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ADDENDUM

TRAFFIC IMPACT ASSESSMENT

2-4 BURLEIGH ST & 20-24 RAILWAY PDE, BURWOOD.

PROPOSED MIXED-USE DEVELOPMENT

Prepared for:	NSW Housing Corporation Pty Ltd
Date Prepared:	April 2025
Revision:	6.0
Development Application #:	--

Contents

INTRODUCTION.....	5
BACKGROUND AND EXISTING CONDITIONS	6
Subject Site Location	6
Proposal	9
TRAFFIC IMPACT ASSESSMENT	10
Person Trip Generation.....	10
Existing Travel Pattern for Burwood LGA.....	10
Trip Distribution	13
Impact Assessment.....	14
Cumulative Assessment	15
Pedestrian Activity	18
Swept Path Assessment.....	19
Conclusions.....	22

List of Tables

TABLE 1 – PERSON TRIP GENERATION (SOURCE TfNSW GUIDE TO TRANSPORT IMPACT ASSESSMENT)	10
TABLE 2 – SUMMARY OF PERSON TRIP GENERATION	12
TABLE 3 - SUMMARY OF INTERSECTION OPERATION -POST DEVELOPMENT	14
TABLE 4 - SUMMARY OF THE APPROVED DEVELOPMENT.....	15
TABLE 5 - SUMMARY OF INTERSECTION OPERATION -POST DEVELOPMENT + APPROVED DEVELOPMENT	17

FIGURES

FIGURE 1 - SURROUNDING SUBURBS (SOURCE: WHEREIS MAPS – MAP DATA@2024)	7
FIGURE 2 - AERIAL VIEW OF SUBJECT SITE (SOURCE: SIX MAPS).....	8
FIGURE 3 - PROPOSED GROUND FLOOR PLAN (SOURCE PTI ARCHITECTS).....	9
FIGURE 4: MODE OF TRANSPORT FOR BURWOOD RESIDENTS (SOURCE: AUSTRALIAN BUREAU OF STATISTICS).....	11
FIGURE 5: PROJECTED TRAFFIC ACTIVITY	13
FIGURE 6: PROJECTED + EXISTING TRAFFIC ACTIVITY.....	13
FIGURE 7: APPROVED TRAFFIC ACTIVITY.....	16
FIGURE 8: POST DEVELOPMENT + APPROVED TRAFFIC ACTIVITY	17

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INTRODUCTION

Solution1 Traffic Engineers was engaged by **NSW Housing Corporation Pty Ltd** to prepare an addendum to the original Traffic and Parking Impact Assessment report (TIA, prepared in January 2025) for the construction of a mixed-use development with infill affordable housing located at 2-4 Burleigh Street & 20-24 Railway Parade, Burwood NSW.

The proposal is to construct a mixed-use development comprising residential ("dual key"), commercial office space, a hotel with function rooms, a gym, and a restaurant. The basement-level car park will provide 138 spaces, including ten (10) disabled spaces. Vehicular access to the proposed basement-level car park will be provided via the driveways located on the Railway Parade, whereas heavy vehicle access will be restricted to the Burleigh Street frontage. A porte-cochere will be provided for hotel patrons, with entry on Railway Parade and exit on Burleigh Street.

The proposal was submitted to the NSW Department of Planning, Housing and Infrastructure (DPHI) and requested the following additional information:

- *provide the predicted modal split for the proposal*
- *provide a forecast of additional daily and peak hour multimodal network flows as a result of the development*
- *identify of potential traffic impacts on road capacity, intersection performance and road safety (including pedestrian and cyclist conflict) and any cumulative impact from surrounding approved developments*
- *provide measures to mitigate any traffic impacts, including details of any new or upgraded infrastructure to achieve acceptable performance and safety, and the timing, viability and mechanisms of delivery (including proposed arrangements with local councils or government agencies) of any infrastructure improvements in accordance with relevant standards*
- *include swept path diagrams which demonstrates:*
 - *that a waste vehicle can access/exit the site and manoeuvre within the site*
 - *operation of the Porte Cochere*

This report will act as an addendum and should be considered in conjunction with the TIA prepared in January 2025.

The following documents were referenced for the preparation of this report:

- Burwood Council Development Control Plan (2012);
- State Environmental Planning Policy (Housing) 2021;
- Institute of Transportation Engineers (ITE) Common Trip Generation Rates;
- TfNSW Guide to Transport Impact Assessment;
- Australian Standard for Parking Facilities Part 1: Off-Street Car Parking (AS2890.1-2004);
- Australian Standard for Parking Facilities Part 6: Off-Street Parking for People with Disabilities (AS2890.6-2022); and
- Australian Standard for Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities (AS2890.2-2018).

BACKGROUND AND EXISTING CONDITIONS

Subject Site Location

The proposed development is addressed as 2-4 Burleigh Street & 20-24 Railway Parade, Burwood, NSW. The site is located within Burwood, a suburb of the Burwood Local Government Area located approximately 10km west of the Sydney CBD.

The site is located on the southern side of Railway Parade and to the south of the Main Suburban railway line. It sits at the corner of Burleigh Street and Railway Parade. This site comprises five (5) parcels of land identified as follows:

- 20 Railway Parade – Lot C in DP 438222;
- 22 Railway Parade – Lot B in DP 438222;
- 24 Railway Parade – Lot A in DP 438222.
- 2 Burleigh Street – Lot D in DP 438222; and
- 4 Burleigh Street – Lot E in DP 438222.

The site, which occupies an area of 1329 sqm and is regular in shape, is surrounded by commercial housing on the east and south, Railway Parade on the north, and Burleigh Street on the west.

The subject site is currently occupied by multiple businesses, including a medical centre, an educational coaching centre, a residential development, and a hearing clinic. All vehicular access to the site is available via the driveway located on the Burleigh Street frontage.

The location of the subject site and its surrounding suburbs are depicted in the following **Figure 1**.

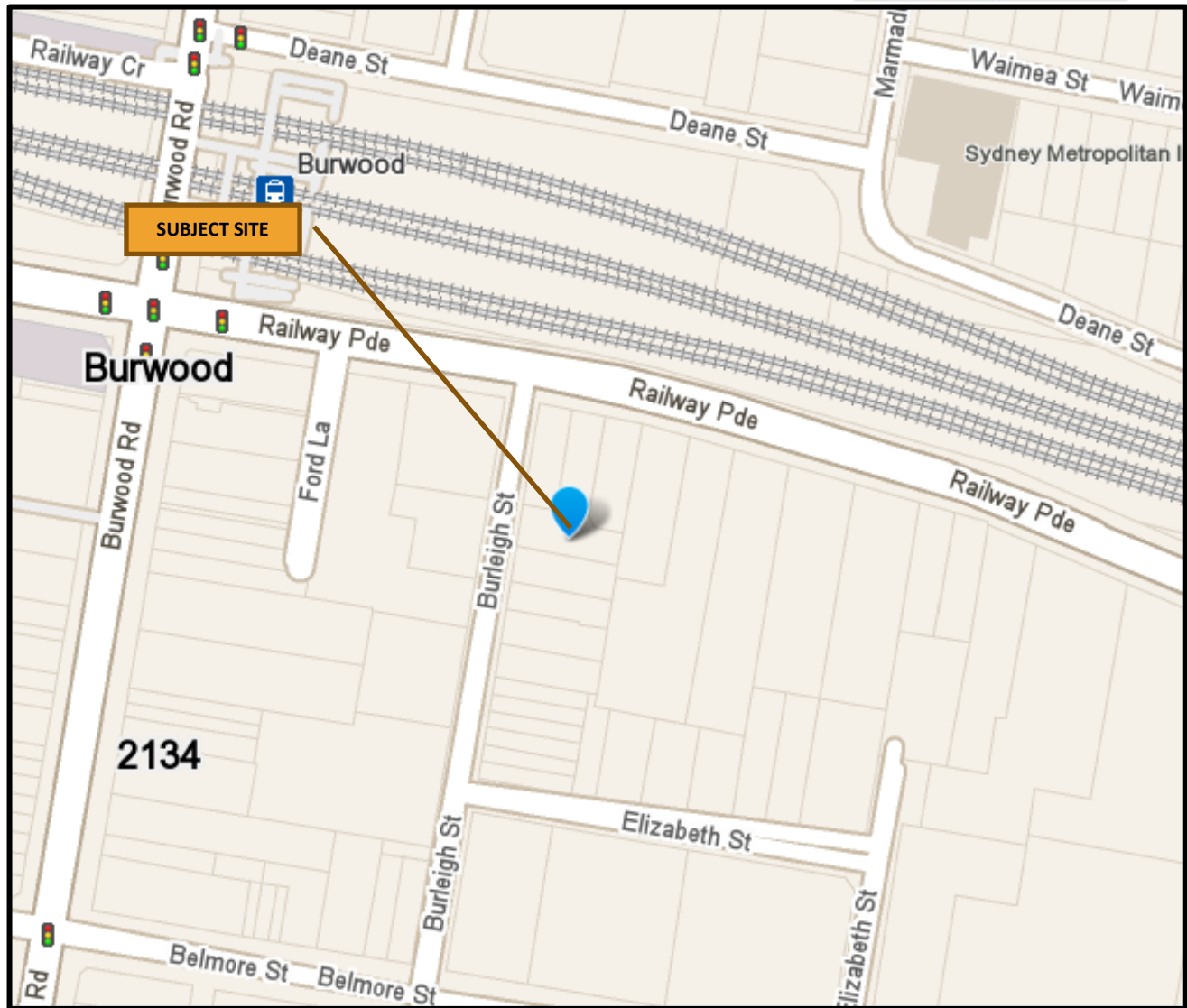


Figure 1 - Surrounding Suburbs (Source: Whereis Maps – Map data@2024)

Figure 2 on the following page portrays an aerial view of the site.

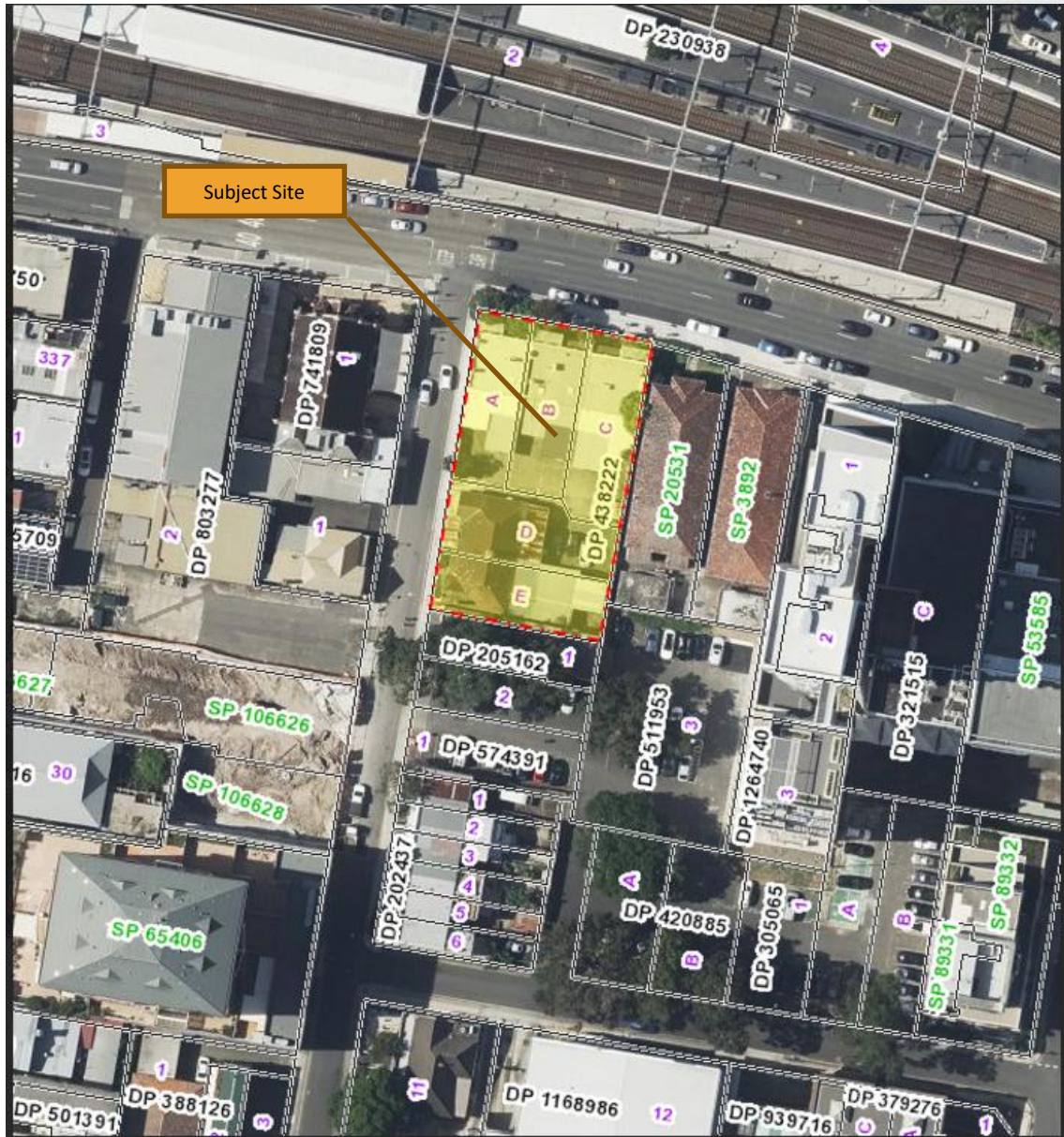


Figure 2 - Aerial View of the Subject site (Source: Six Maps)

Proposal

The proposal involves the construction of a mixed-use development with affordable housing infill, comprising residential development, hotel, and commercial offices. The proposed development will accommodate the following uses:

- Two-bedroom x 48 dual key units, including affordable units;
- Hotel room x 120 rooms; and
- Commercial office – 998sqm.

Additionally, ancillary function rooms, a restaurant, a cafe, and a gym will be provided to support the proposed hotel's operation.

The proposal involves providing 138 on-site parking spaces, including ten (10) disabled spaces. Access to the basement-level car park will be provided via a combined entry/exit driveway located on the Railway Parade frontage. Commercial vehicle access will be provided via the driveway on the Burleigh Street frontage. A porte-cochere will be provided for the hotel patrons to be dropped off. Entrance to the porte-cochere is provided via the Railway Parade, and exit will be located on Burleigh Street.

Architectural plans associated with the proposal have been prepared by PTI Architects, and the plans indicating the car park are presented in **Attachment A**.

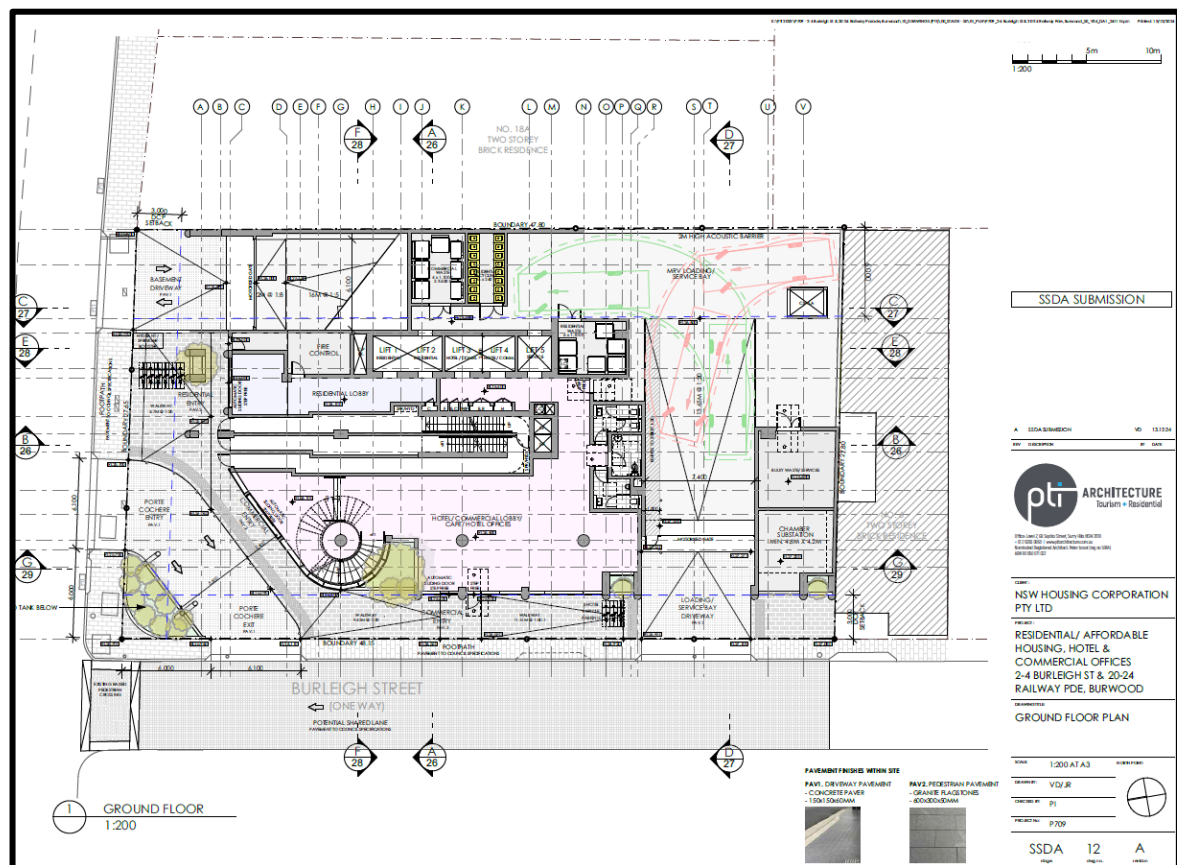


Figure 3 - Proposed Ground Floor Plan (Source PTI Architects)

TRAFFIC IMPACT ASSESSMENT

The following subsections discuss the impact of the expected traffic generation levels associated with the subject proposal.

Person Trip Generation

The person trip activity of the proposal has been determined with reference to the TfNSW Guide to Transport Impact Assessment. In relation to the proposed residential and commercial uses located in an area easily accessible via public transport, the Guide recommends the following person trip rates:

Table 1 – Person Trip Generation (Source TfNSW Guide to Transport Impact Assessment)

Use	AM Peak	PM Peak	Daily
Residential Use	0.66 per unit	0.56 per unit	4.49 per unit
Office use	2.49 per 100sqm (GFA)	1.84 per 100sqm(GFA)	17.87 per 100sqm(GFA)

The TfNSW Guide does not provide traffic generation for hotels. Trip generation rates for hotel accommodation developments can vary widely. For instance, the Astral Hotel at The Star, located in a CBD, generated 0.13 vehicle trips per room based on surveys undertaken by Mott Macdonald in 2018, while the RMS Guide recommends a rate of 0.4 vehicle trips per room per hour for motels. Based on these variations, the trip generation rate of 0.3 vehicle trips per hour per room is considered appropriate for the proposed hotel use. Lastly, it is known that the peak hour traffic represents 1/10 of the daily traffic activity – thus, the hotel use is likely to generate 3.0 vehicle trips per room.

Furthermore, based on the information provided to Soultion1 Consulting, it is understood that access to the proposed function rooms, restaurant and café are restricted to hotel patrons; therefore, these uses are unlikely to generate any traffic activity on their own.

Existing Travel Pattern for Burwood LGA

The Australian Bureau of Statistics (ABS) periodically collects comprehensive socio-demographic profiles of Australia and its suburbs/localities. 2021 ABS data is referenced to understand the existing method of travel to work for commuters travelling to the Statistical Area (SA2), Burwood, including those living within the Burwood LGA.

On the surveyed day, 14,600 trips were made, comprising 6,500 resident trips and 8,100 commuter trips to the Burwood LGA.

The transport modal split for sites located within easy walking distance of the Railway Station and/or well-served by buses is generally expected to have a higher public transport patronage than for sites located away from the train station.

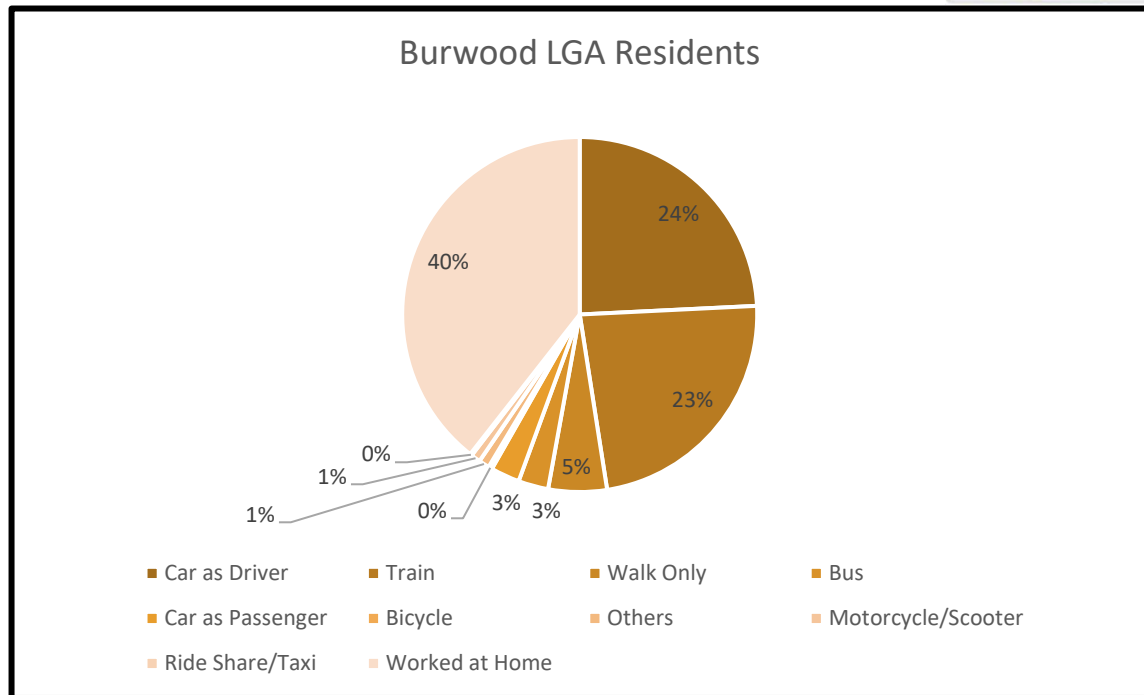


Figure 4: Mode of Transport for Burwood Residents (Source: Australian Bureau of Statistics)

The person trips involving using trains/buses, working from home, and ride-sharing are highly likely to involve walking or car as a passenger – as part of this assessment, we have retained them as walking trips. In this regard, the person trips generated by the proposal will utilise one of the following three modes of transport:

- Walk -71%;
- Cycling: -2 % and
- Vehicle trips – 27%.

Application of the above mode share to the projected person trips generated by the proposal are summarised in the table below:

Table 2 – Summary of Person Trip Generation

Peak	Use	Car	Walk	Bicycle
AM Peak	Residential (48 units)	8.5	22.48	0.69
	Office Use (998sqm)	6.65	17.65	0.54
	Hotel (120 rooms)	36	95	3
	Total	51.18	134.78	3.89
PM	Residential (48 units)	7.22	19.07	0.58
	Office Use (998sqm)	4.93	13.03	0.4
	Hotel (120 rooms)	36	95	3
	Total	48.15	126.77	3.65
Daily	Residential (48 units)	57.8	152.92	4.69
	Office Use (998sqm)	47.90	126.54	3.88
	Hotel (120 rooms)	360	947	27
	Total	465.80	1226.15	35.25

Please note that the person trips for the hotel use were determined by utilising the following equation:

$$\text{Person trips} = \text{vehicle trips}/\text{mode share per room}$$

Lastly, the mode share from ABS survey results were retained for the above calculation.

In this regard, the proposal has the potential to generate the following during the peak period:

- AM Peak
 - 51.18 (say 51) vehicle trips per hour – representing one vehicle trip per minute or so;
 - 134.78 (say 135) pedestrian trips per hour – representing two pedestrian trips per minute or so; and
 - 3.89 (say 4) bicycle trips per hour – representing one bicycle trip every 15 minutes or so.
- PM Peak
 - 48.15 (say 48) vehicle trips per hour – representing one vehicle trip per minute or so;
 - 126.77 (say 127) pedestrian trips per hour – representing two pedestrian trips per minute or so; and
 - 3.65 (say 4) bicycle trips per hour – representing one bicycle trip every 15 minutes or so.

When assessing these rates using the Guide, it is evident that the vehicle traffic generation of the proposed site is considerably low. Furthermore, the proposed development site is currently occupied by residential dwelling houses, an educational coaching centre, a medical centre, and a hearing aid clinic, all of which generate traffic activity. If we adopt the standard engineering practice and deduct the existing traffic activity from that of the projected activity of the proposal – this will further reduce the net increase in the local traffic activity.

However, for the purposes of this assessment, the projected traffic is considered additional or new to the current traffic flow on the surrounding road network.

Trip Distribution

The traffic activity associated with the proposed development was assumed to access the site via the following:

- 40 % of the additional trips will approach the site from the north equally via Burwood Road and Shaftsbury Road;
- 40 % of the additional trips will approach the site from the south equally via Burwood Road and Shaftsbury Road;
- 10% of the additional trips will approach the site from the east; and
- The remaining 10% of the additional trips will be to the site from the west.

These proportions were applied to distribute the projected traffic activity associated with the proposal onto the road network. The figure below indicates the projected traffic volumes of the proposal on the road network:

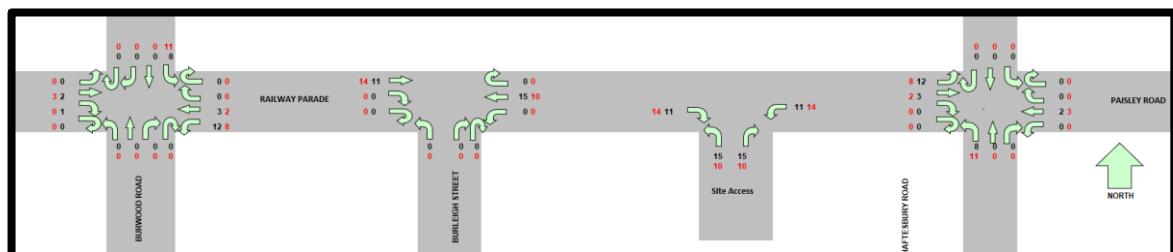


Figure 5: Projected Traffic Activity

The above projected traffic activity was superimposed on the surveyed intersection, and the resultant traffic flows are presented in the figure below:

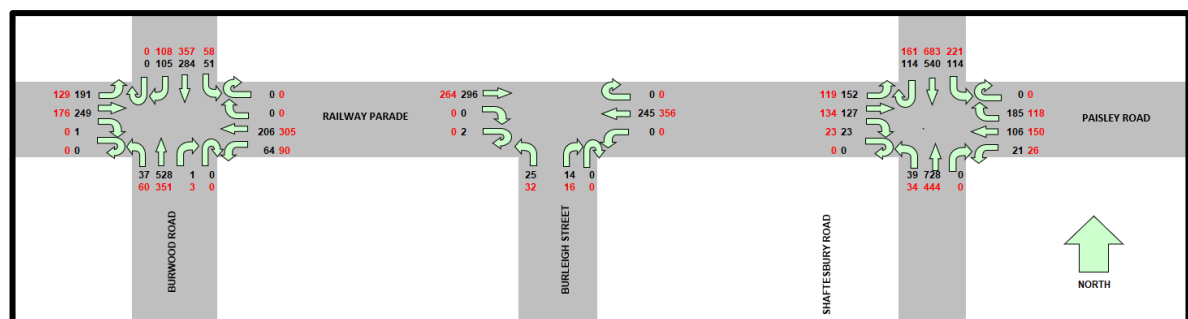


Figure 6: Projected + Existing Traffic Activity

Impact Assessment

To determine the operation of the intersection, the above volumes were applied to the existing SIDRA model, and the results are presented below:

Table 3 - Summary of Intersection Operation -Post Development

Intersection	Peak Period	Existing			Existing + Projected		
		Avg. Delay (Secs)	Level of Service (LoS)	Degree of Saturation (DoS)	Avg. Delay (Secs)	Level of Service (LoS)	Degree of Saturation (DoS)
Burwood Road/Railway Pde	AM Peak	23.0	B	0.448	23.1	B	0.445
	PM Peak	23.0	B	0.387	23.1	B	0.387
Shaftesbury Road /Railway Pde	AM Peak	37.1	C	0.899	40.3	C	0.922
	PM Peak	34.6	C	0.900	37.0	C	0.922
Burleigh St/Railway Pde*	AM Peak	8.1	A	0.154	8.3	A	0.160
	PM Peak	8.7	A	0.187	8.9	A	0.192

* worst movement results are reported for the priority-controlled & Roundabout intersections

The modelling results indicate that following the completion of the development, the intersection will continue to operate similarly to the existing conditions, suggesting the proposal has no detrimental impact on the operation of the road network.

Cumulative Assessment

A review of the Burwood Council's website indicates that in 2024, a State Significant Development(SSD) was approved for a site located 400m north of the subject site. The approved site is located at 17 George Street, 21 George Street and 28-34 Victoria Street, Burwood.

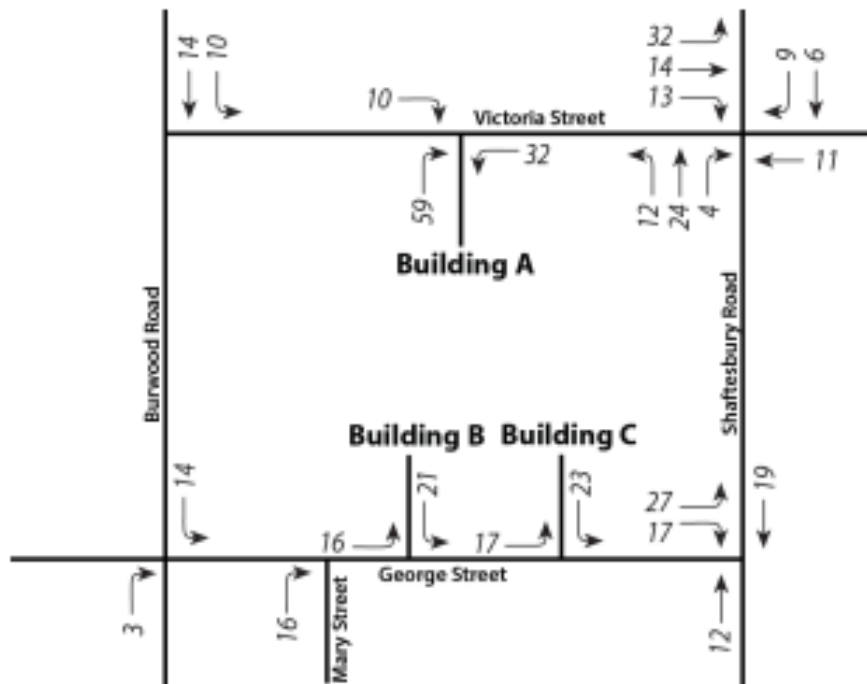
The approved development is summarised in the table below:

Table 4 - Summary of the Approved Development

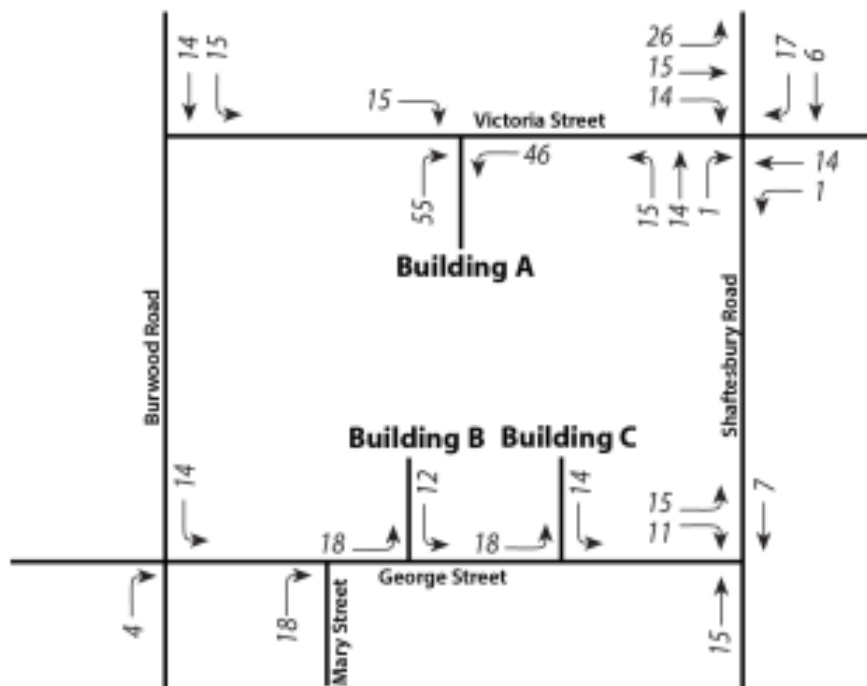
Building	Use	No. of Units/Sqm
Building A (28-34 Victoria Street)	Residential	253
	Café/Restaurant Use (998sqm)	254sqm
	Private hospital/Health Imaging Facility	5,348sqm
Building B (21 George Street)	Residential	75
	Serviced Apartment	9
	Office/Commercial	806
	Retail	325
Building C (17 George Street)	Residential	53
	Serviced Apartment	16
	Office/Commercial	1,078
	Cafe	96
	Retail	158

Varga Traffic and Planning Consultancy prepared the traffic and parking impact assessment(TIA) report to accompany the SSDA. A review of the TIA indicates that the approved development has the potential to generate the traffic activity presented in **Figure 7** overleaf:

VARGA TRAFFIC PLANNING PTY LTD



AM Peak; 8:00am-9:00am



PM Peak; 4:00pm-5:00pm

PROJECTED ADDITIONAL PEAK HOUR TRAFFIC FLOWS
FIGURE 9

Figure 7: Approved Traffic Activity

As part of this assessment, Solution1 have assumed that all additional traffic generated from the approved development travelling to/from the south of George Street on either Burwood Road or Shaftesbury Road will travel through the following two intersections:

- Railway Parade with Burwood Road; and
- Railway Parade with Shaftesbury Road.

Therefore, the above traffic was superimposed on the post-development traffic generated by the proposed development and is summarised in **Figure 8** below:

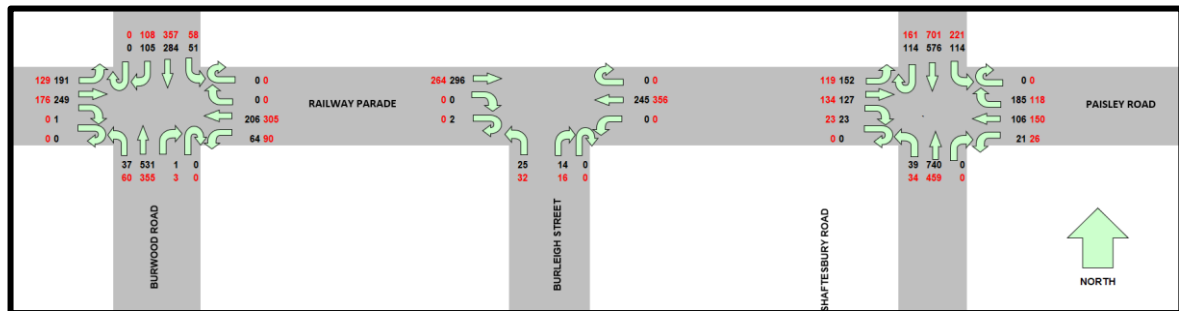


Figure 8: Post Development + Approved Traffic Activity

To determine the operation of the intersection, the above volumes were applied to the Post Development SIDRA model, and the results are presented below:

Table 5 - Summary of Intersection Operation -Post Development + Approved Development

Intersection	Peak Period	Existing+ Projected			Existing + Projected + Approved		
		Avg. Delay (Secs)	Level of Service (LoS)	Degree of Saturation (DoS)	Avg. Delay (Secs)	Level of Service (LoS)	Degree of Saturation (DoS)
Burwood Road/Railway Pde	AM Peak	23.1	B	0.445	23.1	B	0.448
	PM Peak	23.1	B	0.387	23.1	B	0.391
Shaftesbury Road /Railway Pde	AM Peak	40.3	C	0.922	42.6	C	0.941
	PM Peak	37.0	C	0.922	37.5	C	0.930
Burleigh St/Railway Pde*	AM Peak	8.3	A	0.160	8.3	A	0.160
	PM Peak	8.9	A	0.192	8.9	A	0.192

* worst movement results are reported for the priority-controlled & Roundabout intersections

The modelling results indicate that following the completion of the proposed and approved developments, the intersection will continue to operate similarly to the existing conditions, suggesting the proposal has no detrimental impact on the operation of the road network.

Pedestrian Activity

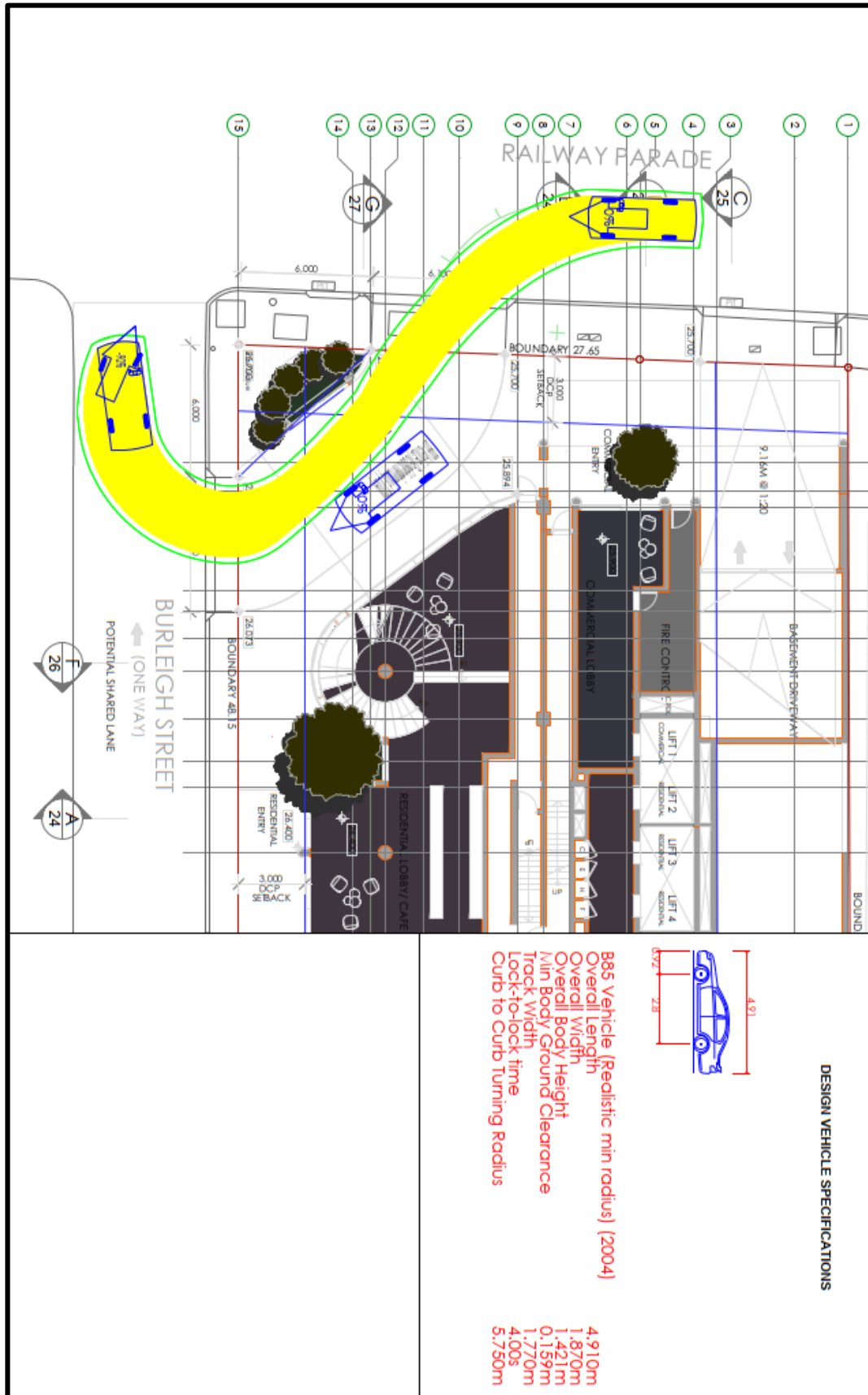
As discussed, the proposal is expected to generate a peak pedestrian activity of approximately 135 pedestrian trips per hour, which averages to about two trips per minute. The site is situated in an area where there are sufficient pedestrian paths connecting it to major attractions, such as train stations, bus interchanges, and shopping centres.

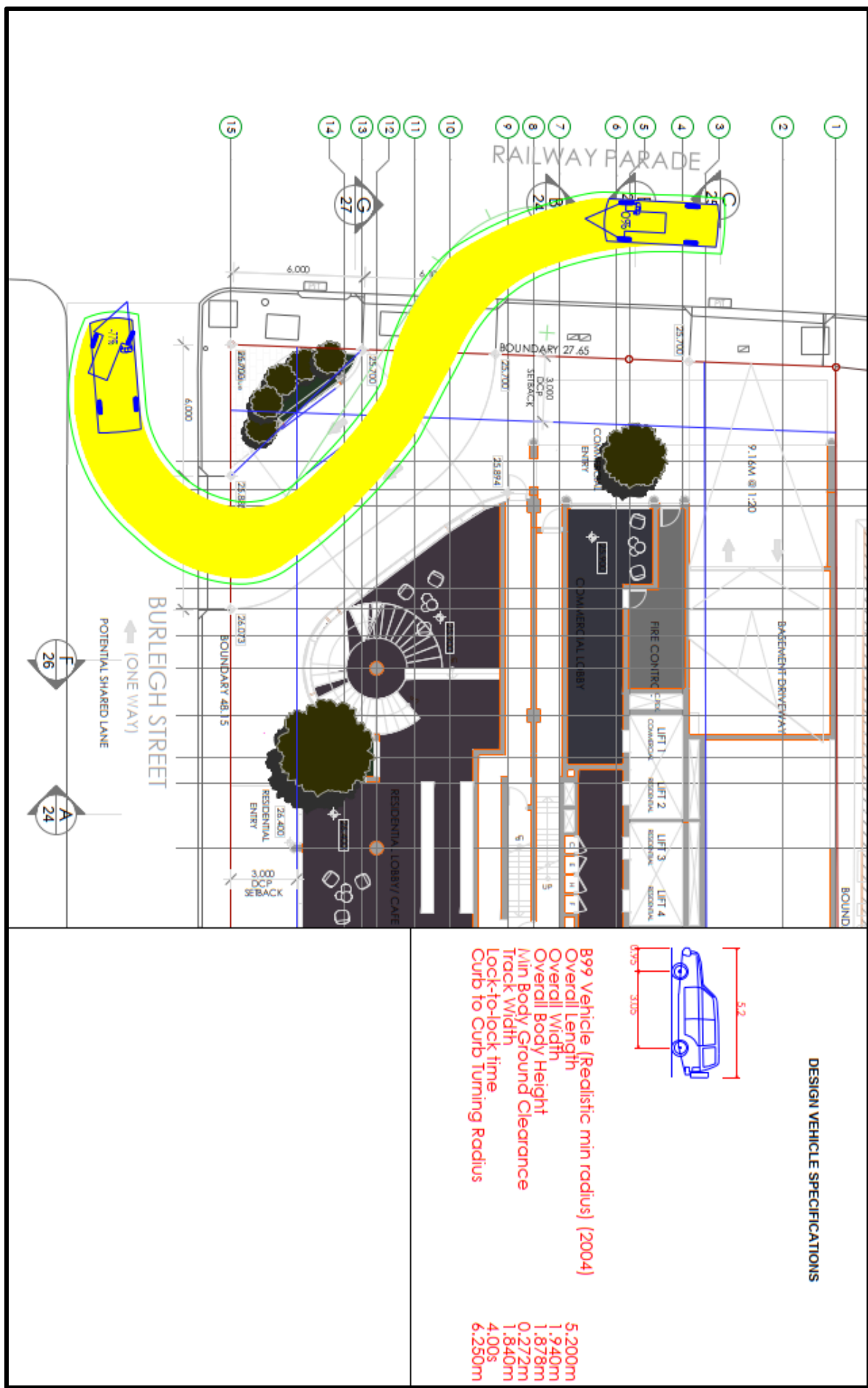
A review of the Burwood Local Infrastructure Contributions Plan 2024 reveals that funding has been approved for upgrading local streets, footpaths, and public spaces in several areas of the Burwood Town Centre. Additionally, the plan identifies locations for the introduction of dedicated/bike-friendly bicycle routes throughout the centre.

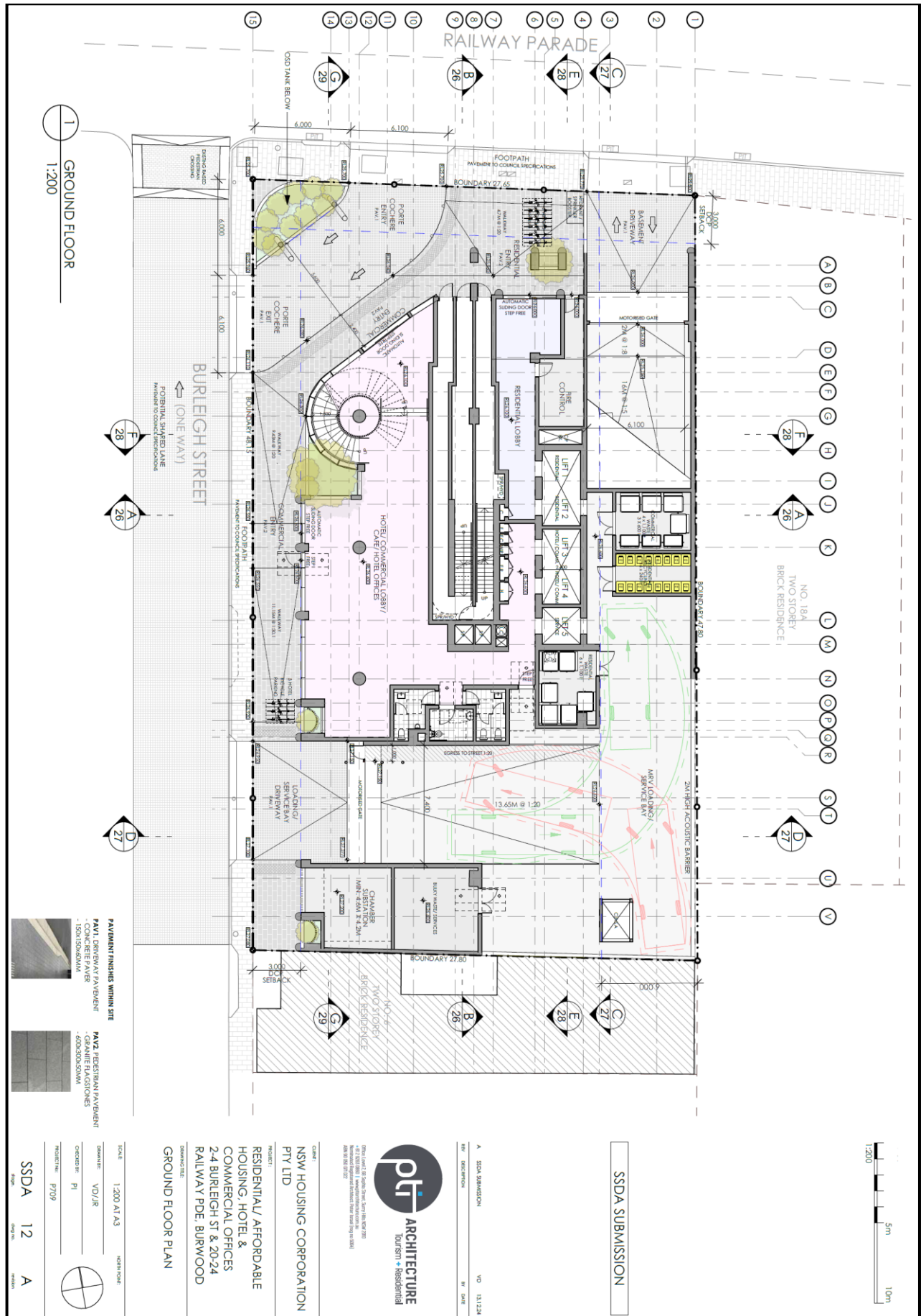
Lastly, as part of the proposal, the existing footpath along the site frontage on the Railway Parade will be upgraded and will include publicly accessible front setback areas. In this regard, the proposal improves overall pedestrian safety and accessibility in the vicinity of the subject site.

Swept Path Assessment

Swept path diagrams have been prepared to check the proposed Porte-cochere access arrangement. Swept path was undertaken using AutoTurn with the application of Standard B99 and B85th passenger vehicles. The swept paths are shown below and conclude the proposed design is adequate to allow for a passenger vehicle to enter and exit in a forward direction. Swept Paths for a MRV truck accessing the waste and loading bay area are also included.







Conclusions

Based on the assessment presented in this report, it is considered that:

- The proposed development for the site at 2-4 Burleigh Street & 20-24 Railway Parade, Burwood for a mixed-use development;
- The site has great access to the local area and greater Sydney region through public transport. With public transport options within reasonable walking distance of the site, it is likely for patrons to use public transport when travelling to and from the site.
- The proposed development will generate additional but low levels of trips throughout the day. It is expected that these trips can be accommodated at nearby intersections without affecting intersection performance or increasing delays and queues.
- The swept path assessment demonstrates the proposed porte-cochere is adequate to allow passenger cars to enter and exit in the forward direction.

In conclusion, this study indicates that the proposed development is not envisaged to have adverse impacts on the surrounding traffic or pedestrian conditions. Therefore, the proposed development changes should be supported on traffic and pedestrian grounds.



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TRAFFIC IMPACT ASSESSMENT

2-4 BURLEIGH ST & 20-24 RAILWAY PDE, BURWOOD.

PROPOSED MIXED-USE DEVELOPMENT

Prepared for:	NSW Housing Corporation Pty Ltd
Date Prepared:	January 2025
Revision:	5.0
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Contents

INTRODUCTION.....	5
BACKGROUND AND EXISTING CONDITIONS.....	6
Subject Site Location	6
Planning Zones & Overlay.....	8
Existing Traffic Conditions	9
Public Transport	9
Road Network	13
Burleigh Street.....	14
Railway Parade	14
Hume Highway.....	15
Burwood Road	15
Shaftesbury Road.....	16
Existing Traffic Conditions.....	16
Intersection Performance	19
Walkability	20
PROPOSED DEVELOPMENT.....	21
TRAFFIC IMPACT ASSESSMENT	22
Trip Generation	22
Impact Assessment.....	22
PROVISION OF CAR PARKING SPACES.....	23
Number of car parking spaces required for the Development.	23
Car Park Arrangements	25
AS/NZS 2890.1-2004 Compliance	25
Car Space Dimensions	25
Circulation Roadway and Ramp Grades (Section 2.5.3)	25
Access Driveway Widths (3.2.1)	25
Sight Distance (Section 3.2.4)	26
Sight distance for pedestrians	26
SWEPT PATH DIAGRAMS	26
Servicing Area	26
CONCLUSIONS.....	27
ATTACHMENTS	28
ATTACHMENT A – ARCHITECTURAL PLAN	28
ATTACHMENT B – SWEPT PATH ASSESSMENT.....	36

List of Tables

TABLE 1 - SUMMARY OF PLANNING CONTROLS (SOURCE:WWW.PLANNINGPORTAL.NSW.GOV.AU)	9
TABLE 2 - PUBLIC TRANSPORT SERVICE DETAILS	11
TABLE 3 - RMS LEVEL OF SERVICES CLASSIFICATION.....	19
TABLE 4 - SUMMARY OF INTERSECTION OPERATION	19
TABLE 5 - TfNSW TRIP GENERATION RATE	22
TABLE 6 - ON-SITE PARKING REQUIREMENT	24

FIGURES

FIGURE 1 - SURROUNDING SUBURBS (SOURCE: WHEREIS MAPS – MAP DATA@2024)	7
FIGURE 2 - AERIAL VIEW OF SUBJECT SITE (SOURCE: SIX MAPS).....	8
FIGURE 3 - SUBJECT SITE PLANNING ZONES & OVERLAY (SOURCE: HTTPS://LANDCHECKER.COM.AU/SUBURB/BURWOOD-NSW-2134/)	9
FIGURE 4 - TRAIN ROUTE MAP (SOURCE: HTTPS://TRANSPORTNSW.INFO/)	10
FIGURE 5 - ROUTE MAP (SOURCE - HTTPS://TRANSPORTNSW.INFO/ROUTES/DETAILS/TRANSIT-SYSTEMS-NSW).....	12
FIGURE 6 - TfNSW ROAD CLASSIFICATION MAP (SOURCE HTTPS://MAPS.TRANSPORT.NSW.GOV.AU/EGEOMAPS/ROAD-NETWORK-CLASSIFICATION/).....	13
FIGURE 7 - STREET VIEW OF BURLEIGH STREET (SOURCE: HTTPS://WWW.GOOGLE.COM/MAPS)	14
FIGURE 8 - STREET VIEW OF RAILWAY PARADE (SOURCE: HTTPS://WWW.GOOGLE.COM/MAPS)	14
FIGURE 9 - STREET VIEW OF HUME HIGHWAY (SOURCE: HTTPS://WWW.GOOGLE.COM/MAPS)	15
FIGURE 10 - STREET VIEW OF BURWOOD ROAD (SOURCE: HTTPS://WWW.GOOGLE.COM/MAPS)	15
FIGURE 11 - STREET VIEW OF SHAFTESBURY ROAD (SOURCE: HTTPS://WWW.GOOGLE.COM/MAPS).....	16
FIGURE 12 - TRAFFIC SURVEY INTERSECTIONS (SOURCE: HTTPS://WWW.GOOGLE.COM/MAPS)	17
FIGURE 13 - EXISTING TRAFFIC FLOWS (VEH/HR).....	18
FIGURE 14 - ILLUSTRATES A 15-MINUTE WALKABLE CATCHMENT AREA FROM THE SITE	20
FIGURE 15 - PROPOSED GROUND FLOOR PLAN (SOURCE PTI ARCHITECTS)	21
FIGURE 16 - LAYOUTS FOR ANGLE PARKING SPACES (AS2890.1)	25
FIGURE 17 - SIGHT DISTANCE MINIMUM REQUIREMENTS (AS2890.1).....	26

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INTRODUCTION

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The proposal is to construct a mixed-use development comprising residential (“dual key”), commercial office space, and a hotel with function rooms, gym and a restaurant. The basement-level car park will provide 138 spaces, including ten (10) disabled spaces. Vehicular access to the proposed basement-level car park will be provided via the driveways located on the Railway Parade, whereas heavy vehicle access will be restricted to the Burleigh Street frontage. A porte-cochere will be provided for hotel patrons, with entry on Railway Parade and exit on Burleigh Street.

This report will assess the implications of the proposed development on existing traffic and transport conditions surrounding the site. The following items have been included in the subsequent sections of this report:

- Existing Traffic conditions surrounding the site;
- Expected traffic generation characteristics of the proposed development and their impact on the surrounding road network;
- Parking requirement for the proposed development;
- Suitability of the proposed access arrangements for the site; and
- Conclusions of the above findings.

The following documents were referenced for the preparation of this report:

- Burwood Council Development Control Plan (2012);
- State Environmental Planning Policy (Housing) 2021;
- Institute of Transportation Engineers (ITE) Common Trip Generation Rates;
- Australian Standard for Parking Facilities Part 1: Off-Street Car Parking (AS2890.1-2004);
- Australian Standard for Parking Facilities Part 6: Off-Street Parking for People with Disabilities (AS2890.6-2009); and
- Australian Standard for Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities (AS2890.2-2018).

BACKGROUND AND EXISTING CONDITIONS

Subject Site Location

The proposed development is addressed as 2-4 Burleigh Street & 20-24 Railway Parade, Burwood, NSW. The site is located within Burwood, a suburb of the Burwood Local Government Area located approximately 10km west of the Sydney CBD.

The site is located on the southern side of Railway Parade and to the south of the Main Suburban railway line and sits at the corner of Burleigh Street and Railway Parade. This site comprises five (5) parcels of land identified as follows:

- 20 Railway Parade – Lot C in DP 438222;
- 22 Railway Parade – Lot B in DP 438222;
- 24 Railway Parade – Lot A in DP 438222.
- 2 Burleigh Street – Lot D in DP 438222; and
- 4 Burleigh Street – Lot E in DP 438222.

The site, which occupies an area of 1329 sqm and is regular in shape, is surrounded by commercial housing on the east and south, Railway Parade on the north, and Burleigh Street on the west.

The subject site is currently occupied by multiple businesses, including a medical centre, an educational coaching centre, a residential development, and a hearing clinic. All vehicular access to the site is available via the driveway located on the Burleigh Street frontage.

The location of the subject site and its surrounding suburbs are depicted in the following **Figure 1**.

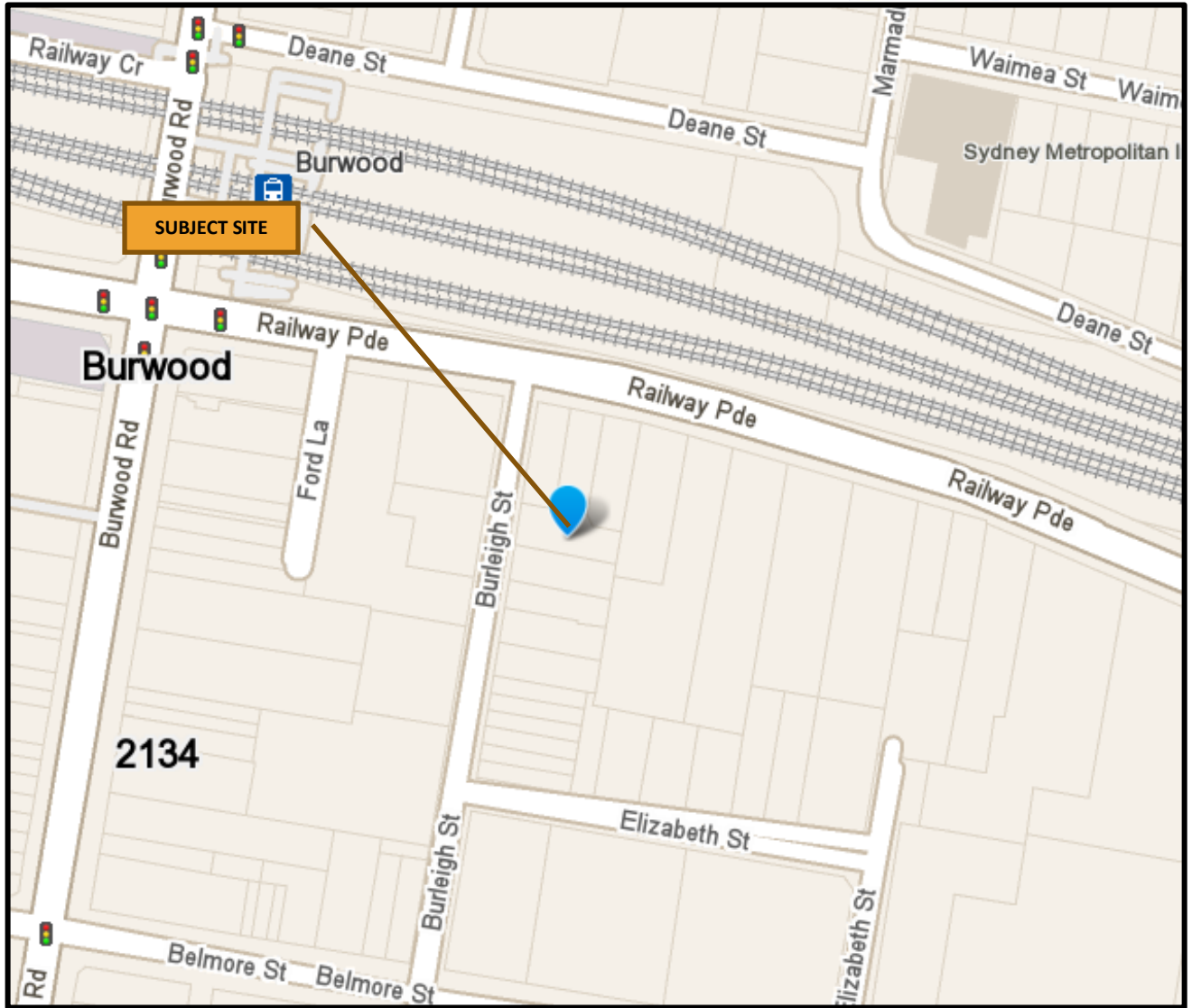


Figure 1 - Surrounding Suburbs (Source: Whereis Maps – Map data@2024)

Figure 2 on the following page portrays an aerial view of the site.

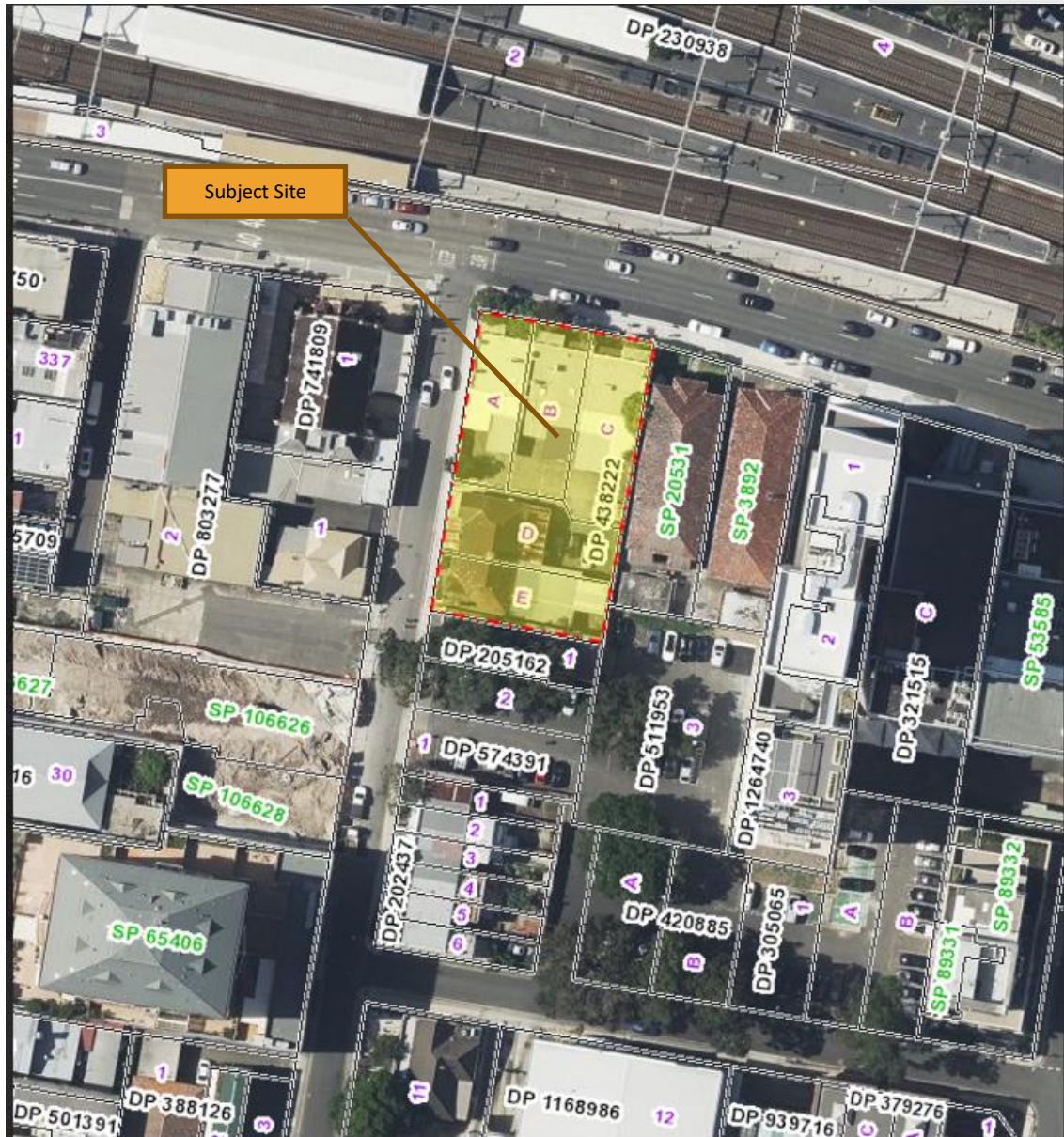


Figure 2 - Aerial View of Subject site (Source: Six Maps)

Planning Zones & Overlay

The subject site is zoned as a Mixed-Use Zone (MU1). **Figure 3** following shows an extract of the site's Planning Zones, and **Table 1** on the next page provides a summary of planning control within the planning database.

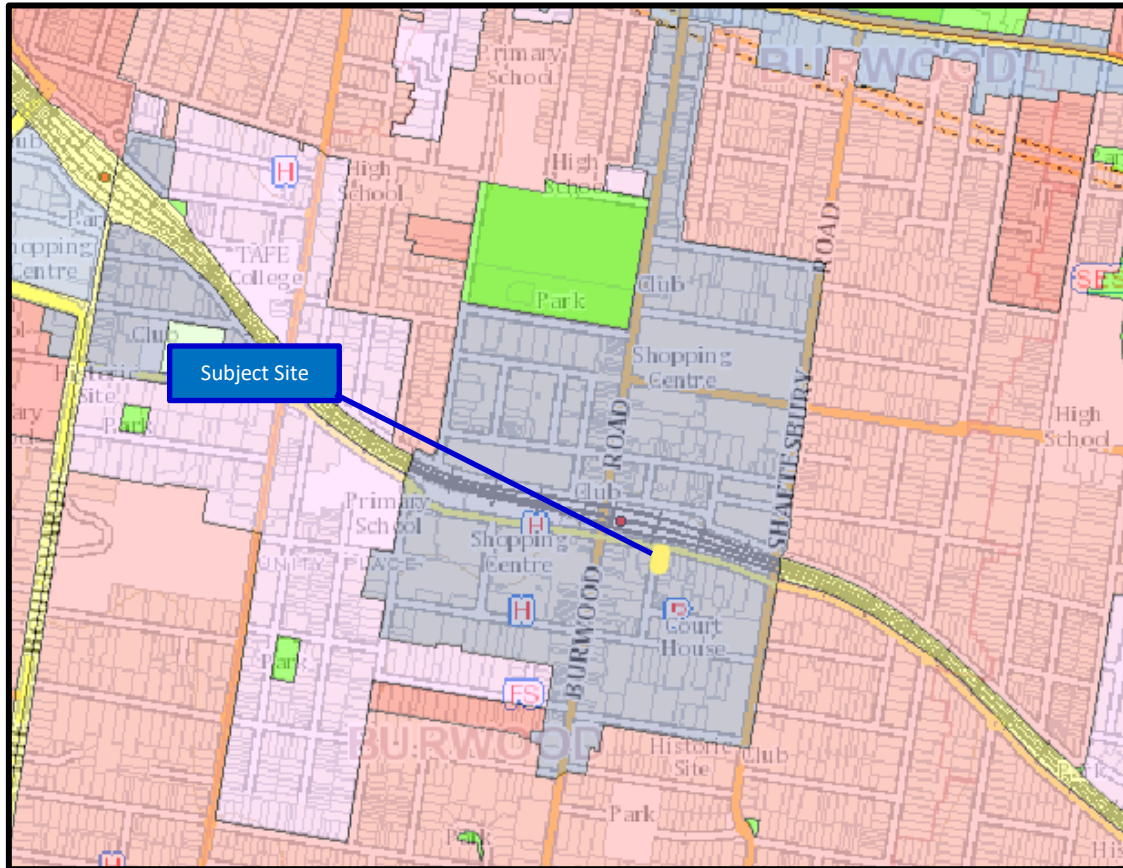


Figure 3 - Subject Site Planning Zones & Overlay (Source: <https://landchecker.com.au/suburb/burwood-nsw-2134/>)

Table 1 - Summary of Planning controls (Source: www.planningportal.nsw.gov.au)

Features	
Local Government Area (Council)	Burwood Council
Zone	MU1-Mixed Use

Existing Traffic Conditions

Public Transport

The site is easily accessible via both the train and bus network. Burwood Station is located 200m North of the subject site. "T1 North Shore & Western Line" (Emu Plains or Richmond to City), "T2 Inner West & Leppington Line" (Parramatta or Leppington to City), "T3 Bankstown Line" (Liverpool or Lidcombe to City via Bankstown) & "T9 Northern Line" (Hornsby to North Shore via City) are accessible via the Burwood Station. **Figure 4** below presents the Sydney Rail Network map.



Figure 4 - Train Route Map (Source: <https://transportnsw.info/>)

The closest bus stop to the site, Burwood Road opposite the train station, is approximately 270m, which is a 4-minute walk. This bus stop provides several bus routes with services available throughout the day. Figure 6 on page 10 displays the public transport map around the site, and the following table summarises the services available in the locality.

The following table presents the summary of the frequency of the buses servicing the subject site.

Table 2 - Public Transport Service Details

Service	Location	Distance from subject site [m]	Walking time [min]	Origin	Destination
407	Burwood Road	270	4	Strathfield	Burwood
408	Burwood Road	270	4	Rookwood Cemetery	Burwood
410	Burwood Road	270	4	Hurstville	Macquarie Park
415	Burwood Road	270	4	Chiswick	Campsie
418	Burwood Road	270	4	Burwood	Sydenham
420	Burwood Road	270	4	Burwood	Mascot Station
458	Burwood Road	270	4	Burwood	Ryde
464	Burwood Road	270	4	Ashfield	Mortlake
466	Burwood Road	270	4	Cabarita	Burwood
490	Burwood Road	270	4	Drummoyne	Hurstville
492	Burwood Road	270	4	Rockdale	Drummoyne
526	Burwood Road	270	4	Rhodes Shopping Centre	Burwood
530	Burwood Road	270	4	Chatswood	Burwood
M90	Burwood Road	270	4	Burwood	Liverpool
461X	Burwood Road	270	4	City Domain	Burwood

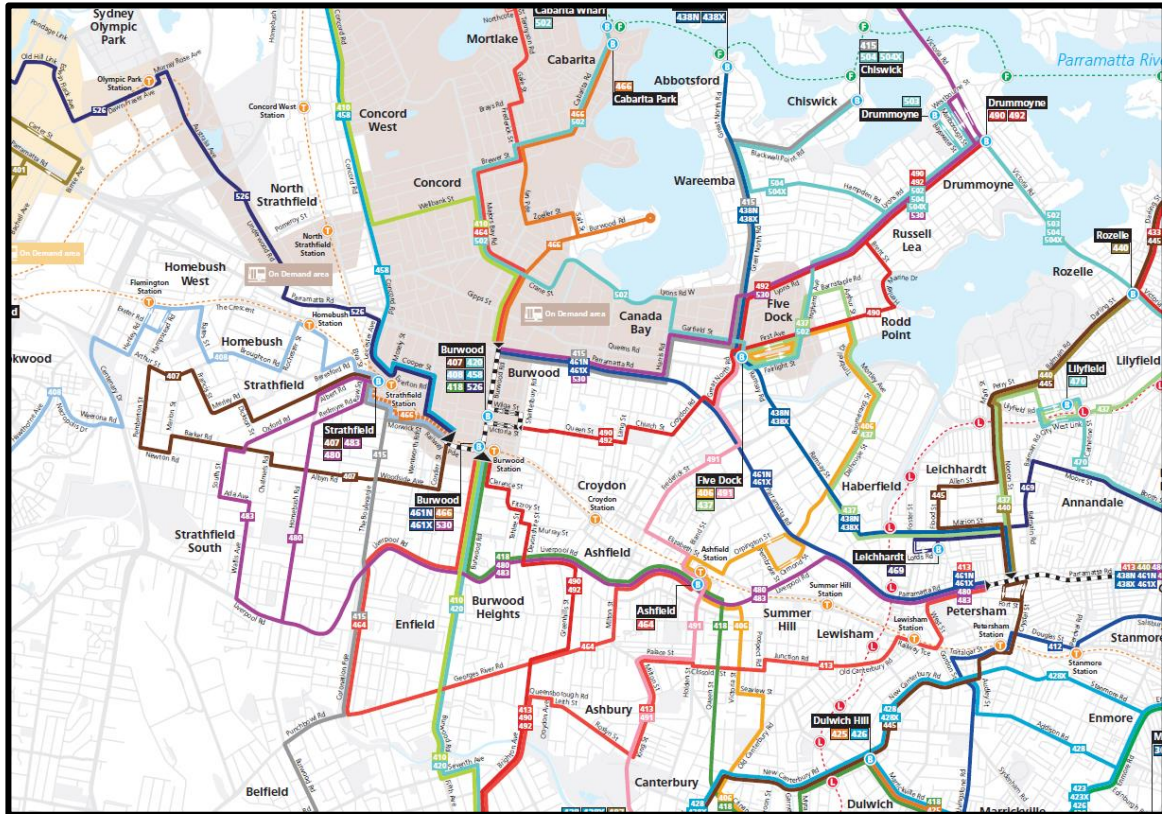


Figure 5 - Route Map (Source - <https://transportnsw.info/routes/details/transit-systems-nsw>)

Road Network

The following section provides a detailed description of the surrounding roads. The road classification map is presented in **Figure 6** below.

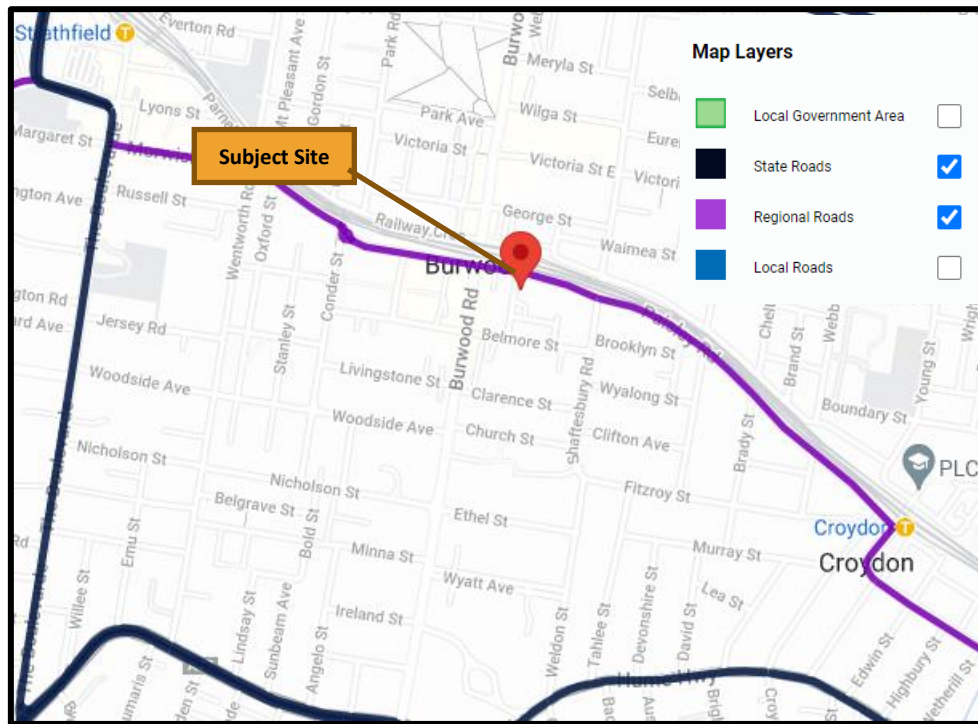


Figure 6 - TfNSW Road Classification Map (Source <https://maps.transport.nsw.gov.au/egeomaps/road-network-classification/>)

Burleigh Street

Burleigh Street is classified as a local road and follows a north-south alignment. The carriageway consists of one traffic lane, and on-street parking is permitted. Burleigh Street accommodates one-way traffic flow(northbound) and connects Belmore Street on the south to Railway Parade on the north. A paved footpath is available on either side of the carriageway, and Burleigh Street has a posted speed limit of 40kmph. The street view image of Burleigh Street along the site frontage is presented in **Figure 7** below:



Figure 7 - Street View of Burleigh Street (Source: <https://www.google.com/maps>)

Railway Parade

Railway Parade is classified as a Regional Road and follows an east-west alignment. It connects Shaftesbury Road to the east and Wentworth Road to the west. The carriageway along the Railway Parade is undivided and comprises one traffic lane in each direction, with on-street parking permitted. A paved footpath is present on either side of the carriageway, and Railway Parade has a posted speed limit of 40 kmph.



Figure 8 - Street View of Railway Parade (Source: <https://www.google.com/maps>)

Hume Highway

Hume Highway is classified as a State Road and follows an east-west alignment. The carriageway is undivided and comprises two traffic lanes in each direction. Within the suburb of Burwood, Hume Highway has a posted speed limit of 60 kmph. The carriageway has a paved footpath on either side of the road, and street parking is prohibited.



Figure 9 - Street View of Hume Highway (Source: <https://www.google.com/maps>)

Burwood Road

Burwood Road is classified as a local road and follows a north-south direction. The carriageway consists of one traffic lane, and on-street parking is permitted. Burwood Road connects Fifth Avenue on the south to Bay View Park on the north. A paved footpath is available on either side of the carriageway, and Burwood Road has a posted speed limit of 40 kmph. The street view image of Burwood Road is presented in **Figure 10** below:



Figure 10 - Street View of Burwood Road (Source: <https://www.google.com/maps>)

Shaftesbury Road

Shaftesbury Road is classified as a local road and follows a north-south direction. The carriageway consists of one traffic lane, and on-street parking is permitted. Burwood Road connects Fitzroy Street on the south to the Great Western Highway on the north. A paved footpath is available on either side of the carriageway, and Shaftesbury Road has a posted speed limit of 50 kmph. The street view image of Shaftesbury Road is presented in **Figure 11** below:



Figure 11 - Street View of Shaftesbury Road (Source: <https://www.google.com/maps>)

Existing Traffic Conditions

To establish the existing traffic conditions, turning movement counts were undertaken at the following intersections:

- Railway Parade with Burwood Road,
- Railway Parade with Burleigh Street,
- Railway Parade with Shaftesbury Road,
- Belmore Street with Shaftesbury Road and
- Belmore Street with Burwood Road.

Figure 12 overleaf shows the location of the surveyed intersection.

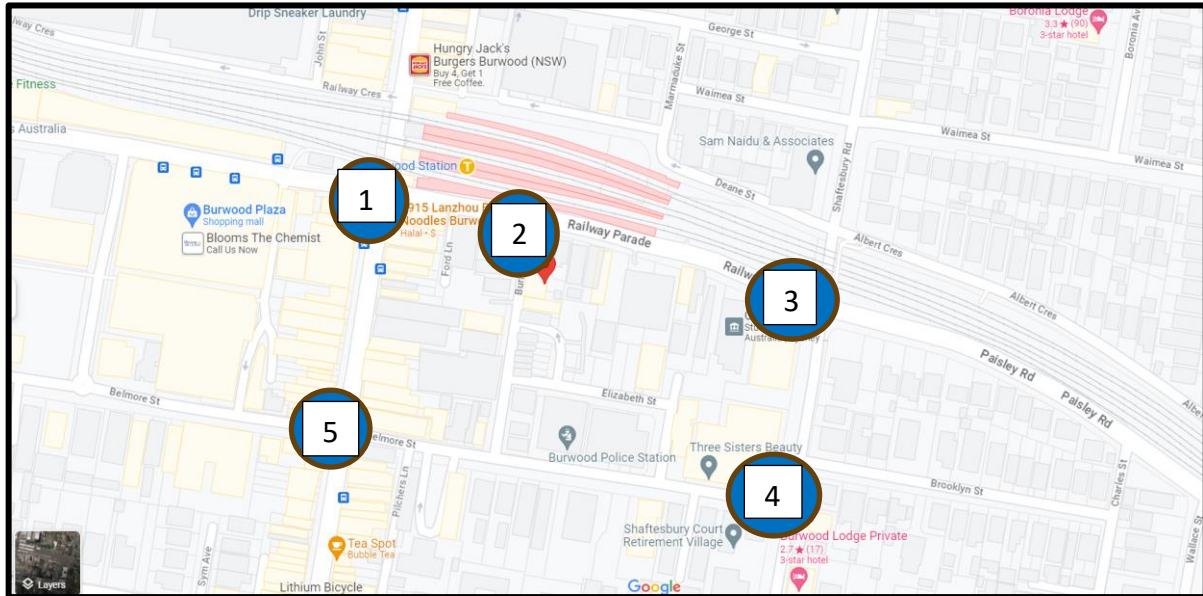


Figure 12 - Traffic Survey Intersections (Source: <https://www.google.com/maps>)

Surveys were conducted on Tuesday, 20th February 2024. The surveys indicate the following peak periods:

- Morning Peak – 8:00 am – 9:00 am; and
- Evening Peak – 5:15 pm-6:15 pm

The survey results are presented in **Figure 13** (overleaf):

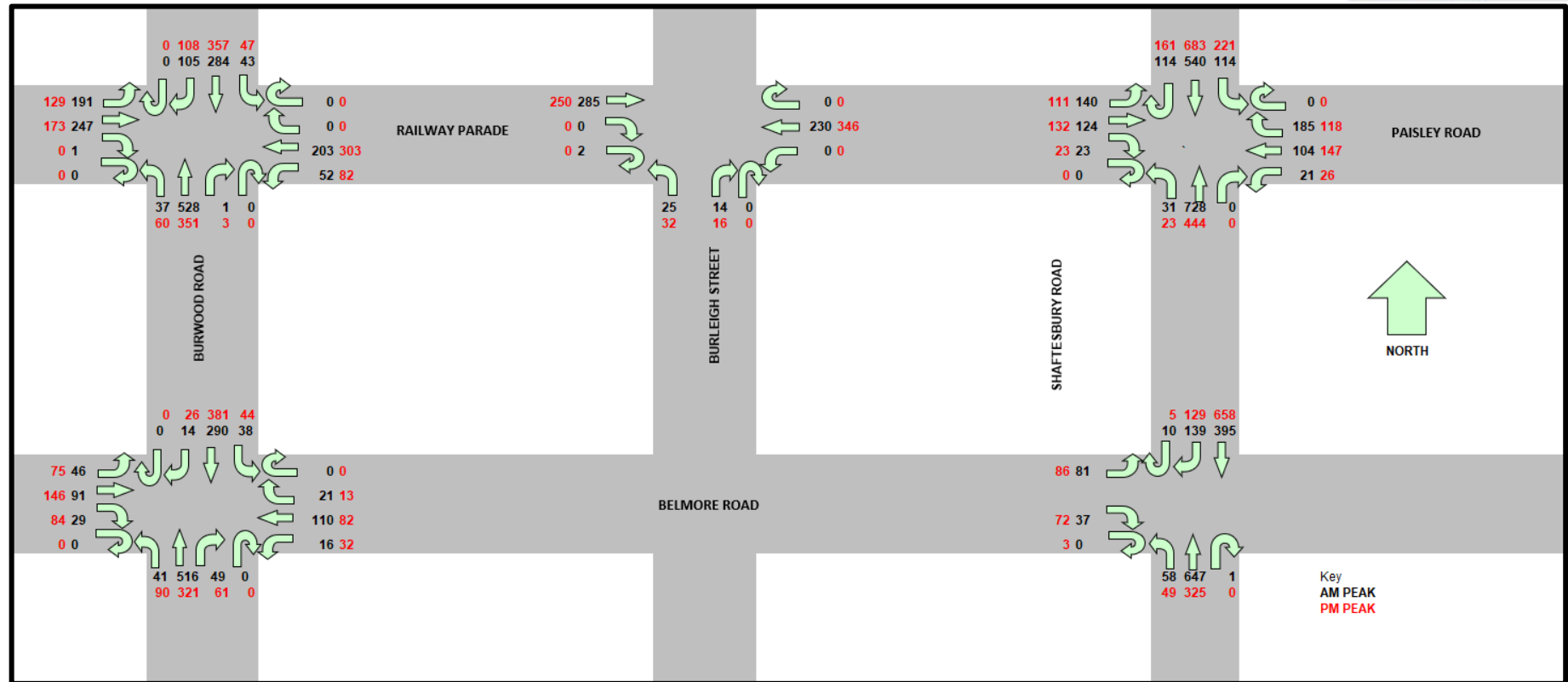


Figure 13 - Existing Traffic Flows (veh/hr)

Intersection Performance

The operation of the road network is determined by the capacity of intersections to accommodate peak-period traffic flows. The surveyed intersection was modelled utilising the SIDRA (version 8.0) intersection modelling software. The SIDRA intersection software is a simulation tool that provides information on various performance indicators, including Level of Service (LOS), Average Delay, Queue Lengths, Degree of Saturation, etc.

Based on Average delay, which is defined as the average delay experienced by all vehicles accessing the intersection, the TfNSW's Guide to Traffic Generation has categorised the operation of an intersection utilising an indicator known as Level of Service (LoS).

The degree of Saturation (DoS) is defined as the ratio of demand flow (v) to theoretical lane capacity(c) and is expressed as a percentage. For an intersection to operate satisfactorily, the DoS should be less than the nominated practical degree of saturation, usually 0.9. The intersection DoS is based on the movement with the highest value.

The table below indicates the bands adopted by TfNSW:

Table 3 - RMS Level of Services Classification

LoS	Avg. Delay (sec/veh)	Operation of Intersection
A	0-14	Good
B	15-28	Good with minimal delays and spare capacity
C	29-42	Satisfactory with spare capacity
D	43-56	Operating near Capacity
E	57-70	At capacity and incidents will cause excessive delays
F	>70	Unsatisfactory and requires additional capacity

Source-TfNSW Guide to Traffic Generating Developments

Table 4 - Summary of Intersection Operation

Intersection	Peak Period	Existing		
		Avg. Delay (Secs)	Level of Service (LoS)	Degree of Saturation (DoS)
Burwood Road/Railway Pde	AM Peak Period	23.2	B	0.448
	PM Peak Period	23.0	B	0.387
Burwood Road/Belmore Rd	AM Peak Period	13.9	A	0.515
	PM Peak Period	18.0	B	0.550
Shaftesbury Road/Belmore Rd*	AM Peak Period	12.7	A	0.589
	PM Peak Period	10.2	A	0.592
Shaftesbury Road /Railway Pde	AM Peak Period	37.1	C	0.899
	PM Peak Period	34.6	C	0.900
Burleigh St/Railway Pde*	AM Peak Period	8.1	A	0.154
	PM Peak Period	8.7	A	0.187

* worst movement results are reported for the priority-controlled & Roundabout intersections

The modelling results indicate the surveyed intersection is operating well below their capacity during the commuter peak periods.

Walkability

The locality was assessed for nearby features that encourage employees, residents, and visitors to walk or cycle. The 15-minute walking catchment area outlined in Figure 14 is referenced below.

The 'walkability' of a site is a measure of its proximity to other facilities by walking and can be ascertained from www.walkscore.com. The subject site is rated as "Very Walkable" (meaning that most errands can be accomplished on foot), and with a score of 88 out of 100 (obtained from the 'Walk Score' web tool), it provides a higher ranking compared to the average Sydney metropolitan score of 63 out of 100.



Figure 14 - Illustrates a 15-minute walkable catchment area from the site

PROPOSED DEVELOPMENT

The proposal involves the construction of a mixed-use development with affordable housing infill, comprising residential development, hotel, and commercial offices. The proposed development will accommodate the following uses:

- Two-bedroom x 48 dual key units, including affordable units;
- Hotel room x 120 rooms; and
- Commercial office – 998sqm.

Additionally, ancillary function rooms, a restaurant, a cafe, and a gym will be provided to support the proposed hotel's operation.

The proposal involves providing 138 on-site parking spaces, including ten (10) disabled spaces. Access to the basement-level car park will be provided via a combined entry/exit driveway located on the Railway Parade frontage. Commercial vehicle access will be provided via the driveway on the Burleigh Street frontage. A porte-cochere will be provided for the hotel patrons to be dropped off. Entrance to the porte-cochere is provided via the Railway Parade, and exit will be located on Burleigh Street.

Architectural plans associated with the proposal have been prepared by PTI Architects, and the plans indicating the car park are presented in **Attachment A**.

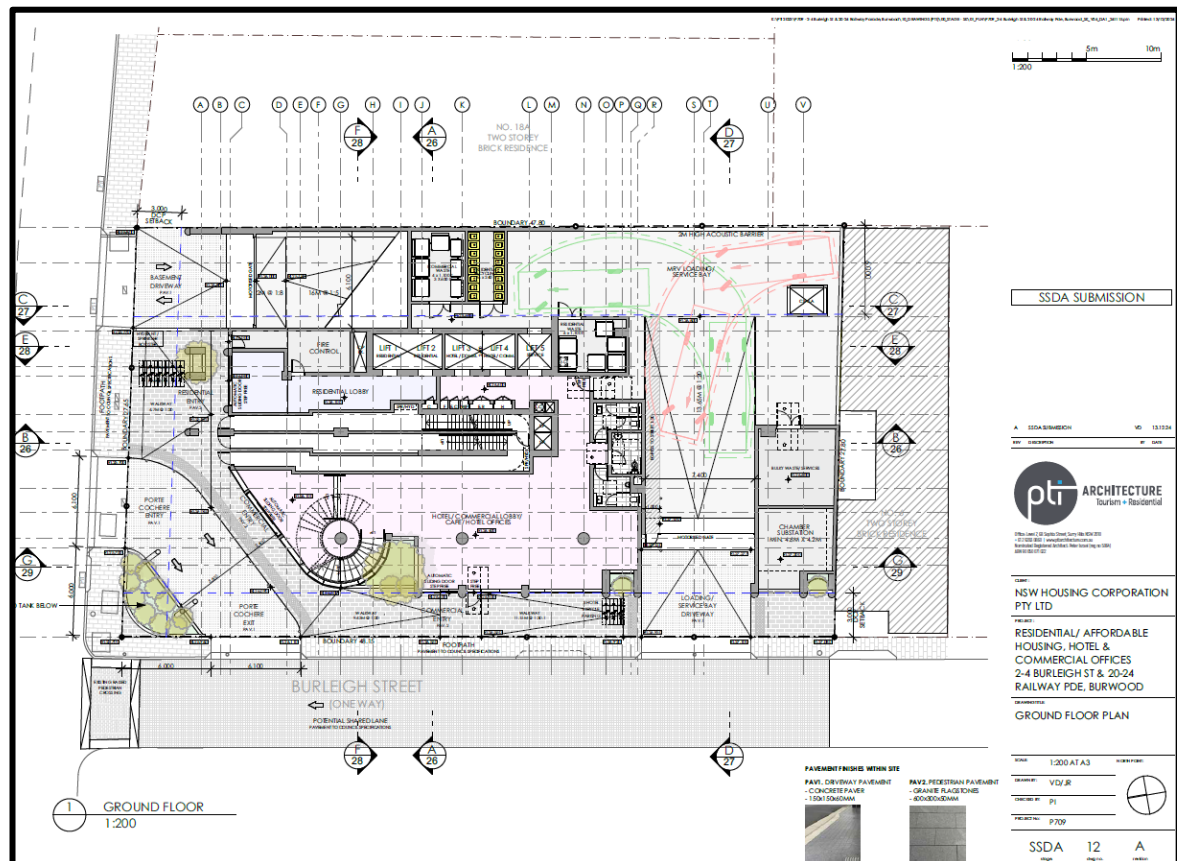


Figure 15 - Proposed Ground Floor Plan (Source PTI Architects)

TRAFFIC IMPACT ASSESSMENT

The following subsections discuss the impact of the expected traffic generation levels associated with the subject proposal.

Trip Generation

The standard engineering practice is to determine the traffic activity associated with the proposal with reference to the 'TfNSW Guide to Traffic Generation Developments' (the Guide). The RMS Guide to Traffic Generating Developments and Technical Direction TDT 2013/04a do not provide traffic generation for hotels. Trip generation rates for hotel accommodation developments can vary widely. For instance, the Astral Hotel at The Star, located in a CBD, generated 0.13 vehicle trips per room based on surveys undertaken by Mott Macdonald in 2018, while the RMS Guide recommends a rate of 0.4 vehicle trips per room per hour for motels. Based on these variations, the trip generation rate of 0.3 vehicle trips per hour per room is considered appropriate for the proposed hotel use.

Furthermore, based on the information provided to Soultion1 Consulting, it is understood that access to the proposed function rooms, restaurant and café are restricted to hotel patrons; therefore, these uses are unlikely to generate any traffic activity on their own.

TfNSW has released a Technical Direction TDT 2013/4a, which updates the Guide and provides traffic generation rates for various land uses. The Guide classifies the proposed residential development as high-density. Table 4 below summarises the traffic generation rates for the proposed mixed-use development.

Table 5 - TfNSW Trip Generation Rate

Use	AM Peak	PM Peak
Residential Use	0.19 per unit	0.15 per unit
Office use	1.6 per 100sqm (GFA)	1.2 per 100sqm(GFA)
Hotel Use	0.3 vehicle trips per room	0.3 vehicle trips per room

Application of the above rates to the proposed mixed-use development comprising 48 residential units, 120 hotel room and 998sqm of commercial office use would result in a peak hour traffic activity of 60.5(61) and 58.78(59) vehicle trips per hour (bi-directional) during morning and evening peak period.

Impact Assessment

When assessing these rates using the Guide, it is evident that the vehicle traffic generation of the proposed site is considerably low. Furthermore, the proposed development site is currently occupied by residential dwelling houses, an educational coaching centre, a medical centre, and a hearing aid clinic, all of which generate traffic activity. If we adopt the standard engineering practice and deduct the existing traffic activity from that of the projected activity of the proposal – this will further reduce the net increase in the local traffic activity.

It is expected that the vehicular traffic generated by the site will be evenly distributed across the road network in the vicinity and will not generate any significant impacts on the local road network.

Furthermore, intersection modelling of the surveyed intersection concluded that the existing surrounding road network operates well below its capacity.

In conclusion, the proposal is highly unlikely to have any detrimental impact on the operation of the local road network.

PROVISION OF CAR PARKING SPACES

Number of car parking spaces required for the Development.

The subject site is located at 2-4 Burleigh Street and 20-24 Railway Parade, Burwood, and is part of Burwood City Council LGA. The proposal involves the construction of a mixed-use development with affordable housing infill, comprising residential development, hotel, and commercial offices, and therefore, on-site parking requirements are determined with reference to the State Environmental Planning Policy (Housing) 2021(SEPP).

The subject site is within 200m of the Burwood train station and is identified as an accessible site.

Clause 19 of SEPP specifies the on-site parking requirements for residential development.

(e) the following number of parking spaces for dwellings used for affordable housing—

(ii) for each dwelling containing 2 bedrooms—at least 0.5 parking spaces,

(f) the following number of parking spaces for dwellings not used for affordable housing—

(ii) for each dwelling containing 2 bedrooms—at least 1 parking space,

Additionally, for the proposed commercial development and hotel use, Table 2 of the Burwood City Council DCP specifies the following:

1 space for the first 400 sqm or part thereof, plus 1 space per 120 sqm or part thereof additional to the first 400 sqm. Up to 20% of this can be regarded as parking for visitors to the office or business premises (Visitors Parking).

Hotel use – 1 space per unit and 2 spaces for employees involved in the Tourist and visitor accommodation business.

In 2017, Bitzios Consulting conducted a parking study to assess the on-site parking requirements for hotel use in support of a development application (DA) for a site within the Burwood Council LGA. The study compared hotel parking rates across various strategic centres, including Chatswood, St Leonards, Parramatta, and Hurstville, which share characteristics similar to Burwood Town Centre. These areas all feature key amenities such as a train station, bus interchange, major shopping centre, significant employment hub, and multiple nearby attractions with established hotels.

The study found that hotels in these strategic centres primarily offer paid parking on-site, with spaces available either through pre-booking or on a "first come, first served" basis. As a result, these hotels do not maintain a parking provision of one space per room. Based on these findings, the study recommended a parking rate of 0.3 spaces per room. The suggested parking rates are similar to those recommended by the TfNSW Guide to Traffic Generation Developments for Motel Use (i.e. one space per 4 rooms).

Therefore, as part of this assessment, we have used the on-site parking rate recommended by Bitzios Consulting of 0.3 spaces per room.

The proposal involves the construction of a mixed-use development comprising residential development, hotel and commercial offices. The proposed development will accommodate the following uses:

- Two-bedroom x 48 dual key units;
- Hotel room x 120 rooms; and
- Commercial office – 998sqm.

Additionally, ancillary function rooms, a restaurant, a cafe, and a gym will be provided to support the proposed hotel's operation.

On-site parking requirements are summarised in **Table 6** overleaf:

Table 6 - On-Site Parking Requirement

Use	Council's or SEPP Parking Requirement	No. of Unit/Commercial Area	On-Site Parking Spaces Based on Council's/SEPP rate (no. of spaces)	Bitzios Consulting or SEPP Parking Requirement	On-Site Parking Spaces Based on Bitzios Consulting/SEPP rate (no. of spaces)
Residential Use	0.5 space per 2-bedroom unit (Affordable units)	18 units	9.0	0.5 space per 2-bedroom unit (Affordable units)	9.0
	1.0 space per 2-bedroom unit (non-Affordable units)	30	30.0	1.0 space per 2-bedroom unit (non-Affordable units)	30.0
Commercial use*	1 space per 400m ² gross floor area <i>plus 1 space per 120 sqm or part thereof additional to the first 400 sqm.</i>	998sqm	5.98(6)	1 space per 400m ² gross floor area <i>plus 1 space per 120 sqm or part thereof additional to the first 400 sqm.</i>	5.98(6)
Hotel Use	1 space per unit + 2 spaces for employees	120	122	0.3 spaces per room +2 spaces for employees	38
Total			167 spaces		81

The proposal includes an on-site parking provision of 138 car spaces, including ten (10) disabled car spaces – compliant with the planning requirements.

Additionally, the proposed development site is currently home to residential dwellings, an educational coaching centre, a medical centre, and a hearing aid clinic. It is understood that these existing uses rely on the available public parking to support their operations.

In this regard, the proposed on-site parking provision is considered adequate to service the proposed development and unlikely to exacerbate the existing parking demand experienced in the area.

Car Park Arrangements

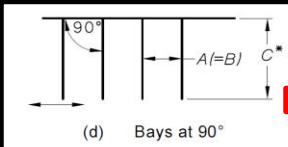
This section will investigate the compliance of the car spaces located within the basement levels of the car park with the specific requirements outlined in AS2890.1-2004 and AS2890.6-2009. The following shall be read in conjunction with the car parking layout plans submitted as part of the development application.

AS/NZS 2890.1-2004 Compliance

This section will investigate the compliance of the proposed car park with the requirements outlined in AS/NZS 2890.1-2004 Off-street parking facilities.

Car Space Dimensions

This section outlines the minimum parking space and aisle dimensions. The following figure depicts the minimum requirements for User Class 1A (residential, domestic, and employee parking).



User class (Note 1)	A (Note 3)	B	C ₁	C ₂	C ₃	Aisle width (Note 4)
1	2.4	2.4	5.4	4.8	5.4	6.2
1A	2.4	2.4	5.4	4.8	5.4	5.8
2	2.5	2.5	5.4	4.8	5.4	5.8
3	2.6	2.6	5.4	4.8	5.4	5.8
3A	2.6	2.6	5.4	4.8	5.4	6.6
3A	2.7	2.7	5.4	4.8	5.4	6.2
4	(See Note 5)					

*Dimension C is selected as follows (see Note 6):
 C1—where parking is to a wall or high kerb not allowing any overhang.
 C2—where parking is to a low kerb which allows 600 mm overhang in accordance with Clause 2.4.1(a)(i).
 C3—where parking is controlled by wheelstops installed at right angles to the direction of parking, or where the ends of parking spaces form a sawtooth pattern, e.g. as shown in the upper half of Figure 2.4(b).
 For Notes—see over.

Figure 16 - Layouts for Angle Parking Spaces (AS2890.1)

The proposed plans show that the on-site car parking is 2.4 m wide and all parking spaces are 5.4m long. The design also provides aisle widths in excess of 5.8m. These dimensions comply with the minimum required dimensions shown in **Figure 16**.

Circulation Roadway and Ramp Grades (Section 2.5.3)

As the development contains a ramp connecting the two basement levels and a vehicle entry ramp, the following AS2890.1 design standards are required.

- Longer than 20m – 1 in 5 (20%)
- Up to 20m long – 1 in 4 (25%) maximum. The allowable 20m maximum length shall include any parts of grade change transitions at each end that exceed 1 in 5 (20%)
- A stepped ramp comprising a series of lengths, each exceeding 1 in 5 (20%) grade, shall have each two lengths separated by a grade of not more than 1 in 8 (12.5%) and at least 10m long.

Between basements

As the car parking ramp is less than 20m long, the maximum allowable grade for the ramp is 1:4 (25%). A review of the proposed plans indicates that the ramp has a maximum gradient of 1 in 5(20%); therefore, it is considered compliant with the Standard.

To prevent vehicle scraping at the bottom and top of the ramp, grade changes have been implemented to avoid any hazards. The grade changes present at the top and bottom of the ramp are 12.5% changes at a length of 2m, which is compliant with the standards set within AS2890.1.

Access Driveway Widths (3.2.1)

As the proposed car park falls under category 1 within AS2890.1, the minimum entry widths are to be 3.0m (one-way movement) or 5.5m (two-way movement). The proposed driveway was measured to be a minimum of 5.5m, thus compliant with the Standard.

Sight Distance (Section 3.2.4)

The minimum sight distance requirements for the development have been outlined below. Railway Parade has a posted speed limit of 50km/hr, so the development will require a clear sight distance of 45m, as outlined in **Figure 17** below.

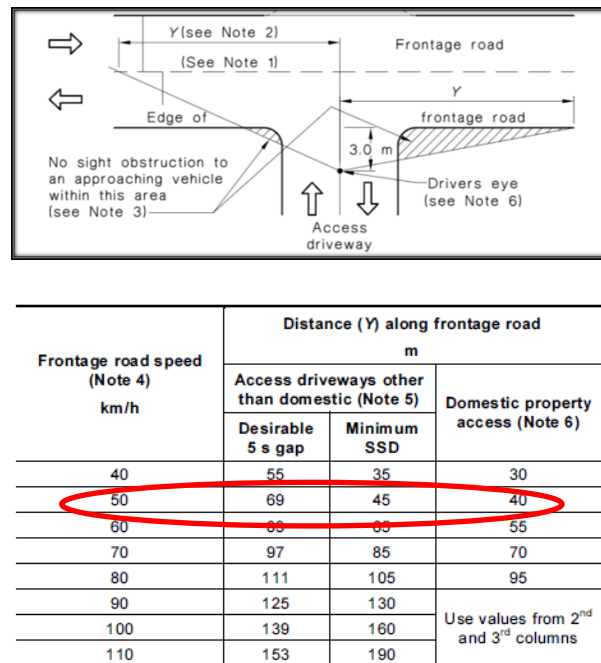


Figure 17 - Sight Distance Minimum Requirements (AS2890.1)

As there are only residential developments along the Railway Parade, the traffic volume of this road is expected to be low. Assessing the conditions surrounding the road, there are no major visual obstructions within 45m in either the eastern or western directions. This ensures full visibility between any vehicles entering or exiting the site and pedestrians along the frontage road.

Sight distance for pedestrians

The proposed driveways can achieve the required splay of 2.5 meters on either side of the driveway behind the property boundary. Any proposed planting at the front boundary should be kept at a maximum height of 800mm within the sight triangle area of 2.5 meters 2 meters to ensure visibility of approaching pedestrians on the footpath.

SWEPT PATH DIAGRAMS

Swept path diagrams have been prepared to check the proposed parking layout for parked cars to manoeuvre on-site and drive out in a forward direction. Swept path diagrams are attached in **Attachment B**.

Servicing Area

The proposal involves the provision of a dedicated loading/waste collection area located at the rear of the proposed site that is accessible via a driveway located on Burleigh Street. Based on the information provided to Solution 1 Traffic Engineers, it is understood that the access to the loading/waste collection area will be restricted to a Standard 8.8m long MRV vehicle type. The manoeuvring area has been designed to accommodate the swept turning path requirements of these vehicles, allowing them to enter and exit the site in a forward direction at all times.

CONCLUSIONS

Based on the assessment presented in this report, it is considered that:

- The proposed development for the site at 2-4 Burleigh Street & 20-24 Railway Parade, Burwood for a mixed-use development;
- The site has great access to the local area and greater Sydney region through public transport. With public transport options within reasonable walking distance of the site, it is likely for patrons to use public transport when travelling to and from the site.
- The site has a walkability score of 88 out of 100, which indicates that it is “Very Walkable” (meaning that most errands can be accomplished on foot).
- The proposed development will generate additional but low levels of trips throughout the day. It is expected that these trips can be accommodated at nearby intersections without affecting intersection performance or increasing delays and queues.
- Following the completion of the proposed development, the local area will continue to experience similar parking demand to the existing conditions, suggesting the proposal has no detrimental impact on the parking availability in the local area and
- Through car parking layout plan assessment, it is determined that the proposed development’s car parking design is compliant with the specific requirements outlined in AS2890.1-2004, AS2890.2-2018 and AS2890.6-2009.

In conclusion, this study indicates that the proposed development is not envisaged to have adverse impacts on the surrounding traffic or parking conditions. Therefore, the proposed development changes should be supported on traffic and parking grounds.

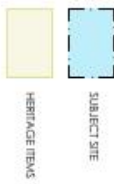
ATTACHMENTS

ATTACHMENT A – ARCHITECTURAL PLAN

DRAWING LIST	
00	COVER SHEET
01	PROJECT SUMMARY
02	APARTMENT SCHEDULE
03	GFA & FSR CALCULATIONS
04	GFA & FSR CALCULATIONS
05	LOCATION PLAN
06	SITE PLAN
07	STREETSCAPE & BURWOOD HEIGHT PLANE
08	BASEMENT 4.5 PLAN
09	BASEMENT 3 PLAN
10	BASEMENT 2 PLAN
11	BASEMENT 1 PLAN
12	GROUND FLOOR PLAN
13	LEVEL 1 FLOOR PLAN- HOTEL FACILITIES
14	LEVEL 2 FLOOR PLAN- HOTEL FACILITIES
15	LEVELS 3-8 FLOOR PLAN- RESIDENTIAL
16	LEVELS 9-18 FLOOR PLAN- RESIDENTIAL
17	LEVEL 19 FLOOR PLAN- PLANT
18	LEVELS 20-25 FLOOR PLAN- HOTEL ROOMS
19	LEVELS 26-31 FLOOR PLAN- HOTEL ROOMS
20	LEVEL 32 FLOOR PLAN- PLANT
21	LEVELS 33- 35 FLOOR PLAN- COMMERCIAL OFFICES
22	LEVEL 36 FLOOR PLAN- HOTEL FACILITIES
23	LEVEL 37 FLOOR PLAN- HOTEL FACILITIES
24	LEVEL 38 FLOOR PLAN- RESIDENTIAL C.O.S
25	ROOF PLAN
26	SECTIONS A & B
27	SECTIONS C & D
28	SECTIONS E & F
29	SECTION G
30	ELEVATIONS- NORTH & WEST
31	ELEVATIONS- SOUTH & EAST
32	SHADOW DIAGRAMS- JUNE 21 9AM-10AM
33	SHADOW DIAGRAMS- JUNE 21 11AM-12PM
34	SHADOW DIAGRAMS- JUNE 21 1PM-3PM
35	SHADOW DIAGRAMS- JAN 21 9AM & FEB 21 9AM
36	SHADOW DIAGRAMS- MAR 21 9AM & APR 21 9AM
37	SHADOW DIAGRAMS- MAY 21 9AM & JUN 21 9AM
38	SHADOW DIAGRAMS- JUL 21 9AM & AUG 21 9AM
39	SHADOW DIAGRAMS- SEP 21 9AM & OCT 21 9AM
40	SHADOW DIAGRAMS- NOV 21 9AM- DEC 21 9AM
41	SOLAR ACCESS AND NATURAL CROSS VENTILATION
42	ACCESSIBLE LAYOUTS
43	FACADE CONCEPT SECTIONS
44	FACADE CONCEPT SECTIONS
45	FACADE CONCEPT SECTIONS
46	POTENTIAL SURROUNDING DEVELOPMENT
47	POTENTIAL SURROUNDING DEVELOPMENT
48	POTENTIAL SURROUNDING DEVELOPMENT
49	PERSPECTIVE 1
50	PERSPECTIVE 2
51	PERSPECTIVE 3
52	BASIX COMMITMENTS- SHEET 1
53	BASIX COMMITMENTS- SHEET 2
54	BASIX COMMITMENTS- SHEET 3
55	BASIX COMMITMENTS- SHEET 4
56	BASIX COMMITMENTS- SHEET 5



RESIDENTIAL/ AFFORDABLE HOUSING, HOTEL & COMMERCIAL OFFICES
2-4 BURLEIGH ST & 20-24 RAILWAY PDE, BURWOOD
 PREPARED FOR
NSW HOUSING CORPORATION PTY LTD



NO. 13,123

pt ARCHITECTURE
Tourism + Residential

NSW HOUSING CORPORATION
PTY LTD

RESIDENTIAL/ AFFORDABLE
HOUSING, HOTEL &
COMMERCIAL OFFICES
2-4 BURLING ST & 20-24
RAILWAY PDE, BURWOOD

SITE PLAN

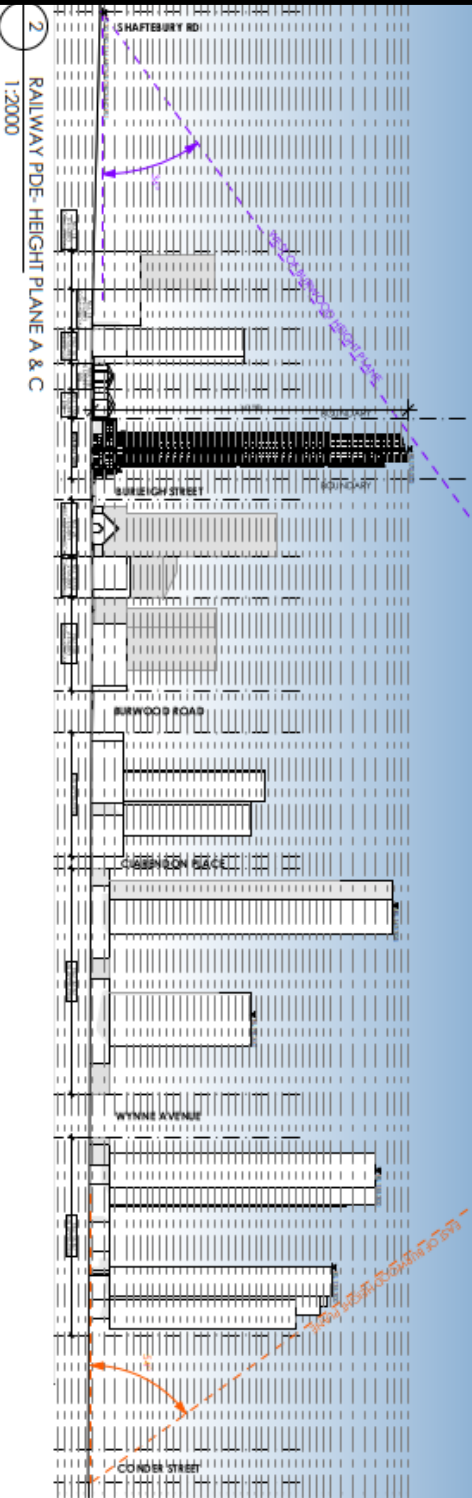
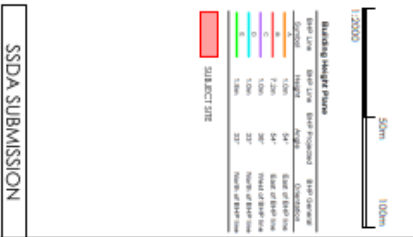
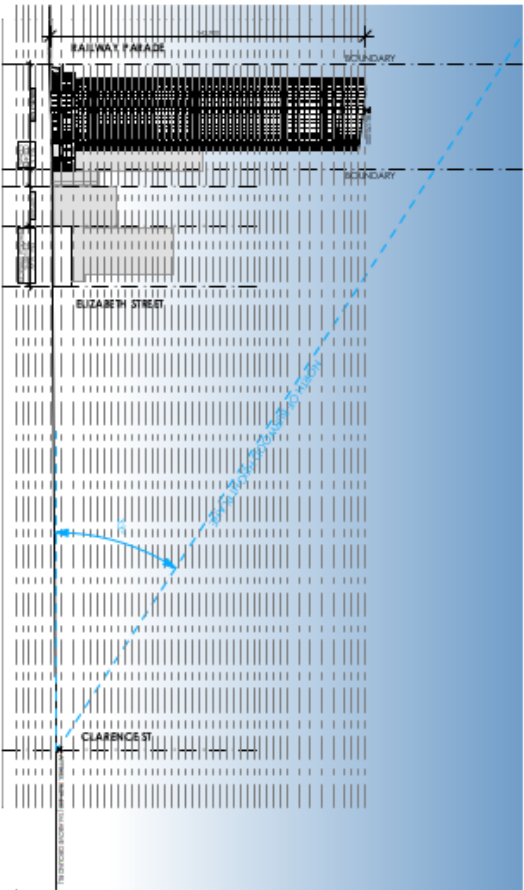
1:500 AT A3

VDI/JIR

Decision P1

6718

SSDA 06 A



NSW HOUSING CORPORATION
PTY LTD

RESIDENTIAL/ AFFORDABLE
HOUSING, HOTEL &
COMMERCIAL OFFICES
2-4 BURLEIGH ST & 20-24
RAILWAY PDE, BURWOOD

STREETSCAPE & BURWOOD
HEIGHT PLANE

SCALE: 1:2000 AT A3

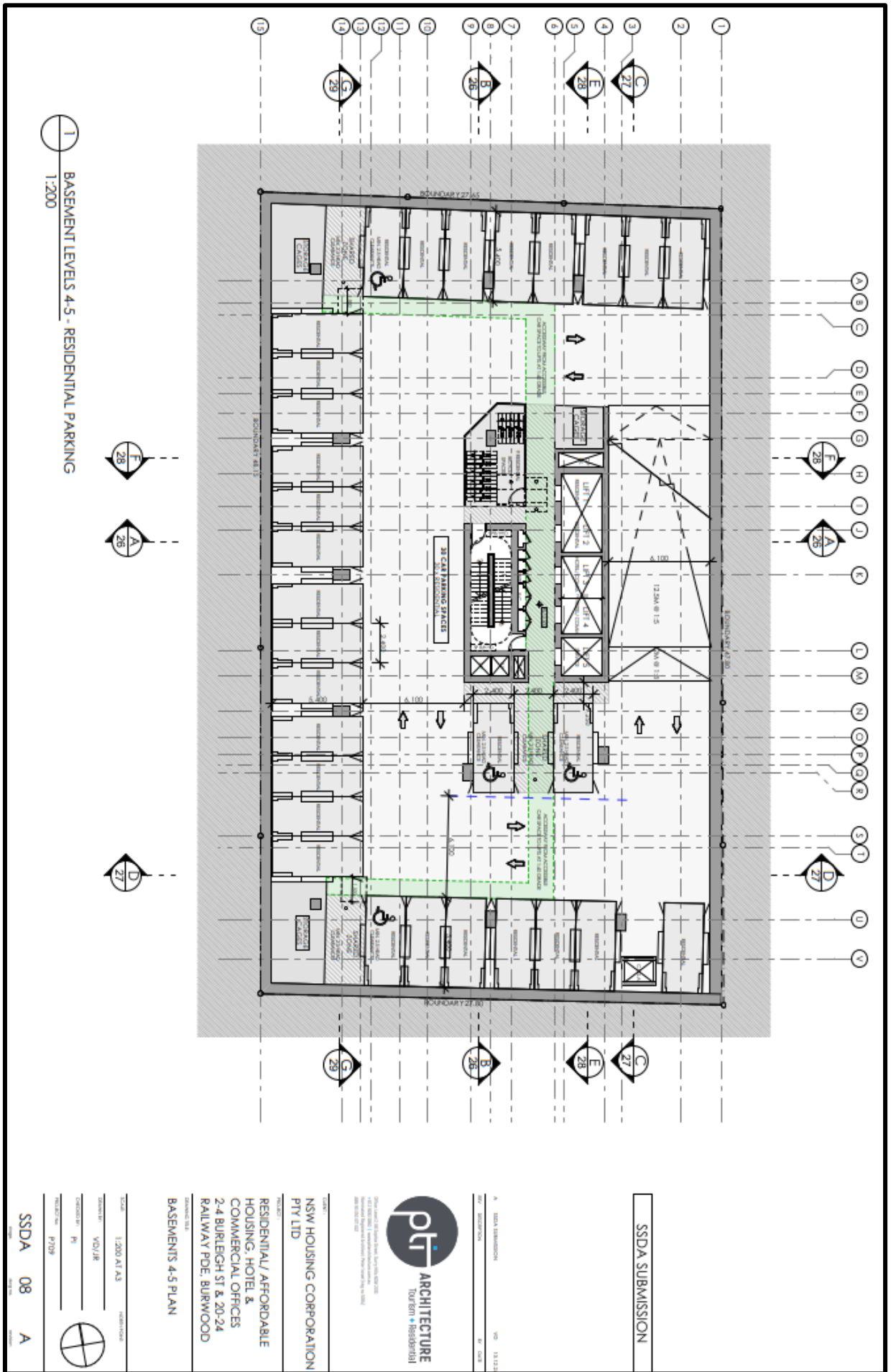
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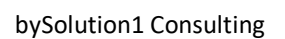
DESIGNER: PT

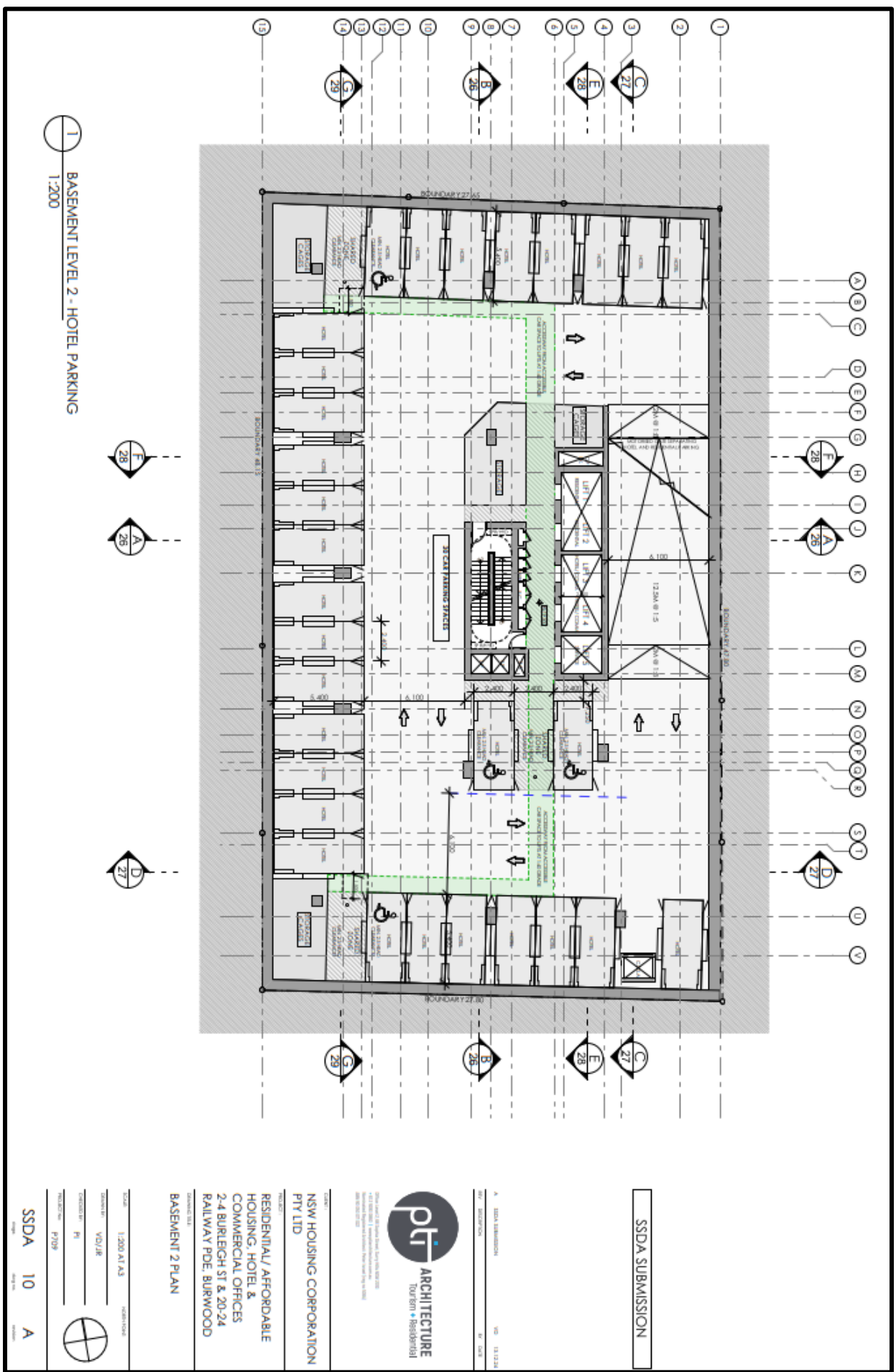
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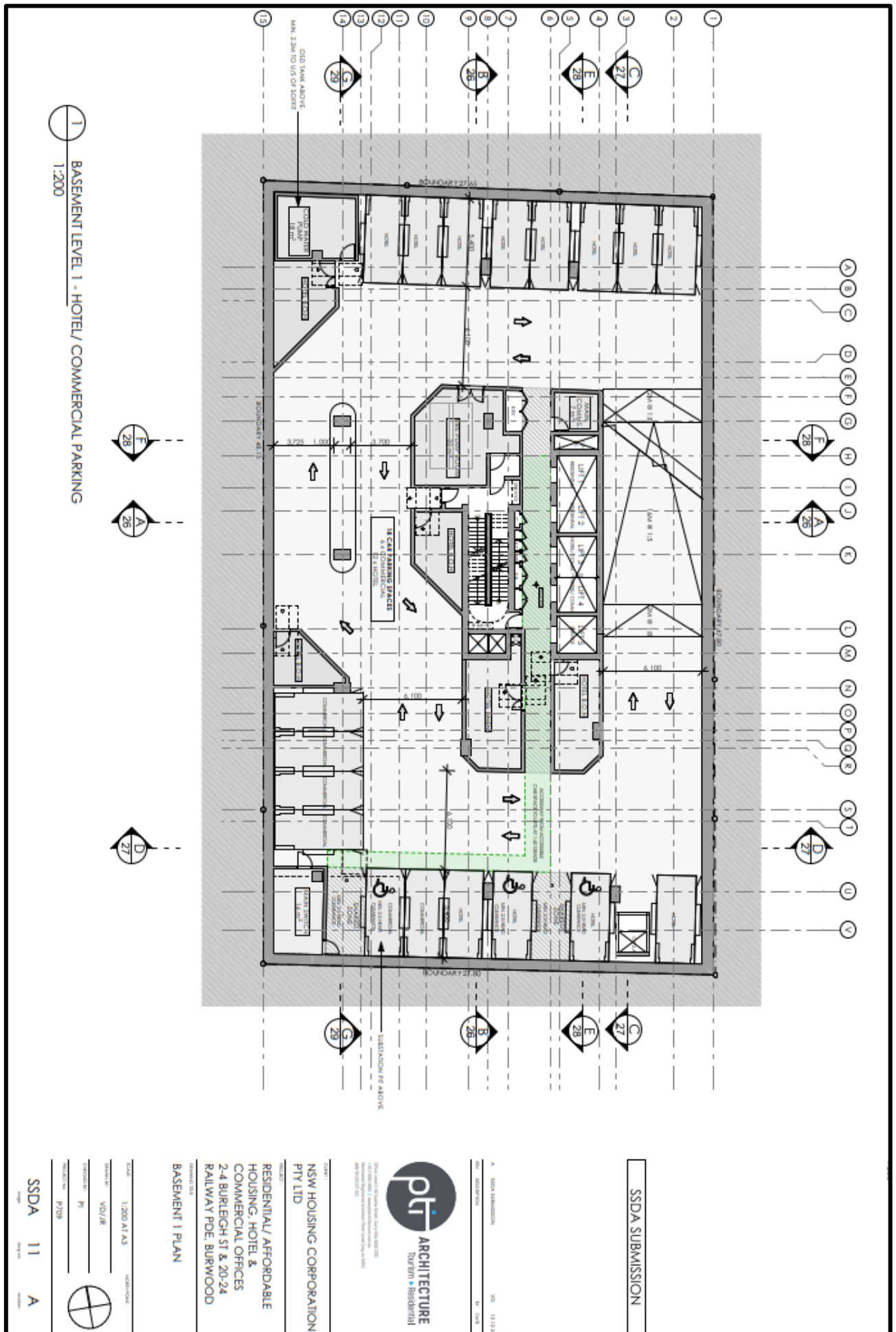
SSDA 07 A

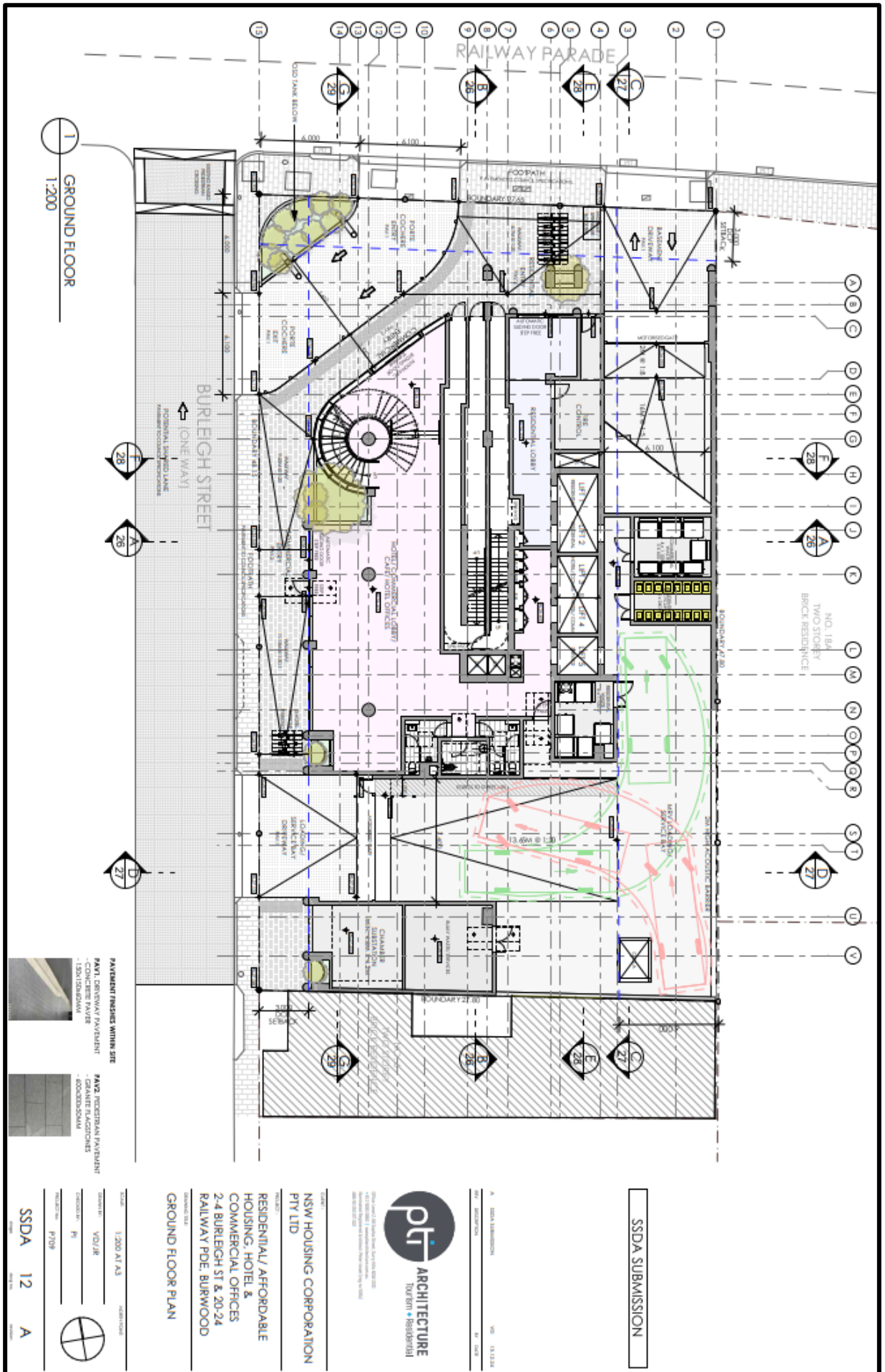
Page 10 of 10



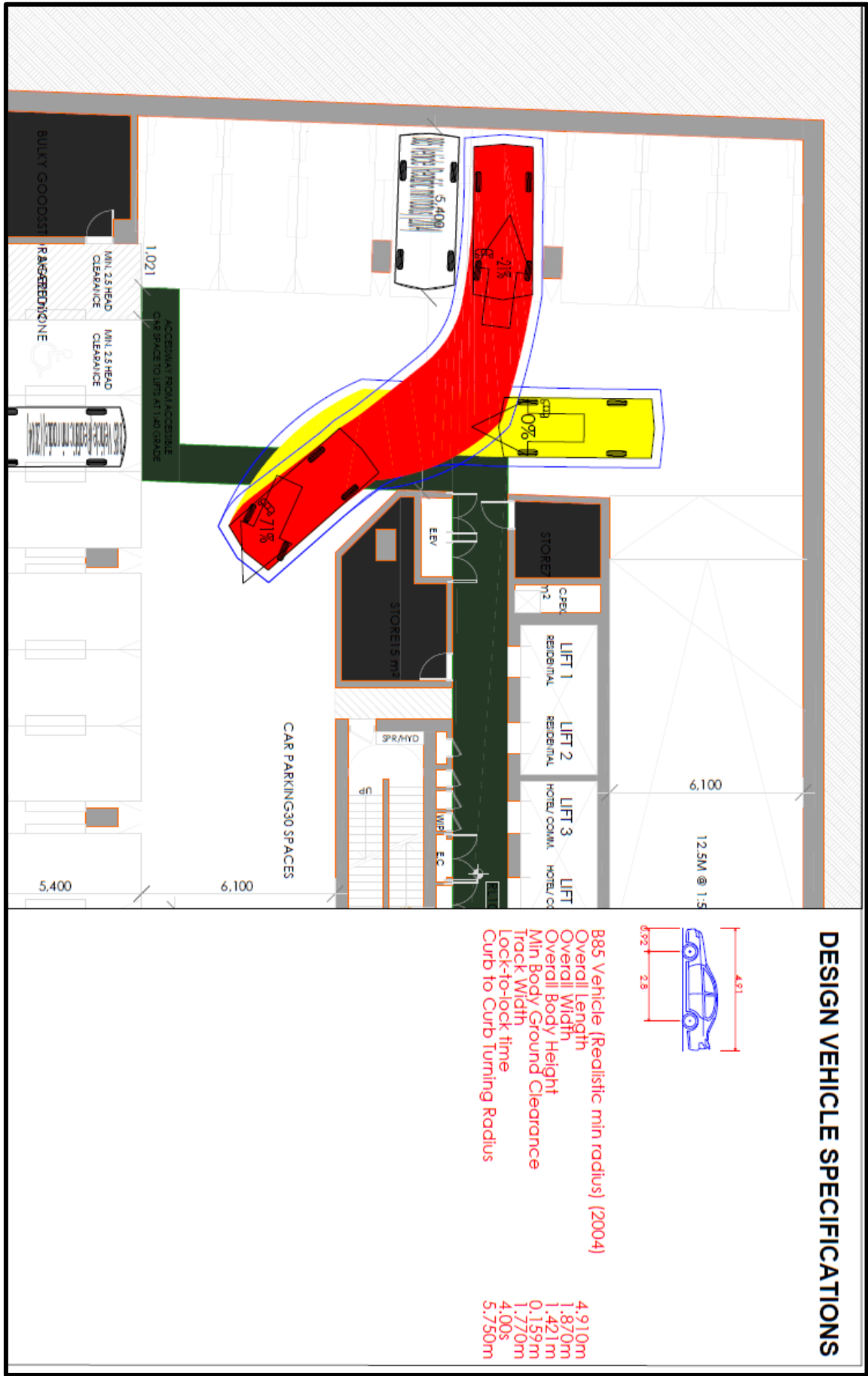


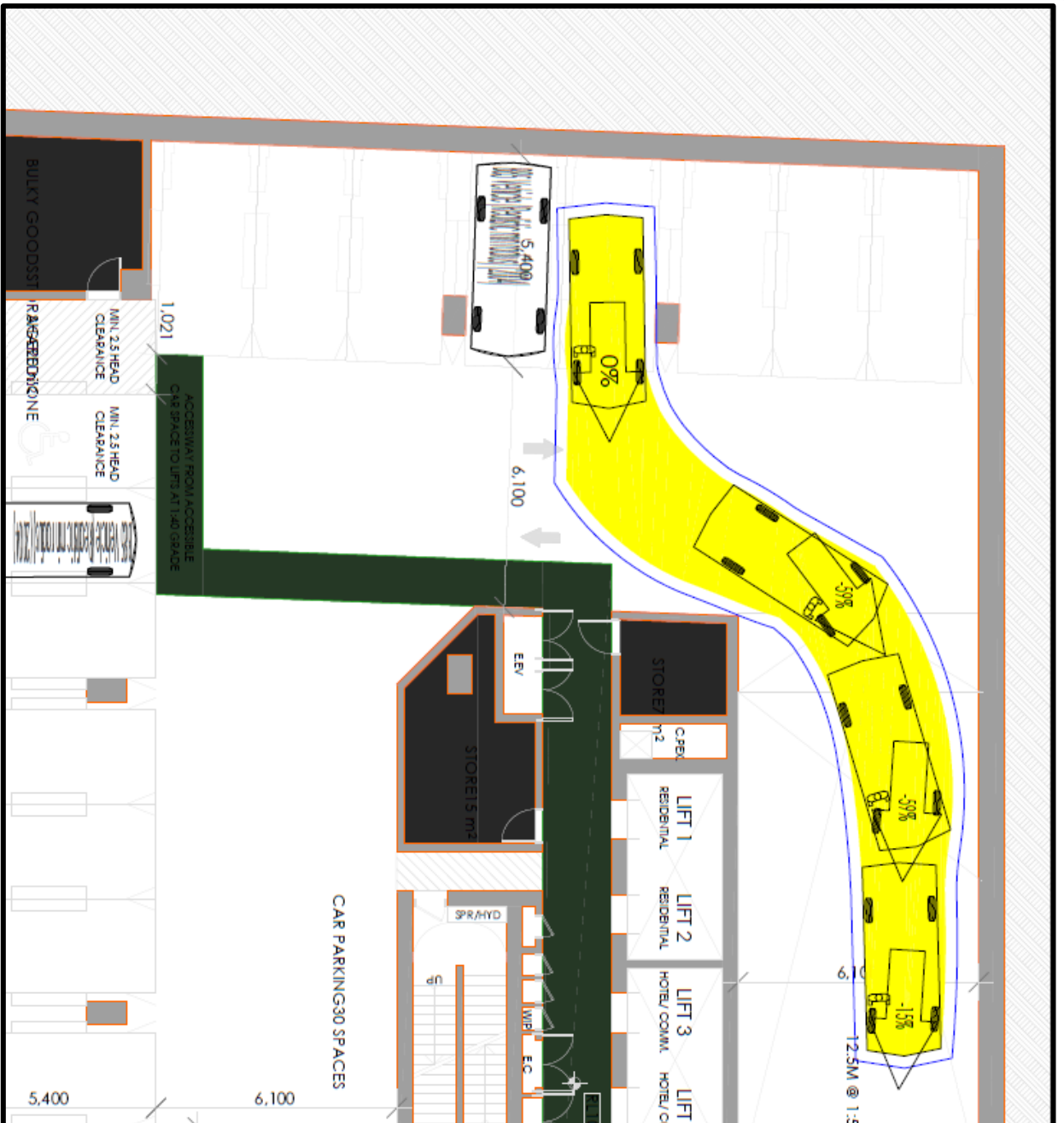




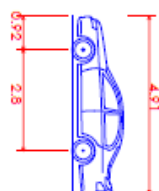


ATTACHMENT B – SWEPT PATH ASSESSMENT



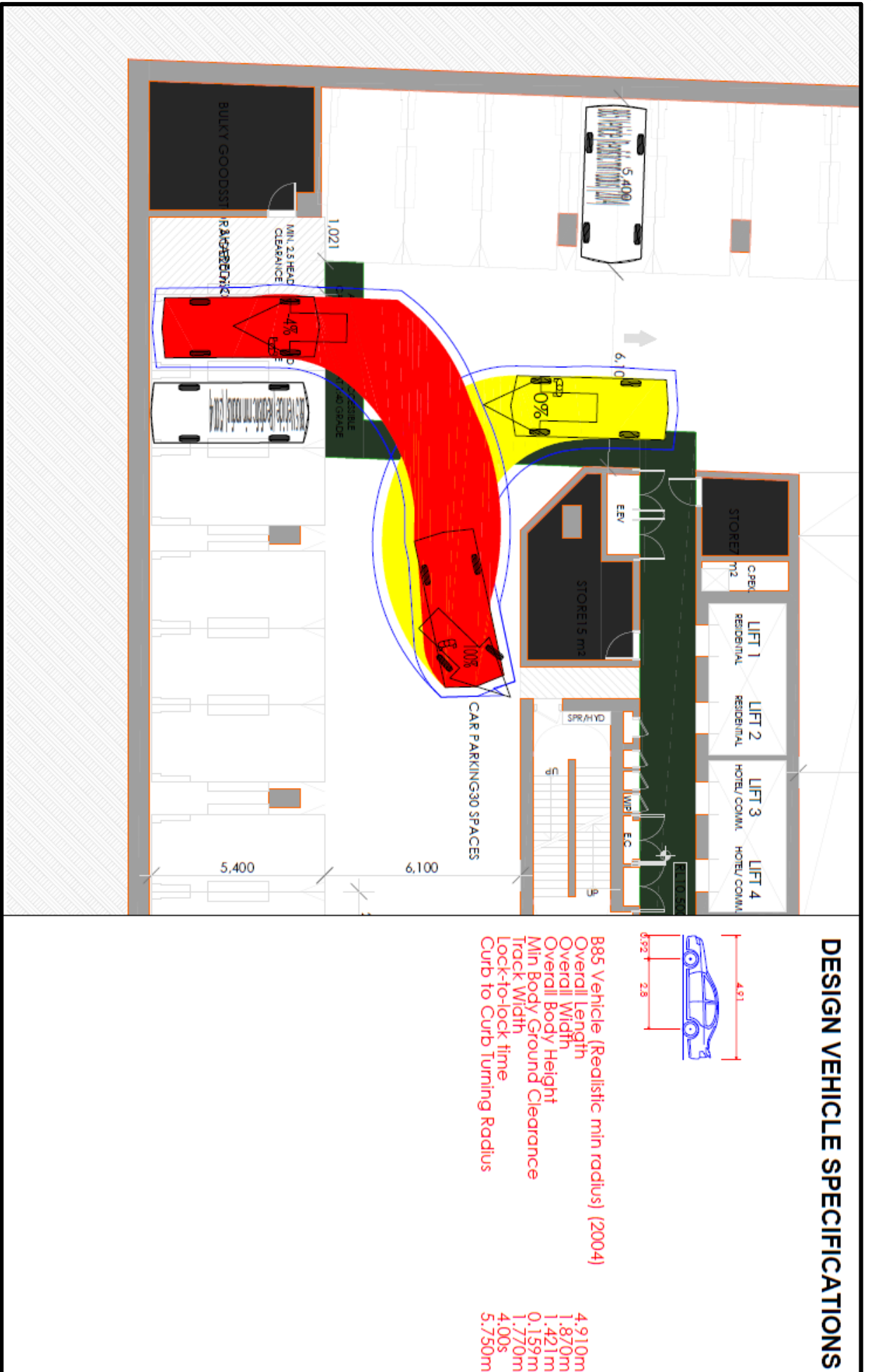


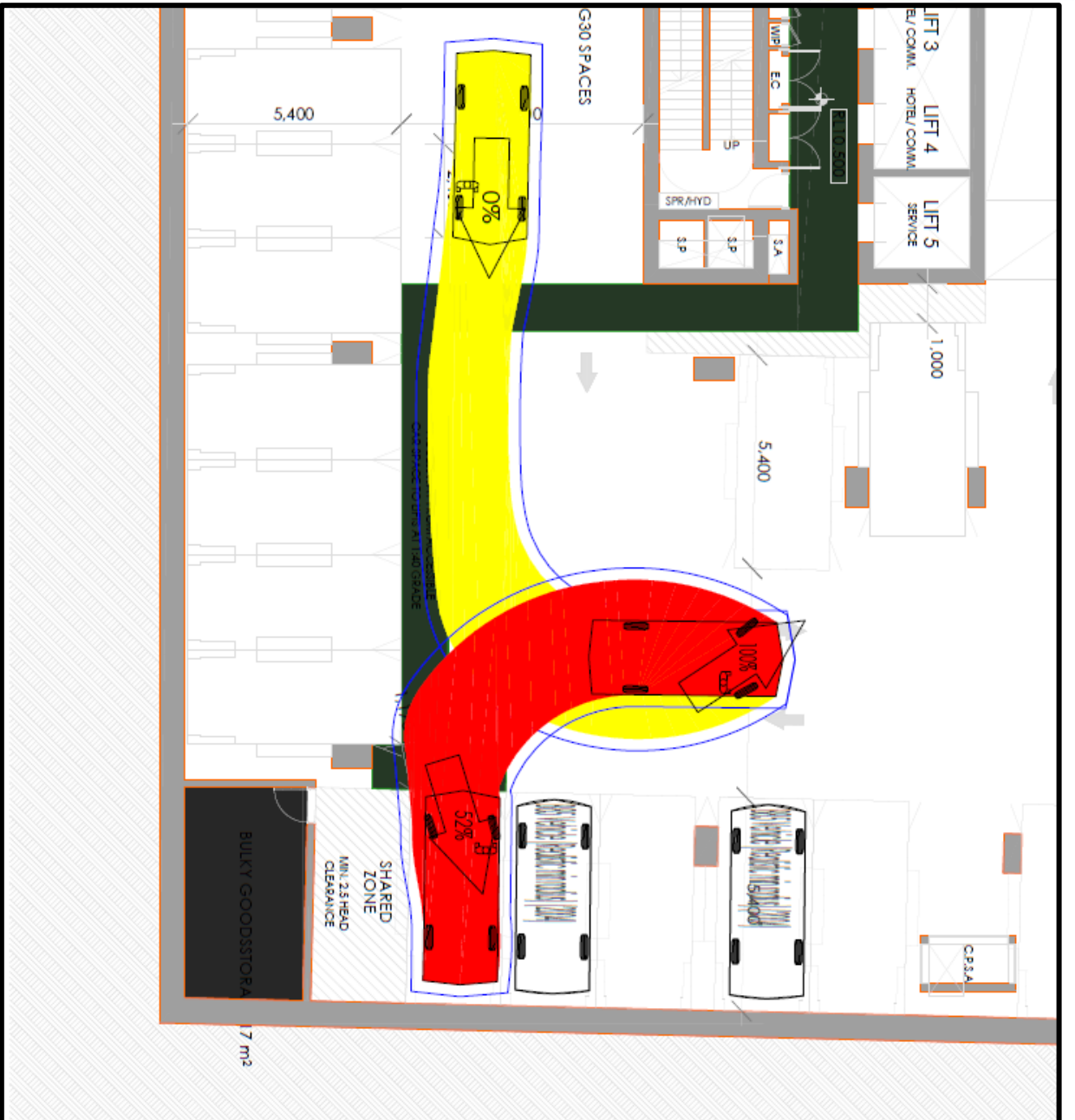
DESIGN VEHICLE SPECIFICATIONS



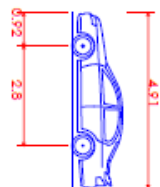
B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m





DESIGN VEHICLE SPECIFICATIONS



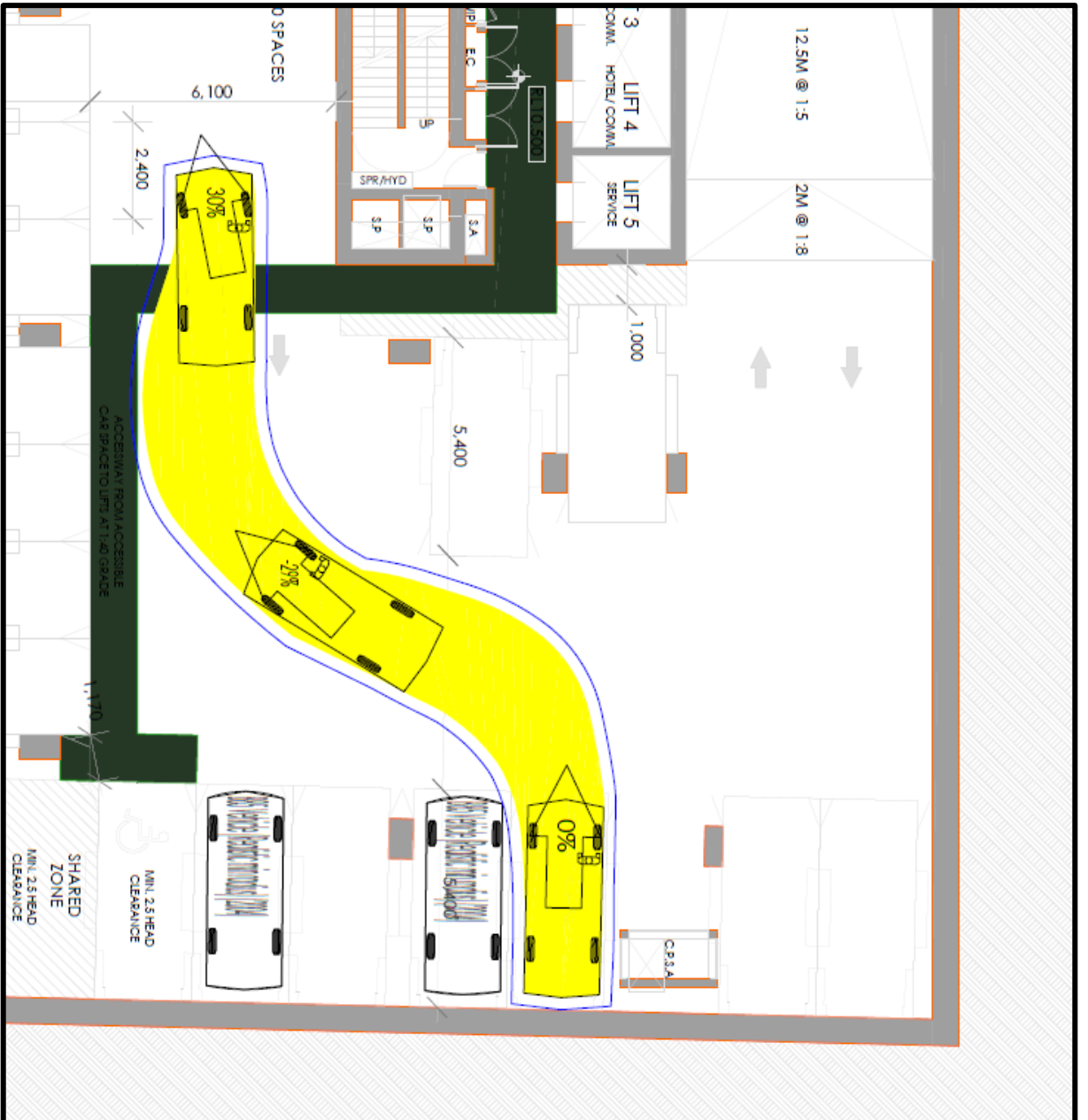
B85 Vehicle (Realistic min radius) (2004)
Overall Length
Overall Width
Min Body Ground Clearance
Track Width
Lock-to-lock time
Curb to Curb Turning Radius

4.910m
1.870m
1.421m
0.159m
1.770m
4.00s
5.750m

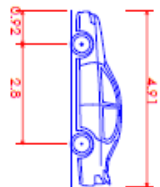
4.910m
1.870m
1.421m
0.159m
1.770m
4.00s
5.750m

A side-view diagram of a car with three vertical dimension lines on its left side. The top dimension line is labeled 4.9, the middle one is labeled 2.8, and the bottom one is labeled 0.92.

B85 Vehicle (Realistic min radius) (2004)	4.910m
Overall length	1.870m
Overall width	1.421m
Overall Body Height	0.159m
Min Body Ground Clearance	1.770m
Track Width	4.005
Lock-to-lock time	5.750m
Curb to Curb Turning Radius	



DESIGN VEHICLE SPECIFICATIONS



B85 Vehicle (Realistic min radius) (2004)
 Overall Length 4.910m
 Overall Width 1.870m
 Overall Body Height 1.421m
 Min Body Ground Clearance 0.159m
 Track Width 1.770m
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 5.750m

