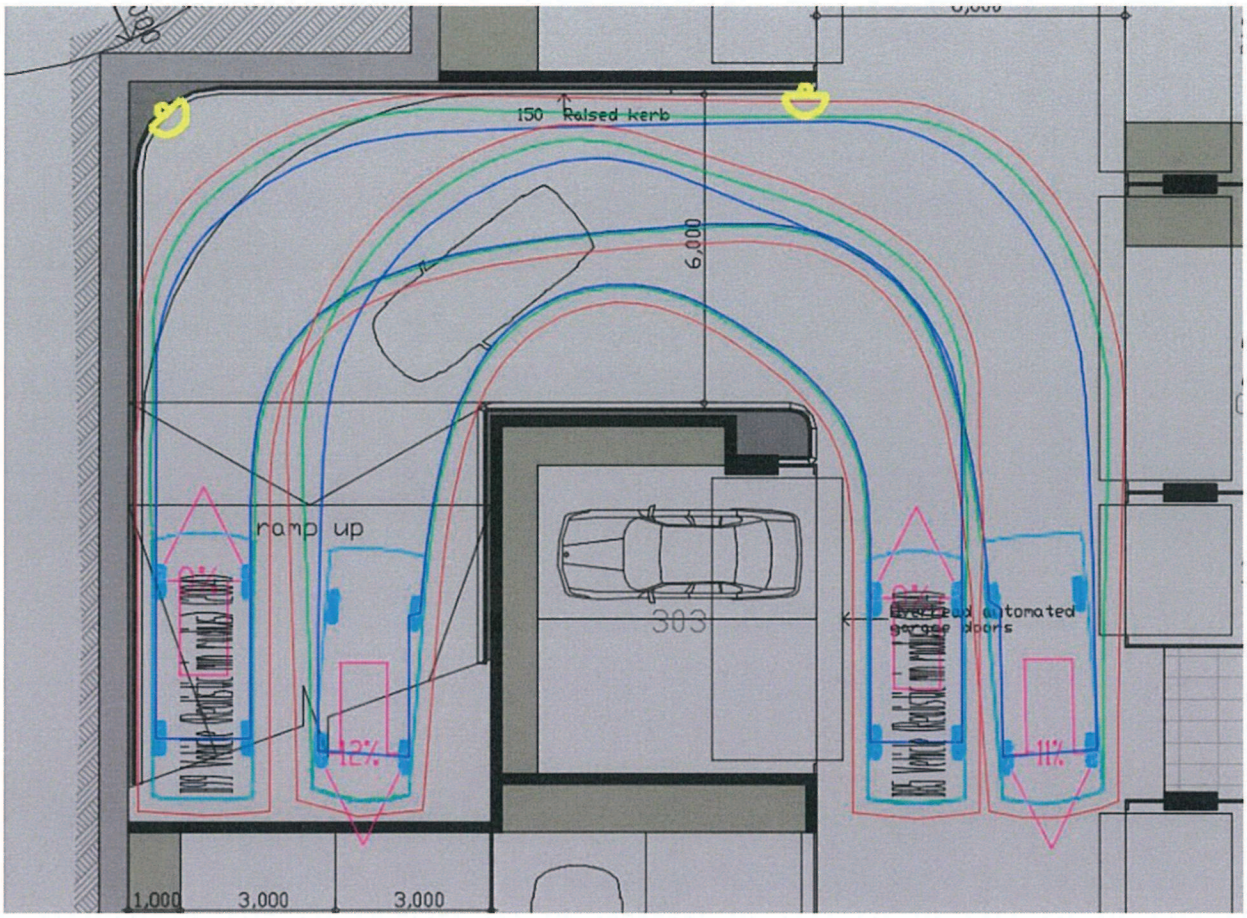
AS2890.1:2004 COMPLIANCE TABLE		
CLAUSE	**COMPLIANCE**	**NOTES**
TABLE 1.1: USER CLASS (SPACES) 1 (0) 1A (51) 2 (6) 3 (0) 3A (0) 4 (5) TOTAL (**62**)	Yes	
Figure 2.2 Angle Parking Dimensions Applicable bay length, bay width, aisle width	Yes	
Clause 2.4.1(a)(iii) Small Car Space 2.3m wide x 5.0m long	N/A	
Clause 2.4.1(b)(ii) 300mm clearance to high objects	Yes	
Clause 2.4.2(c) 1m blind aisle extension	Yes	
Figure 2.5 Parallel Parking Dimensions Applicable bay length, bay width, aisle width	N/A	
Clause 2.4.5.2(a) Kerb Height	Yes	
Clause 2.4.5.4 Wheel Stops Height, width, setback	N/A	
Clause 2.4.6 Gradients within parking modules Minimum & maximum gradients	Yes	
Clause 2.4.7 Motorcycles Parking bay dimensions	Yes	
Clause 2.5.2(a) Straight ramp widths 3m between kerbs (1 way), 5.5m between kerbs (2 way)	N/A	
Kerb widths – standard 300mm		Adequate width for two-way passing with clearance
Wall-to-wall width (on straight) SINGLE LANE – standard 3.6m TWO LANES – standard 6.1m	Yes	
Table 2.2 Curved ramp widths See table	Yes	
Figure 2.9 Curved ramp dimensions See table	Yes	
Clause 2.5.3(a) Ramp grades (public) >20m:16.7% max <20m: 20% max	N/A	
Clause 2.5.3(b) Ramp grades (private) >20m : 20% max <20m: 25% max	Yes	
Clause 2.5.3(d) Changes of grade Not in excess of 12.5% for summit 15% for sag	No	Crest at top of entry driveway is non-compliant. However can be addressed at D.A
Select access facility category from Table 3.1	1	
Table 3.2 Access driveway widths 1: 3-5.5m combined 2: 6-9m combined 3: 6m entry, 4-6m exit, 1-3m separation 4: 6-8m entry, 6-8m exit, 1-3m separation 5: intersection to be provided.	Yes	1

ANNEXURE C: SWEPT PATH & COMPLIANCE REVIEW
(Sheet 2 of 5)

Clause 3.2.3 Driveway location compliance	Yes	
Figure 3.2 Car sight distances	Yes	
Figure 3.3 Pedestrian sight distances	Yes	
Clause 3.4 Queuing areas See table 3.3	Yes	
Clause 4.3.4 Low clearance signs Give way / stop signs Speed limit signs Other warning signs	Yes	Not on plans, can be detailed prior to CC
Clause 4.4 Pavement markings Linemarking Pedestrian crossings arrows	Yes	Not on plans, can be detailed prior to CC
Clause 5.2 Column location See figure 5.1 E.g. 90°: 750mm setback	Yes	
Clause 5.3.1 headroom At least 2.2m for cars	Yes	Minimum 2.2m achieved with 2.5m above disabled parking
Clause 5.4 enclosed garages **Single**: 3m internal width 2.4m doorway min (see figure 5.4) **Multiple:** 2.4m wide each	Yes	
Circulation	Yes	

AS2890.6:2009 COMPLIANCE TABLE		
CLAUSE	**COMPLIANCE**	**NOTES**
Parking Dimensions 2400x 5400mm 2400x 5400mm shared space Fig 2.2	Yes	
Bollard Located 800 ± 50 1200mm along shared space Fig 2.2	Yes	To be installed accordingly during construction
Min. 2500mm required directly above space (Fig 2.7) Min. 2200mm for general access (Cl 2.4)	Yes	Minimum 2.2m achieved with 2.5m above disabled parking
Space Identification Fig 3.1 1200x 1200 min with 500 to 600mm from front of space	Yes	To be linemarked accordingly by a suitable contractor
Space Delineation Clause 3.2	Yes	To be linemarked accordingly by a suitable contractor

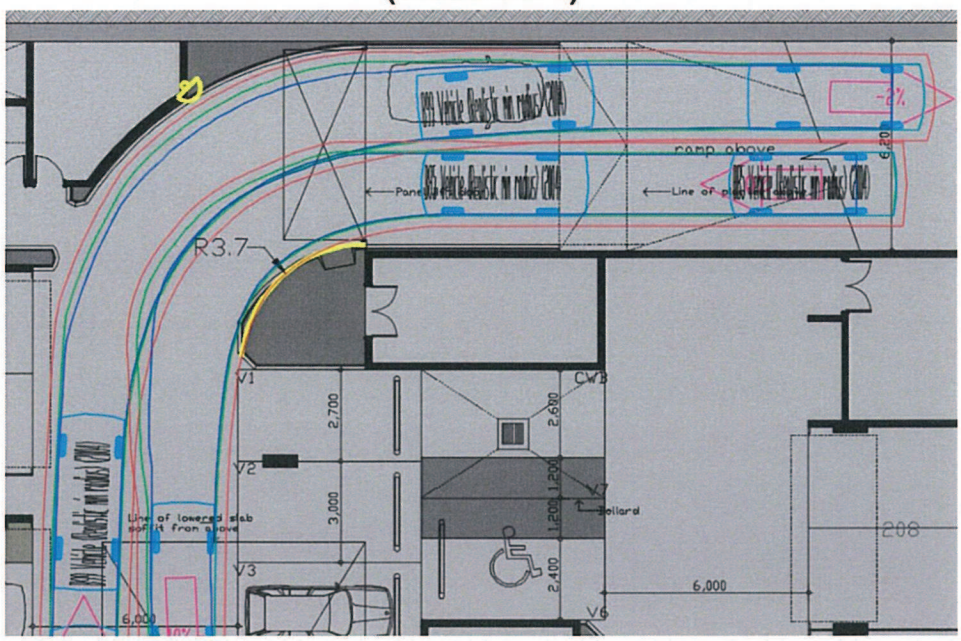
ANNEXURE D: SWEPT PATH & COMPLIANCE REVIEW
(Sheet 3 of 5)

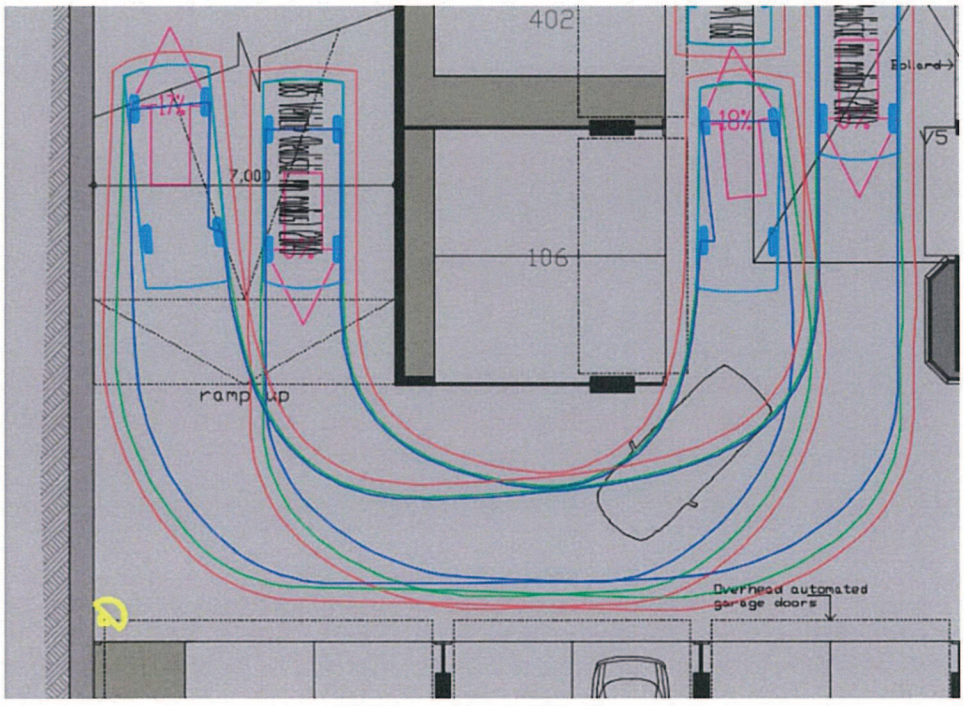


B85 Passing B99 Car
5km/h
Successful – Recommended convex mirror locations

Blue- Tyre path
Green – Vehicle body
Red – 300mm clearance

ANNEXURE E: SWEPT PATH & COMPLIANCE REVIEW
(Sheet 4 of 5)

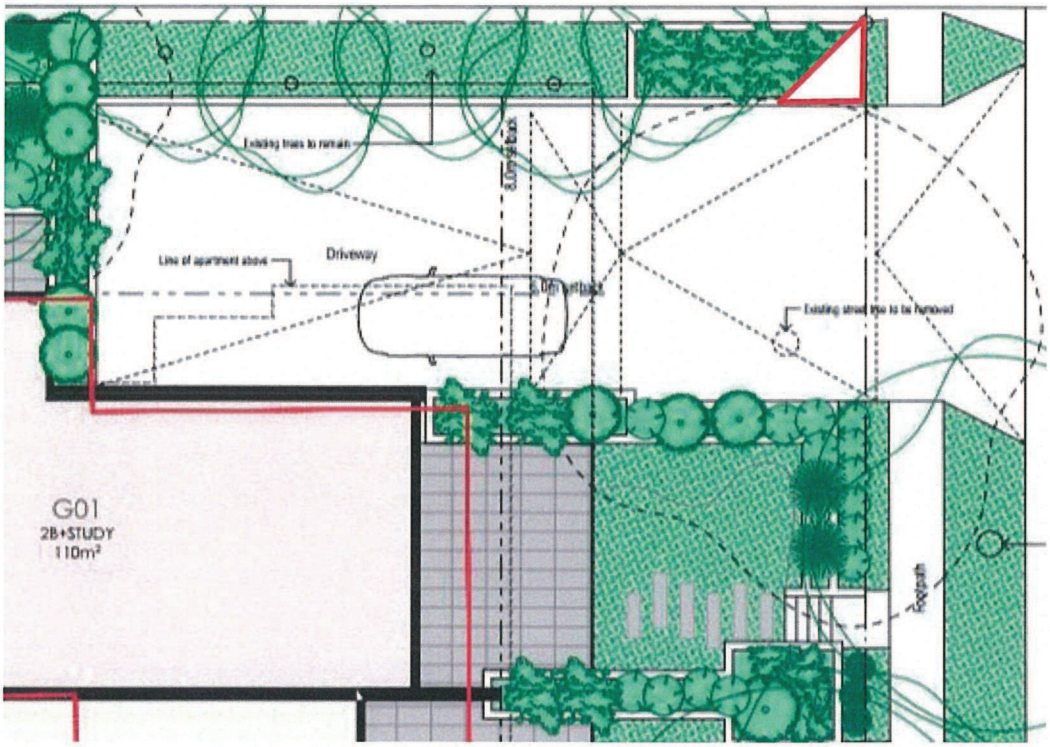




B85 passing B99 Car
5km/h
Successful- recommended convex mirrors and modification of kerbing

Blue- Tyre path
Green – Vehicle body
Red – 300mm clearance

ANNEXURE F: SWEPT PATH & COMPLIANCE REVIEW
(Sheet 5 of 5)



Sight triangle on exit side of driveway required
Sight triangle to measure 2.5m into the site and 2.0m along the boundary.