NSW Land and Housing Corporation

Glebe Mid-Rise Project

Planning Proposal – Traffic, Transport and Parking Report

Report Ref

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Job number 272553-00

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ARUP

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1 Introduction

1.1 Background

Arup was appointed by NSW Land and Housing Corporation (LAHC) to provide traffic and transport services to support the development of the Glebe mid-rise project (the development). The development is a partnership between LAHC, City of Sydney and the Government Architect NSW (GANSW) to deliver a mixed tenure, mid-rise residential development. The proposed location for the development is at 31 Cowper Street, Glebe and 2A-2D Wentworth Park Road, Glebe.

1.2 Scope of the Report

This Traffic, Transport and Parking Report has been prepared to support the Planning Proposal for the development. The Planning Proposal seeks to increase the floor space ratio of the site from the existing ratio of 1.25, as outlined in the City of Sydney LEP.

This report presents the following:

- An explanation of the existing transport conditions locally combined with regional context;
- Description of the proposed development;
- Estimated multimodal trip generation for the proposed development and future mode share targets;
- Information on walking, cycling and public transport surrounding the site, including the development's impact on these networks;
- Traffic analysis including SIDRA modelling of intersections in the vicinity of the proposed development;
- Description of the proposed access arrangements for the development; and
- Parking and servicing arrangements that comply with Australian Standards and parking demand management strategies.

2 Existing Conditions

2.1 Site Location

The project comprises of 31 Cowper Street (south site) and 2A-2D Wentworth Park Road (north site), which are located in Glebe, within the City of Sydney Local Government Area (LGA). These sites are approximately two and a half kilometres south west of the Sydney Central Business District (CBD). The two sites combined will be referred to as "the site". The site is situated south of Wentworth Park, a popular venue for sporting events and leisure activities.

The site is bounded by Wentworth Park Road to the north, Cowper Street to the east, Wentworth Street to the south and Mitchell Lane East to the west. Park Lane runs east-west through the site. The site has a total area of approximately 1,800m^2 and is presented on Figure 1.

Figure 1: Site location

There are four townhouses on the north site and 15 residential apartments on the south site.

2.2 Active Travel

2.2.1 Walking

Pedestrian footpaths are provided on both sides of Wentworth Street, Cowper Street and Wentworth Park Road. There are no footpaths on Park Lane or Mitchell Lane East. A zebra crossing is located on Wentworth Park Road west of Cowper Street which provides a safe crossing point for pedestrians travelling between Wentworth Park and the site (see Figure 2).

Figure 2: Zebra crossing on Wentworth Park Road

2.2.2 Cycling

The existing cycling network surrounding the site are presented in Figure 3. A shared path connects Wentworth Park Road and Wattle Street via Wentworth Park. Glebe Point Road and Glebe Street are bicycle friendly streets that provide connectivity in the vicinity of the site.

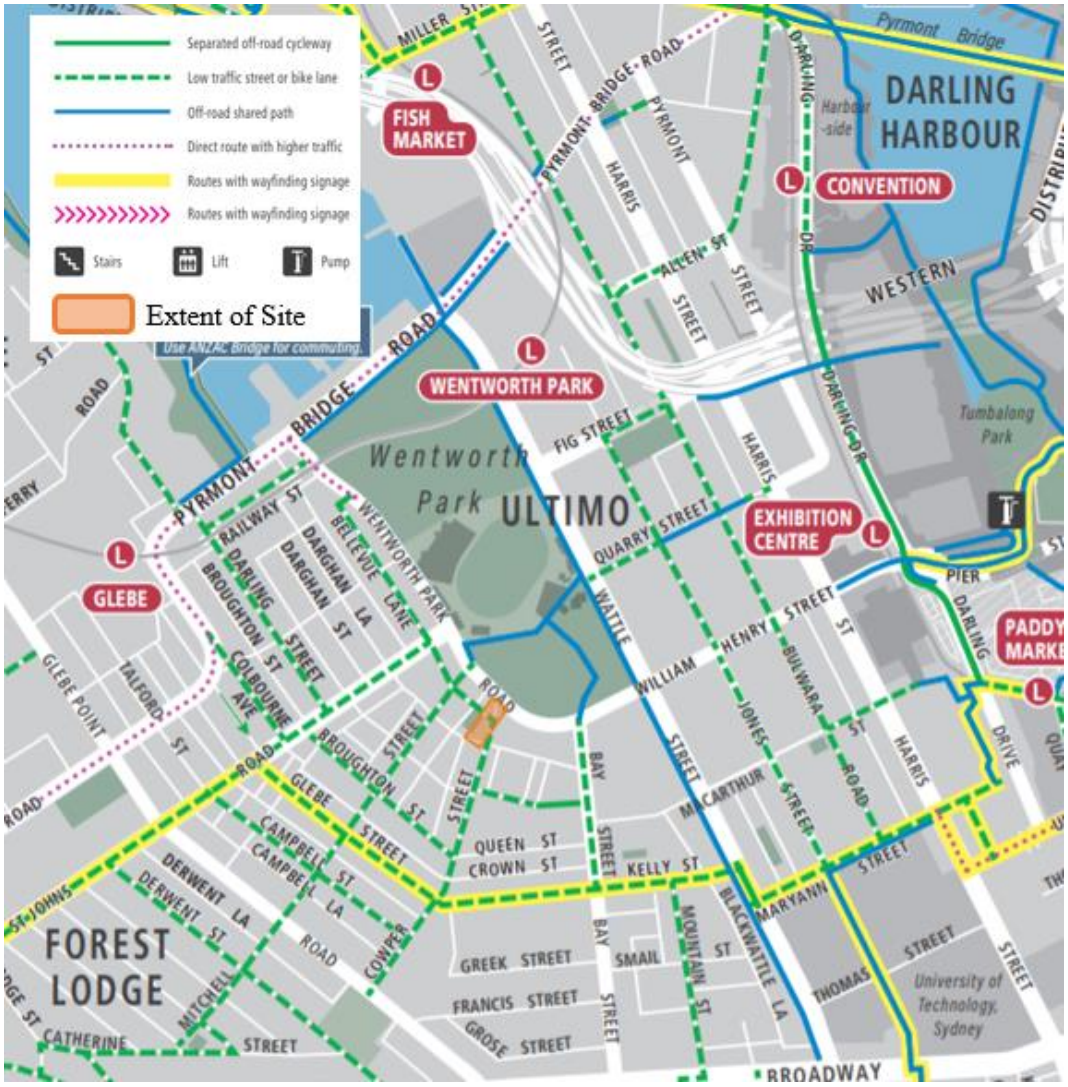


Figure 3: Existing cycling network

Source: City of Sydney, 2019

2.3 Public Transport

The public transport network surrounding the site is indicated in Figure 4. The Wentworth Park and Glebe Light Rail stops are within walking distance of the site and provide connections to Central Station, Leichardt and Dulwich Hill. Several bus stops on Glebe Point Road and Harris Street are also within walking distance and provide connections to the Sydney CBD, Leichardt, Coogee and Balmain.

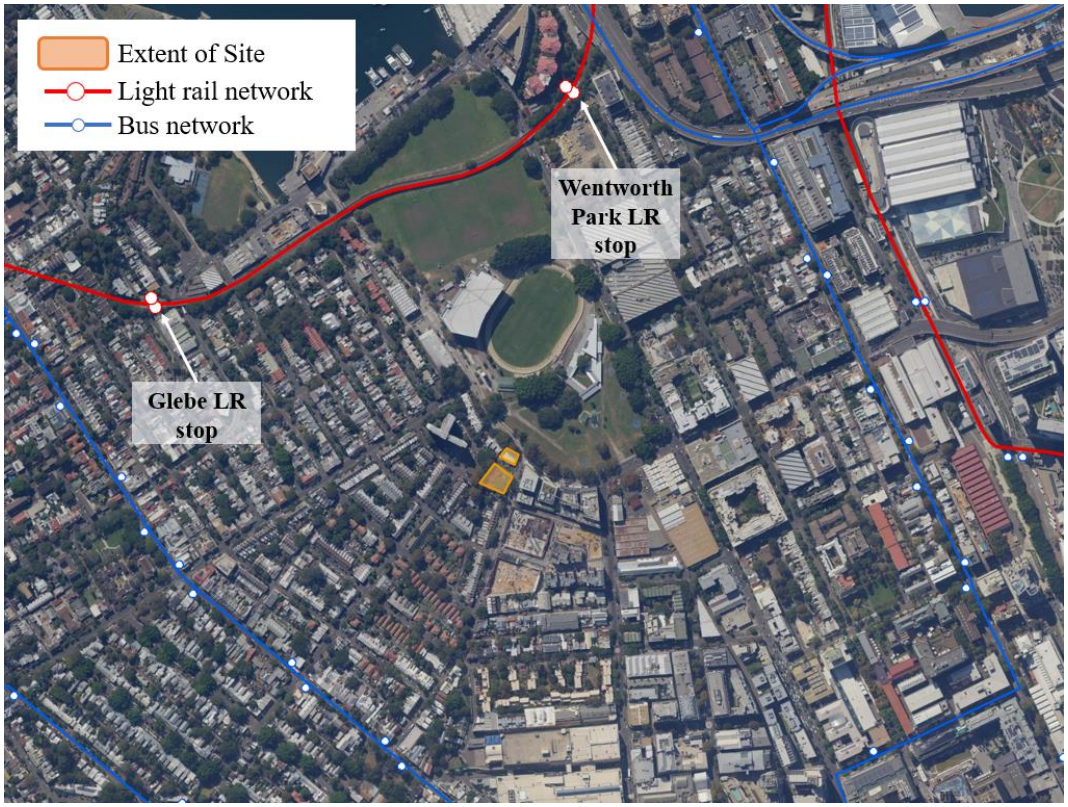


Figure 4: Existing public transport

2.3.1 Light Rail

The site is located approximately equal distance between two light rail stops. The Wentworth Park Light Rail stop is located 750 metres to the north-east, a 10-minute walk via Wentworth Park. The Glebe Light Rail stop is located approximately 800 metres north-west of the site, an 11-minute walk via Broughton Street.

The Inner West Light Rail line runs from Central to Dulwich Hill. During peak times, the frequency of light rail services is one service every 5 to 8 minutes. The travel time to Central Station, the closest train station to the site, is 17 minutes and to Dulwich Hill it is 20 minutes.

2.3.2 Bus

The site is located 450 metres away from bus services that stop along Glebe Point Road. These bus stops provide access to routes 370, 431 and 433. Bus stops on Harris Street are located approximately 650 metres from the site. Information on the various bus routes and walk times are provided in Table 1.

Table 1: Bus service information

Route No.	Route	AM peak frequency (bph)*		Closest stop (location / walk time)
		Inbound	Outbound	
370	Leichardt to Coogee	6	5	Glebe Point Road (203726) 6 minutes
431	Glebe Point to Martin Place	13	5	Glebe Point Road (203726) 6 minutes
433	Balmain to Pitt Street	10	4	Glebe Point Road (203726) 6 minutes
501	West Ryde to Pitt Street	11	4	Harris Street (200720) 10 minutes

*AM-peak hour was assumed to be 08:00-09:00

2.3.3 Rail

Central Station is the closest station to the site, via a 22-minute walk or 17-minute bus trip. Central Station provides access to a number of Sydney Trains services, Intercity trains to various destinations and Interstate connections to Canberra and Melbourne.

2.4 Private Vehicles

2.4.1 Road network hierarchy

All roads immediately adjacent to the site area are local roads managed by the City of Sydney. The key surrounding distributor roads are shown in Figure 5. Vehicles travelling into the Sydney CBD would use Pyrmont Bridge Road, whereas trips to the west could utilise Parramatta Road or Bridge Road.

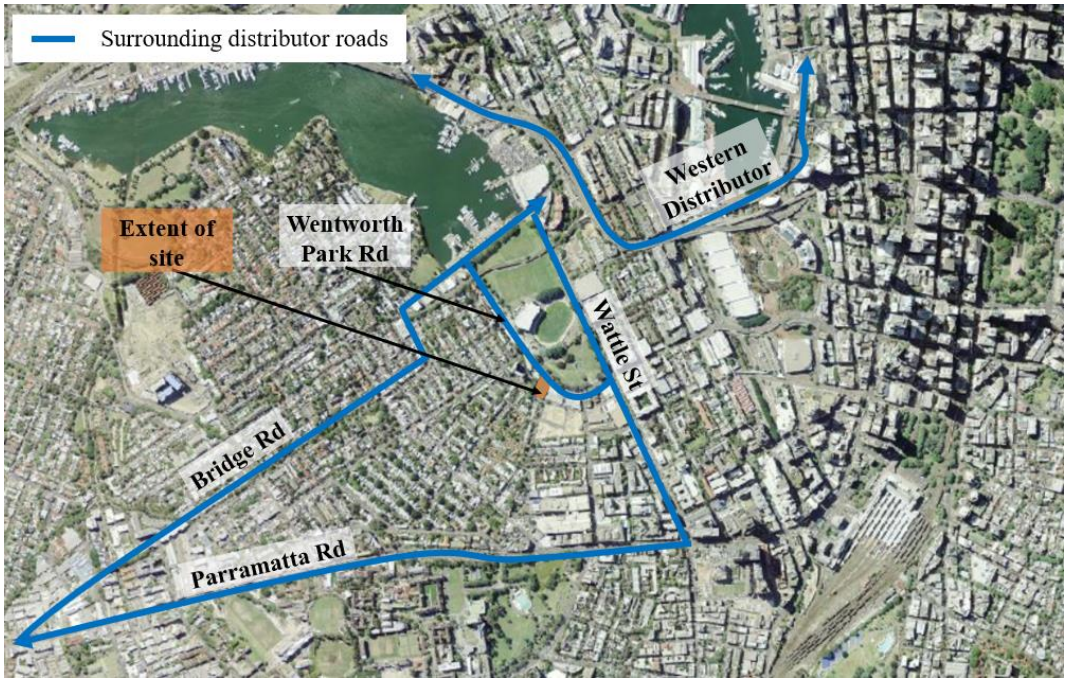


Figure 5: Surrounding road network

2.4.2 Off-street parking

Existing vehicle access points exist along Park Lane providing access to both sites. The north side of Park Lane provides access to 4 driveways at the rear of the townhouses and the south side provides access to 3 lock-up garages. The existing vehicle access points to the site are presented on Figure 6.

Figure 6: Existing vehicle access

2.4.3 On-street parking

Kerbside restrictions in the vicinity of the site are outlined on Figure 7. Parking restrictions on each of the surrounding streets reflect their varying functions. There are approximately 27 2P 8am-6pm spaces, 8 2P 8am-10pm spaces and 9 2P ticketed spaces within the vicinity of the site.

Wentworth Park Road, being a key distributor for the area, has limited, metered parking. In contrast, the local streets and lanes adjacent to the site have a mixture of time-restricted parking.

The Glebe (Area G) resident parking scheme Glebe applies to all streets adjacent to the site. All residents are in the area are eligible for the scheme and their permit exempt them from any time limit parking restrictions which apply.

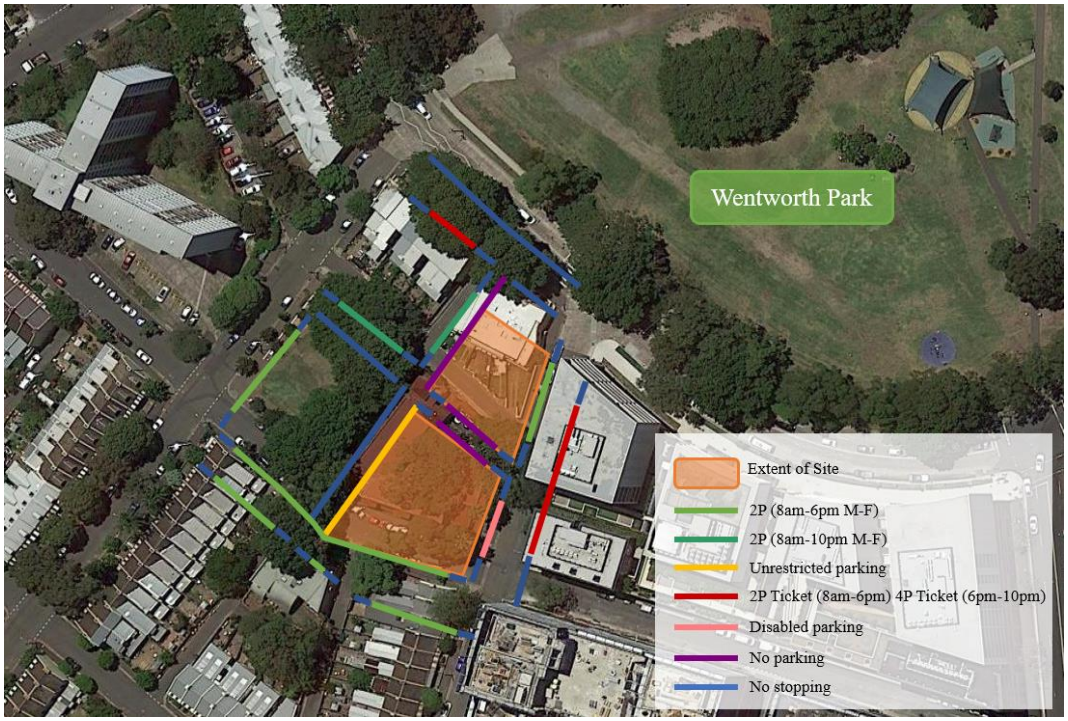


Figure 7: Existing kerbside restrictions

Due to the carriageway width on Wentworth Street (approximately 8.5m) where parking is permitted on both sides of the street, traffic flows are only possible in one direction at a time. From observations on site, this current arrangement does not cause any major congestion. It was also noted that current parking restrictions along Mitchell Lane East restrict vehicle flow. This is shown in Figure 8 below.

Figure 8: Mitchell Lane East – restricted access due to parking

2.4.4 Existing traffic volumes

Traffic counts were undertaken in February 2020 at the Cowper Street / Wentworth Street and Cowper Street / Wentworth Park Road intersections during the commuter peak periods (6:00am-9:00am and 4:00pm-7:00pm). The identified peak hours were as follows:

- AM peak hour: 8:00am – 9:00am; and
- PM peak hour: 5:30pm – 6:30pm.

The traffic flows at the intersections during these peak hours are summarised in Table 2 and Table 3. Detailed vehicle movement diagrams are included in **Appendix A**.

Table 2: Cowper St / Wentworth St existing traffic volumes

Approach	AM peak hour volume (08:00-09:00)	PM peak hour volume (17:30-18:30)
Cowper Street (North)	105	172
Cowper Street (South)	35	15
Wentworth Street (East)	1	1
Wentworth Street (West)	16	9
Total	**157**	**197**

Table 3: Cowper St / Wentworth Park Rd existing traffic volumes

Approach	AM peak hour volume (08:00-09:00)	PM peak hour volume (17:30-18:30)
Cowper Street (South)	48	18
Wentworth Park Road (East)	366	980
Wentworth Park Road (West)	716	494
Total	**1,130**	**1,492**

3 Proposed Development

The proposed development will include a mix of social and market housing, and approximately 230m^2 of non-residential floor space. The proposal comprises the construction of two apartment blocks at adjacent sites:

- North site – 35 social housing units and 230m^2 of non-residential floor space; and
- South site – 34 private units and 5 townhouses.

Figure 9 shows an artist impression of the preliminary concept design, from the perspective of Park Lane. The proposal also includes provision for commercial space on the ground floor.

Figure 9: Artist impression of preliminary concept from Park Lane

The proposed apartment yields are outlined in Table 4.

Table 4: Apartment yield schedule

Site	**North site**		**South site**		
Dwelling Type	**1 bed**	**2 bed**	**1 bed**	**2 bed**	**3 bed**
Units	28	7	14	20	5
Total	**35**		**39**		

4 Proposed Transport Provision

A summary of the proposed access arrangements for the development are provided in Figure 10, with further details in the following sections.

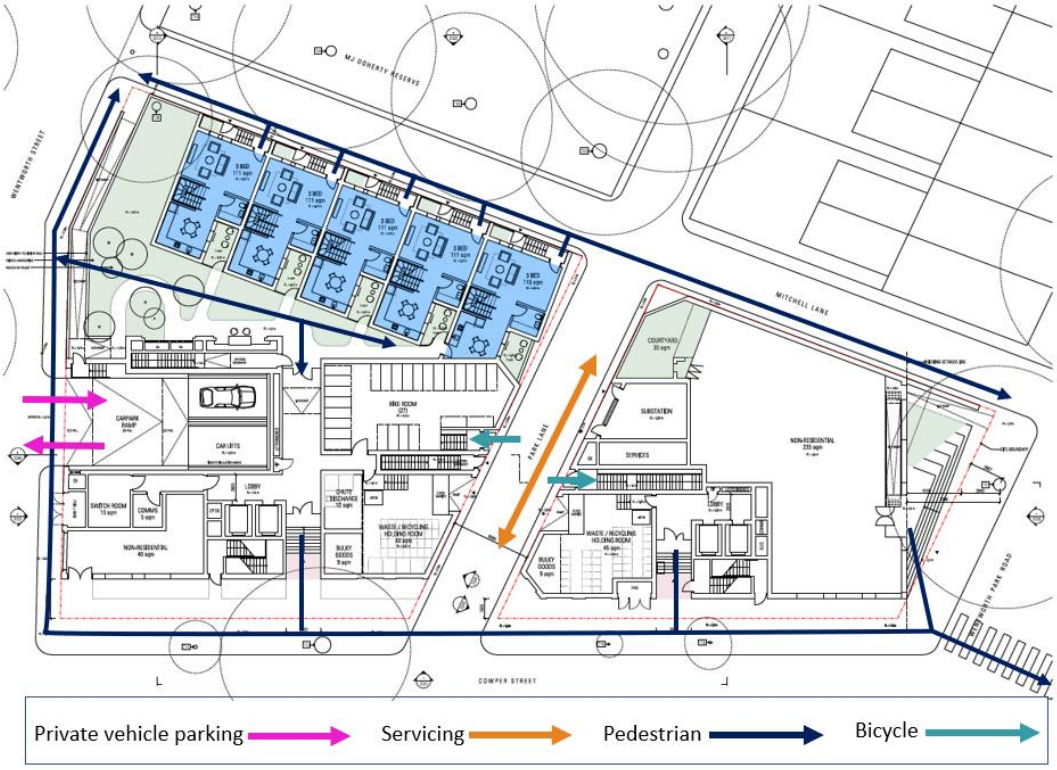


Figure 10: Overview of proposed access arrangements

4.1 Active Travel

4.1.1 Walking

The main pedestrian access points to the development will be off Cowper Street, and Wentworth Park Road. Access to the duplex units will also be possible from Mitchell Lane. Open space adjacent to Wentworth Street will provide pedestrian amenity within the south site.

4.1.2 Cycling

Both the north site and south site will provide bicycle parking facilities that can be accessed directly from Park Lane. From Park Lane , Cowper Street and Mitchell Street (shown in Figure 3 in Section 2.2.2) provide cycling routes which the link to the wider City of Sydney cycling network.

Bicycle parking for residents and visitors will be provided in accordance with the requirements outlined in the City of Sydney DCP. This will support sustainable travel patterns to and from the development.

Bicycle parking for residents should be provided at a rate of one space per dwelling. This translates to 39 spaces required for the south site and 35 spaces required for the north site.

For the north site, all bicycle parking will be provided in a bike room on Basement Level 1 using stairs with a wheeling ramp or lift, accessed directly from Park Lane. The type of bicycle parking will be a mix of storage cages and bicycle rails.

For the south site, the bicycle parking will be provided across two facilities:

- A bike room (27 spaces) on the ground floor, accessed directly from Park Lane
- A storage room with cages on Basement Level 2 (12 spaces), accessed via stairs or a lift from the ground floor public domain area.

There will also be bicycle rails installed in the public realm at the key building entrances for visitors.

4.2 Private Vehicles

Vehicle parking will only be provided within the south site. The access to the basement car parking will connect to Wentworth Street and ramp up to the vehicle lifts.

4.2.1 Car parking requirement

To ascertain the parking requirement for the site the City of Sydney LGA parking rates were applied to the proposed development yield for the south site only. The standards and the associated parking requirement based on the south site development yield are outlined in Table 5.

Table 5: Proposed parking requirement (south site only)

Land use		**No. units / GFA**	**Parking rate[1]**	**Parking requirement (maximum)**
Residential	Studio	0	0.2 spaces per unit	0
	1 bed	14	0.4 spaces per unit	6
	2 bed	20	0.8 spaces per unit	16
	3 bed	5	1.1 spaces per unit	6
	Visitors	-	0.167 – up to 30 dwellings 0.1 – 30 to 70 dwellings 0.05 – above 70 dwellings	7
Total				**35**

[1] Sydney Local Environmental Plan (LEP) Division 1 (2012) - Land on category B

All adaptable units will require an accessible parking space.

In addition to the above, car share parking spaces are to be provided in accordance with the rates outlined in the City of Sydney DCP (see Table 6). It should be noted that these estimates are based on maximum allowable car parking numbers. Therefore, the requirement could be reduced if parking provision is lower than the maximum standards within the DCP.

Table 6: Car share parking provision

Land use	**Car share parking rate**[2]	**Car share parking requirement**
Residential	1 space per 60 normal spaces	1
Total		**1**

4.2.1.1 Access arrangements

Residents will enter and exit the car park via an entrance on Wentworth Street. 2P (8am – 6pm Mon – Fri; permit holders excepted) kerbside restrictions currently apply on both sides of the street.

To accommodate vehicle movements into and out of the car park entrance these restrictions would need to be adjusted on the southern side of Wentworth Street. We estimate this would result in a loss of four parking spaces. The current restrictions would need to be replaced with 'No Stopping' for these four spaces.

As 30 parking spaces are being provided within the development we do not expect the loss of four spaces to have a negative impact on parking supply for residents in the area.

Swept paths appended to this report in **Appendix C** (SKT006-SKT007) illustrate this arrangement.

[2] City of Sydney DCP Section 3.11.2 – Land on category B

4.2.1.2 Car park layout

Thirty car parking spaces are proposed in the basement of the south site, split across two levels. Figure 11 shows the proposed layout of Basement Level 2. The car park layout for Basement Level 1 is similar.

Two car lifts are proposed to move vehicles between ground and basement levels. The car lifts will both accommodate entries and exits. Stop lines and traffic signals on each basement level will manage vehicle flows into the lifts. Vehicles entering the development will have priority to reduce the likelihood of any impacts of Wentworth Street. Due to the small number of parking spaces on the basement levels and the low turnover rate expected for these spaces, queues for the lifts are not expected to form often.

An accessible parking space has been provided for each adaptable unit, i.e. two. One space is provided on each basement level.

No car parking is proposed to be provided for the commercial space.

Swept paths of vehicle movements within the basement are included in **Appendix C** (SKT001-SKT005).

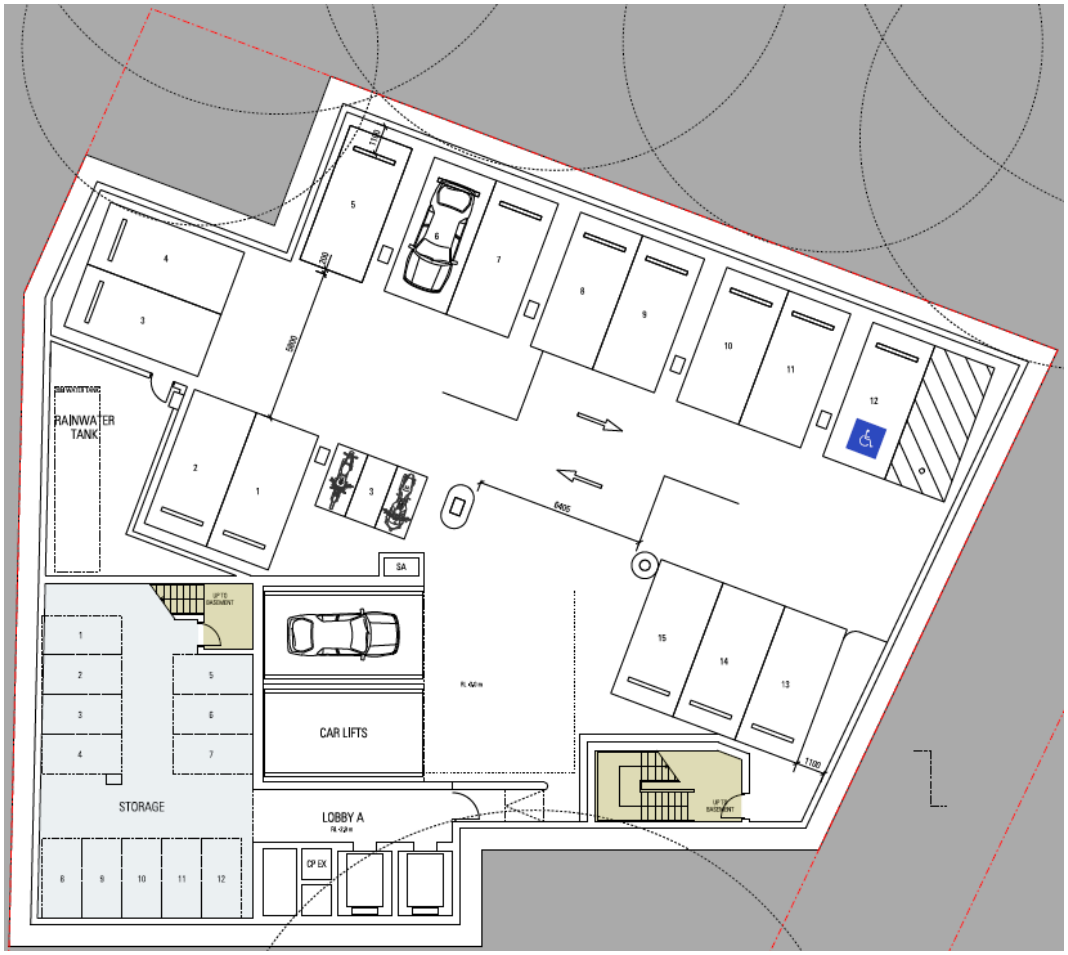


Figure 11: South site basement level 2 layout

4.2.2 Motorcycle parking

Motorcycle parking for residents will be provided in accordance with the requirements outlined in the City of Sydney DCP. The required provision is one motorcycle parking space for every 12 car parking spaces provided. This equates to three motorcycle parking spaces for the proposed development.

Three motorcycle parking spaces will be provided in the south site basement – two on Basement Level 2 and one on Basement Level 1.

4.3 Service vehicles

Park Lane operates as a two-way laneway, with both 'No Stopping' and 'No Parking' kerbside restrictions. Waste collection vehicles currently use Park Lane to service the existing properties.

Park Lane runs between the north and south site and due to the locations of the waste rooms, all servicing will to occur from this street. The locations of both waste rooms are presented in Figure 12.

Figure 12: Location of waste rooms

Loading Zone signage will be implemented on the north side of Park Lane to ensure stopped service vehicles do not block entrances the bike rooms in both sites.

Since the development is predominantly residential, waste collection will be the primary servicing requirement. City of Sydney Council will generally undertake waste collection of the buildings up to two times per week. As such, Loading zone signage will allocate space for one large refuse vehicle which, is estimated to be adequate to accommodate the servicing demand for both sites.

5 Transport Impact Assessment

As noted in Section 2.1, there are currently four townhouses on the north site and 15 units on the south site.

The RMS Guide to Traffic Generating Developments was used to calculate the existing number of trips in the AM and PM peak hours to the site. For low density residential sites in the Sydney Metropolitan Area, an average person trip rate of 1.65 trips / dwelling was observed. This has been applied to four townhouses on the north site. For high density residential sites in the Sydney Metropolitan Area, an average person trip rate of 0.53 trips / dwelling was observed. This has been applied to the 15 apartments on the south site

To calculate the trip generation of the proposed development, the high density residential rate has been applied to both sites.

Table 7 presents the person trips for the existing and proposed development and the net increase in person trips.

Table 7: Existing and proposed trip generation

Site	Existing		Proposed		Difference	
	AM peak hour trips	**PM peak hour trips**	**AM peak hour trips**	**PM peak hour trips**	**AM peak hour trips**	**PM peak hour trips**
North site	7	7	19	19	+12	+12
South site	8	8	21	21	+13	+13
Total	**15**	**15**	**40**	**40**	**25**	**25**

5.1 Multimodal trip generation

To ascertain the future impact of the development a multimodal trip generation assessment has been undertaken for the additional trips generated by the site as a result of the development.

2016 Journey to Work Census data for the relevant Statistical Census Area (SA2 117031331) was analysed to confirm the existing mode share for people travelling to and from work in the precinct. This is presented in Table 8.

Table 8: Multimodal trip generation

Mode	Mode share %	AM peak hour trips	PM peak hour trips
Car Driver	30%	7	7
Car Passenger	3%	1	1
Train	14%	4	4
Bus	25%	6	6
Walk	19%	5	5
Cycle	5%	1	1
Other	4%	1	1
TOTAL	**100%**	**25**	**25**

These trips have been split by direction in Table 9, assuming 80% leave the development and 20% enter the development in the AM peak hour. The reverse assumption has been applied for the PM peak hour.

Table 9: Trip generation by mode and direction

Mode	AM peak hour trips		PM peak hour trips	
	In	Out	In	Out
Car Driver	2	5	5	2
Car Passenger	0	1	1	0
Train	1	3	3	1
Bus	1	5	5	1
Walk	1	4	4	1
Cycle	0	1	1	0
Other	0	1	1	0
TOTAL	**5**	**20**	**20**	**5**

5.1.1 Future mode share target

The development will aspire to reduce dependency on private vehicle and encourage sustainable travel patterns. The aspirational mode share for the development is outlined in Table 10. This aims reduce the mode share relating to private vehicle by a third.

Table 10: Aspirational mode share

Mode	Mode share (%)
Car Driver	20%
Car Passenger	2%
Train	16%
Bus	29%
Walk	22%
Cycle	6%
Other	5%

To achieve this aspiration a range of Travel Demand Management measures would need to be implemented. Further detail on these would be provided in a Green Travel Plan.

5.2 Road network assessment

5.2.1 Traffic distribution

Vehicle trips were distributed to the surrounding road network using 2016 census data to consider the destination of residents travelling to work from the Glebe area and the constraints of the local road network. This expected traffic distribution to and from the site is outlined in Figure 13.

Figure 13: Forecast traffic distribution

This distribution was then applied to the private vehicle trips generated in the AM and PM peak hours.

5.2.2 Traffic modelling

Traffic modelling of the existing and proposed scenarios was undertaken using SIDRA 8 Isolated Intersection software. The following intersections were modelled during the AM peak (08:00 – 09:00) and the PM peak (17:30 – 18:30):

- Cowper Street / Wentworth Street; and
- Cowper Street / Wentworth Park Road.

The modelling parameters used to analyse the performance of these intersections are:

Level of Service (LoS) - a measure that uses the average delay experienced by vehicles to categorically assign each approach and movement with a qualitative ordinal grade (A through F, with A being the best and F being the worst). RMS

Traffic Modelling Guidelines indicate the average delay relating to each grade, this is outlined in Table 11.

Table 11: Level of service grades / description

Grade	Average delay (seconds)	Description
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity. At signals, incidents will cause excessive delays. Roundabouts required other control mode
F	Greater than 71	Unsatisfactory with excessive queuing

Degree of Saturation (DoS) - a ratio of demand to capacity. A DoS of 1.0 indicates that the demand and capacity at an approach or intersection are equal. The RMS Traffic Modelling Guidelines outlines practical DoS for different intersection types

95th percentile queue length – this is the queue length that only has a 5% probability of being exceeded during the analysis time period. This parameter is used to calculate lane lengths but is not representative of a queue a normal driver would experience.

Cowper Street / Wentworth Street

The existing configuration of the Cowper Street / Wentworth Street intersection is presented in Figure 14.

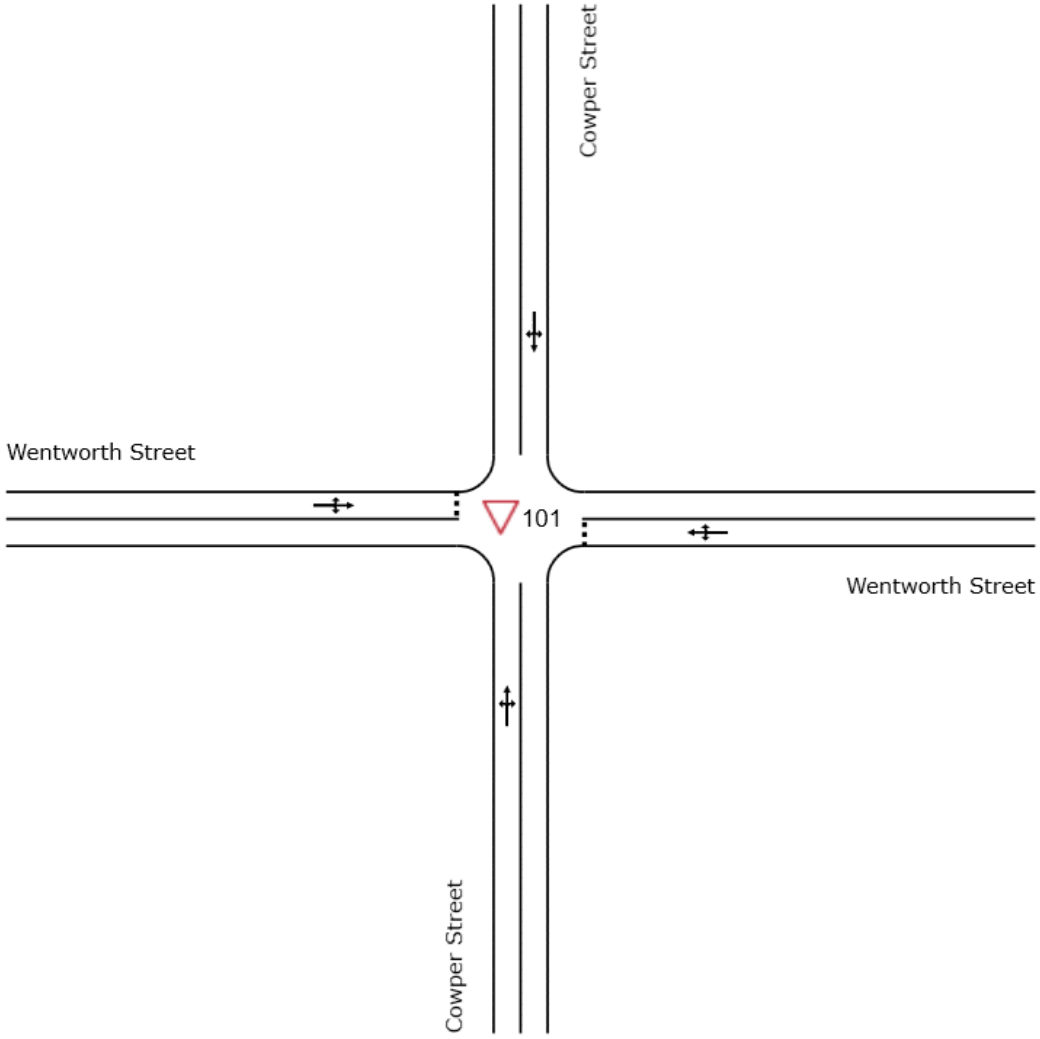


Figure 14: Existing Cowper Street / Wentworth Street configuration

Modelling results

The results from the SIDRA modeling are presented in Table 12. A full output of the modelling results is presented in **Appendix B**.

Table 12: Cowper Street / Wentworth Street modelling results

Scenario	LoS	DoS	95th percentile queue
Existing AM peak hour	A	0.06	1m
Existing AM peak hour + development	A	0.06	1m
Existing PM peak hour	A	0.09	1m
Existing PM peak hour + development	A	0.10	1m

The traffic modelling indicates the proposal will have a negligible impact on the operation of the intersection which maintains a low DoS and queue length during both peak hours.

Cowper Street / Wentworth Park Road

The existing configuration of the Cowper Street / Wentworth Park Road intersection is presented in Figure 15.

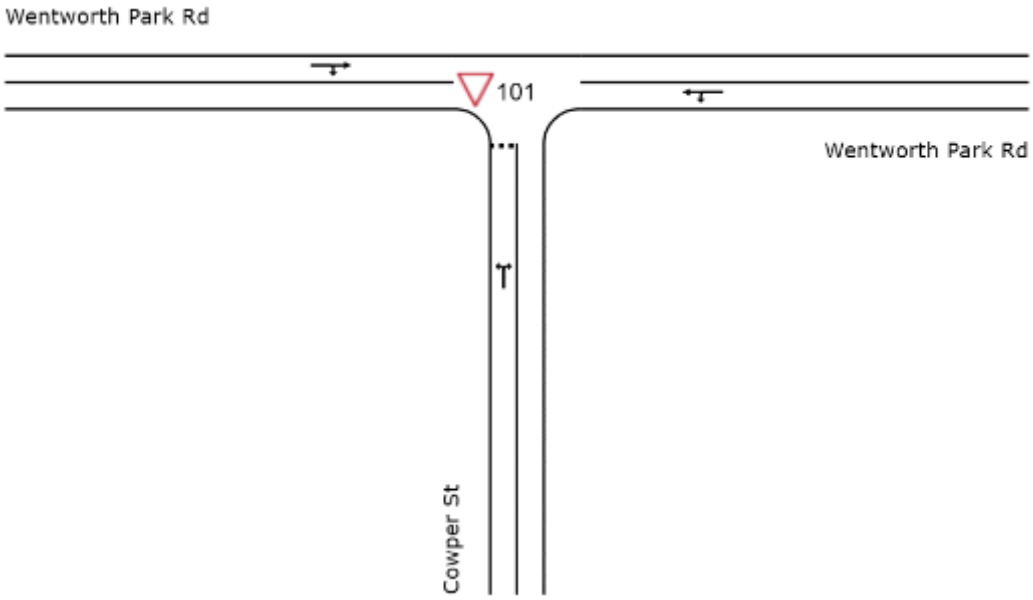


Figure 15: Existing Cowper Street / Wentworth Park Road configuration

Modelling results

The results from the SIDRA modeling are presented in Table 12. A full output of the modelling results is presented in **Appendix B**.

Table 13: Cowper Street / Wentworth Park Road modelling results

Scenario	LoS	DoS	95th percentile queue
Existing AM peak hour	A	0.41	6m
Existing AM peak hour + development	A	0.41	7m
Existing PM peak hour	A	0.53	23m
Existing PM peak hour + development	A	0.53	25m

Results for the intersection with development traffic present acceptable DoS on all arms of the intersection. Overall, this modelling indicates the proposal will have a negligible impact on the operation of the intersection.

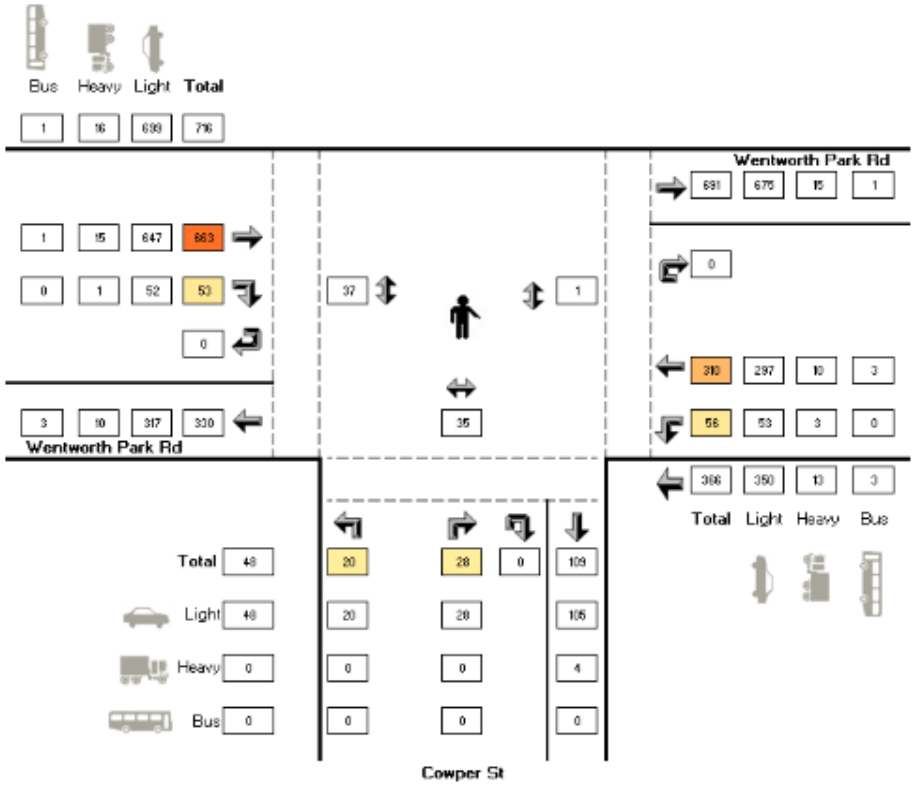
6 Summary

This report addresses the following transport impacts relating to the Glebe mid-rise development:

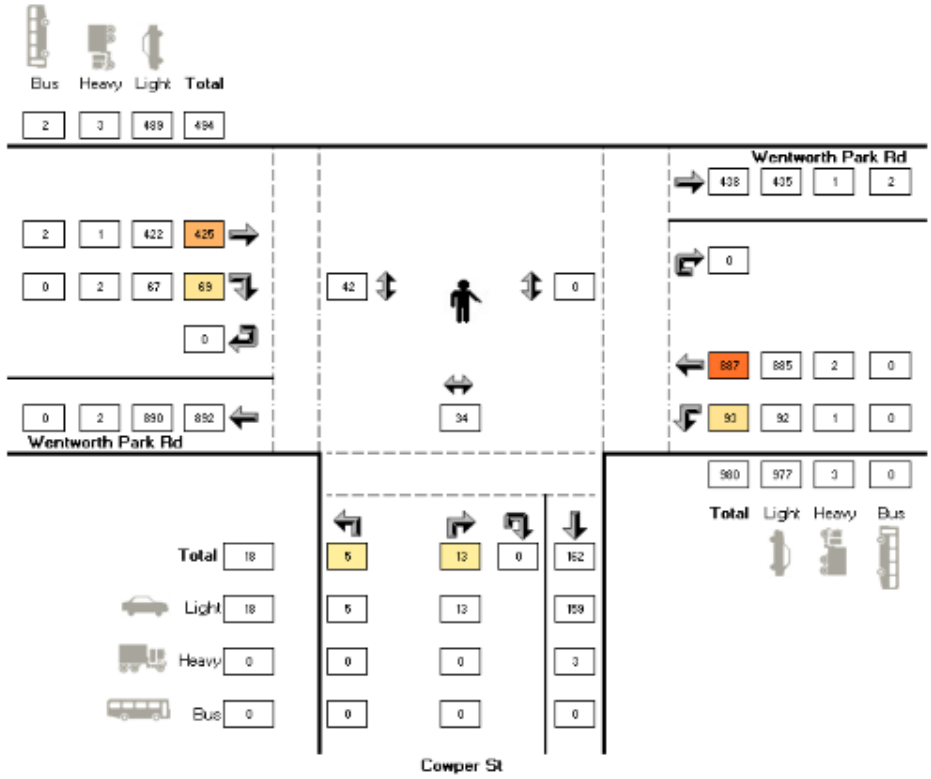
- Vehicle access to the development will be provided via Wentworth Street connecting to the basement parking within the south site;
- Thirty parking spaces including two accessible spaces are provided in the basement levels of the south site connected via two car lifts;
- Servicing of both the north site and south site will occur on-street from a Loading Zone signed on Park Lane with a capacity for one vehicle;
- The indicative scheme will generate an additional seven additional private vehicle trips in both the AM and PM peak hours;
- The development aims to utilise the surrounding cycling routes and public transport services to encourage sustainable travel patterns; and
- Applying traffic generated by the proposed development to the surrounding road network indicates the uplift in traffic will have a negligible impact on road network operation.

Appendix A

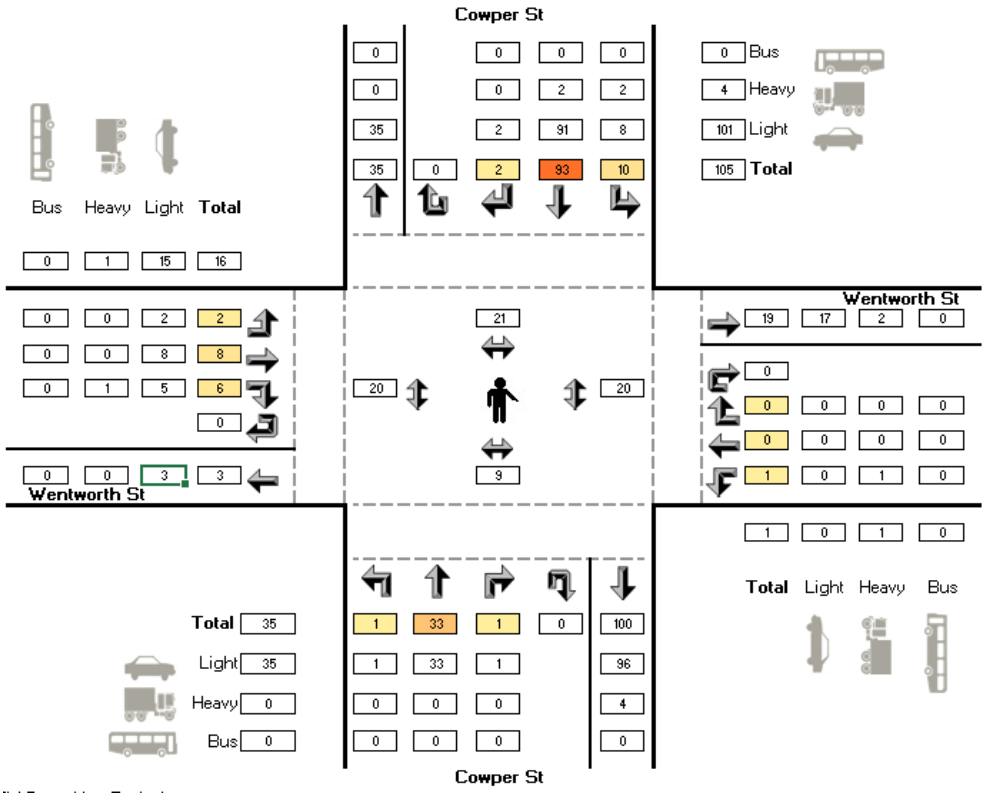
Existing Traffic Volumes



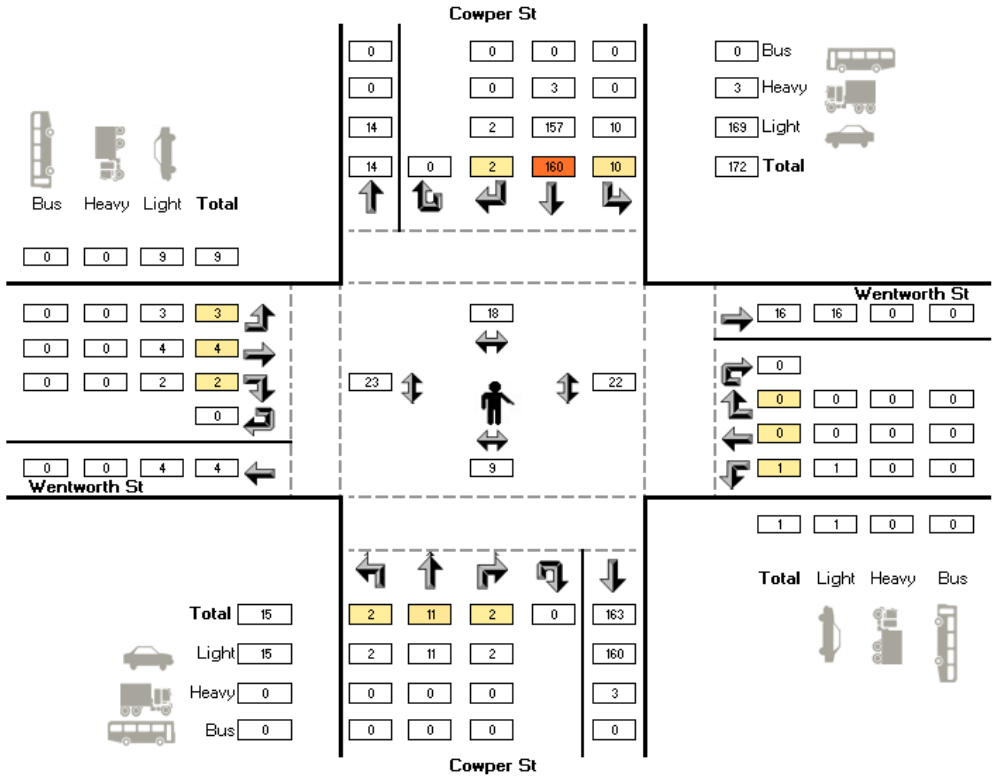
Existing traffic at Cowper St / Wentworth Park Rd intersection (AM peak hour)



Existing traffic at Cowper St / Wentworth Park Rd intersection (PM peak hour)



Existing traffic at Cowper St / Wentworth St intersection (AM peak hour)



Existing traffic at Cowper St / Wentworth St intersection (PM peak hour)

Appendix B

SIDRA Modelling Results

MOVEMENT SUMMARY

Site: 101 [AM_EX_Cowper St / Wentworth St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper Street												
1	L2	1	0.0	0.019	5.7	LOS A	0.0	0.1	0.02	0.03	0.02	48.7
2	T1	35	0.0	0.019	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	59.2
3	R2	1	0.0	0.019	5.8	LOS A	0.0	0.1	0.02	0.03	0.02	55.4
Approach		37	0.0	0.019	0.3	NA	0.0	0.1	0.02	0.03	0.02	58.7
East: Wentworth Street												
4	L2	1	0.0	0.003	5.8	LOS A	0.0	0.1	0.21	0.53	0.21	48.9
5	T1	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.21	0.53	0.21	21.4
6	R2	1	0.0	0.003	6.1	LOS A	0.0	0.1	0.21	0.53	0.21	19.8
Approach		3	0.0	0.003	5.5	LOS A	0.0	0.1	0.21	0.53	0.21	30.2
North: Cowper Street												
7	L2	11	20.0	0.059	4.5	LOS A	0.0	0.1	0.01	0.07	0.01	46.7
8	T1	98	2.2	0.059	0.0	LOS A	0.0	0.1	0.01	0.07	0.01	59.0
9	R2	2	0.0	0.059	4.5	LOS A	0.0	0.1	0.01	0.07	0.01	37.9
Approach		111	3.8	0.059	0.5	NA	0.0	0.1	0.01	0.07	0.01	58.1
West: Wentworth Street												
10	L2	2	0.0	0.016	5.4	LOS A	0.1	0.4	0.18	0.54	0.18	28.8
11	T1	8	0.0	0.016	4.4	LOS A	0.1	0.4	0.18	0.54	0.18	40.7
12	R2	6	16.7	0.016	6.0	LOS A	0.1	0.4	0.18	0.54	0.18	46.6
Approach		17	6.3	0.016	5.1	LOS A	0.1	0.4	0.18	0.54	0.18	42.7
All Vehicles		167	3.1	0.059	1.0	NA	0.1	0.4	0.03	0.11	0.03	56.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM_FU_Cowper St / Wentworth St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper Street												
1	L2	1	0.0	0.019	5.7	LOS A	0.0	0.1	0.02	0.03	0.02	48.7
2	T1	35	0.0	0.019	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	59.2
3	R2	1	0.0	0.019	5.8	LOS A	0.0	0.1	0.02	0.03	0.02	55.4
Approach		37	0.0	0.019	0.3	NA	0.0	0.1	0.02	0.03	0.02	58.7
East: Wentworth Street												
4	L2	1	0.0	0.003	5.8	LOS A	0.0	0.1	0.21	0.53	0.21	48.9
5	T1	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.21	0.53	0.21	21.4
6	R2	1	0.0	0.003	6.1	LOS A	0.0	0.1	0.21	0.53	0.21	19.8
Approach		3	0.0	0.003	5.5	LOS A	0.0	0.1	0.21	0.53	0.21	30.2
North: Cowper Street												
7	L2	11	20.0	0.059	4.5	LOS A	0.0	0.2	0.01	0.07	0.01	46.6
8	T1	98	2.2	0.059	0.0	LOS A	0.0	0.2	0.01	0.07	0.01	58.9
9	R2	3	0.0	0.059	4.5	LOS A	0.0	0.2	0.01	0.07	0.01	37.8
Approach		112	3.8	0.059	0.6	NA	0.0	0.2	0.01	0.07	0.01	57.9
West: Wentworth Street												
10	L2	8	0.0	0.020	5.4	LOS A	0.1	0.5	0.13	0.54	0.13	28.9
11	T1	8	0.0	0.020	4.4	LOS A	0.1	0.5	0.13	0.54	0.13	40.7
12	R2	6	16.7	0.020	6.0	LOS A	0.1	0.5	0.13	0.54	0.13	46.6
Approach		23	4.5	0.020	5.2	LOS A	0.1	0.5	0.13	0.54	0.13	39.7
All Vehicles		175	3.0	0.059	1.2	NA	0.1	0.5	0.03	0.13	0.03	55.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM_EX_Cowper St / Wentworth St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper Street												
1	L2	2	0.0	0.008	5.8	LOS A	0.0	0.1	0.10	0.15	0.10	46.7
2	T1	12	0.0	0.008	0.1	LOS A	0.0	0.1	0.10	0.15	0.10	56.2
3	R2	2	0.0	0.008	6.0	LOS A	0.0	0.1	0.10	0.15	0.10	53.1
Approach		16	0.0	0.008	1.7	NA	0.0	0.1	0.10	0.15	0.10	54.3
East: Wentworth Street												
4	L2	1	0.0	0.003	6.0	LOS A	0.0	0.1	0.27	0.53	0.27	48.6
5	T1	1	0.0	0.003	4.8	LOS A	0.0	0.1	0.27	0.53	0.27	21.3
6	R2	1	0.0	0.003	6.3	LOS A	0.0	0.1	0.27	0.53	0.27	19.7
Approach		3	0.0	0.003	5.7	LOS A	0.0	0.1	0.27	0.53	0.27	30.0
North: Cowper Street												
7	L2	11	0.0	0.094	4.5	LOS A	0.0	0.1	0.00	0.04	0.00	51.9
8	T1	168	1.9	0.094	0.0	LOS A	0.0	0.1	0.00	0.04	0.00	59.3
9	R2	2	0.0	0.094	4.5	LOS A	0.0	0.1	0.00	0.04	0.00	38.3
Approach		181	1.7	0.094	0.3	NA	0.0	0.1	0.00	0.04	0.00	59.0
West: Wentworth Street												
10	L2	3	0.0	0.008	5.4	LOS A	0.0	0.2	0.06	0.55	0.06	28.9
11	T1	4	0.0	0.008	4.6	LOS A	0.0	0.2	0.06	0.55	0.06	40.8
12	R2	2	0.0	0.008	6.2	LOS A	0.0	0.2	0.06	0.55	0.06	47.8
Approach		9	0.0	0.008	5.2	LOS A	0.0	0.2	0.06	0.55	0.06	39.9
All Vehicles		209	1.5	0.094	0.7	NA	0.0	0.2	0.02	0.08	0.02	57.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM_FU_Cowper St / Wentworth St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper Street												
1	L2	2	0.0	0.008	5.8	LOS A	0.0	0.1	0.10	0.15	0.10	46.7
2	T1	12	0.0	0.008	0.1	LOS A	0.0	0.1	0.10	0.15	0.10	56.2
3	R2	2	0.0	0.008	6.0	LOS A	0.0	0.1	0.10	0.15	0.10	53.1
Approach		16	0.0	0.008	1.7	NA	0.0	0.1	0.10	0.15	0.10	54.3
East: Wentworth Street												
4	L2	1	0.0	0.003	6.0	LOS A	0.0	0.1	0.27	0.53	0.27	48.6
5	T1	1	0.0	0.003	4.8	LOS A	0.0	0.1	0.27	0.53	0.27	21.3
6	R2	1	0.0	0.003	6.4	LOS A	0.0	0.1	0.27	0.53	0.27	19.7
Approach		3	0.0	0.003	5.7	LOS A	0.0	0.1	0.27	0.53	0.27	30.0
North: Cowper Street												
7	L2	11	0.0	0.098	4.6	LOS A	0.1	0.5	0.01	0.06	0.01	51.3
8	T1	168	1.9	0.098	0.0	LOS A	0.1	0.5	0.01	0.06	0.01	59.0
9	R2	8	0.0	0.098	4.5	LOS A	0.1	0.5	0.01	0.06	0.01	37.9
Approach		187	1.7	0.098	0.5	NA	0.1	0.5	0.01	0.06	0.01	58.2
West: Wentworth Street												
10	L2	4	0.0	0.009	5.4	LOS A	0.0	0.2	0.05	0.55	0.05	28.9
11	T1	4	0.0	0.009	4.6	LOS A	0.0	0.2	0.05	0.55	0.05	40.7
12	R2	2	0.0	0.009	6.2	LOS A	0.0	0.2	0.05	0.55	0.05	47.8
Approach		11	0.0	0.009	5.2	LOS A	0.0	0.2	0.05	0.55	0.05	38.9
All Vehicles		217	1.5	0.098	0.9	NA	0.1	0.5	0.02	0.10	0.02	56.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM_EX_Cowper St / Wentworth Park Rd]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper St												
1	L2	21	0.0	0.104	6.6	LOS A	0.3	2.3	0.56	0.75	0.56	49.5
3	R2	29	0.0	0.104	14.5	LOS B	0.3	2.3	0.56	0.75	0.56	44.1
Approach		51	0.0	0.104	11.2	LOS B	0.3	2.3	0.56	0.75	0.56	46.8
East: Wentworth Park Rd												
4	L2	59	5.4	0.202	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	55.8
5	T1	323	3.3	0.202	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	58.6
Approach		382	3.6	0.202	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.2
West: Wentworth Park Rd												
11	T1	697	2.3	0.410	0.4	LOS A	0.9	6.2	0.12	0.05	0.14	58.5
12	R2	56	1.9	0.410	7.9	LOS A	0.9	6.2	0.12	0.05	0.14	56.8
Approach		753	2.2	0.410	0.9	NA	0.9	6.2	0.12	0.05	0.14	58.3
All Vehicles		1185	2.6	0.410	1.3	NA	0.9	6.2	0.10	0.09	0.11	57.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM_FU_Cowper St / Wentworth Park Rd]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper St												
1	L2	27	0.0	0.110	6.7	LOS A	0.4	2.5	0.53	0.73	0.53	49.8
3	R2	29	0.0	0.110	14.6	LOS B	0.4	2.5	0.53	0.73	0.53	44.5
Approach		57	0.0	0.110	10.8	LOS B	0.4	2.5	0.53	0.73	0.53	47.5
East: Wentworth Park Rd												
4	L2	59	5.4	0.202	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	55.8
5	T1	323	3.3	0.202	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	58.6
Approach		382	3.6	0.202	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.2
West: Wentworth Park Rd												
11	T1	697	2.3	0.411	0.4	LOS A	0.9	6.3	0.12	0.05	0.14	58.5
12	R2	57	1.9	0.411	8.0	LOS A	0.9	6.3	0.12	0.05	0.14	56.8
Approach		754	2.2	0.411	0.9	NA	0.9	6.3	0.12	0.05	0.14	58.3
All Vehicles		1193	2.6	0.411	1.4	NA	0.9	6.3	0.10	0.10	0.11	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM_EX_Cowper St / Wentworth Park Rd]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper St												
1	L2	5	0.0	0.098	11.4	LOS B	0.3	1.9	0.86	0.94	0.86	43.1
3	R2	14	0.0	0.098	26.3	LOS D	0.3	1.9	0.86	0.94	0.86	36.3
Approach		19	0.0	0.098	22.2	LOS C	0.3	1.9	0.86	0.94	0.86	38.6
East: Wentworth Park Rd												
4	L2	98	1.1	0.533	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	56.4
5	T1	934	0.2	0.533	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.0
Approach		1032	0.3	0.533	0.5	NA	0.0	0.0	0.00	0.06	0.00	58.7
West: Wentworth Park Rd												
11	T1	466	0.2	0.413	5.2	LOS A	3.2	22.8	0.49	0.11	0.70	50.7
12	R2	73	2.9	0.413	18.0	LOS C	3.2	22.8	0.49	0.11	0.70	51.9
Approach		539	0.6	0.413	6.9	NA	3.2	22.8	0.49	0.11	0.70	51.0
All Vehicles		1589	0.4	0.533	3.0	NA	3.2	22.8	0.18	0.09	0.25	55.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM_FU_Cowper St / Wentworth Park Rd]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cowper St												
1	L2	6	0.0	0.101	11.4	LOS B	0.3	2.0	0.86	0.94	0.86	43.3
3	R2	14	0.0	0.101	26.6	LOS D	0.3	2.0	0.86	0.94	0.86	36.5
Approach		20	0.0	0.101	21.8	LOS C	0.3	2.0	0.86	0.94	0.86	39.1
East: Wentworth Park Rd												
4	L2	98	1.1	0.533	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	56.4
5	T1	934	0.2	0.533	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.0
Approach		1032	0.3	0.533	0.5	NA	0.0	0.0	0.00	0.06	0.00	58.7
West: Wentworth Park Rd												
11	T1	466	0.2	0.427	5.5	LOS A	3.5	24.7	0.52	0.13	0.76	50.2
12	R2	79	2.7	0.427	18.1	LOS C	3.5	24.7	0.52	0.13	0.76	51.6
Approach		545	0.6	0.427	7.4	NA	3.5	24.7	0.52	0.13	0.76	50.5
All Vehicles		1597	0.4	0.533	3.1	NA	3.5	24.7	0.19	0.09	0.27	55.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix C

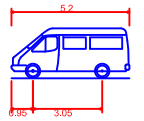
Swept Paths

A3

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO

For Information

ARUP

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Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement operation 1

Scale at A3
1:100

Discipline
Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT001**	**A**

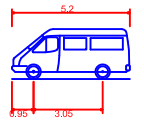
Do not scale

A3

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope
- Realigned kerb
- Access path

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO
For Information				

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Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement operation 2

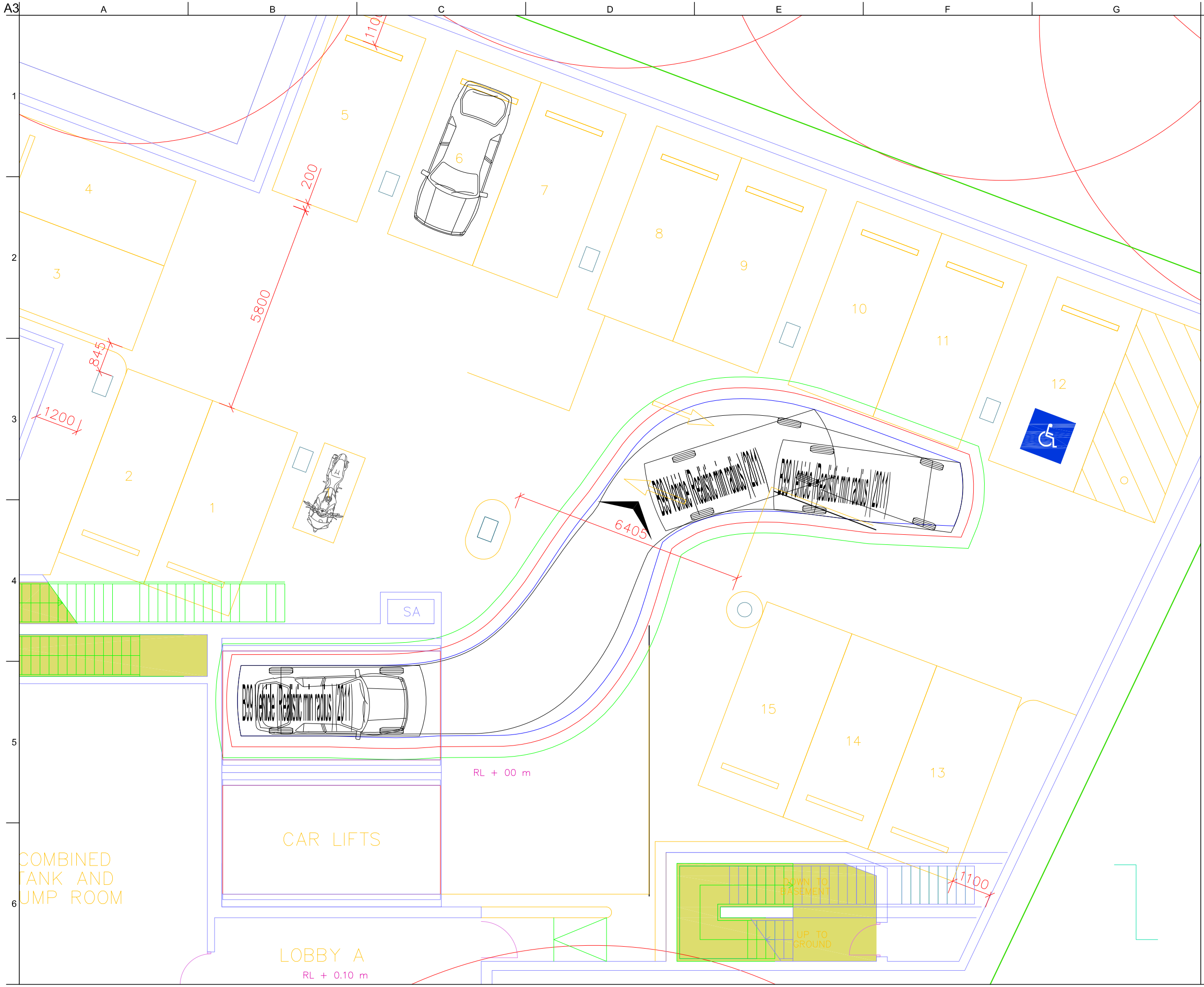
Scale at A3 1:100

Discipline Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT002**	**A**

Do not scale

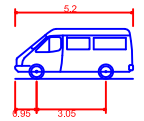


A3

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO

For Information

ARUP

Arup, Level 5, 151 Clarence St
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement operation 3

Scale at A3
1:100

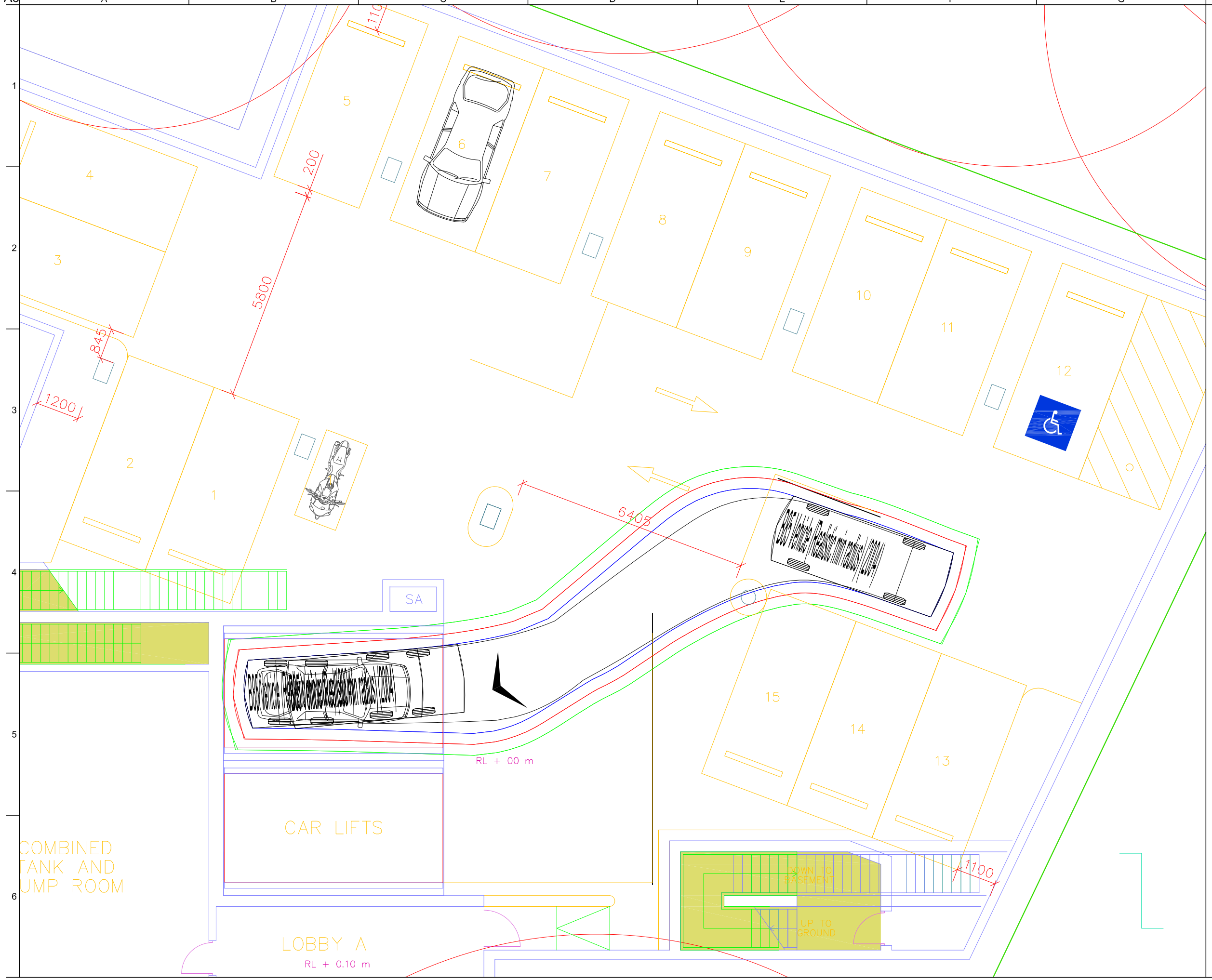
Discipline
Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT003**	**A**

Do not scale

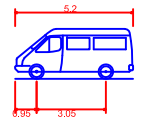
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO

For Information

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www.arup.com.au

Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement operation 4

Scale at A3 1:100

Discipline Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT004**	**A**

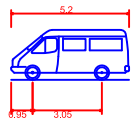
Do not scale

A3

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO

For Information

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Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement operation 5

Scale at A3 1:100

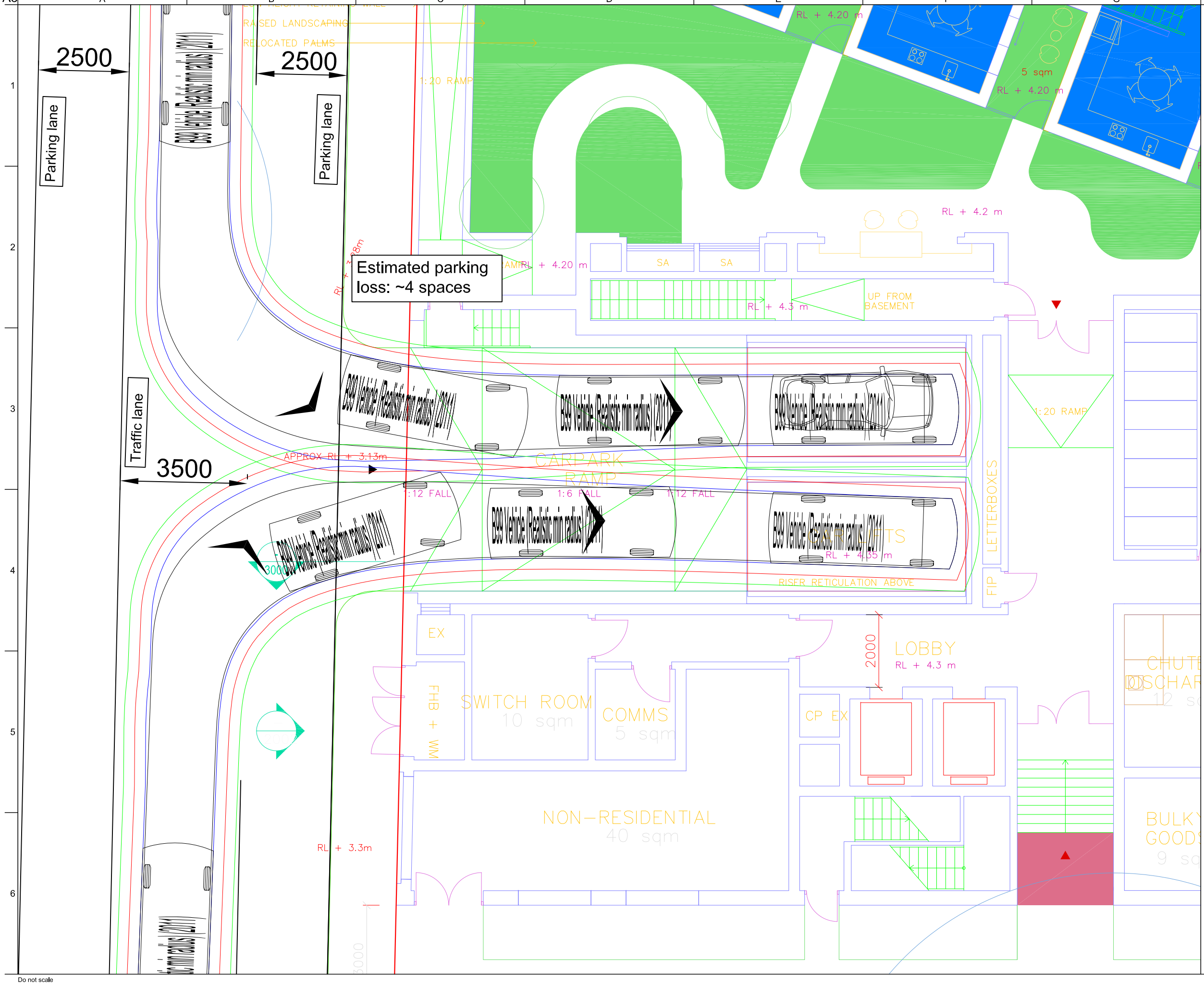
Discipline Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT005**	**A**

Do not scale

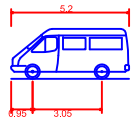
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO

For Information

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www.arup.com.au

Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement access - in movements

Scale at A3 1:100

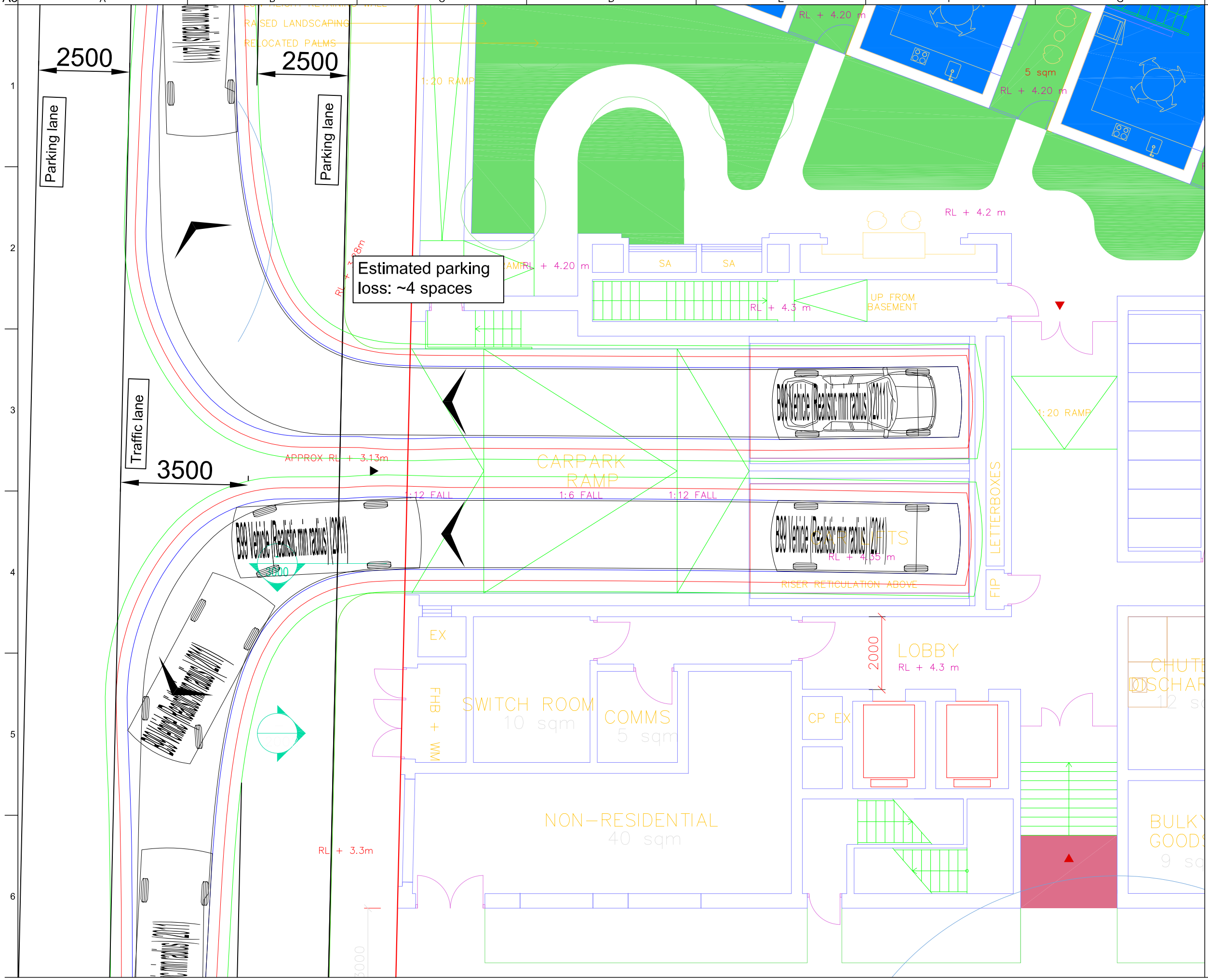
Discipline Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT006**	**A**

Do not scale

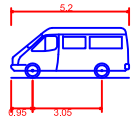
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	5 /05/20	SZ	SO	SO
For Information				

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www.arup.com.au

Client
LAHC

Job Title
Glebe Midrise

Drawing Title
Basement access - out movements

Scale at A3
1:100

Discipline
Transport

Drawing Status
For Information

Job No	Drawing No	Issue
272553-00	**SKT007**	**A**

Do not scale