

Stellar Hurstville Pty Ltd
521-525 Botany Road
Zetland NSW 2017

RE: 2-10 Woniara Road, Hurstville

Our Reference
377728

25 November 2016

Dear Mr Yang

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1 Introduction

1.1 Purpose

This traffic impact statement has been prepared to support a Development Application (DA) for a proposed mixed use development at 2-10 Woniara Road, Hurstville, NSW. The purpose of this statement is to assess the potential traffic, transport and parking impacts of the proposed development.

The proposed development is documented in the DA drawings – refer to the SWA Group architectural drawings for all floor plans (drawings DA-11 – DA19, 16/08/2016).

1.2 Background

The site is located to the north-west of Hurstville station and is bounded by Woniara Road to the south-west, the Illawarra railway line to the north-east and existing commercial developments to the south-east. An overview of the site in relation to its surroundings is presented in Figure 2.1. The site is zoned for B4 Mixed Use under the Kogarah LEP 2012 and is currently utilised for commercial uses.

Hurstville is identified as a strategic centre in A Plan for Growing Sydney (NSW Planning and Environment, 2014) and is indicated as having growth potential. Hurstville is planned for intensification involving medium to high density development in and around the city centre, which has recently included high density development approvals along Woniara Road to the east of the site and in various locations to the north of the rail line.

Hurstville has been considered ideal for intensification due to having a high level of public transport provision and excellent connectivity to key employment areas including Sydney CBD, the Airport/Green Square and North Sydney.

Planning Controls

The land falls inside the Hurstville Town Centre as identified by the Kogarah Development Control Plan (DCP) 2013, and is also governed by the Kogarah Local Environmental Plan (LEP) 2012. The Hurstville City Centre DCP No. 2, which applies to the city centre north of the rail line, was revised in 2015 and is relevant for this part of the road network and the planned intensification of Hurstville as a regional centre.

The Hurstville City Centre Transport Management and Accessibility Plan (TMAP) was developed in 2013 to inform new planning controls for the proposed Hurstville City Centre LEP to accommodate additional growth. The TMAP provided a comprehensive analysis of the growth potential of Hurstville City Centre and developed a travel management action plan to manage the potential growth.

Parking requirements have fallen over time since earlier versions of the DCP in an attempt to better manage travel demand and traffic in the Hurstville City Centre. This aligns with the findings of the TMAP, which recommended a reduction in parking provision rates.

1.3 Report Structure

The remainder of this report is structured as follows:

2. **Existing Conditions** – provides details of the existing site and surrounding transport network.
3. **Planning Context** – provides an outline of the planning considerations applicable to the site, including policy objectives and targets.
4. **Development Proposal** – provides an overview of the proposed development.
5. **Parking Assessment** – provides a review of parking provision in relation to the DCP requirements.
6. **Traffic Impact Assessment** – provides a review of traffic generation and potential impacts on the road network.
7. **Conclusions** – provides a list of conclusions resulting from the assessment.

2 Existing Conditions

The existing site is a 2-3 storey commercial development with a total GLFA of 1,149m². Access to the site is obtained via Woniora Road, and the site is well connected to public transport. The subject site is presented in Figure 2.1.

Figure 2.1: Subject Site



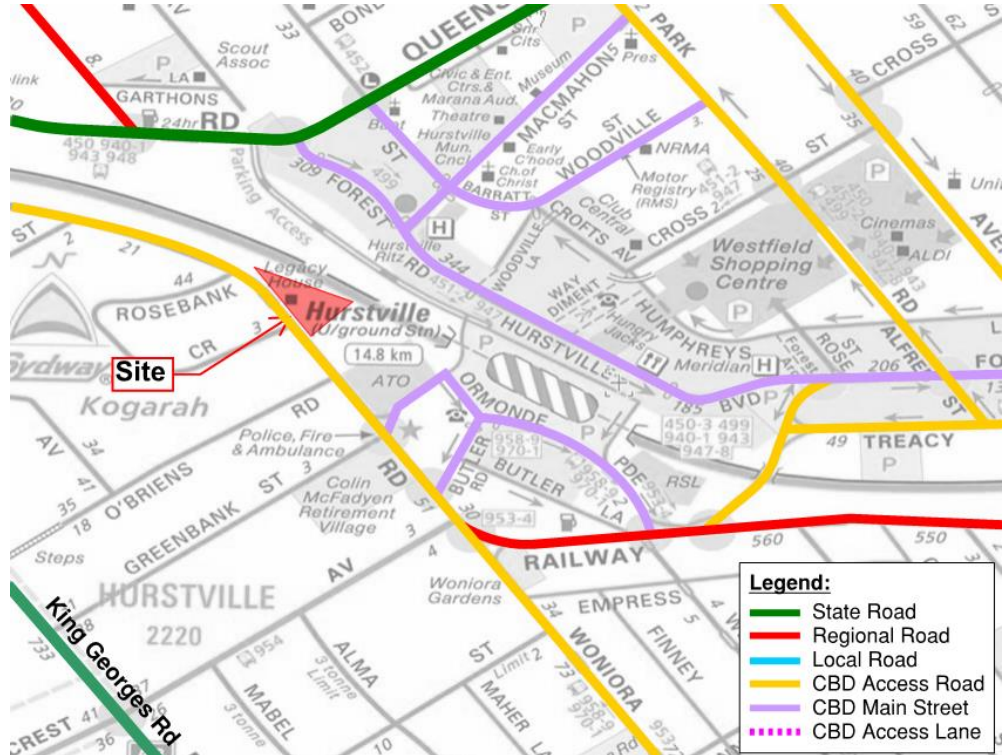
Source: Google Maps 2016

The following sections provide details of the existing transport network in proximity of the site.

2.1 Road Network

The functional road hierarchy in proximity of the site and the key road network surrounding the Hurstville City Centre is presented in Figure 2.2. This is adapted from the Hurstville TMAP.

Figure 2.2: Road Hierarchy



Source: Hurstville City Centre TMAP (2013)

The figure indicates that the site is located on a CBD access road which is well connected to nearby collector and arterial roads. Further details of key roads in proximity of the site are provided below.

Woniara Road

Woniara Road acts as a sub-arterial road and provides a connection between nearby regional routes and the southern part of the Hurstville town centre. The road facilitates east-west movement through Hurstville as well as north-south movement across the railway line.

Woniara Road generally contains one travel lane in each direction and has a signposted speed limit of 60km/h. According to the Hurstville TMAP, Woniara Road carries up to 1,500 vehicles per hour in peak periods near the city centre. Kerbside parking is available on the southern side of the road in the immediate vicinity of the site.

King Georges Road

King Georges Road is a state road which provides access to key corridors including the Princes Highway, M4, M5, Hume Highway, Lane Cove Road, Epping Road and the Pacific Highway. This road therefore provides good access to the strategic road network and offers connections to regional and employment centres. It also forms a key freight corridor and carries significant heavy vehicle and commercial traffic throughout south Sydney.

King Georges Road contains two travel lanes in each direction with a posted speed limit of 60km/h near the site. According to the Hurstville TMAP, King Georges Road carries up to 4,000 vehicles per hour in the peak period between Forest Road and Woniara Road.

2.3 Public Transport

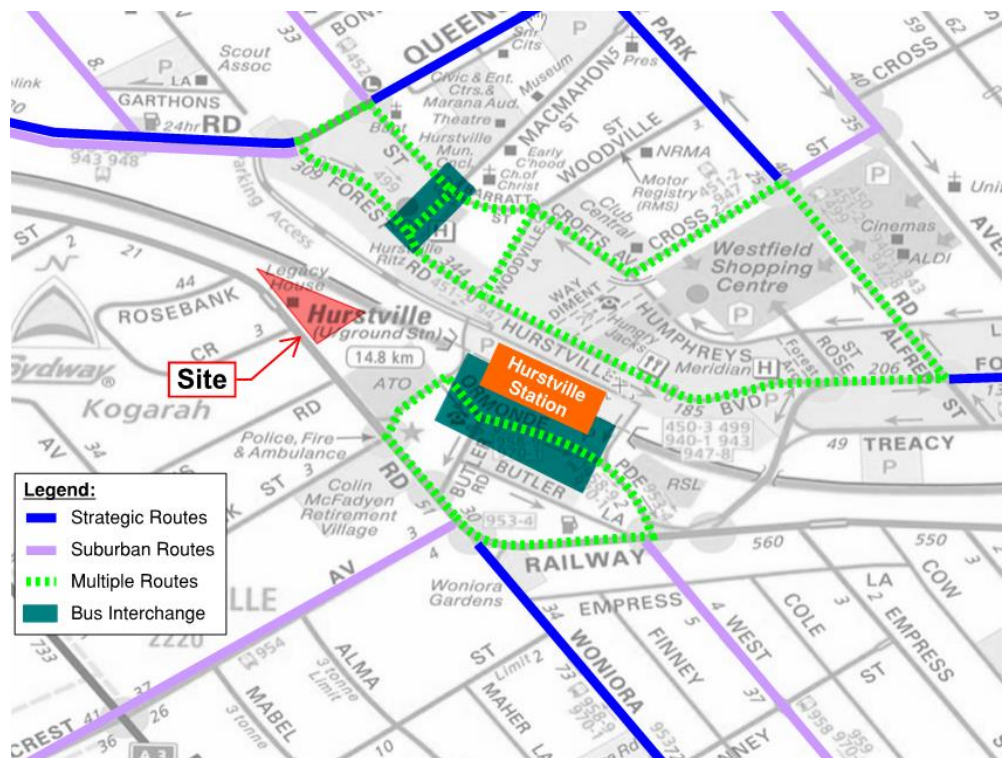
The site is well connected to high quality rail and bus transport services. The site is less than a 5 minute walk from Hurstville station, which includes an accessible bus/rail interchange. The station is located on the Eastern Suburbs and Illawarra line and provides access to the CBD via a 20 minute train trip. The typical train frequency is 18 trains per hour in the AM peak and 16 trains per hour in the PM peak, providing a train service approximately every 3-4 minutes.

The bus interchange services the surrounding centres including Burwood, Strathfield and Bankstown as well as other smaller centres and residential areas. Bus operators include the following:

- Sydney Buses.
- Veolia Transport.
- Punchbowl Bus Company.

An overview of bus routes within the city centre is provided in Figure 2.4.

Figure 2.4: Bus Routes in the City Centre



Source: Hurstville TMAP (GHD, 2013)

Details of bus routes including the frequency during the peak periods and key destinations serviced are presented in Table 2.1.

Table 2.1: Bus Route Details

Bus Route	Type	Peak Period Frequency (min)	Key Destinations Served
450	Suburban	15	Burwood, Sydney Olympic Park
452	Suburban	20-30	Rockdale, Beverley Hills
455	Suburban	30	Rockdale, Kogarah, St George Hospital
490	Suburban	30	Drummoyne, Burwood
491	Suburban	30	Five Dock, Ashfield
940, 941	Suburban	30	Bankstown, Punchbowl
943	Suburban	20	Lugarno, Peakhurst
945, 946	Suburban	15	Bankstown
947, 953	Suburban	15-30	Kogarah
953	Suburban	15-30	Connells Point
954	Suburban	20-30	Hurstville Grove
955	Suburban	60	Mortdale
958	Suburban	15-30	Rockdale Plaza
959	Suburban	30	Bald Face
970, 971	Suburban	15-30	Cronulla, Miranda
M41	Metrobus	10	Macquarie Park, Burwood
M91	Metrobus	10	Parramatta, Bankstown
N10	NightRide	15-30*	City, Sutherland
N11	NightRide	60*	City, Cronulla

Source: Sydney Buses

*During night periods only

The data indicates that there are many buses travelling near the site, including suburban, Metrobus and NightRide services. The bus routes provide access to a large number of surrounding centres, with key centres including Macquarie Park, Burwood, Parramatta and Bankstown served by high frequency buses every 10 minutes during peak periods.

Altogether the existing public transport network provides high quality services linking Hurstville with surrounding employment centres and residential origins.

2.4 Active Transport

Woniora Road is a designated on-road cycle route and links to King Georges Road, Railway Parade and Hillcrest Avenue. Surrounding local roads are conducive to on-road cycling due to the width and design of the road carriageway and adjacent residential land uses, however there is a shortage of designated cycling infrastructure in the Hurstville City Centre. This was a finding from the Hurstville TMAP which identified the need for improved cycling infrastructure in order to meet government targets and increase cycling as a mode share. The cycling network in proximity to the site is therefore expected to be improved over time and encourage cycling in and around the city centre.

The site is well connected by footpaths to nearby areas including Hurstville station, Hurstville shopping centre, other mixed use areas in the city centre and residential areas to the south-west. The station is also accessible without the need to cross roads, and signalised and marked crossings are provided at many intersections throughout the city centre to facilitate pedestrian access.

An overview of active transport infrastructure throughout the surrounding area is presented in Figure 2.5.

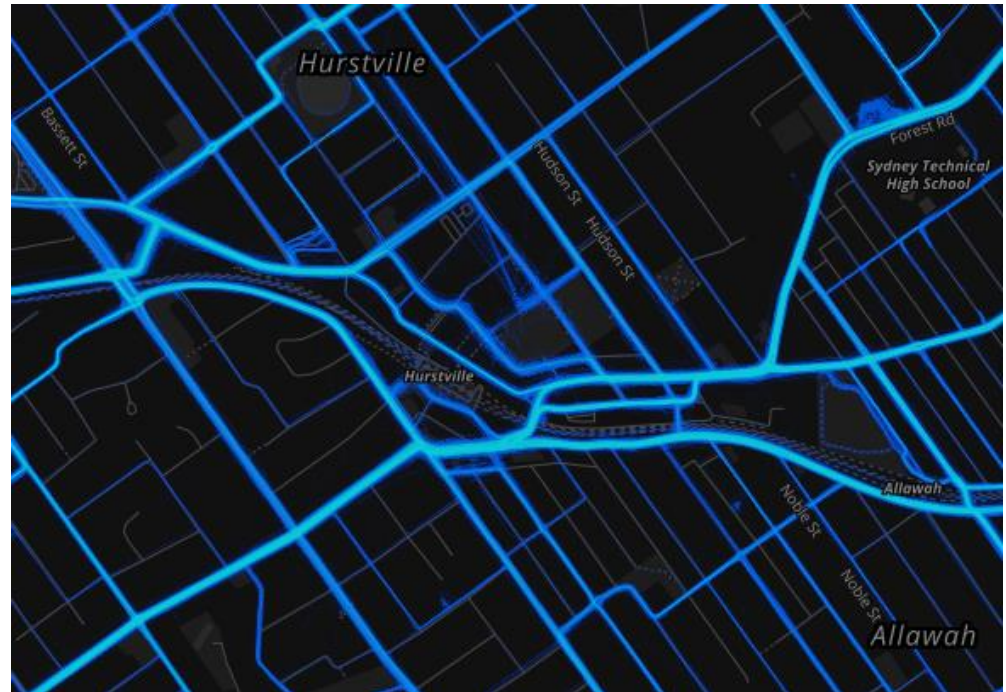
Figure 2.5: Active Transport Infrastructure



Source: Adapted from Hurstville TMAP (GHD, 2013)

A heatmap of the volume of cycling trips in the surrounding area was generated using Strava data to understand the existing use of the transport network for cyclists. Strava is a mobile app that tracks active transport trips when activated, and captures many trips over time from a wide range of users. The data obtained in proximity to the site is presented in Figure 2.6.

Figure 2.6: Strava Heatmap of Cycling Trips



Source: Strava 2016

The heatmap indicates that Woniara Road is well utilised by cyclists, which is consistent with its designation as an on-road cycling route. Woniara Road also allows cyclists to access the strategic network, where cyclists can effectively travel in any direction as shown by the heatmap.

The site also achieves a Walk Score of 91 (www.walkscore.com, 2016), which is considered a 'walker's paradise' and means that errands can be accomplished on foot. Furthermore, the city centre, hospital and various sporting facilities are all within a 12 minute walking radius as presented in Figure 2.7.

Figure 2.7: 12-Minute Walking Radius from the Site



Source: www.walkscore.com (Walk Score, 2016)

The footpath network is therefore high quality, and will be accompanied by improvements to the active transport network over time resulting from action plans identified by the TMAP.

2.5 Site Accessibility

The site location forms part of the southern section of the city centre and offers high quality access opportunities to services, schools and transport. The local context and accessibility of the site is presented in Figure 2.8. The blue dashed circles represent an area that is within 400m (5-minute walk) of a rail station.

Figure 2.8: Local Context and Accessibility



Source: Hurstville City Centre – Concept City Masterplan, NSW Government and Hurstville City Council (2004)

The site offers good public transport access by train and is serviced by numerous bus routes as detailed in section 2.3. The site is within walking distance of a wide range of land uses and facilities including retail, community and recreational facilities. Some of the key services and facilities nearby are situated as follows:

Retail Opportunities

- 0.4km to the west of Hurstville Westfield Shopping Centre.
- 0.2km to the north-east of Hurstville Central Shopping Centre (including supermarkets).
- 0.2 - 0.6km to the west of shops along Forest Road.

Community Facilities

- Approximately 1.2km to the south-west of educational institutions including:
 - Hurstville Public School.
 - Sydney Technical High School.
 - Bethany College.
 - Georges River College.
- Approximately 0.6km to the north of Woniara Road School and Hurstville South Public School.
- 0.3km to the south of Waratah Private Hospital.
- 0.6km to the south-east of Hurstville Private Hospital.
- 0.4 km to the west of Hurstville post office (located in Westfield Shopping Centre).
- 0.2 km to the south-west of the Council Offices.
- 0.3 km to the south of Hurstville Library.

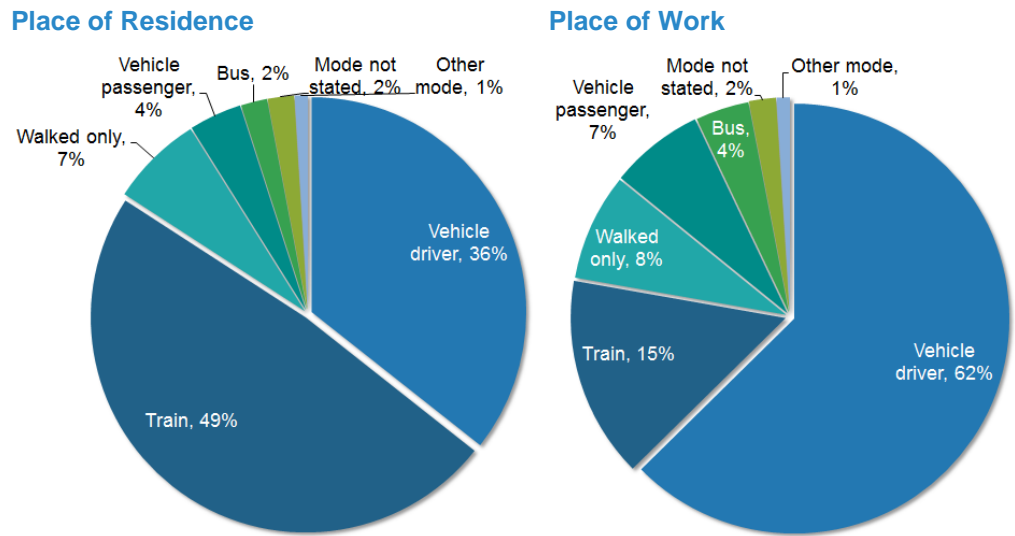
Recreational Facilities

- 0.6km to the south of Hurstville Oval.
- 0.8km to the north of Bell Park and Quarry Reserve.
- 0.4 km to the west of cinemas at Hurstville Westfield.
- 0.3 km to the south-west of Hurstville Entertainment Centre.
- 0.9 km to the east of Hurstville Aquatic Leisure Centre.

2.6 Mode Share

Mode share for the site was obtained from the Bureau of Transport Statistics (BTS) Journey to Work (JTW) 2011 dataset for Hurstville travel zones 2606, 2653 and 2604. The mode shares for residents and workers are presented in Figure 2.9.

Figure 2.9: Journey to Work Mode Share

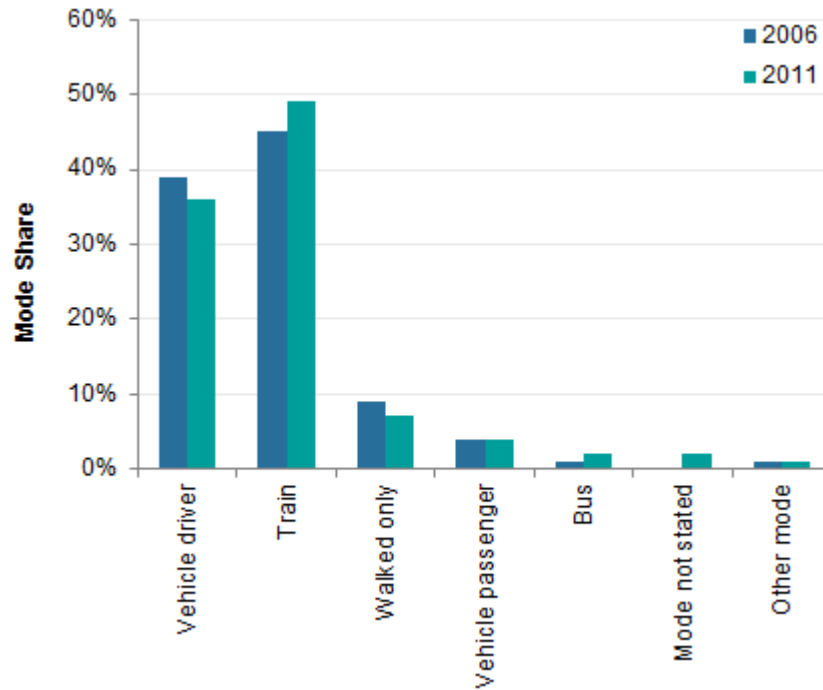


Source: BTS Journey to Work (2011)

The data indicates that the train is the dominant mode of travel for residents (49%), with a significant number of residents opting to drive (36%). Vehicles are the dominant mode of travel for workers (62%), with approximately 20% utilising public transport.

JTW data for 2006 was also reviewed to understand trends in mode share over time. The data compared to the 2011 JTW data is presented in Figure 2.10.

Figure 2.10: Changes in Mode Share from 2006 to 2011



Source: BTS JTW Data (2006, 2011)

The data indicates that the vehicle driver mode share has fallen since 2006, with drivers changing to public transport travel modes (rail and bus) instead. This reflects Hurstville’s strong public transport connectivity and recent intensification around the city centre, combined with Council’s policy of reducing reliance on private vehicles for travel. Cycling as a travel mode remains low (<1%) due to the lack of dedicated facilities but is expected to rise as infrastructure is constructed to meet government targets for the cycling mode share (refer to section 3).

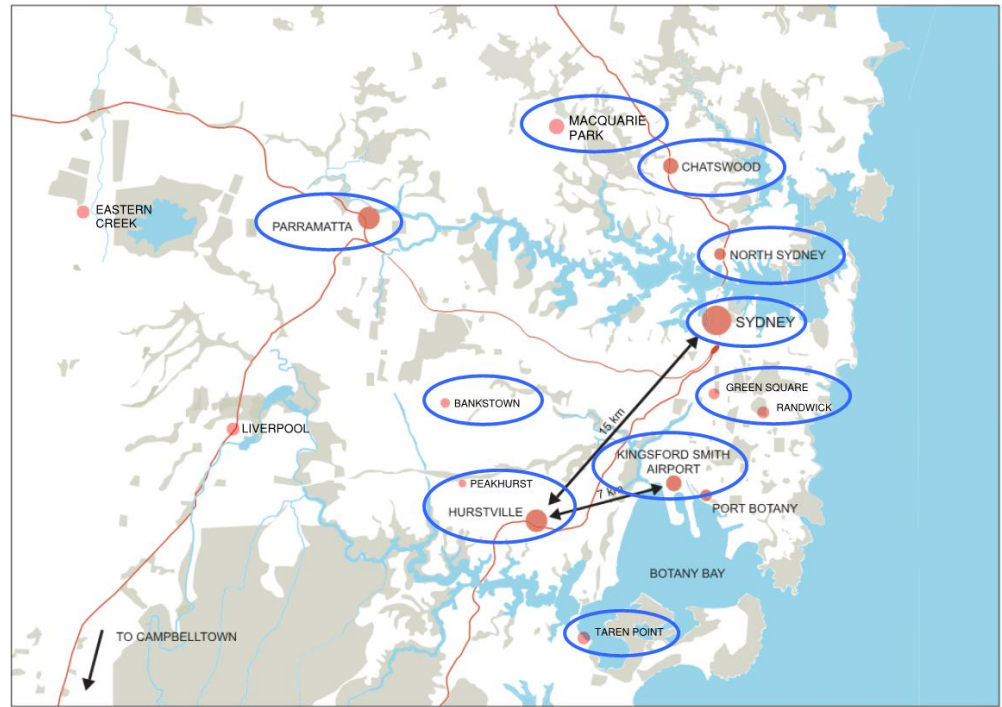
3 Planning Context

This section provides details of the planning context of the site, including the strategic context of Hurstville and government targets relating to the city centre.

3.1 Strategic Context

Hurstville is a strategic centre planned for growth and intensification as identified in A Plan for Growing Sydney (NSW Planning and Environment, 2014). The strategic context of Hurstville in relation to other major centres in Sydney is presented in Figure 3.1.

Figure 3.1: Strategic Context of Hurstville

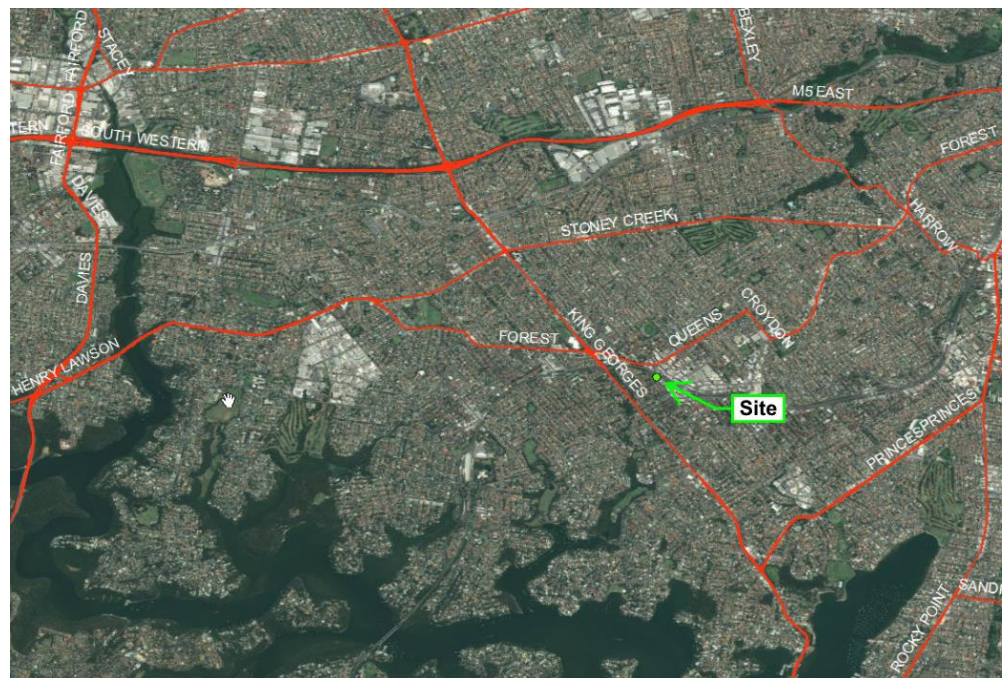


Source: Hurstville City Centre Master Plan (NSW Government, 2004)

The diagram indicates that Hurstville is well connected to other centres including Sydney CBD and Kingsford Smith Airport, which are within a short commute by rail and road.

The site is also situated in close proximity to the state road network with key connections including King Georges Road, Forest Road and Queens Road. The nearby state road network is presented in Figure 3.2.

Figure 3.2: State Road Network



Source: World Imagery (ESRI , 2016) and State Road Network (RMS, 2014)

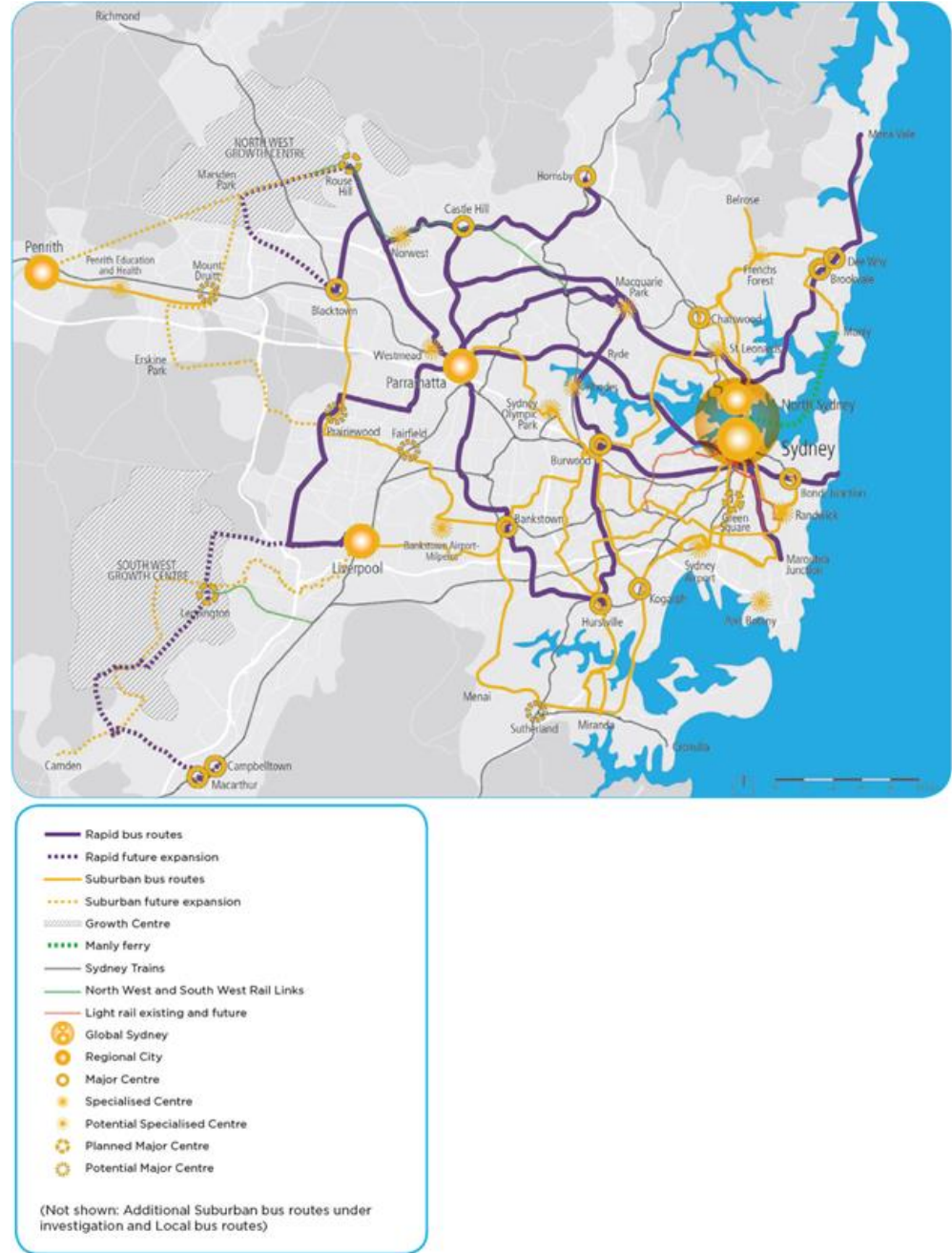
Strategic Bus Network

Hurstville is serviced by a range of bus routes as detailed in section 2.3. Various improvements to the bus network are proposed by the government, which include improvements to the rapid bus route from Hurstville to Macquarie Park via Burwood involving increased capacity, additional services and the implementation of bus

priority measures along the corridor. Proposed additions relevant to Hurstville also include new suburban services to the Sydney CBD.

The proposed bus network according to Sydney’s Bus Future (NSW Government, 2013) is presented in Figure 3.3.

Figure 3.3: Future Bus Network



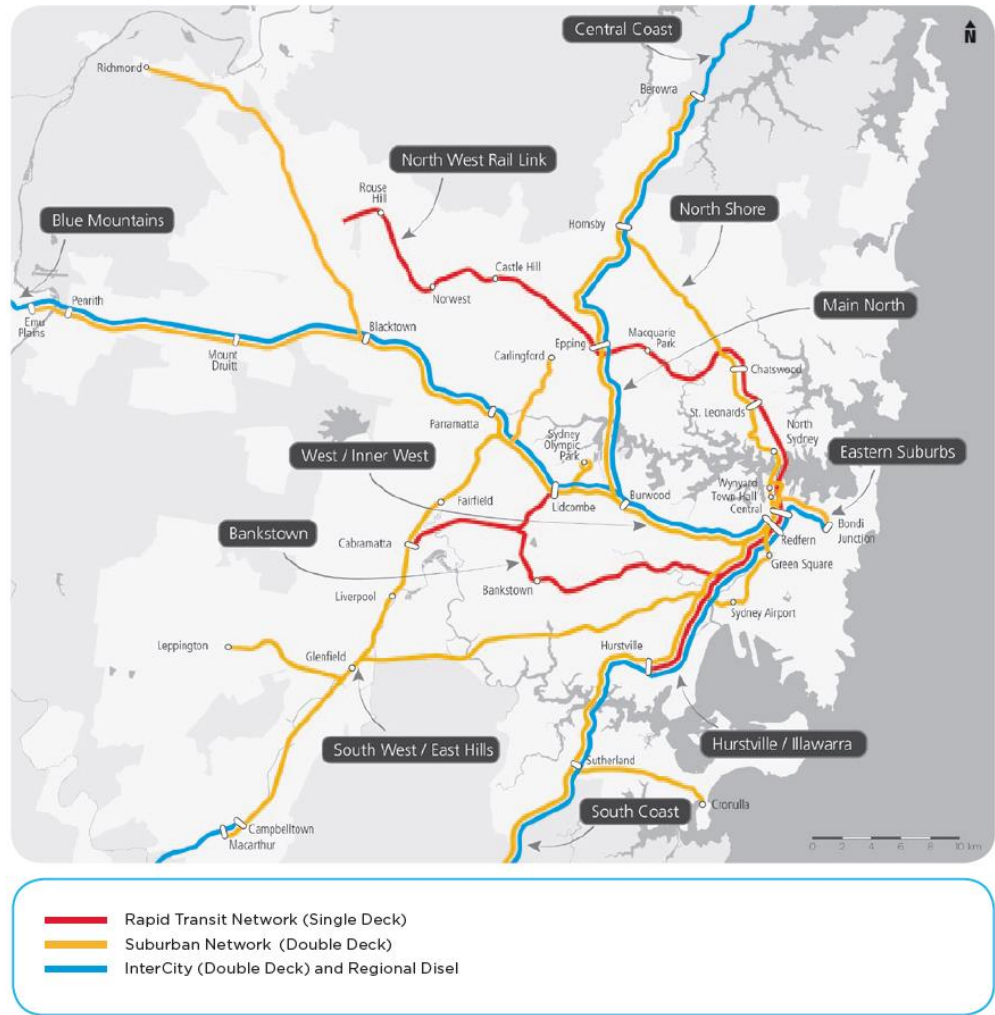
Source: Sydney’s Bus Future (NSW Government, 2013)

The figure indicates that Hurstville is currently well connected to the strategic bus network and will further benefit from improvements to the rapid bus network.

Strategic Rail Network

Hurstville is already well connected to the strategic rail network, and is planned to be part of the future Sydney Metro extension to the south. This will provide high frequency transit to the north connecting to the Sydney CBD and will relieve congestion on existing rail services. The proposed rail network according to Sydney’s Rail Future (NSW Government, 2012) is presented in Figure 3.4.

Figure 3.4: Future Rail Network



Source: Sydney's Rail Future (NSW Government, 2012)

3.2 Government Policy and Objectives

Government policies and goals for transport have been developed by both state and local government, which include states goals for NSW 2021 and targets resulting from the Hurstville Transport Management and Accessibility Plan (TMAP). The key objectives are outlined below.

NSW 2021 Goals

State transport policy goals for 2021 set by the NSW Government include the following:

- Reduce travel times.
- Grow patronage on public transport by making it a more attractive choice.
- Improve customer experience with transport services.
- Improve road and active transport safety.

TMAP Transport Targets

A range of transport targets for Hurstville were developed as outcomes of the TMAP and include the following:

- A public transport mode share of more than 21% by 2036.
- An active transport mode share in the City Centre of 20% by 2036.
- Rail and bus service capacity and reliability improvements.
- Investigation into feasibility of bus priority measures on strategic bus corridors.

- Pedestrian and cycling safety improvements.
- Strengthening of parking management and controls and encouraging active and public transport.
- Various feasibility studies relating to travel demand management.

The TMAP also recommends the intensification of mixed use development in the city centre, which the development supports.

In general the government has adopted a policy of integrating land use and transport and promoting intensification of centres with high quality public transport links. This aims to help promote access to services and better manage travel, with high density development near rail stations aligning with these objectives.

The proposed development helps to support both the state and local government goals, which is further detailed in section 6.5.

4 Development Proposal

The details of the proposed development are provided in the following sections, including the proposed land use, site access arrangements and parking provision.

4.1 Land Use

The plans for the proposed development have been developed by SWA Architects (refer to Appendix A for the architectural plans). The plans indicate that the proposed development will consist of mixed uses containing the following:

- 2 commercial units on the ground floor comprising a total of 167m² GLFA.
- 112 residential units on floors 1-12, including:
 - 23 One-bedroom units
 - 84 Two-bedroom units
 - 5 Three-bedroom units

The proposed development offers attractive street frontages with the commercial units on the ground floor and encourages walking and interaction with the site. The provision of bicycle parking within the site also encourages cycling as a travel mode and promotes the use of Woniora Road as an on-road cycle facility. This also provides a direct cycle route to and from the station with minimal conflict with vehicular traffic.

4.2 Access

The site will be accessed via Woniora Road in a similar fashion as the existing site. The plans propose to consolidate the driveway with the adjacent development to provide a more attractive street frontage and help separate vehicular and pedestrian conflict.

Waste collection is expected to take place on-street, although provision is made in the ground floor of the car park to allow garbage vehicles to enter and exit if required.

Woniora Road is an appropriate road for waste collection due to having minimal impact on pedestrians. Furthermore, waste collection movements will be infrequent and are expected to occur outside network peak hours, minimising the impact on road network operations.

4.3 Parking

The proposed development includes provision of parking as follows:

- 4 commercial parking spaces on the ground floor.
- 16 visitor parking spaces (including one accessible space and a car wash space) on the ground floor.
- 129 residential parking spaces (12 accessible) on basement levels 1-3.
- 50 bicycle spaces (hoops) on the ground floor.

- 2 motorbike space on basement level 1.

This equates to a total of 149 car parking spaces, 50 bicycle spaces (provided as hoops for residents, commercial tenants and visitors) and 2 motorbike spaces. The provision of bicycle spaces encourages cycling as a mode of travel and aligns with the government mode share targets for Hurstville (refer to section 3). The bicycle hoops provide a convenient parking location on the ground floor, and residents may also be able to utilise their allocated storage spaces as secure bicycle parking. Local roads to the south-west also provide on-street parking supply which may be utilised in the case of overspill.

The proposed development provides parking consistent with that typically provided for the Hurstville town centre, while also limiting provision to discourage driving as a travel mode. Refer to section 5 for further details of the parking provision and an analysis indicating the alignment with relevant controls and policy relating to Hurstville.

5 Parking Assessment

5.1 Parking Requirements

The parking requirements identified in this report are based on the land uses presented in the proposed development plans (refer to section 4) and parking rates specified in the following documents:

- Apartment Design Guide (ADG) (NSW Planning & Environment, 2015).
- Guide to Traffic Generating Developments (GTGD) (RMS, 2002).
- Kogarah DCP Part B: General Controls (Kogarah City Council, 2013).
- Hurstville DCP 2 – Hurstville City Centre (Hurstville City Council, 2015).

As the proposed development is within 800m of a rail station (Hurstville station), the parking rates specified in the RMS GTGD were adopted as per the ADG. The parking rates indicated in the GTGD were also considered the most appropriate given the government targets for Hurstville, i.e.:

- Reducing traffic in the city centre.
- Encouraging public and active transport mode shares.
- Restricting parking to discourage use of private vehicles.

Accessible parking requirements were based on the Hurstville DCP 2, which specifies that 1 accessible space is required for each adaptable dwelling.

Bicycle parking requirements were based on the Kogarah DCP Part B: General Controls, which specifies the following requirements:

- Commercial component: 1 space per 5 car parking spaces.
- Residential component: 1 space per 3 dwellings plus 1 space per 10 dwellings for visitors.

A summary of the above parking rates adopted and an assessment of the proposed parking provision in relation to these is presented in Table 5.1.

Table 5.1: Parking Requirements and Provision

Land Use Type	Provision	Parking Rate	Parking Requirement	Parking Provision
Commercial	167m ² GLFA	1 space per 50m ² GLFA	4	4
Residential	23 1-bed units	0.4 spaces per 1-bed unit	75	117
	84 2-bed units	0.7 spaces per 2-bed unit		
	5 3-bed units	1.2 spaces per 3-bed unit		
Residential (visitor)	112 total dwellings	1 space per 7 units	16	16
Accessible	12 adaptable dwellings	1 accessible space per adaptable dwelling	12	12
Bicycle	4 commercial car parking spaces 112 dwellings	1 space per 5 commercial car parking spaces	50	50
		1 space per 3 dwellings (residents)		
		1 space per 10 dwellings (visitors)		
Motorbike	N/A	No requirement	0	2
Total	-	-	107 (car) 50 (bicycle)	149 (car) 50 (bicycle) 2 (motorbike)

The table indicates that the parking provision achieves the requirements, and is also suitable for the development context and aligns with government targets for Hurstville, i.e.:

- The development is close to a major station and requires less parking than usual.
- The development provides bicycle parking to encourage active transport and reduce vehicular traffic in the city centre.

5.2 Provision for Service Vehicles

The Kogarah DCP Part B specifies the following requirements for loading bays:

- Retail floor area 15m² – 500m²: 1 bay required.
- Retail floor area > 500m² – 1,500m²: 2 bays required.
- Commercial floor area 1,000m² – 5,000m²: 1 bay required.
- Commercial floor area > 5,000m² – 10,000m²: 2 bays required.

The proposed development includes a gross commercial floor area of 167m². The commercial tenancies are expected to be used for office space with no retail, with one tenant confirmed as an accounting firm. As a result, service deliveries are expected to be small scale and infrequent and a dedicated loading bay is deemed not to be required. Deliveries are expected to take place in small vans which can utilise the ground floor of the car park to load and unload.

5.3 Car Park Review

The design of the car park has been assessed in accordance with requirements specified within the following Australian Standards:

- AS/NZS 2890.1:2004 – Off-street car parking.
- AS/NZS 2890.6:2009 – Off-street parking for people with disabilities.

The proposed car parking design is documented in the DA drawings – refer to the SWA Architectural plans in Appendix A for the ground floor and basement levels 1-3.

As per the DA drawings, the basement parking levels are understood to be allocated for residential purposes only, with commercial and visitor parking allocated to the ground floor.

A review checklist of the car park design is presented in Table 5.2.

Table 5.2: Car Park Compliance Review

Item	Clause	Requirement	Compliance
Design of parking bays (residential)	Clause 2.4.1 (a) and (b), User Class 1A	5.4m min length 2.4m min width with additional 300mm clearance when side boundary is a wall or fence	Yes
Design of parking bays (commercial)	Clause 2.4.1 (a) and (b), User Class 3	5.4m min length 2.6m min width with additional 300mm clearance when side boundary is a wall or fence	Yes
Design of parking bays (accessible)	Clause 2.2.1, Figure 2.2 of AS/NZS 2890.6:2009	5.4m min length 2.4m min width with an associated shared area with a bollard (2.4m x 5.4m)	Yes
Parking aisles	Clause 2.4.1, Figure 2.2, User Class 1A/2	5.8m min aisle width	Yes
Circulation roadways and ramps	Clause 2.5.2 (a) Clause 2.5.3 (b) (ii) and (e)	5.5m min width for circulation roadways and ramps Max grade of ramps in private carparks 1:4 (25%) 2m long transitions of 1:8 (12.5%)	Yes
Design Envelope for Columns	Clause 5.2, Figure 5.2	All car parking bays are to meet the required design envelope and to be kept clear of columns walls and obstructions.	Yes
Access driveway	Clause 3.2.1, Table 3.2	Driveway width of 6 - 9m if combined entry & exit or 3m each if separated Max. grade of 1 in 20	Yes
Swept paths	Appendix B3 User Class 1A	Design dimensions based on B99 vehicle swept path to manoeuvre into parking bay	Yes

A vertical clearance assessment was also undertaken at the ramps to check for vehicle scraping due to changes in ramp grade and found that for a B99 design vehicle no scraping occurred.

The review indicates that the design of the car park complies with AS 2890.1 and 2890.6 requirements.

It is understood that wheel stops will be provided in later drawings for construction and will be assessed at the Construction Certificate stage. It is also noted that there is the potential for conflict on the ground level where the top of the ramp meets the other roadway. This will be further investigated at the Construction Certificate stage and may be managed through the use of linemarking to indicate priorities.

Refer to Appendix B for swept paths demonstrating that the design allows for safe and efficient circulation throughout the car park.

6 Traffic Impact Assessment

This section provides an understanding of the expected traffic impact of the proposed development, including potential traffic generation and a comparison with the existing land use.

6.1 Change of Land Use

The key differences in the proposal from the existing land use are a reduction in commercial space (from 1,149m² GLFA to 167m² GLFA) and the addition of residential apartments (112 units in total). Site access remains the same, with a minor shift in the access driveway location.

The change in land use aligns with the planned intensification of the Hurstville City Centre and maximises the potential of existing infrastructure and services. The site's connectivity to the existing transport network, in particular Hurstville station and bus routes through the city centre, makes the site an ideal location for redevelopment to cater for growth in the strategic centre of Hurstville.

The change in land use being a shift from commercial to high density residential is expected to result in a reduction in total traffic generated by the site (refer to section 6.2). The Journey to Work data in section 2.6 also indicates that the change in land use will improve the public transport mode share for the site generated trips.

Based on the above there is not expected to be any further impact on road network operations.

6.2 Trip Generation

Trip generation rates adopted for this assessment are based on the RMS Guide to Traffic Generating Developments (GTGD) 2002 and Technical Direction TDT 2013/04a – Updated Traffic Surveys. The trip rate for commercial land uses was adopted from the TDT 2013/04a, which provides sample commercial trip generation rates for Hurstville. The TDT does not provide sample residential trip generation rates for Hurstville, so the trip rates adopted for residential land uses were based on an analysis of trip rates provided for similar sites to the Hurstville City Centre. These locations included St Leonards, Parramatta, Chatswood and Strathfield, and an average rate was adopted for this analysis. These locations include shopping centre facilities and major transport hubs and are generally a short rail journey to the Sydney CBD. Refer to Appendix C for further details of the calculation of appropriate trip generation rates for the proposed development.

The trip generation rates adopted for this assessment are presented in Table 6.1.

Table 6.1: Adopted Trip Generation Rates

Component	AM Vehicle Trip Rate	PM Vehicle Trip Rate
1-bedroom units	0.08 trips/unit	0.04 trips/unit
2-bedroom units	0.16 trips/unit	0.09 trips/unit
3-bedroom units	0.23 trips/unit	0.13 trips/unit
Commercial	2.86 trips/100m ² GFA	1.84 trips/100m ² GFA

Source: RMS Guide to Traffic Generating Developments (2002) & TDT 2013/04a

The potential vehicle trips generated from the proposed development using the above rates are presented in Table 6.2 and are compared to the expected trips generated from the existing development.

Table 6.2: Vehicle Trip Generation

Component	Existing - AM	Existing - PM	Proposed - AM	Proposed - PM
1-bedroom units	-	-	1.8	0.9
2-bedroom units	-	-	13.9	7.8
3-bedroom units	-	-	0.5	0.3
Commercial	33	22	4.9	3.1
Total	33	22	21	12

Table 6.2 indicates that the proposed development is expected to generate 60% less trips than the existing land use during peak periods. The proposed development will reduce impacts on the adjacent road network, and traffic modelling is deemed unnecessary.

6.3 Impact on Parking Supply

All parking demand generated by the proposed development is provided on-site. In cases where parking demand may exceed supply, on-street parking is available on Woniara Road to the west of the site as well as on nearby local roads to the south-west which can accommodate overspill. On-street parking is generally time restricted to 1P during daylight hours for non-residents, but could help to accommodate visitor parking if required.

Given that the existing site would generate more parking demand, the proposed change in land use will also assist in lowering demand for on-street parking.

The proposed development is therefore not expected to impact on existing parking supply.

6.4 Safety

The proposed development is not expected to have a significant impact on safety as the key difference is simply a change in land use with fewer trips generated. The reduction in road trips is therefore expected to improve network safety. Existing site access is high quality and key safety aspects include the following:

- Existing pedestrian links to the Hurstville Bus/Rail interchange are of good quality and avoid the need to cross roads.
- A pedestrian refuge is provided on Woniara Road adjacent to the site to facilitate pedestrian access from the south-west.
- The surrounding footpath network is high quality and signalised crossings are provided at key intersections to the east and west.
- Marked pedestrian crossings are also provided adjacent to Hurstville station and throughout the town centre to the north to improve pedestrian safety.
- The consolidation of the access driveways at the site and adjacent development increases pedestrian exposure but reduces the number of conflict points.

Refer to Figure 2.5 for further details of safe pedestrian access facilities in the vicinity of the site. The existing network is therefore considered to provide a high level of safety in the vicinity of the site and will effectively accommodate the change in land use.

6.5 Alignment with Government Targets

The proposed development aligns with government targets indicated in section 3.2. The site is well located for intensification being in the Hurstville City Centre and offers high quality connections to rail, bus and road networks. Nearby services and facilities are highly accessible with most within walking distance of the site (refer to section 2.4). The proposal encourages cycling through the provision of bicycle parking and offers direct pedestrian access to Hurstville station without the need to cross roads. Signalised crossings at nearby intersections and marked pedestrian crossings throughout the city centre further facilitate pedestrian access across the road network.

The proposed development therefore supports mode share targets presented in the Hurstville TMAP and broad state government goals and aligns with the planned growth of Hurstville as a strategic centre.

7 Conclusions

Key findings of the assessment include the following:

- The site is situated in a strategic centre and helps achieve government goals relating to transport. The proposal is also consistent with other development in the area and will further support the growth of Hurstville as a strategic centre.
- The site is ideal for mixed use development in accordance with objectives of the Hurstville TMAP and aligns with the strategies for Hurstville.
- The site is well connected to existing rail, bus and road networks linking to key centres including Sydney CBD and the Kingsford Smith Airport.
- The proposal helps manage travel demand through encouraging the use of public transport, walking and cycling due to the accessibility to these networks and provision of bicycle parking.
- The parking provision of the proposed development is sufficient to meet the requirements of the site and aligns with transport targets presented in the Hurstville TMAP and DCP 2.
- The parking provision is appropriate to meet the expected demand while restricting provision to support non-car travel modes.
- The proposed change in site usage will generate 60% less vehicle trips than the existing situation.
- The site is well connected to the strategic road network and is accessible by car without the need to travel through the city centre.
- Woniara Road is suitable for waste collection, and the development provides a contingency for heavy vehicle access on the ground floor to support these movements if required.
- As a result of the above, the proposed development is not expected to impact on the existing road network.

Recommendation

In summary the proposed development is considered to have a minimal impact on the local transport network.

Yours faithfully,

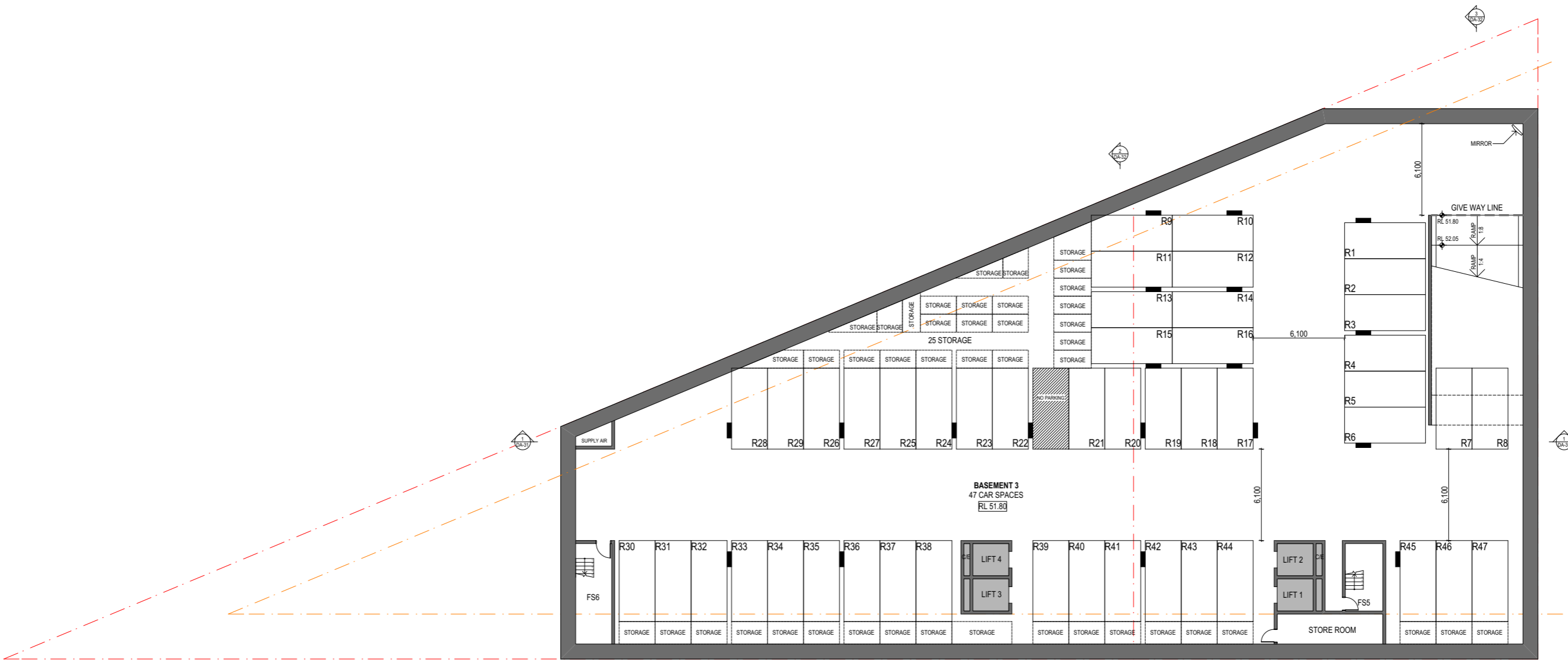


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Encl.:

- **Appendix A:** Development Plans
- **Appendix B:** Swept Paths
- **Appendix C:** Traffic Generation Data

Appendix A – Development Plans



BASEMENT 3
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A	Issued for DA Submission	28/11/2016
Issue	Amendment	Date

LEGEND & MATERIALS

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BUILDING SERVICES

STRUCTURAL & CIVIL

PROJECT ADDRESS
2-10 Woniara Rd
Hurstville NSW
Australia

Client
CHOSEN GROUP

Drawn R C
 Project Status

DEVELOPMENT APPLICATION
 DRAWING TITLE
BASEMENT 3 FLOORPLAN

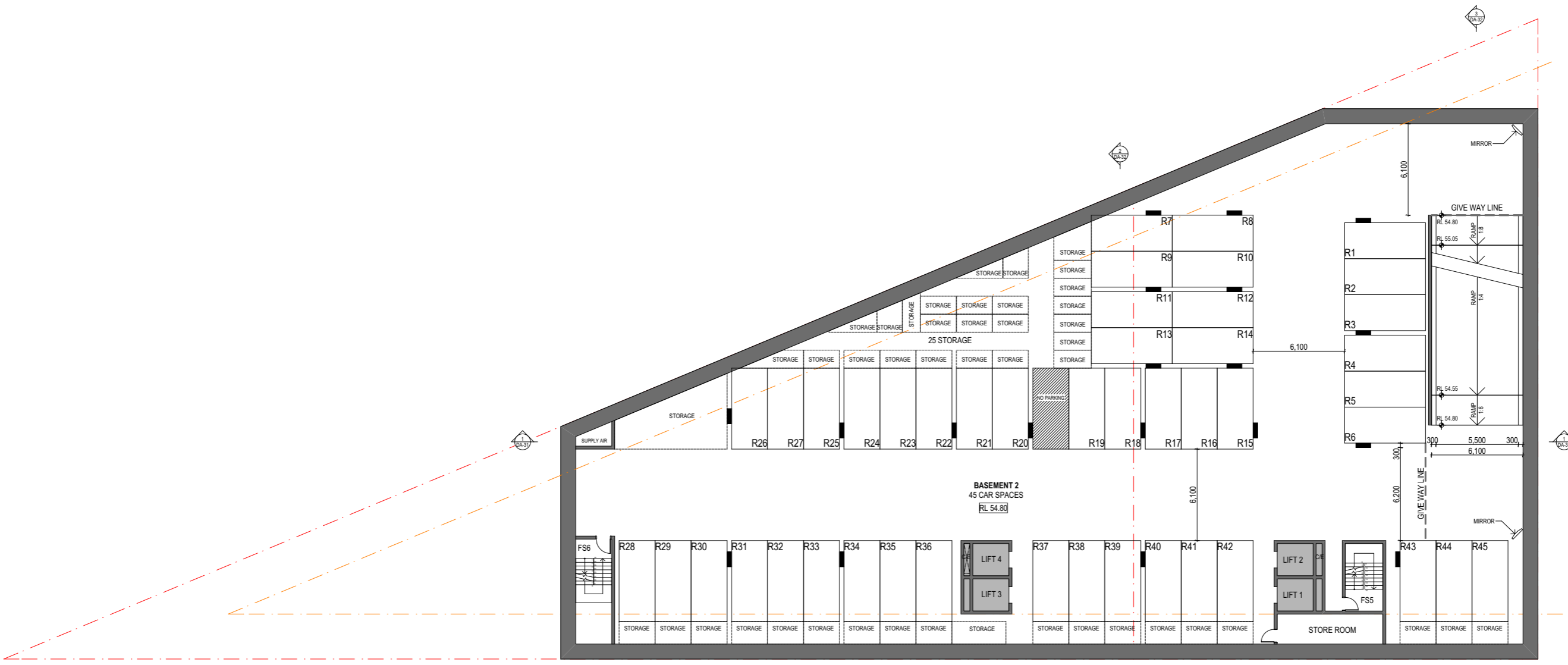
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ARCHITECT



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DEVELOPMENT APPLICATION

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BASEMENT 1 FLOOR PLAN

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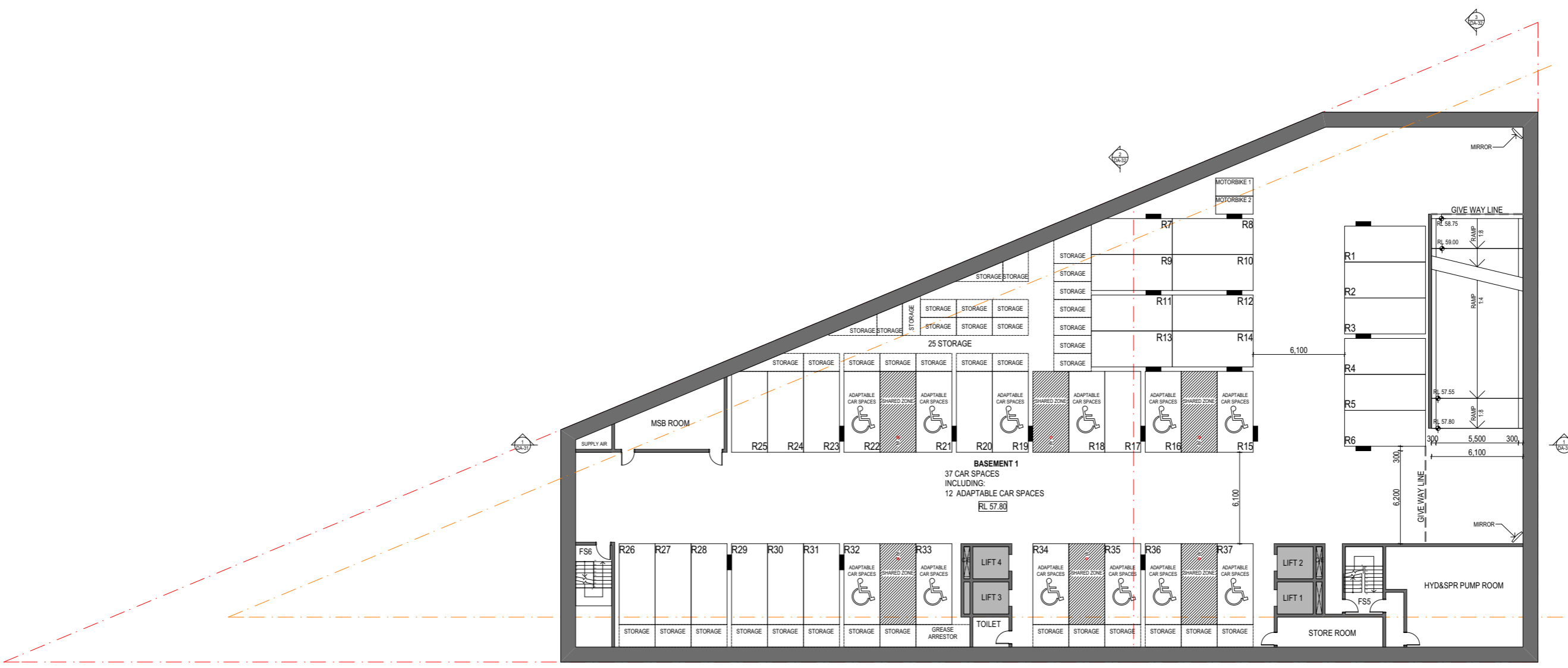
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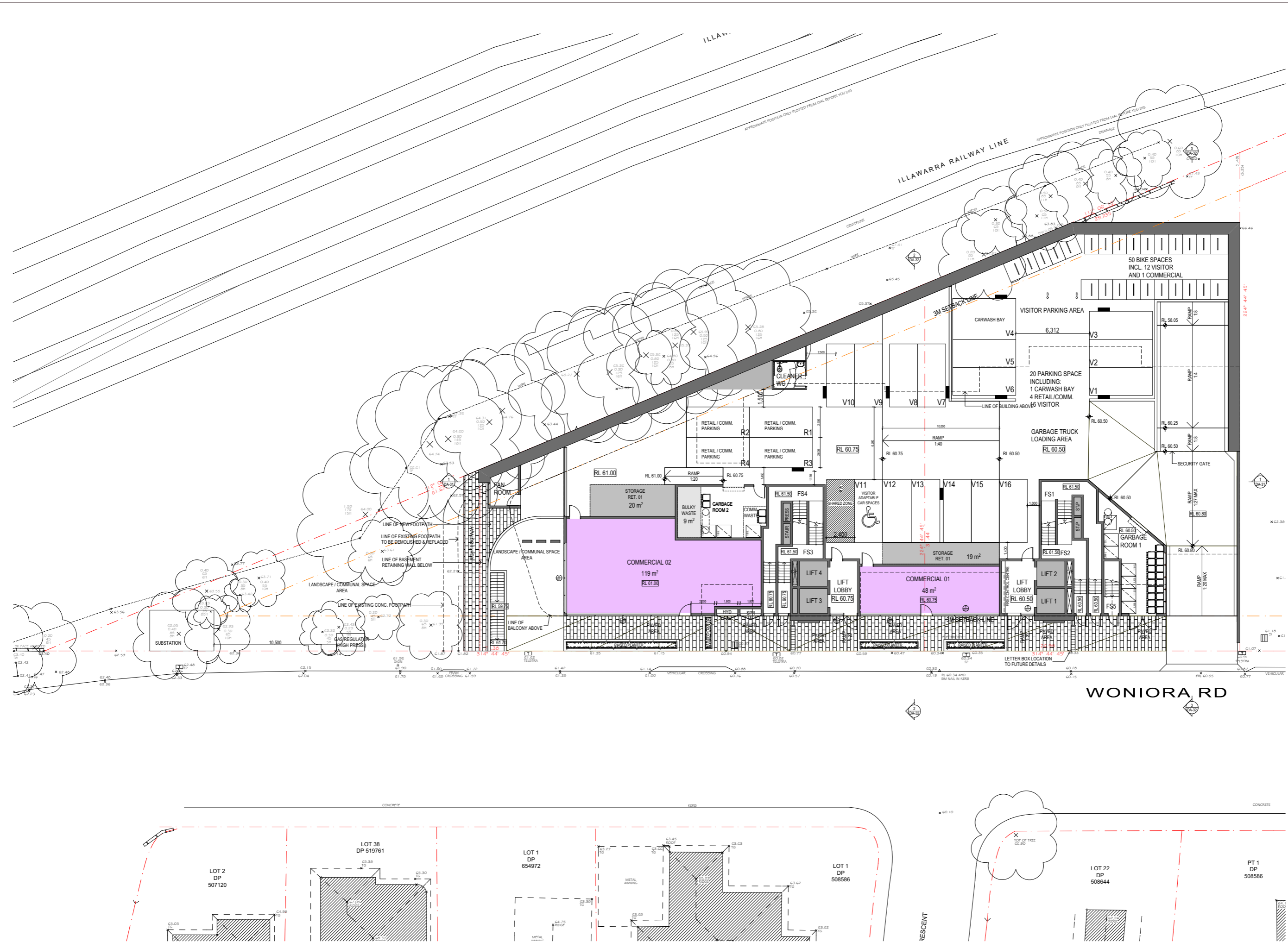
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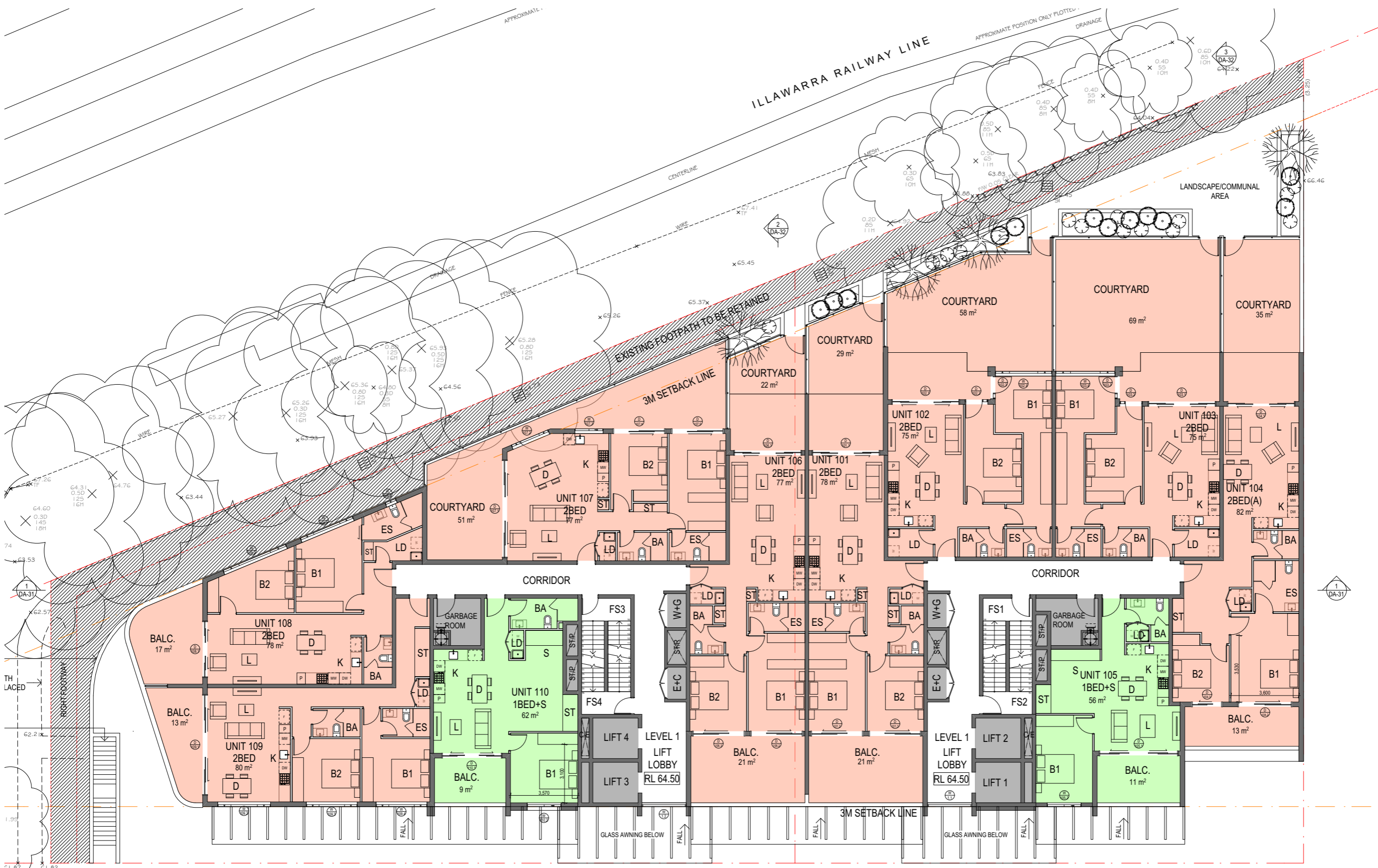
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BASEMENT 1
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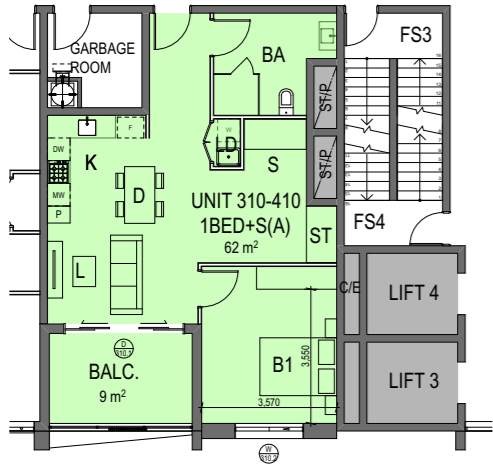


GROUND LEVEL
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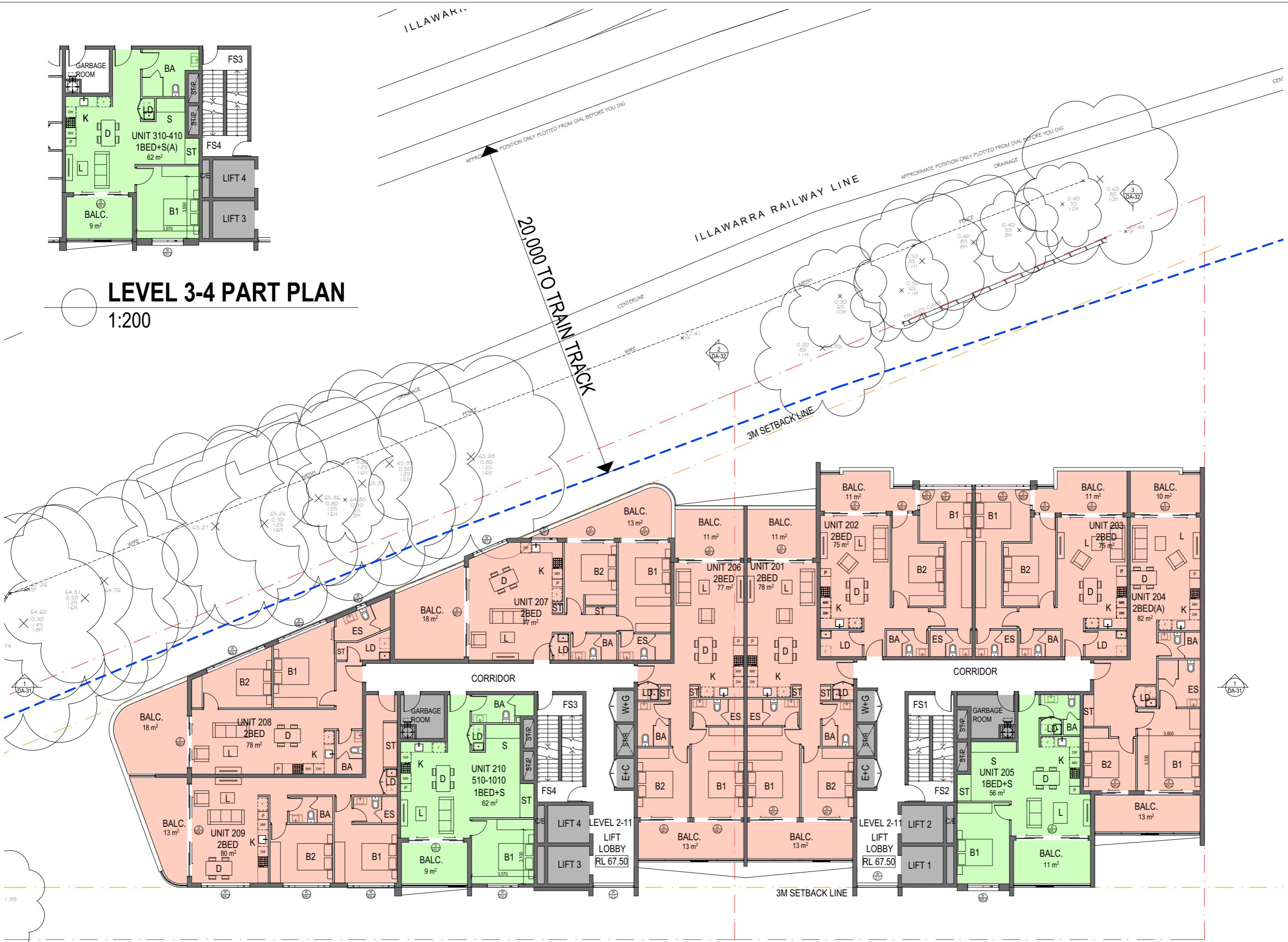
.80 FROM 61.72
 x 1.68 CROSSING 61.59

LEVEL 1
 1:200



LEVEL 3-4 PART PLAN

1:200



LEVEL 2-10

1:200

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Issue	Amendment	Date

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LEVEL 2-10 FLOOR PLAN

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DEVELOPMENT APPLICATION

DRAWING TITLE
**LEVEL 12
 FLOORPLAN**

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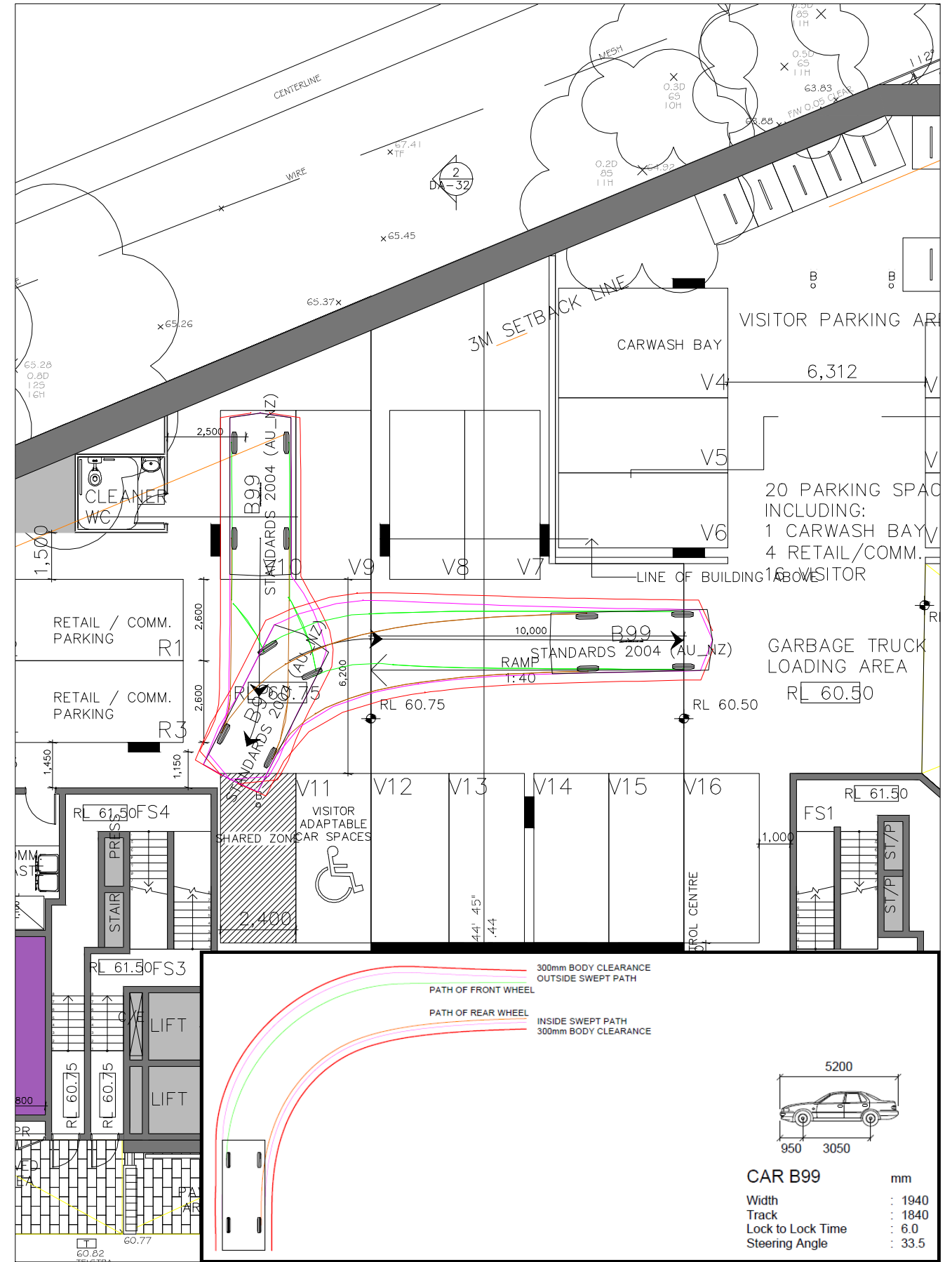
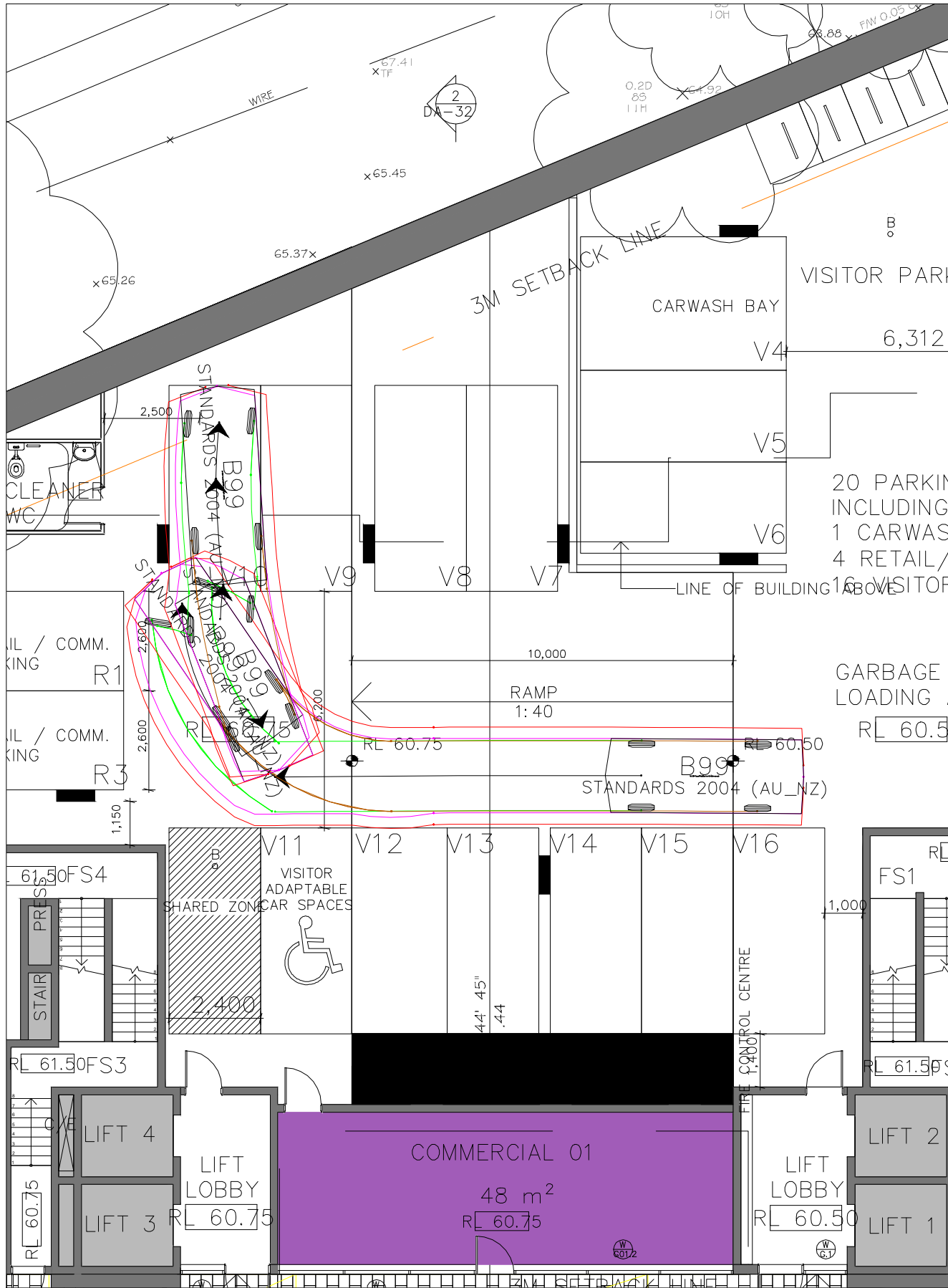
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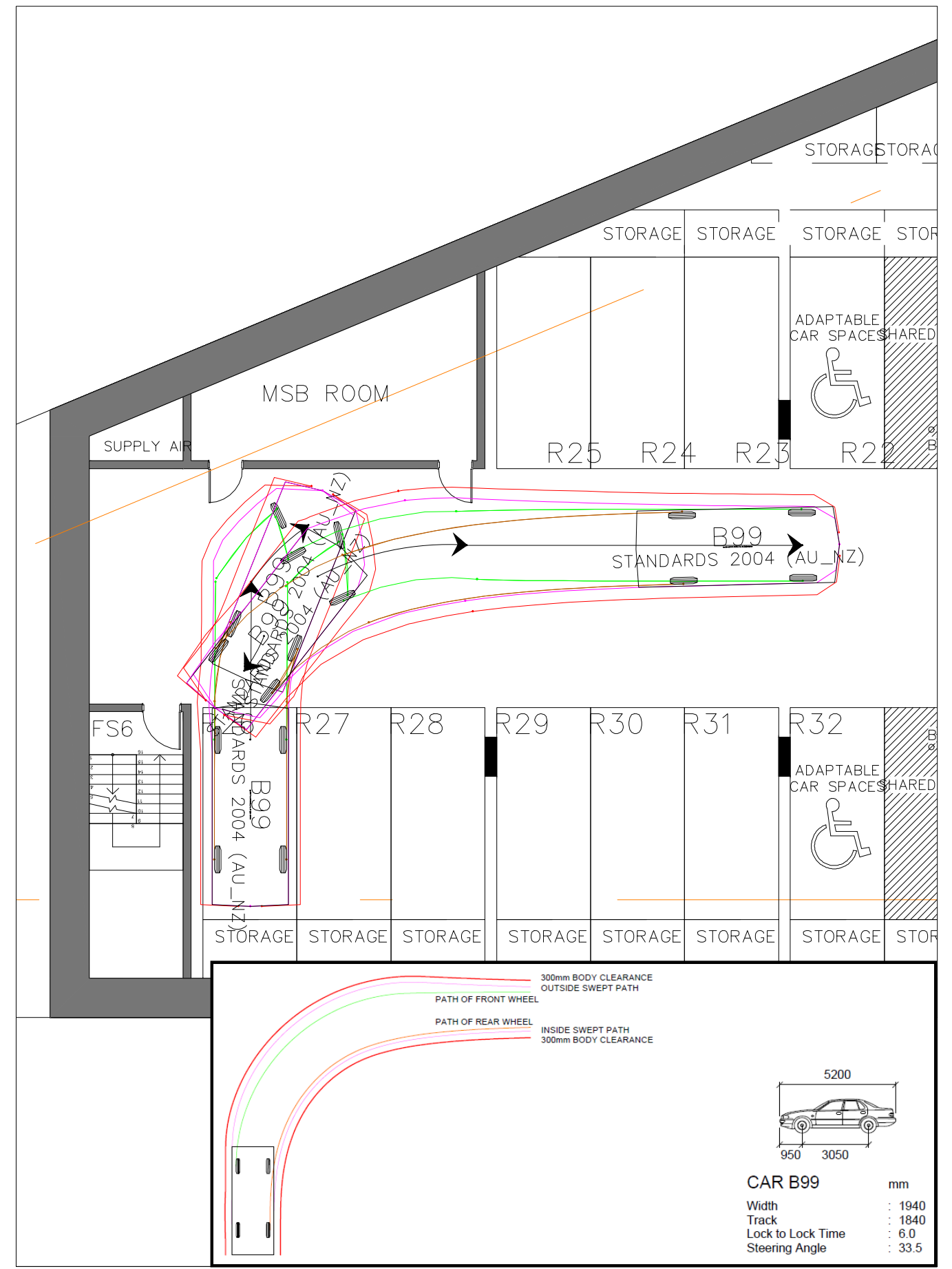
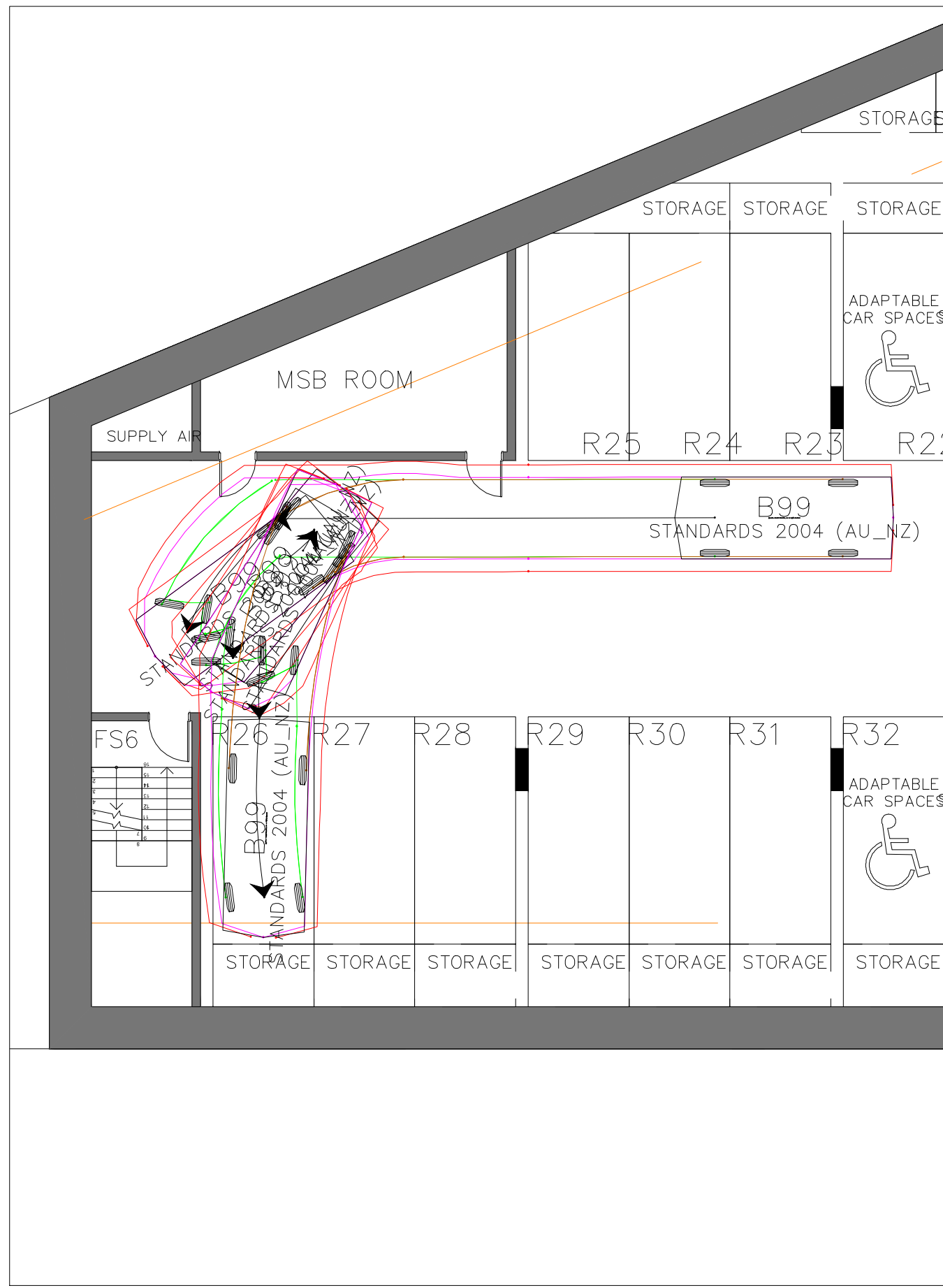
LEVEL 12
 1:200

Appendix B – Swept Paths

Ground Level - Parking Manoeuvres



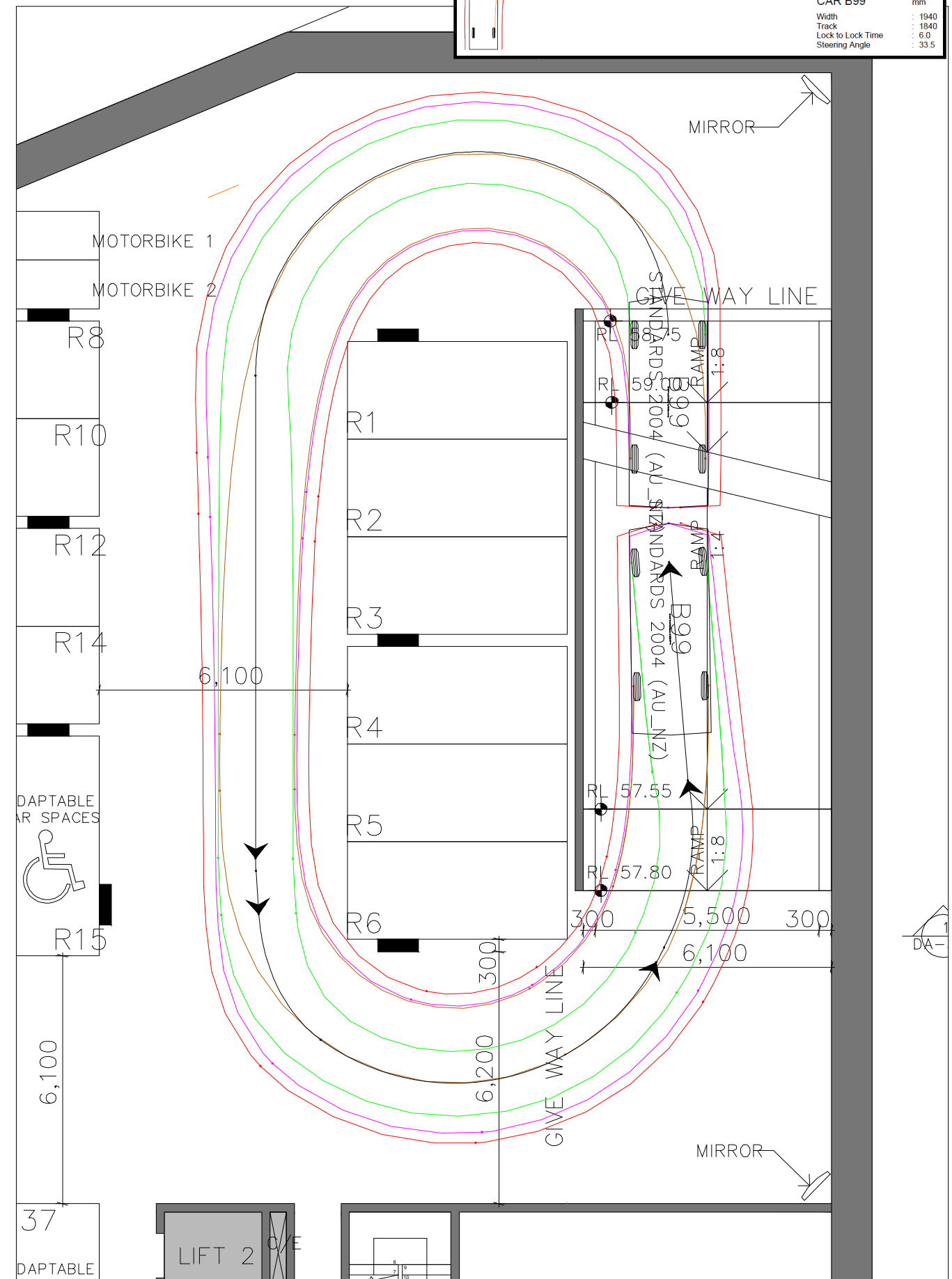
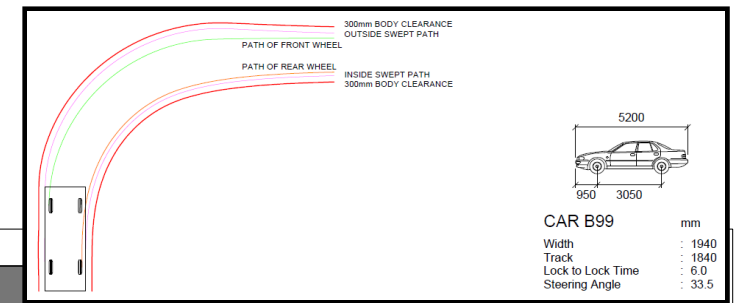
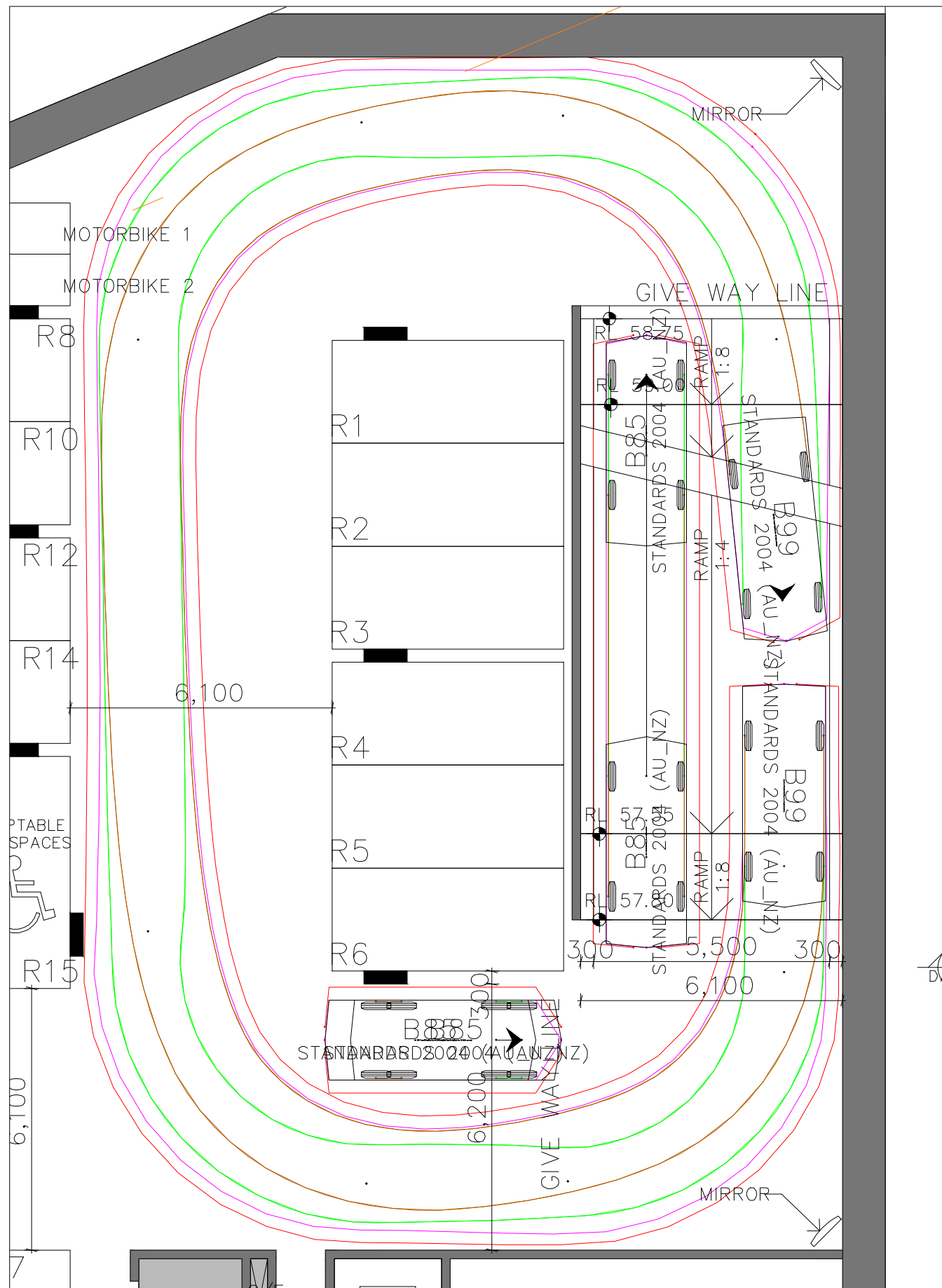
Basement Levels - Parking Manoeuvres



300mm BODY CLEARANCE
 OUTSIDE SWEEP PATH
 PATH OF FRONT WHEEL
 PATH OF REAR WHEEL
 INSIDE SWEEP PATH
 300mm BODY CLEARANCE

5200
 1940 1840 3050
CAR B99 mm
 Width : 1940
 Track : 1840
 Lock to Lock Time : 6.0
 Steering Angle : 33.5

Basement Levels - Ramp Manoeuvres



Appendix C – Traffic Generation Data

Traffic Generation Data

RMS traffic and parking surveys presented in the Technical Direction TDT 2013/04a for high density mixed use developments were undertaken at a number of different locations around Sydney. The sites that have similar characteristics to the Hurstville City Centre and the proposed development include St Leonards, Parramatta, Chatswood and Strathfield. All of the locations selected had shopping centre facilities, major transport hubs and in most situations are positioned within a short rail journey of Sydney CBD. The range and average values for person and vehicle trip generation rates for the above sites are presented in the following table for 1 bedroom, 2 bedrooms and 3 bedroom units.

Centres & Transport Hubs	Peak hour person trip generation rate (pp/hr per unit)					
	1 bedroom		2 bedroom		3 bedroom	
	AM	PM	AM	PM	AM	PM
Chatswood	0.3	0.39	0.6	0.78	0.9	1.17
St Leonards	0.29	0.24	0.58	0.48	0.87	0.72
Parramatta	0.45	0.31	0.9	0.62	1.35	0.93
Strathfield	0.26	0.37	0.52	0.74	0.78	1.11
Average	0.33	0.33	0.65	0.66	0.98	0.98

Source: RMS TDT 2013/04a – Updated Traffic Surveys

Centres & Transport Hubs	Peak hour vehicle trip generation rate (veh/hr per unit)					
	1 bedroom		2 bedroom		3 bedroom	
	AM	PM	AM	PM	AM	PM
Chatswood	0.07	0.05	0.14	0.1	0.21	0.15
St Leonards	0.06	0.03	0.12	0.06	0.18	0.09
Parramatta	0.13	0.06	0.26	0.12	0.39	0.18
Strathfield	0.05	0.03	0.1	0.06	0.15	0.09
Average	0.08	0.04	0.16	0.09	0.23	0.13

Source: RMS TDT 2013/04a – Updated Traffic Surveys

The above information highlights that travel by car does not appear to be the preferred mode of travel. It represents less than 25% of all trips per person, which includes travel by public transport, walking and cycling. As a result, the vehicle trip rate for high density residential development in these locations is relatively low with less than:

- 8% of households in the AM peak hour and 5% of households in the PM peak hour generating a car trip from a 1 bedroom unit.
- 16% of households in the AM peak hour and 9% of households in the PM peak hour generating a car trip from a 2 bedroom unit.
- 24% of households in the AM peak hour and 13% of households in the PM peak hour generating a car trip from a 3 bedroom unit
- 17% of households in the AM peak hour and 10% of households in the PM peak hour generate a car trip per unit

The above information indicates that the delivery of high density development in the Hurstville City Centre catchment will help to support the NSW Government residential growth targets for Hurstville as a major centre, the objectives and targets identified in the Hurstville City Centre TMAP for public transport, walking and cycling, and overall help to manage the impact from future increases in traffic.