TRAFFIC IMPACT ASSESSMENT

465-469 Princes Highway and 5-7 Geeves Avenue, Rockdale

PREPARED FOR:
Emag Apartments

REFERENCE:
24.047r01v02

DATE:
19/08/2024

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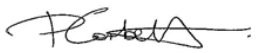
01	15/08/2024	Wassay Zaka	Ben Midgley	Paul Corbett	Original signed
02	19/08/2024	Wassay Zaka	Ben Midgley	Paul Corbett	

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1. Introduction

1.1. Overview

PDC Consultants has been commissioned by Emag Apartments to undertake a traffic impact assessment of a Development Application (DA) relating to a proposed mixed-use development at 465-469 Princes Highway and 5-7 Geeves Avenue, Rockdale. Specifically, the DA proposes the demolition of the existing buildings and the construction of a mixed-use development consisting of:

- 157 co-living housing rooms.
- 375 m^2 commercial gross floor area (GFA).
- Basement level car parking providing a total of 13 car spaces.
- A combined entry and exit access onto Geeves Lane serving the basement parking, plus a separate access onto Geeves Lane serving a loading bay which fronts the laneway.

Having regard for the above, it is evident that the development is not of a scale that requires referral of the DA to Transport for NSW (TfNSW), under Clause 2.122 of the State Environmental Planning Policy (Transport and Infrastructure) 2021.

The site is located within the Bayside Council (Council) local government area and has therefore been assessed in accordance with the Bayside Local Environmental Plan 2021 (BLEP), Bayside Development Control Plan 2022 (BDCP) and State Environmental Planning Policy (Housing) 2021.

1.2. Structure of this Report

This report documents the findings of our investigations in relation to the anticipated traffic and parking impacts of the proposed development and should be read in the context of the further planning documentation prepared separately. The remainder of this report is structured as follows:

- Section 2: Describes the site and existing traffic and parking conditions in the locality.
- Section 3: Describes the proposed development.
- Section 4: Assesses the parking requirements of the development.
- Section 5: Assesses the traffic impacts of the development.
- Section 6: Discusses the proposed access and internal design arrangements.
- Section 7: Presents the overall study conclusions.

1.3. References

In preparing this report, reference has been made to the following guidelines / standards:

- Bayside Local Environmental Plan 2021 (BLEP).
- Bayside Development Control Plan 2022 (BDCP).
- Rockdale Development Control Plan 2011 (RDCP).
- Bayside Integrated Transport Strategy 2018—2028, Bayside Council (Integrated Transport Strategy).
- Better Parking for Better Places, Committee for Sydney (Better Parking for Better Places).
- National Walking and Cycling Participation Survey New South Wales, Cycling and Walking Australia and New Zealand 2021 (Cycling Participation Survey).
- State Environmental Planning Policy (Transport and Infrastructure) 2021.
- State Environmental Planning Policy (Housing) 2021 (Housing SEPP).
- Australian Standard AS 2890.1-2004, Part 1: Off-Street Car Parking (AS 2890.1).
- Australian Standard AS 2890.2-2018, Part 2: Off-Street Commercial Vehicle Facilities (AS 2890.2).
- Australian Standard AS 2890.3-2015, Part 3: Bicycle Parking (AS 2890.3).
- Australian Standard AS 2890.6-2022, Part 6: Off-Street Parking for People with Disabilities (AS 2890.6).
- Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, 2013 (Integrated Public Transport Planning Guidelines 2013).
- RTA Guide to Traffic Generating Development 2002 (GTTGD).
- RMS Technical Direction TDT 2013/04a – Guide to Traffic Generating Developments, Updated Traffic Surveys (TDT 2013/04a).
- Trip Generation Surveys, Small Suburban Shopping Centres Analysis Report, Bitzios Consulting 2018 (Small Shopping Centre Trip Generation Report).

2. Existing Conditions

2.1. Location and Site

The subject site is located at 465-469 Princes Highway and 5-7 Geeves Avenue, Rockdale, being situated approximately 150 metres northeast of Rockdale Railway Station and 11 kilometres southwest of the Sydney CBD. More specifically, the site is located on the northern side of Geeves Avenue between its intersections with Geeves Lane in the west and Princes Highway in the east.

The site is formally identified as Lots A & B DP 402977, and Lot 1 DP 131822, Lot A DP306355 and Lots A & B DP 315664. It is generally rectangular in configuration with an area of approximately 927 m^2. It has three street frontages, being Princes Highway to the east, Geeves Avenue to the south and Geeves Lane to the west. To the north the site borders neighbouring commercial developments.

The site currently contains multiple retail developments with shop frontages to Princes Highway and Geeves Avenue. The various sites have a combined total of four vehicle accesses onto Geeves Lane, each of around 3.0 metres in width which each serve enclosed on-site car spaces. One of these appears unused, whilst the others are enclosed via roller doors. Servicing may be possible via these rear accesses but only by vehicles up to a B99 Vehicle, as defined by AS 2890.1.

Figure 1 and **Figure 2** provide an appreciation of the site's location in a local and broader context, respectively.

2.2. Road Network

The nearby roads that are considered important to the subject DA are summarised below:

ROAD NAME	PRINCES HIGHWAY	BAY STREET	GEEVES AVENUE	GEEVES LANE
ROAD CLASSIFICATION	Classified State Road	Classified State Road	Local	Local
ROAD ALIGNMENT	North – South	East – West	North – South	North – South
RUNS BETWEEN	North: Broadway South: Victoria	East: The Grand Pde West: Princes Hwy	North: Princes Highway South: Tramway Arcade	East: Princes Highway West: Geeves Avenue
SPEED ZONING NEAR SITE	60 km/h	50 km/h	10 km/h	10 km/h
TRAFFIC LANES	Three in each direction	Two in each direction	One in each direction	One in SB direction
ROAD WIDTH	18 metres	13 metres	10—12 metres	5.5 metres
KERBSIDE PARKING	Yes	Yes	Yes	Yes
PARKING RESTRICTIONS	Clearway NB 6—10AM and SB 3—7PM Mon-Fri Timed restrictions at other times	No Parking Timed restrictions at other times	Loading Zone Timed restrictions at other times	N/A (90-degree angled on west side only)
FORMS SITE FRONTAGE	Yes	No	Yes	Yes

Figure 1: Site Plan

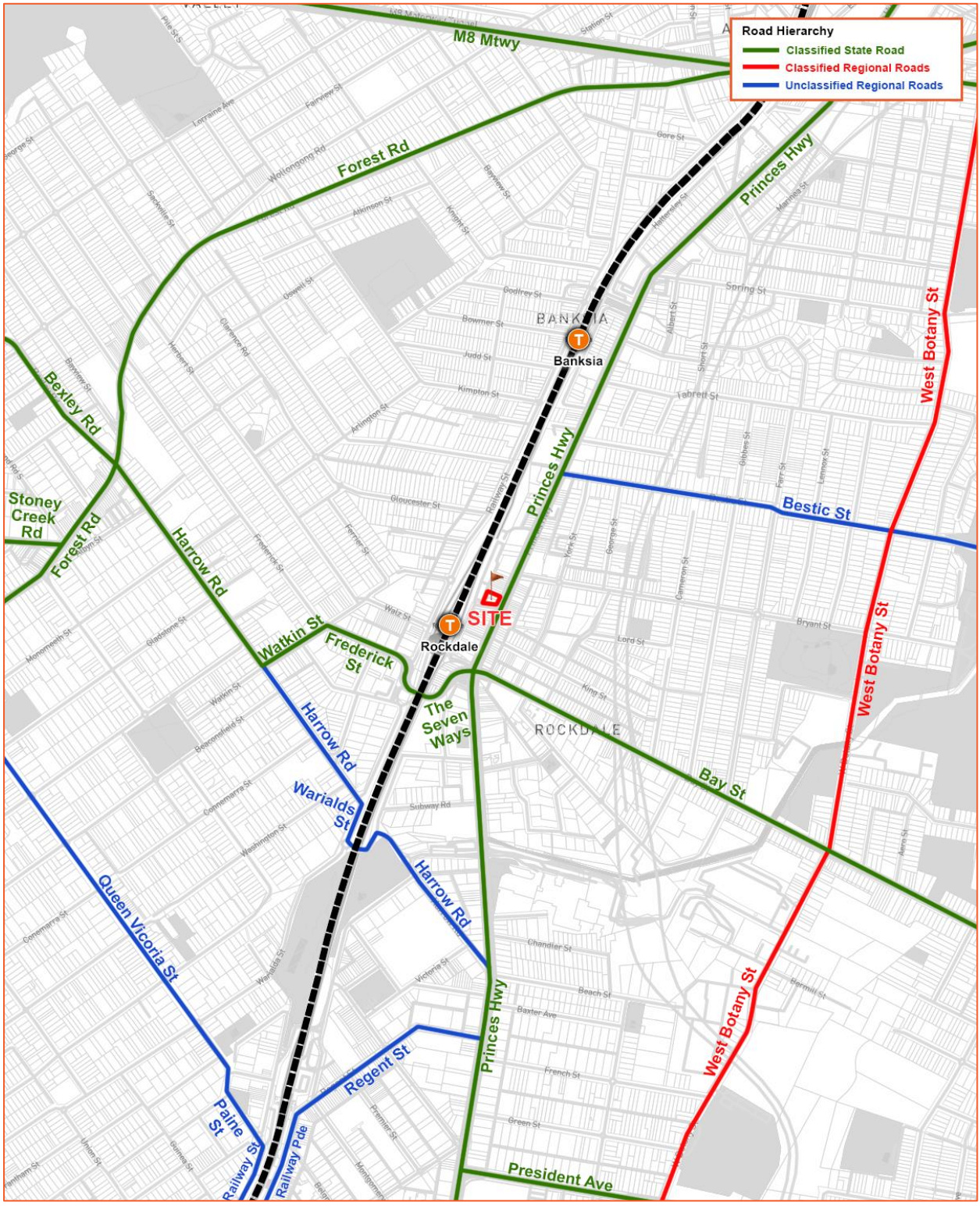


Figure 2: Location & Road Hierarchy Plan

2.3. Public and Active Transport

2.3.1. Rail Services

The Integrated Public Transport Service Planning Guidelines 2013 states that the walking catchment for metropolitan railway stations includes all areas within an 800-metre radius of a station. As illustrated by **Figure 3**, Rockdale Railway Station is located approximately 150 metres southwest of the site and hence, falls well within the typical walking catchment area. It is expected that there will be a substantial proportion of staff, residents and visitors that would utilise the rail services operating at Rockdale Railway Station.

Rockdale Railway Station is serviced by one railway line, being the T4 Eastern Suburbs and Illawarra Line. **Table 1** shows the notable town centres that are accessible along this line and the average service headways during peak and off-peak periods.

Table 1: Rail Services

RAILWAY LINE	NOTABLE TOWN CENTRES ALONG LINE	AVERAGE HEADWAY
T4 Eastern Suburbs and Illawarra Line	Waterfall, Cronulla, Sutherland, Hurstville, Rockdale, Wolli Creek, Sydenham, Redfern, Central, Town Hall, Wynyard, Martin Place, St James, Bondi Junction	Weekdays: 3 - 10 minutes Weekends: 10 - 15 minutes

2.3.2. Bus Services

The Integrated Public Transport Service Planning Guidelines 2013 states that the walking catchment for metropolitan bus services include all areas within a 400-metre radius of a bus stop. As illustrated by **Figure 3**, the site benefits from excellent access to public bus services, with bus stops located along the Geeves Avenue within 20 metre of site frontage.

These bus stops form a major bus interchange for Rockdale town centre, providing a connection between multiple modes of public and active transport, being located immediately at the Rockdale Railway Station frontage. There are further bus routes within 800 metres of the site. Accordingly, it is expected that a significant portion of residents, staff and visitors will utilise these public bus services for journeys to and from the site.

Table 2 provides a summary of these bus routes, including a description of key destinations along the route and average headways during weekdays and weekends.

2.3.3. Cycle Network

The site has good access to the local bicycle network via on-road cycle paths provided along Railway Street and off-road cycle paths west of the site. These cycle paths are supplemented by low-speed local roads in the area to provide connections to the wider bicycle and active transport network.

Table 2: Bus Services

ROUTE NO.	ROUTE (TO / FROM)	ROUTE DECRIPTION	AVERAGE HEADWAY
422	Kogarah to Central Pitt St	Via Rockdale, Wolli Creek, Tempe, Sydenham, St Peters, Newtown, Camperdown, Chippendale	Weekdays: 15 - 30 minutes Weekends: 20 – 30 minutes
452	Beverly Hills to Rockdale	Via Bexley	Weekdays: 20 – 30 minutes Weekends: 30 – 60 minutes
453	Percival Street Rockdale to Rockdale Station	-	Weekdays: 30 minutes Weekends: No Services
473	Rockdale to Campsie	Via Arncliffe, Clemton Park	Weekdays: 30 minutes Weekends: 1 hour
476	Rockdale to Dolls Point (Loop Service)	Via Kogarah, Sans Souci, Sandringham	Weekdays: 30 minutes Weekends: 30 minutes
477	Miranda to Rockdale	Via Caringbah, Taren Point, Sans Souci, Ramsgate, Kogarah	Weekdays: 30 minutes Weekends: 30 – 60 minutes
478	Miranda to Rockdale via Ramsgate	Via Caringbah, Taren Point, Sandringham, Dolls Point, Ramsgate, Monterey, Brighton-Le-Sands	Weekdays: 30 minutes Weekends: 20 - 30 minutes
479	Rockdale to Kyeemagh (Loop Service)	Via Brighton-Le-Sands	Weekdays: 15 – 20 minutes Weekends: 30 – 45 minutes on Saturday/ No Services on Sunday
492	Rockdale to Drummoyne	Via Bexley, Kingsgrove, Campsie, Burwood, Croydon, Five Dock, Russell Lea	Weekdays: 10 - 30 minutes Weekends: 30 minutes
493	Roselands to Rockdale	Via Kingsgrove, Bexley North	Weekdays: 6 Services only Weekends: No Services

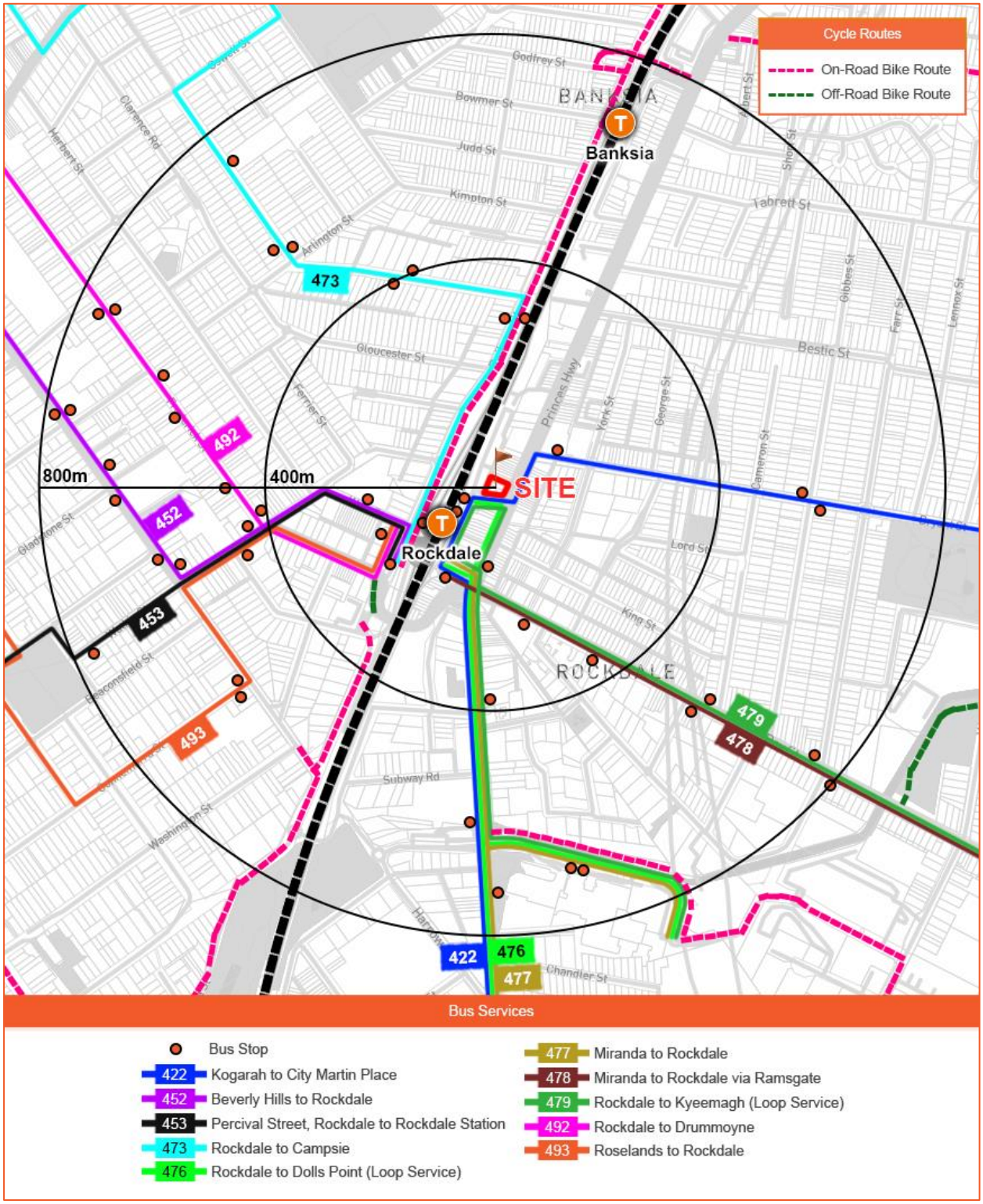


Figure 3: Active & Public Transport Services

2.4. Existing Traffic Generation

The site has historically accommodated multiple retail tenancies of a varying nature, including pawnbrokers, charity op shops, massage parlours, and small food and beverage premises. Given the mix of uses, the most applicable publicly available trip generation rates that are considered representative of the existing site would be those derived from trip generation surveys for small suburban shopping centres for Roads and Maritime Services (RMS) in 2018 (Small Shopping Centre Trip Generation Report).

The Small Shopping Centre Trip Generation Report recommends weekday AM and PM peak vehicle trip rates, for sites less than 1,000 m^2 gross leasable floor area (GLFA), of 0.192A for the AM peak hour and 0.259A for the PM peak hour, where A is the GLFA.

The premises at 469 Princes Highway, on the corner of Princes Highway and Geeves Avenue, presents as two storeys whereas all other premises on the site are single storey. GLFA for the existing individual tenancies is not known and thus has been estimated to estimate existing traffic generation of the site.

GLFA would typically be lower than total site area, but one of the premises on the site has two storeys. Further, given the site's central and accessible location in being close to public transport and within the Rockdale town centre, a high degree of visitation is expected to be in the form of passing trade. Considering all these factors, the existing site area has been factored by 75% to estimate existing GLFA, with a further 25% deduction applied to account for passing trade.

Application of the small suburban shopping centre rates to the estimated GLFA of 695 m^2, and applying a 25% discount for passing trade, results in the following estimated existing traffic generation:

- 100 vehicle trips (50 in, 50 out) during the AM peak period.
- 135 vehicle trips (67 in, 68 out) during the PM peak period.

The above assumes a 50/50 inbound and outbound split during the peak periods, reflecting the nature of short-term visitation to retail premises.

The above is considered the baseline existing traffic generation for the site. Notwithstanding, the most relevant use of the above is to determine the net change in traffic generation as a result of the proposed development, as discussed in Section 5.

3. Proposed Development

A detailed description of the proposed development for which approval is now sought, is outlined in the planning documentation prepared separately. Specifically, the DA proposes the demolition of the existing buildings and the construction of a mixed-use development consisting of:

- 157 co-living housing rooms.
- 375 m^2 commercial GFA.
- Basement level car parking providing a total of 13 car spaces.
- A combined entry and exit access onto Geeves Lane serving the basement parking, plus a separate access onto Geeves Lane serving a loading bay which fronts the laneway.

The parking and traffic implications arising from the proposed development are discussed in Sections 4 and 5 respectively. A copy of the relevant architectural drawings is included in Appendix A.

4. Parking Requirements

4.1. Car Parking

4.1.1. Co-Living Housing

Clause 68(2)(e) of the Housing SEPP stipulates the following car parking rates for 'co-living housing' uses.

> ***68 Non-discretionary development standards – the Act, s 4.15***
>
> *(2) The following are non-discretionary development standards in relation to development for the purposes of co-living housing –*
>
> *(e) unless a relevant planning instrument specifies a lower number –*
>
> *(i) for development on land in an accessible area – 0.2 parking spaces for each private room, or*
>
> *(ii) otherwise – 0.5 parking spaces for each private room.*

The Housing SEPP defines 'accessible area' as follows:

> ***accessible area*** *means land within –*
>
> *(a) 800m walking distance of a public entrance to –*
>
> *(i) a railway station, or*
>
> *(ii) a wharf from which a Sydney Ferries ferry service operates, or*
>
> *(b) 400m walking distance of –*
>
> *(i) a public entrance to a light rail station, or*
>
> *(ii) for a light rail entrance with no entrance – a platform of the light rail station, or*
>
> *(b) 400m walking distance of a bus stop used by a regular bus service, within the meaning of the Passenger Transport Act 1990, that has at least 1 bus per hour servicing the bus stop between –*
>
> *(i) 6am and 9pm each day from Monday to Friday, both days inclusive, and*
>
> *(ii) 8am and 6pm on each Saturday and Sunday*

As discussed in Section 2, the site is around 150 metres northeast of Rockdale Railway Station and within 50 metres of several regular and high frequency bus services and as such, the site is within an 'accessible area' as defined by the Housing SEPP. Accordingly, the car parking rate outlined in Clause 68(2)(e)(i) of the Housing SEPP applies to the proposed development.

Table 3 shows the car parking requirement for the co-living housing part of the proposed development based on the applicable car parking rate under the Housing SEPP and the proposed provision in response.

Table 3: Co-Living Housing Car Parking Requirement & Provision

TYPE	NO.	HOUSING SEPP PARKING RATE	HOUSING SEPP REQUIREMENT	PROVISION
Co-Living Rooms	157 rooms	0.2 spaces / room	31	12

4.1.2. Commercial

The BDCP stipulates minimum car parking rates for commercial developments within the LGA. Further, it advises a 20% discount to car parking requirements can be applied to the site given its location in the Rockdale town centre. **Table 4** shows the car parking requirement based on the applicable car parking rate under the BDCP and the proposed provision in response.

Table 4: Commercial Car Parking Requirement & Provision

TYPE	GFA	BDCP PARKING RATE	BDCP REQUIREMENT	PROVISION
Commercial	375 m^2	1 space / 40 m^2 with 20% discount for Rockdale town centre	8	1

4.1.3. Car Parking Summary

From **Table 3** and **Table 4**, the proposed development is required to provide a total of 39 car spaces including 31 co-living car spaces and eight commercial car spaces. In response, the proposed development provides 13 car spaces, including 12 for co-living and one for commercial.

Whilst the proposed car parking provision does not meet the numeric requirements of the Housing SEPP and BDCP, it is considered an acceptable level of provision, given the circumstances, for the following reasons:

<u>Objectives of the Rockdale and Bayside Development Control Plans</u>

- Both the former RDCP and current BDCP espouse sustainability and encouraging active and public transport uptake. This is evident in several of the general objectives contained within both policies, repeated below for reference:

  Rockdale Development Control Plan 2011

  - To provide sufficient, convenient and safe on-site car parking while encouraging alternative modes of transport, such as walking and cycling.
  - To limit the amount of excavation required for the purpose of car parking so that impacts on ground water flows are minimised and the amount of landscaped area is maximised.
  - To discourage excessive car parking in development close to public transport.

  Bayside Development Control Plan 2022

  - To ensure development is economically, environmentally and socially sustainable.
  - To provide an amount and choice of housing that caters for the needs of the Bayside community in appropriate locations, including focussing higher density development close to centres and public transport corridors.

- To provide for an efficient and safe transport network that caters for all users, encourages more sustainable modes of transport such as public and active transport and supports the economic functioning of employment areas.
- To discourage excess parking in development close to public transport.
- To reduce carbon emissions through improved management of energy, water and waste.
- Encourage staff to make good use of public transport, cycling, walking and car sharing for commuting work-related journeys and hence reduce car-based travel demand.
- Discouraging unnecessary car use and encouraging other modes of transport to improve local amenity, minimise pollution and the use of non-renewable resources.

- In restricting car parking provision on the site, the proposal forms a forward-thinking development which responds to the need to reduce traffic on our roads and pollution in our town centres.
- Reducing the availability of car parking on-site will contribute towards reduced private vehicle ownership and increased use of more sustainable modes of travel, such as walking, cycling, bus, and rail.
- The Integrated Transport Strategy further promotes the enablement of sustainable transport choices that increase transport choice and reduce transport emissions, and that Council will work to ensure that land use and development supports sustainable transport use.

Goal	Strategic Objective
Enabling Sustainable Transport Choices	Council will raise awareness of sustainable transport options as more convenient alternatives to vehicle trips in the community and support initiatives that increase transport choice and reduce transport emissions
Improving Local Accessibility	Council will prioritise walking and cycling as the preferred modes of transport for short trips in Bayside
Better Public Transport	Council will advocate to the State government for improved public transport access to, within and from Bayside
User Friendly Streets	Council will treat streets as places where people live, work and play and provide access for a range of users in order to deliver a safe, accessible and efficient transport system
Integrated Transport and Land Use	Council will work to ensure that land use and development supports sustainable transport use
Optimising Parking Opportunities	Council will maximise the utilisation of existing parking space and balance the needs of drivers to ensure sufficient parking opportunities are available for those who need it

Public Transport Services

- Figure 3 demonstrates that the site benefits from excellent access to a range of high frequency public transport services.
- The site is within 150 metres of Rockdale Railway Station, which is serviced by the T4 Eastern Suburbs & Illawarra Line. This Line provides direct, high frequency services to the Eastern Suburbs, Cronulla and Waterfall, and the Sydney CBD from where the broader rail network can be accessed.
- The site is within 50 metres of several bus stops which provide connectivity to local centres and form a connection between other modes of public and active transport.

- The anticipated high use of public transport by residents and visitors of the site is supported by 2021 census data accessible, which confirms that for the Statistical Area 1 in which the site is located, 25.9% travelled to work by public transport compared to only 10.6% for the Bayside LGA and 4.0% for NSW.
- Whilst these numbers are abnormally low given the census occurred during the Covid-19 pandemic and many people either did not go to work or worked at home, they clearly demonstrate that the site's excellent proximity to public transport significantly increases the usage of sustainable travel modes when compared to the LGA or State averages.
- To provide further appreciation of public transport accessibility of the proposed development, a review of the site's Walk Score[1] was undertaken. Walk Score is an online tool assessing a given site's public access walkability index that assigns a numerical walkability score. Walk Score is utilised by the Green Building Council of Australia (GBCA) for assessing developments seeking to achieve Green Star Ratings.
- The site's Transit Score as derived from Walk Score is 74/100, categorised as 'Excellent Transit', which in turn is described as 'Transit is convenient for most trips'.
- The site therefore forms an exceptional candidate to lead the transition away from private vehicles and towards public and active transport by restraining car parking on site and encouraging the use of these sustainable modes.

Car Share

- Car sharing services operate to fill a mobility gap that exists between private car ownership which is inefficient, expensive, and unsustainable, and public transport, walking and cycling, which can generally suit most local transport needs. Car share pods, being car share vehicles parked within a dedicated parking space, located within close proximity of key public transport corridors experience the strongest uptake of car share users because members enjoy the added convenience of being able to access a car share vehicle to undertake their short-distance errands once alighted from main transport nodes. This is further encouraged by the assurance of a reserved car parking space to return the car share vehicle.
- Rockdale Town Centre has a distinct lack of car share opportunities, despite the high-density development current and ongoing, employment and retail attractiveness of the area. The likes of GoGet are established but with limited numbers. Provision of additional car share opportunities will benefit the development but also offer a new transport alternative to the local area, as cars are typically accessible to all car-share members within and outside of the development.
- Better Parking for Better Places states that one car share vehicle frees up nine vehicles worth of street space, as well as stopping the CO2 (carbon) emissions that would have been released from producing those nine vehicles. Further, the study states that for people who drive less than 8,000 kilometres per year (equivalent to 21 kilometres per day), car share is cheaper than owning a private car, and so reduces the cost of living for those households.
- The BDCP establishes requirements for car share schemes to reduce the demand for car parking, requiring that residential development with more than 25 dwellings are to provide on-site car share parking at a rate of one car share space per 25 car spaces within the development (for sites within 800 metres of a railway station).
- The BDCP further states that car share spaces can be considered in lieu of resident parking to replace up to five car parking spaces, though that this offset can only be used once. The effectiveness of car share is however not thought to be materially diminished by providing more vehicles.
- The proposed development includes provision for two car share vehicles, which is considered an appropriate response to the relevant planning controls and demands of the development.

[1] *https://www.walkscore.com/score/570-princes-hwy-rockdale-nsw-australia*

Green Travel Plan

- BDCP supports sustainable travel management by encouraging the implementation of a Green Travel Plan (GTP) as a means of educating occupants towards more sustainable travel choices. BDCP states that Council may reduce the requirement for on-site parking provisions (up to 10% of total parking spaces required) for commercial developments when a GTP is provided.
- It is recommended that a GTP be prepared for the development and submitted to Council for approval prior to the issue of any occupation certificate.
- A GTP is a travel demand management tool to promote the use of active and public transport to / from developments. The primary purpose of the GTP is to coordinate a site-wide approach to influence the travel behaviour of residents and visitors away from the use of private vehicles towards more efficient modes of transport including active transport such as walking and cycling; public transport such as train and bus; and car-pooling and car sharing.
- GTPs offer numerous benefits including but not limited to:
    - Reduced Congestion: Increased uptake of alternative modes of transport like cycling, walking, or public transit will reduce reliance on private vehicles. This in turn will reduce the number of vehicle trips generated by the site and ease traffic congestion.
    - Environmental Impact: A reduction in the number of vehicle trips generated by the site will reduce environmental impacts. This includes reducing carbon emissions, noise pollution, and improving air quality, which are crucial for sustainable urban development.
    - Health Benefits: Encouraging walking and cycling not only reduces vehicular traffic but also promotes physical activity, leading to improved public health outcomes. This can result in reduced healthcare costs and a healthier population.
    - Cost Savings: GTPs can result in cost savings for residents and visitors of the development. Encouraging public transit or carpooling, for instance, can negate the need for persons to own, or at least result in reduced usage of, private cars, thereby saving on fuel, car registration and insurance costs.
    - Corporate Social Responsibility (CSR): For businesses and organisations that may occupy space within the development, implementing a GTP demonstrates commitment to sustainability and CSR. It can enhance the company's reputation and attract environmentally conscious customers and employees.
- A GTP includes a Transport Access Guide, in the form of a brochure, illustrating the available modes of transport available in the locality including, but not limited to, the following:
    - Location of GoGet and other car share service pods within close proximity to the site.
    - Bus routes, stops and a table of services.
    - Rail stations and a table of services.
    - Bicycle network and the location of any on-site or on-street bicycle parking facilities.
    - Details on how to download transport phone applications such as Uber Car Share, GoGet, Uber, OLA and Taxify.
- With regard to the above, we invite Council to impose a suitable condition requiring a GTP to be submitted and approved prior to the issue of any occupation certificate for the development. The GTP will ensure that residents and visitors are aware of and encouraged to use the abovementioned alternative modes of transport and infrastructure within the site's locality, thereby minimising the reliance on private vehicles.

4.2. Accessible Car Parking

The project access consultant has reviewed the accessible car parking requirements and has advised that a minimum of two accessible spaces are required. The proposed development provides two accessible spaces, one for the residential component and one for the commercial component, which is therefore considered an acceptable level of provision.

4.3. Bicycle Parking

4.3.1. Co-Living Housing

The Housing SEPP is the prevailing planning control and simply requires that "the co-living housing will include adequate bicycle and motorcycle parking spaces." The BDCP does however also stipulate minimum bicycle parking rates for co-living developments, being for one bicycle parking space per residential unit.

The Cycling Participation Survey found that only around 15% of NSW residents rode a bicycle over the previous survey week, and 36% of NSW residents rode a bicycle over the previous survey year.

A total of 69 bicycle spaces for co-living residents have been provided at the site, which is considered an adequate level of provision in responding to bicycle use characteristics of NSW residents, by providing bicycle parking at a rate (44%) higher than broader usage rates and thus at a rate which would encourage increased uptake of bicycle usage than the NSW average.

4.3.2. Commercial

The BDCP stipulates minimum bicycle parking rates for commercial developments. **Table 5** shows the bicycle parking requirement based on the applicable bicycle parking rate under the BDCP and the proposed provision in response.

Table 5: Commercial Bicycle Parking Requirement & Provision

TYPE	GFA	BDCP PARKING RATE	BDCP REQUIREMENT	PROVISION
Staff	375 m^2	1 space / 150 m^2 GFA	3	4
Visitor		1 space / 400 m^2 GFA	1	

From **Table 5**, the commercial component of the development is required to provide a minimum of four bicycle spaces under the BDCP. In response, the proposed development provides four commercial bicycle spaces and is therefore acceptable.

4.4. Motorcycle Parking

4.4.1. Co-Living Housing

The Housing SEPP is the prevailing planning control and simply requires that "the co-living housing will include adequate bicycle and motorcycle parking spaces." The BDCP does however also stipulate minimum motorcycle parking rates for co-living developments, being for one motorcycle parking space per five private rooms.

The BDCP stipulates minimum motorcycle parking rates for co-living developments. **Table 5** shows the motorcycle parking requirement under the BDCP and the proposed provision in response.

Table 6: Co-living Bicycle Parking Requirement & Provision

TYPE	NO.	BDCP PARKING RATE	BDCP REQUIREMENT	PROVISION
Residential	157 units	1 space / 5 private rooms	31	6

Table 5 shows that motorcycle parking is provided at a rate lower than that required by BDCP. The provision is however considered adequate for the reasons given under Section 4.1.

4.4.2. Commercial

The BDCP stipulates minimum motorcycle parking rates for commercial developments. **Table 5** shows the motorcycle parking under the BDCP and the proposed provision in response.

Table 7: Commercial Bicycle Parking Requirement & Provision

TYPE	NO.	BDCP PARKING RATE	BDCP REQUIREMENT	PROVISION
Commercial	1 car space	1 space / 15 car spaces	0	0

From **Table 5**, the development is not required to provide any commercial motorcycle spaces and does not do so.

4.5. Service Vehicle Parking & Waste Collection

The BDCP does not stipulate a service vehicle parking rate for co-living housing developments but does so for boarding houses. The rate specified for boarding houses of 50 dwellings and above is one MRV (medium rigid vehicle) service bay plus one further MRV bay for every additional 100 dwellings. For the subject site, this would total a requirement for two MRV bays.

For commercial developments, the service vehicle rate is for one space for SRV (small rigid vehicle) for areas up to 1,000 m^2 GFA. For the subject site, this would total a requirement for one SRV bay.

The site proposes provision of one ground level 90-degree MRV bay which would be accessed directly off Geeves Lane. This is considered a superior outcome to the existing non-provision of any on-site loading facilities for the

multiple existing retail tenancies, which must therefore be serviced by on-street loading zone facilities on Geeves Lane. The provision of one dedicated on-site loading zone would eliminate the need for users of the subject site to use this on-street loading zone, thereby increasing capacity for other users in the area and reducing the duration of time during which trucks would be standing on Geeves Lane, potentially impacting other road and car park users in the area.

The proposed on-site loading bay could be actively managed through development of a Loading Dock Management Plan (LDMP), which could be required by Council via an appropriately worded condition of consent. This LDMP would set out the management protocol for the bay to ensure it is used in a safe and efficient manner between all tenants of the site, thereby reducing the impact to other road users.

Waste collection for the existing site would also currently occur on-street, either by Council or by private contractors. The proposed on-site loading bay would facilitate on-site waste collection, thereby again reducing the impact to other road users in the area. The proposed on-site loading bay meets the requirements of BDCP in providing for the design requirements of an MRV in accordance with AS 2890.2.

It would be impractical to design for the MRV to be able to enter and exit the site in a forward direction. Accordingly, the pragmatic solution proposed is that an MRV would reverse into the loading dock and drive out in a forward direction, allowing for rear or side loading.

The DA proposes the use of a private contractor to undertake waste collection for the commercial development.

The provision of a loading bay to the dimensions required by BDCP forms a significant improvement on the existing arrangement in that it does not require a waste collection vehicle to stand on Geeves Lane.

Swept path analysis has been undertaken of the loading and waste collection arrangements using an MRV. The results included as **Appendix B** confirm satisfactory vehicle circulation via Geeves Lane.

4.6. Car Wash Bay

The BDCP stipulates minimum car wash bay parking rates of 1 space per 60 dwellings or part thereof. This car wash bay can either be dedicated to that purpose or be shared with a visitor parking space.

The site does not require nor propose any visitor parking, and thus the provision of a car wash bay on the site would require it be wholly dedicated to washing and not be used as a resident car space.

The development proposes one car wash space as a balanced response to the BDCP requirement in consideration of the number of car spaces proposed at the site. However, should Council deem this space better suited to being a dedicated resident or car share space instead then it is welcome to impose such via a suitably worded condition of consent.

5. Traffic Impacts

Neither the GTTGD nor TDT 2013/04a provide traffic generation rates for co-living housing developments. However, given the nature of the development, it has been considered that the co-living housing component of the development is comparable to that of a 'high-density residential flat building'.

Accordingly, the AM and PM peak traffic generation rates for high-density residential flat buildings under TDT 2013/04a have been adopted. This is however deemed an extremely conservative assumption, given the trip generation rates for high density residential developments are based on different demographic users and an unconstrained car parking scenario.

GTTGD advises car parking provision for high density residential flat buildings of between 0.4 spaces for a one-bedroom unit, whereas a rate of 0.2 spaces is recommended by the more contemporary Housing SEPP. Accordingly, car parking provision at the subject site would be more constrained than in a typical high density residential flat building and trip generation would be expected to be lower accordingly. Nevertheless, for conservatism, the TDT 2013/04a rates are adopted without adjustment.

TDT 2013/04a stipulates commercial traffic generation rates, which have been adopted for the proposed commercial land use.

Table 8 shows the traffic generation of the proposed development under application of the relevant traffic generation rates of TDT 2013/04a.

Table 8: Traffic Generation of the Proposed Development

TYPE	NO.	PEAK	TRIP GENERATION RATE	IN / OUT SPLIT (%)	TRAFFIC GENERATION
Co-Living	157 rooms	AM	0.19 trips / room / hour	20 / 80	30 vehicle trips / hour (6 in / 24 out)
		PM	0.15 trips / room / hour	80 / 20	24 vehicle trips / hour (19 in / 5 out)
Commercial	375 m^2 GFA	AM	1.6 trips / 100 m^2 GFA / hour	50 / 20	6 vehicle trips / hour (3 in / 3 out)
		PM	1.2 trips / 100 m^2 GFA / hour	50 / 50	5 vehicle trips / hour (2 in / 3 out)
				AM TOTAL:	***36 vehicle trips / hour (9 in / 27 out)***
				PM TOTAL:	***29 vehicle trips / hour (21 in / 8 out)***

The proposed development will result in a traffic generation of 29 to 37 vehicle trips / hour during both the weekday AM and PM peak periods.

This number is significantly less than the estimated existing trip generation of the site discussed in Section 2.4, of over 100 vehicle trips per peak hour, despite the trip generation rates adopted for the proposed co-living component being considered very conservative.

The proposed development would therefore form a net benefit to the local community in reducing vehicle trips and pollution when compared to the existing development.

6. Design Aspects

6.1. Access

The proposed vehicular access arrangements at the development have been designed in accordance with the relevant width, grade, and visibility requirements of the respective AS 2890 guidelines and are considered satisfactory.

With 13 car parking spaces of User Class 1A, the proposed development requires a Category 1 Driveway under Table 3.1 of AS 2890.1, being a combined entry and exit driveway of width 3.0 metres to 5.5 metres. In response, the development proposes a combined entry and exit driveway within this range and therefore satisfies the requirements under AS 2890.1.

The proposed arrangements have also been assessed using swept path analysis, as provided in **Appendix B**. These results confirm compliance with AS 2890.1 and that the proposed access arrangements will operate safely and efficiently.

Despite the fact that the ramp is designed to cater for two-way traffic movements in being 5.5 metres in width between kerbs, the use of traffic signals is proposed to manage two-way conflict given two-way passing cannot occur at the base of the ramp on the basement level.

The use of traffic signals is considered an adequate response to manage the potential for conflict. The access driveway width would ensure that inbound vehicles could stand wholly within the property boundary should another vehicle be departing simultaneously, thereby eliminating the potential for any impact to users of Geeves Lane.

6.2. Internal Design

The proposed internal traffic circulation and parking arrangements comply with the relevant requirements of AS 2890, including the proposed:

- Parking space dimensions, grades, aisle widths, and blind aisle extensions, in accordance with Clause 2.4 of AS 2890.1.
- Internal roadway widths and grades, in accordance with Clause 2.5 of AS 2890.1.
- Design vehicle envelope required for clearance to columns, walls, and obstructions, in accordance with Clause 5.2 of AS 2890.1.
- Headroom and ground clearances, in accordance with Clause 5.3 of AS 2890.1.
- Bicycle parking arrangements, in accordance with AS 2890.3.

Critical movements have been assessed by swept path analysis where necessary, and the parking and circulation areas of the proposed development are considered satisfactory. Any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

6.3. Servicing and Loading

The proposed servicing and loading requirements are presented in Section 4.5, with the proposed ground level loading facilities designed against the relevant requirements of AS 2890.2 to satisfactorily cater for the largest service vehicle expected to enter the site, being an 8.8-metre MRV.

The proposed access arrangements have been assessed via swept path analysis which is provided as **Appendix B**.

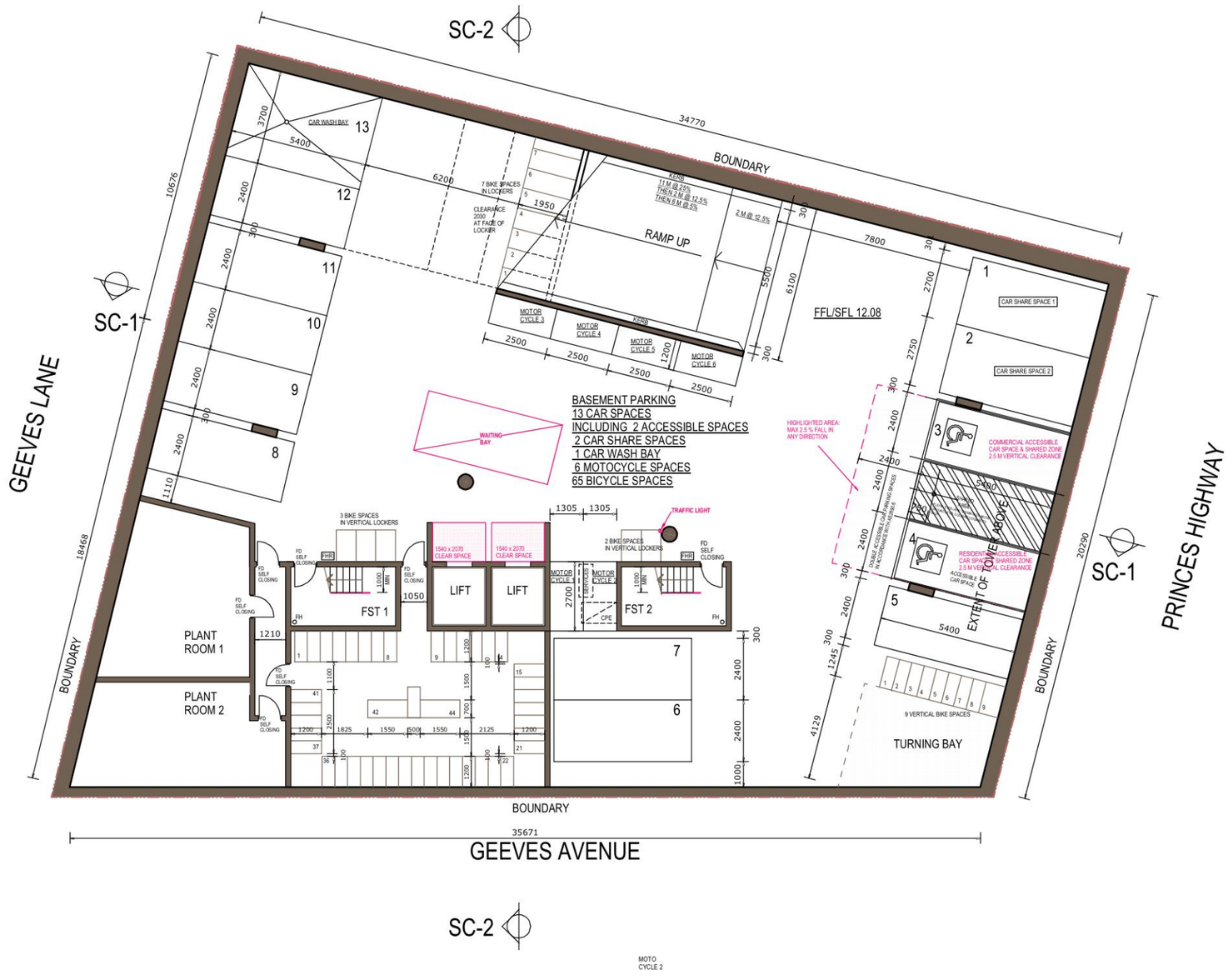
7. Conclusions

In summary:

- PDC Consultants has been commissioned by Emag Apartments to undertake a traffic impact assessment of a DA relating to a proposed mixed-use development at 465-469 Princes Highway and 5-7 Geeves Avenue, Rockdale. Specifically, the DA seeks consent for the demolition of all existing buildings and the construction of a mixed-use development consisting of:
    - 157 co-living housing rooms.
    - 375 m^2 commercial GFA.
    - Basement level car parking providing a total of 13 car spaces.
    - A combined entry and exit access onto Geeves Lane serving the basement parking, plus a separate access onto Geeves Lane serving an angled loading bay which fronts the laneway.
- The traffic generation assessment confirms that the development will generate significantly fewer trips than the existing development and will therefore form a benefit to the local community in reducing traffic and vehicle related pollution.
- The proposed development is required to provide a minimum of 31 co-living housing car spaces under the Housing SEPP and eight commercial spaces under the BDCP. In response, the development provides a total of 13 car spaces, and therefore does not meet the relevant requirements. However, car parking provision is considered supportable given the site's excellent proximity to public transport and in response to Council controls and objectives to reduce reliance on private vehicles.
- The proposed access and internal parking arrangements comply with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6. Any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

It is therefore concluded that the proposed development is supportable on traffic planning grounds.

Appendix A



1 / A102 Basement

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AXEL RICHTER ARCHITECT

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PROJECT NAME
Princes Highway Co-Living

CLIENT
EMAG-Apartments

PROJECT ADDRESS
465-469 Princes Highway &
5-7 Geeves Avenue
Rockdale NSW 2216

DATE MODIFIED
August 16, 2024

PROJECT NO.
E24M01

DRAWN
AR

CHECKED
AR

DRAWING TITLE
Basement

PROJECT STAGE
Development Application

PAPER SIZE
A3 - Scale 1 : 200

DRAWING NUMBER

A102

REVISION
-

1 / A103 Ground Floor Plan

Scale: 1 : 200

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DRAWN
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DRAWING TITLE
Ground Floor Plan

PROJECT STAGE
Development Application

PAPER SIZE
A3 - Scale 1 : 200

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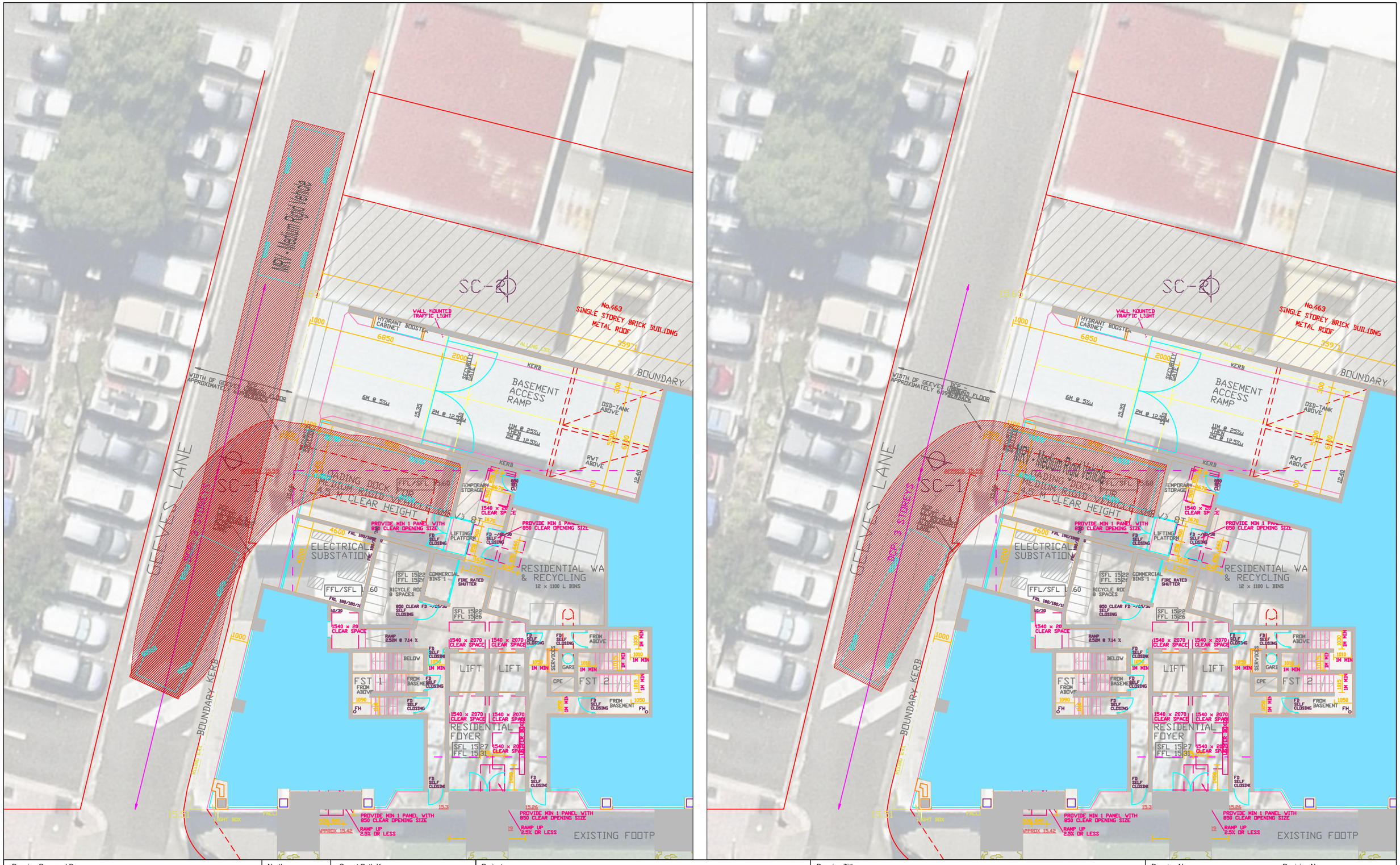
A103

REVISION
-

Appendix B



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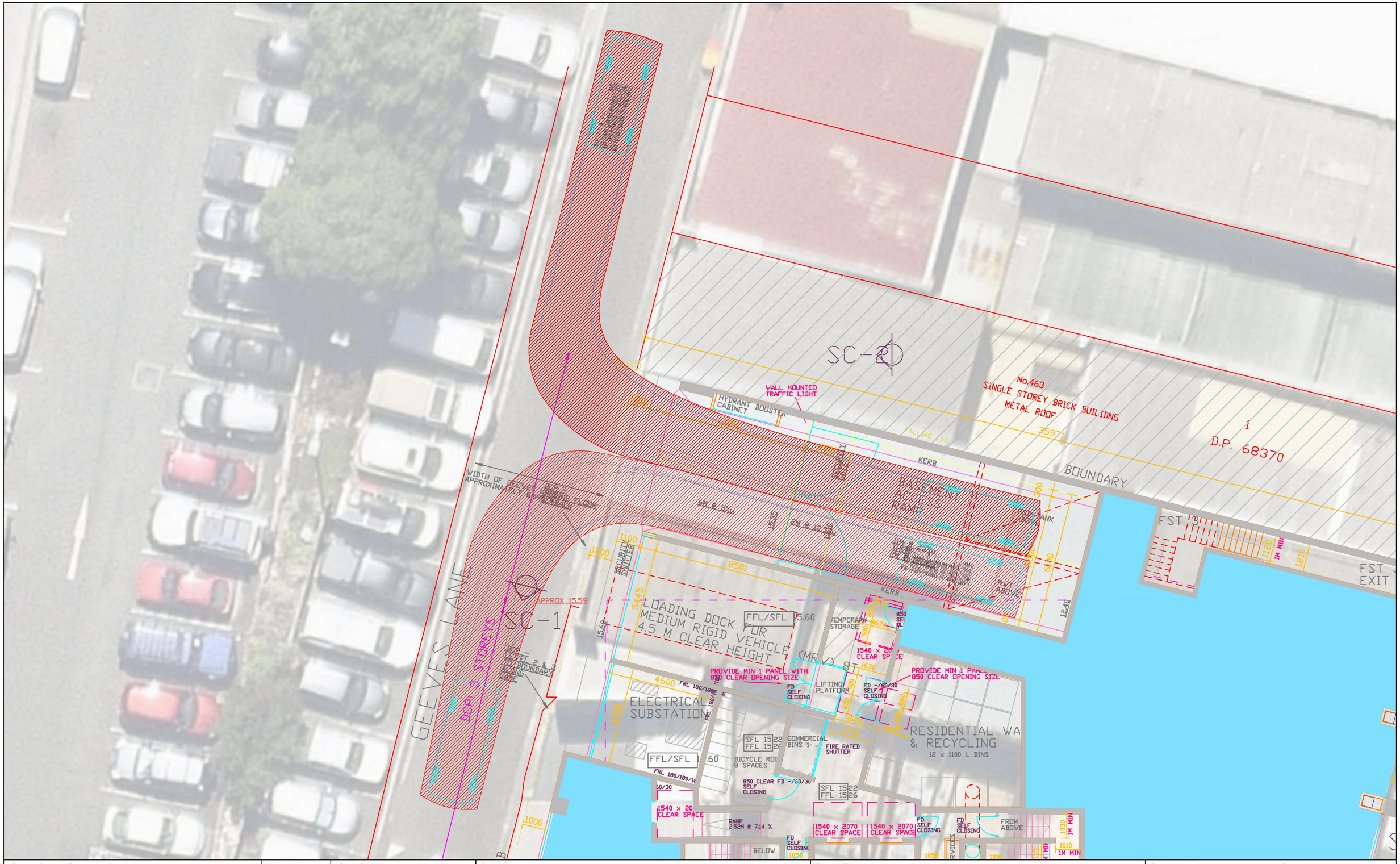

Drawing Prepared By pdc CONSULTANTS	North N	Swept Path Key Vehicle Wheel Path Vehicle Body Envelope 300mm Vehicle Clearance	Project 465-469 Princes Highway and 5-7 Geeves Avenue, Rockdale	Drawing Title Swept Path Analysis Ground Floor B99 Vehicle Passing B85 Vehicle	Drawing No. 002 Revision No. - Drawn By BM Date 19/08/2024
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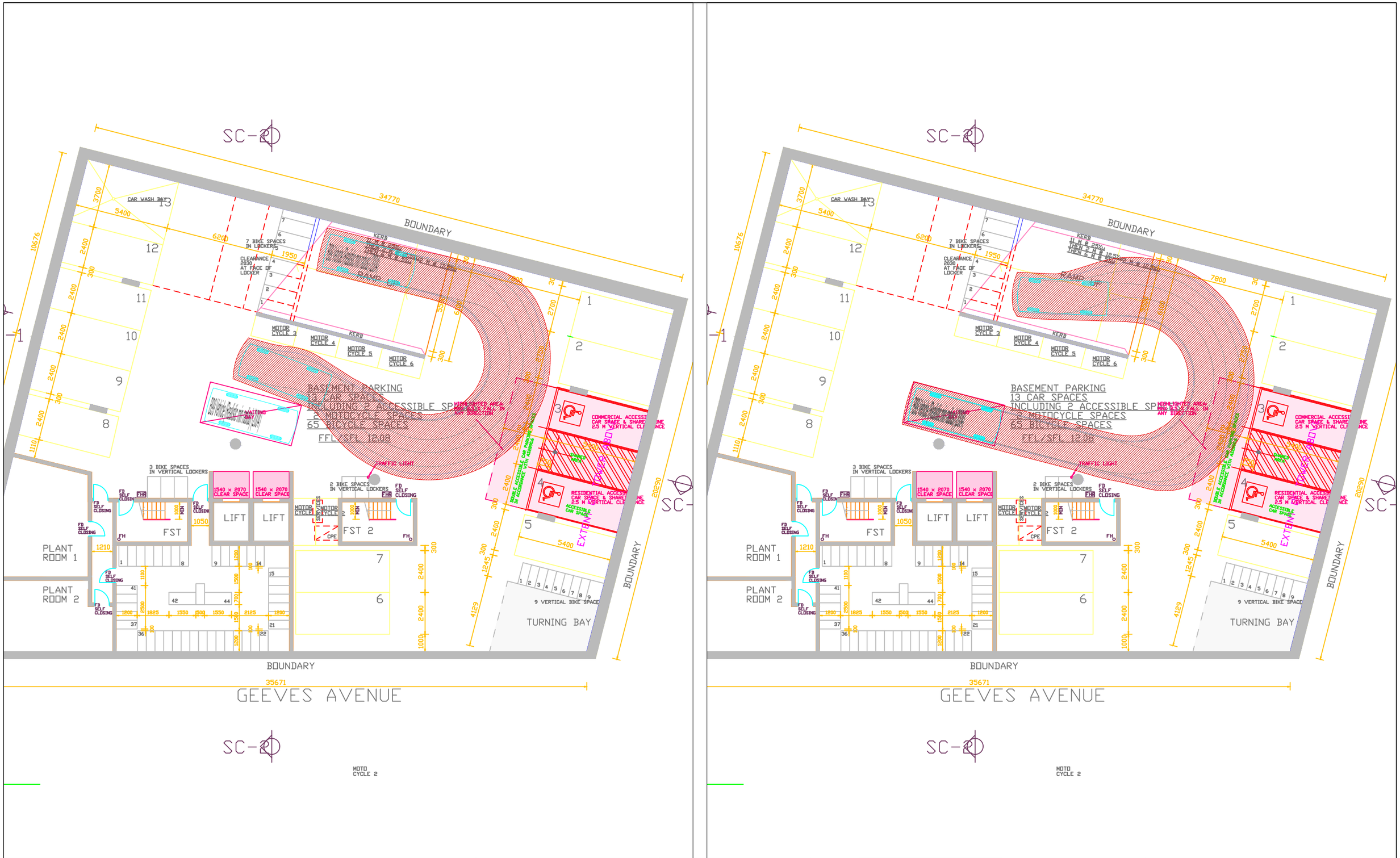

Drawing Prepared By pdc CONSULTANTS	North N	Swept Path Key Vehicle Wheel Path Vehicle Body Envelope 300mm Vehicle Clearance	Project 465-469 Princes Highway and 5-7 Geeves Avenue, Rockdale	Drawing Title Swept Path Analysis Basement Level B99 Vehicle Passing B99 Vehicle	Drawing No. 003	Revision No. -
					Drawn By BM	Date 19/08/2024
			Project No 24.047	Sheet Status NOT FOR CONSTRUCTION	Scale 1:200 @ A3 0m 2 4 6 8	

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