



Proposed Senior Living 94 Bettington Road, Oatlands Traffic Impact Assessment

Prepared for:
Oatlands Golf Club

29 October 2021

The Transport Planning Partnership

Proposed Senior Living 94 Bettington Road, Oatlands Traffic Impact Assessment

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1 Introduction

The Transport Planning Partnership (TPPP) Pty Ltd has prepared this traffic and parking assessment on behalf of Oatlands Golf Club to accompany a Site Compatibility Statement (SCC) application.

The proposal intends to redevelop the existing Oatlands Golf Club to include new seniors living housing (over 55's) comprising 193 senior living units, as well as modifications to existing Club and ancillary facilities.

The remainder of the report is set out as follows:

- Section 2 discusses the existing conditions including a description of the subject site
- Section 3 provides a brief description of the proposed development
- Section 4 assesses the proposed on-site parking provision and internal layout
- Section 5 examines the traffic generation and resultant traffic implications arising from the proposed development
- Section 6 presents the conclusions of the assessment.

2 Existing Conditions

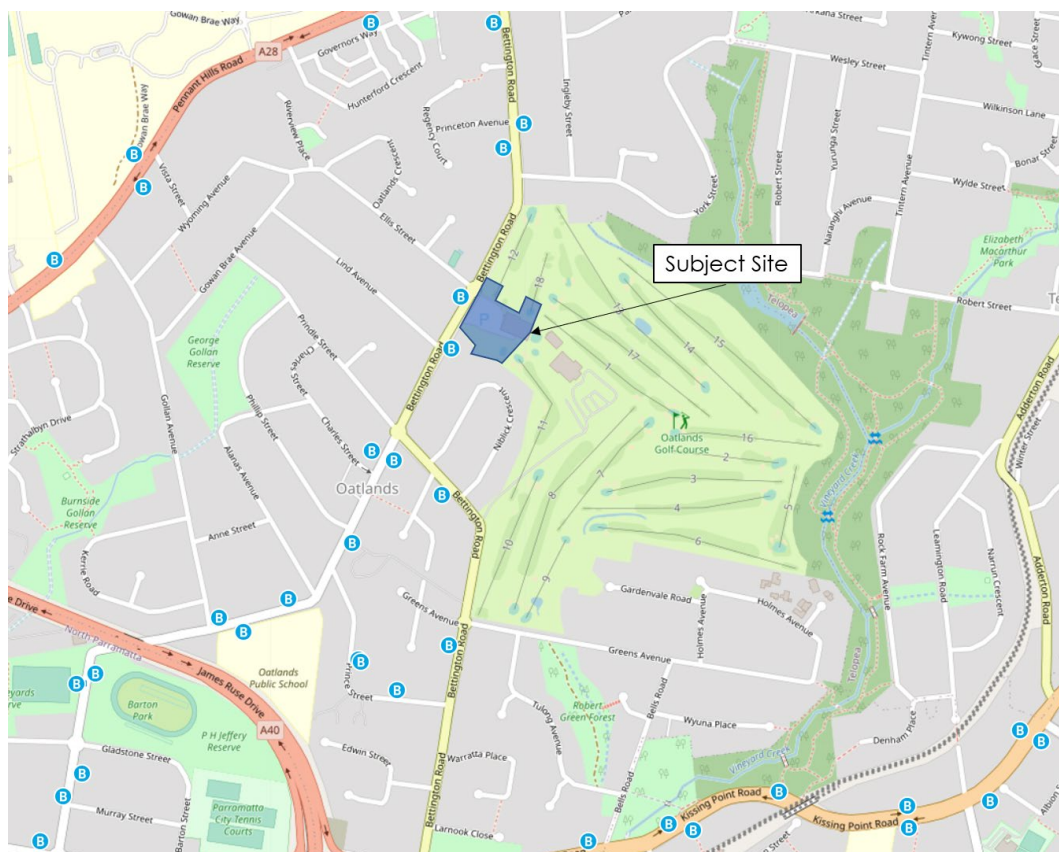
2.1 Site Description

The subject site is located at 94 Bettington Road, Oatlands.

The site is currently occupied by Oatlands Golf Club (Club). The site has a single frontage to Bettington Road on the western boundary. It is generally surrounded by Oatlands Golf Course reserve to the north and east and residential dwellings to the south. The subject site is currently zoned as RE2 Private recreation under the Parramatta Local Environmental Plan (LEP) 2011. Surrounding land uses are predominantly RE2 private recreation and R2 low density residential dwellings.

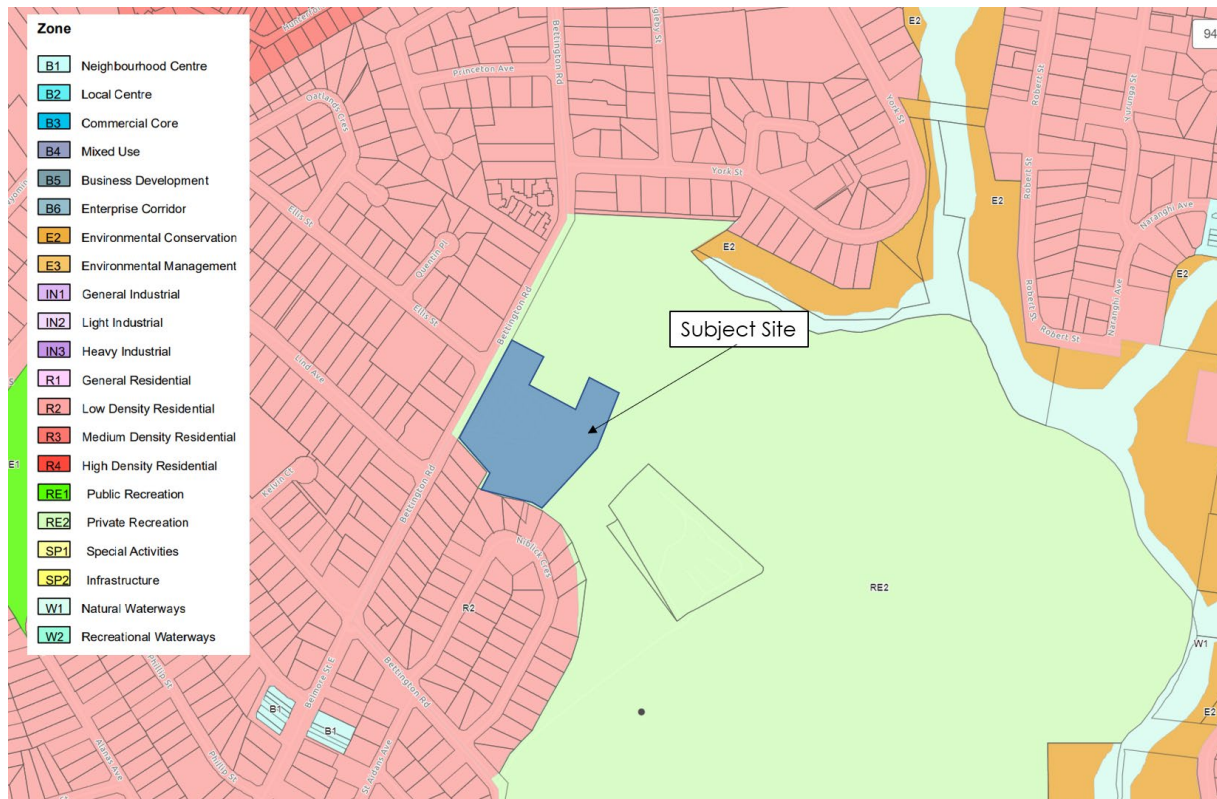
The location of the subject site and its surrounding environs is shown in Figure 2.1, while the LEP land use map is shown in Figure 2.2

Figure 2.1: Subject Site



Source: OpenStreetMaps

Figure 2.2: Surrounding Land Use



Source: Parramatta LEP 2011

2.2 Existing Club Provisions

The Club currently provides an 18-hole golf course to registered Club members only, operating daily from 6am to 7pm.

The existing Club is approximately 1,640m² GFA with an ancillary golf pro shop of 450m² GFA. As part of the existing Club space, a fully licensed bar and kitchen are provided with a corporate boardroom, conference room and function room available for hire. The function room can accommodate up to 170 guests seated, or up to 220 people cocktail style.

In addition to this, the Club regularly holds golf competition days, generally on a Saturday with up to 240 members. During these busy competition days, there could also be some 90 social members playing and 20 juniors for golf lessons within the golf course.

The Club provides a total of 148 formal car parking spaces including one accessible car space. There are also 61 informal car parking spaces, which are typically used during busy function and event days to manage any overflow parking.

2.3 Abutting Road Network

The site has only one road frontage on Bettington Road along the western boundary.

Bettington Road is classified as a Regional Road and is aligned in a north-south direction. It generally functions as a local collector road to the surrounding residential areas. It provides good connectivity to the wider arterial road network with connections to Pennant Hills Road/Cumberland Highway and Kissing Point Road to the north and south respectively.

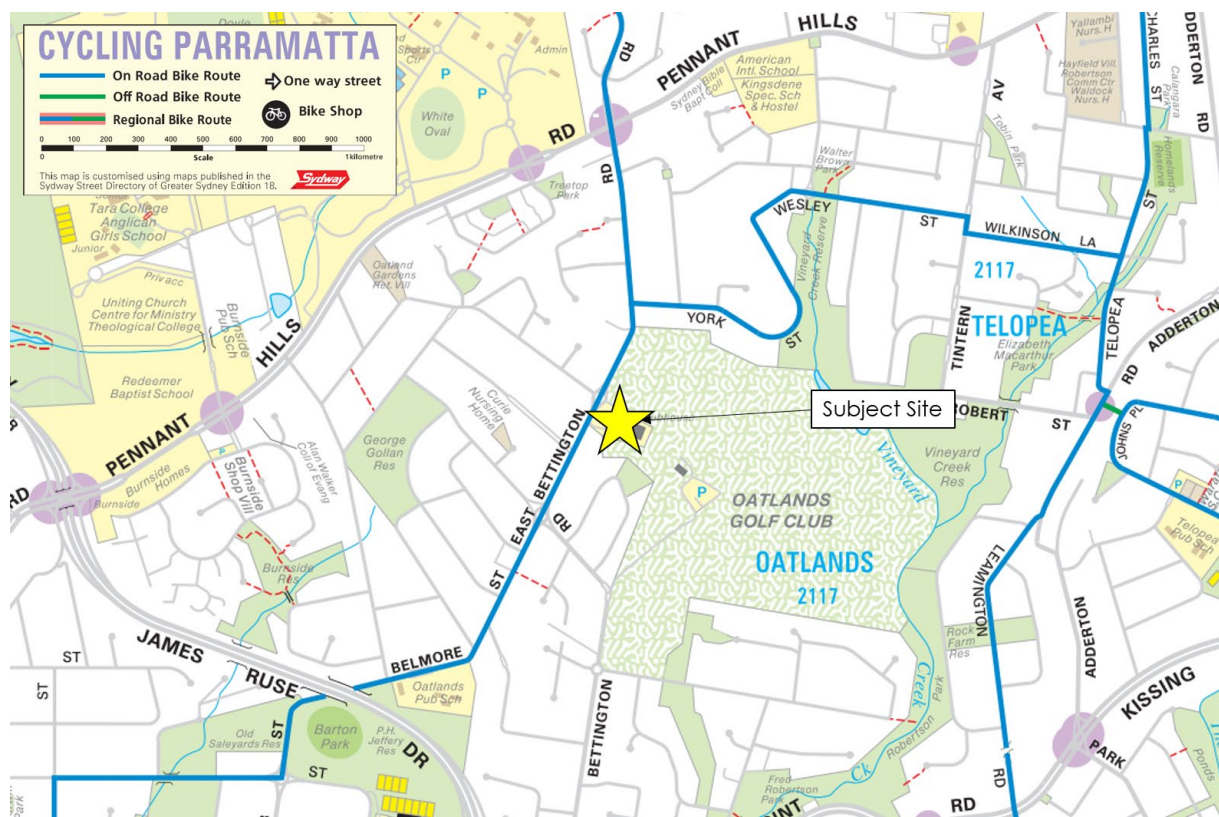
Vehicle access to the site is currently provided directly off Bettington Road via two separate vehicle access points. The road is generally configured with one travel lane in each direction with no kerbside parking on either side of the road. The posted speed limit is 50km/h.

2.4 Pedestrian and Bicycle Network

Paved pedestrian footpaths are provided along the site frontage, which provide good quality pedestrian connectivity to surrounding residential areas and bus stops on Bettington Road. In addition to this, Bettington Road is a recognised on-road cycling route which provides connections to the larger cycling network within Parramatta LGA.

The existing cycle network map is shown in Figure 2.3.

Figure 2.3: Existing Cycleway Network



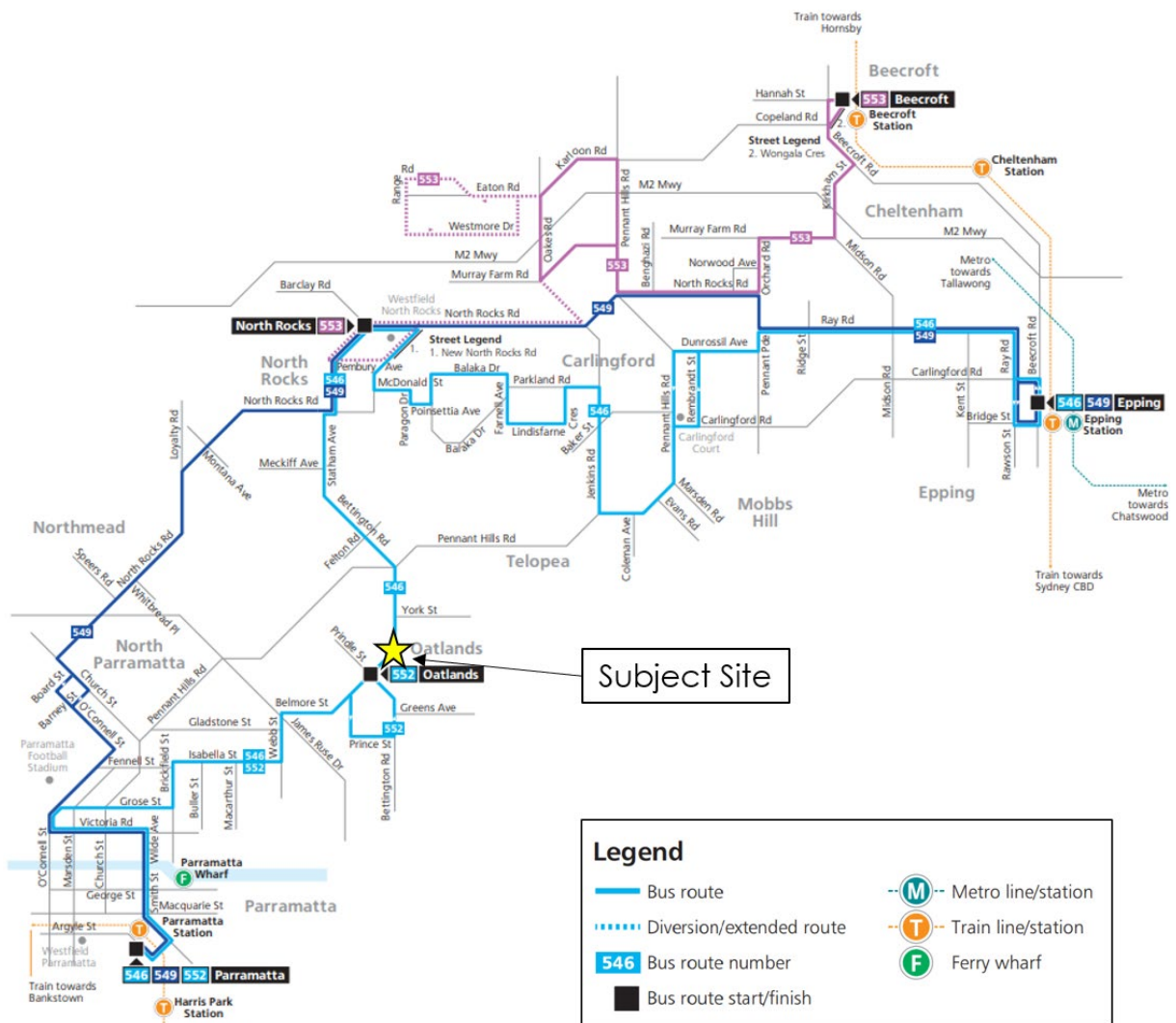
Source: Parramatta Bike Plan

2.5 Public Transport Services

A number of public bus stops are provided along Bettington Road, including one bus stop located immediately adjacent the site. This bus stop services Route 546 which provides connections between Parramatta to Epping via Oatlands & North Rocks. Services are generally every 30-minutes during peak periods and every hour during off-peak periods.

The existing local bus route network map is shown in Figure 2.4.

Figure 2.4: Existing Bus Network



Source: Transport for NSW

2.6 Existing Site Access and Car Parking

The Club currently has two (2) existing vehicle access points off Bettington Road, as shown in Figure 2.5. These vehicle access points provide direct access to the car park containing 148

formal car parking spaces. The southern gate is currently restricted to egress traffic only. In addition to this, the northern gate is restricted to ingress traffic only after 7pm.

Figure 2.5: Existing Site Access Arrangements



2.7 Existing Car Parking Conditions

A total of 148 formal car parking spaces, plus 61 informal car parking spaces, are currently provided for the existing Club. There are no parking or time restrictions on these spaces.

Car parking occupancy surveys were undertaken at the Club on Thursday 16 September 2021 and Saturday 18 September 2021 between 8am and 8pm.

The parking survey results indicate the following:

- Peak parking accumulation occurred at 11am on a Thursday with 60 parked vehicles, which is only 41 percent of its capacity (88 remaining formal car park vacancies)
- Peak parking accumulation occurred on 3pm on a Saturday with 66 parked vehicles, which is only 45 per cent of its capacity (82 remaining formal car park vacancies).

A summary of the car parking occupancy surveys for the weekday and weekend are shown in Figure 2.6 and Figure 2.7 respectively.

Figure 2.6: Weekday Peak Hour Parking Demand Occupancy

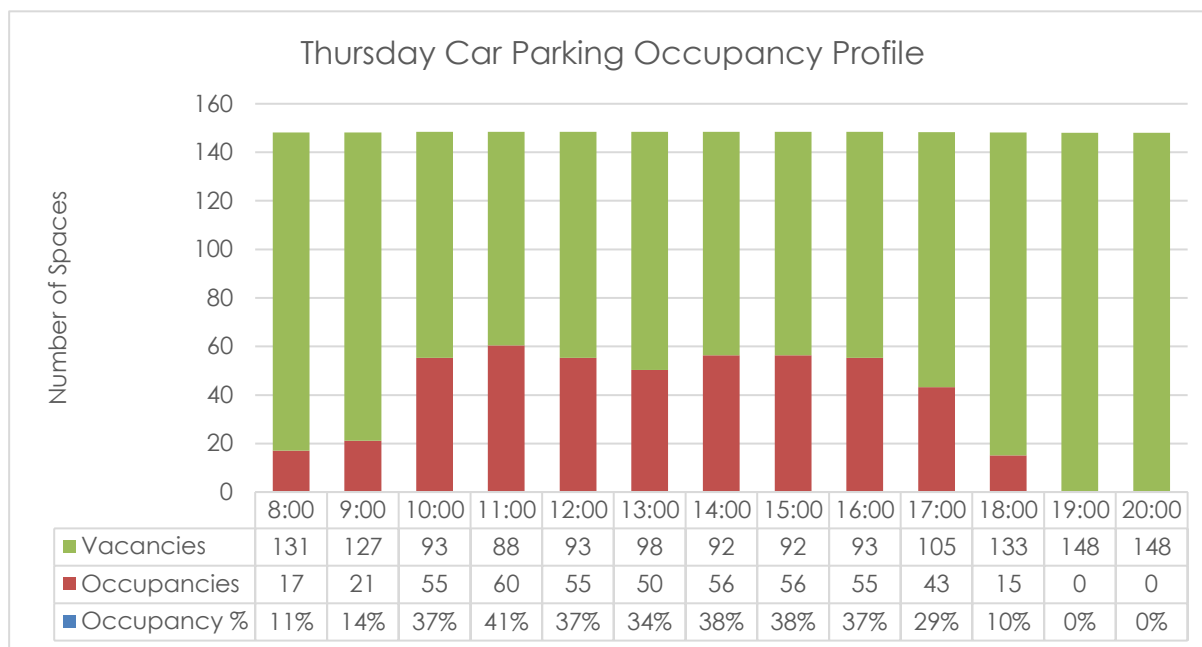
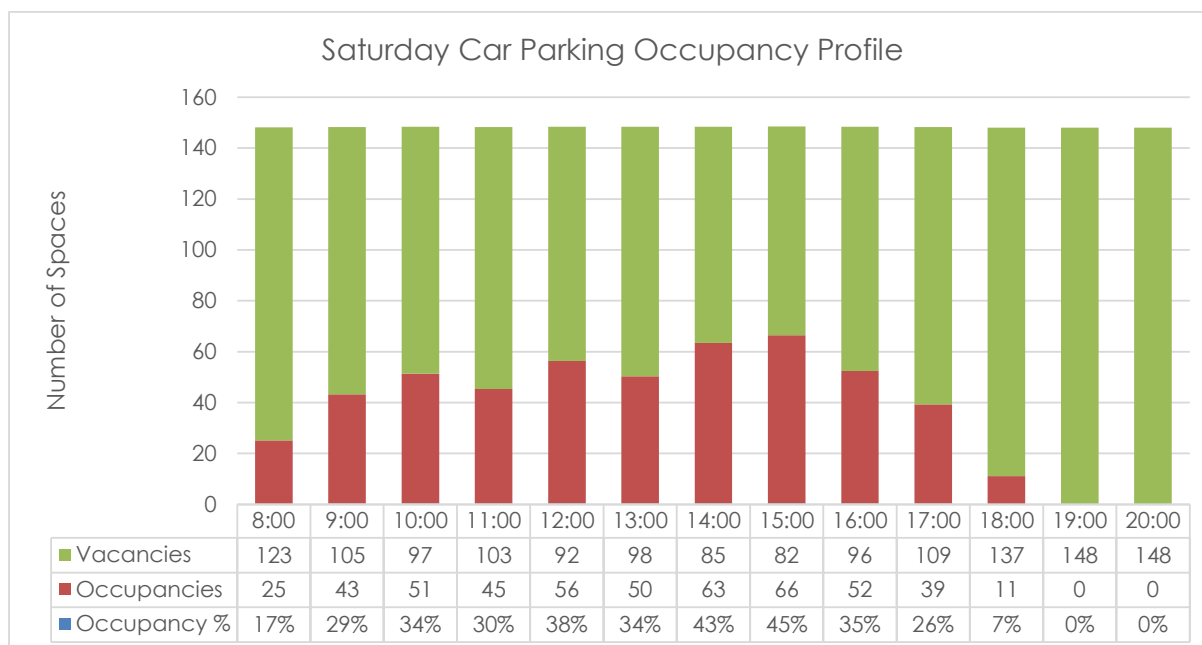


Figure 2.7: Weekend Saturday Peak Hour Parking Demand Occupancy



Further to this, based on information provided by the Club, pre-Covid patronage numbers were higher by some 11 per cent on weekdays and higher by 45 per cent on Saturdays compared to current patronage numbers to/from the Club.

On this basis, the above car parking accumulation figures could theoretically be in the order of 67 parked cars during the weekday peak and 96 parked cars during the Saturday peak. This equates to up to 52 vacancies during the site's busiest hour (i.e. on a Saturday).

2.8 Parking Demand on a Busy Function / Event Day

As indicated previously, the Club holds regular golfing competitions, as well as other functions and events. These events can attract up to 200 to 300 people at the existing Club. During these busy function / event days, car parking is managed by the Club to ensure appropriate car parking allocation and arrangements are in place, including the provision of appropriate overflow car parking areas.

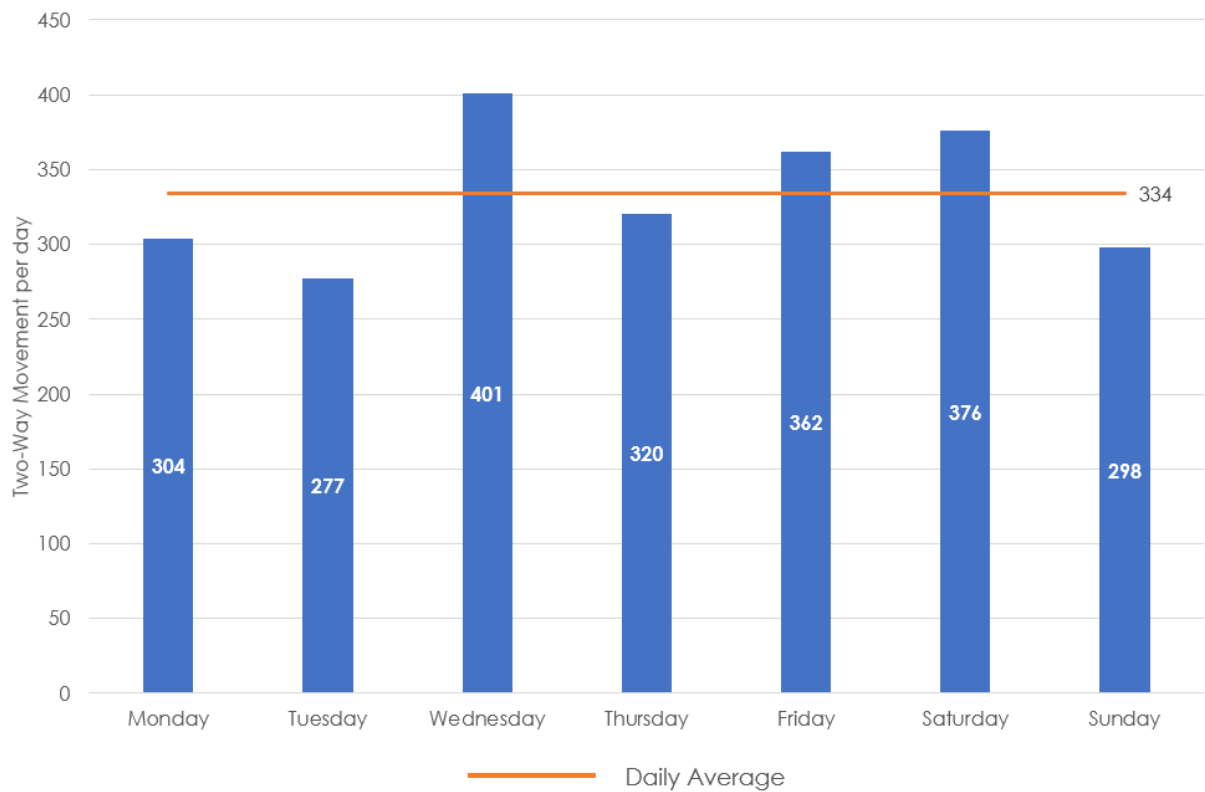
2.9 Existing Traffic Volumes

2.9.1 Site Traffic Generation

Traffic surveys were conducted at the existing access points across a seven-day period commencing on Thursday 16 September 2021 to determine the existing traffic generated by the Club. Based on these surveys, the busiest day of the Club was on Wednesday which generated a total daily traffic generation of 401 vehicles (two-way).

A summary of the daily traffic generated by the site is presented in Figure 2.8.

Figure 2.8: Daily Traffic Volumes at the Existing Oatlands Golf Club



Further to this, the average weekday and weekend hourly traffic volumes generated by the existing Club are shown in Figure 2.9 and Figure 2.10.

Figure 2.9: Average Hourly Weekday Traffic Volume at the Existing Golf Club

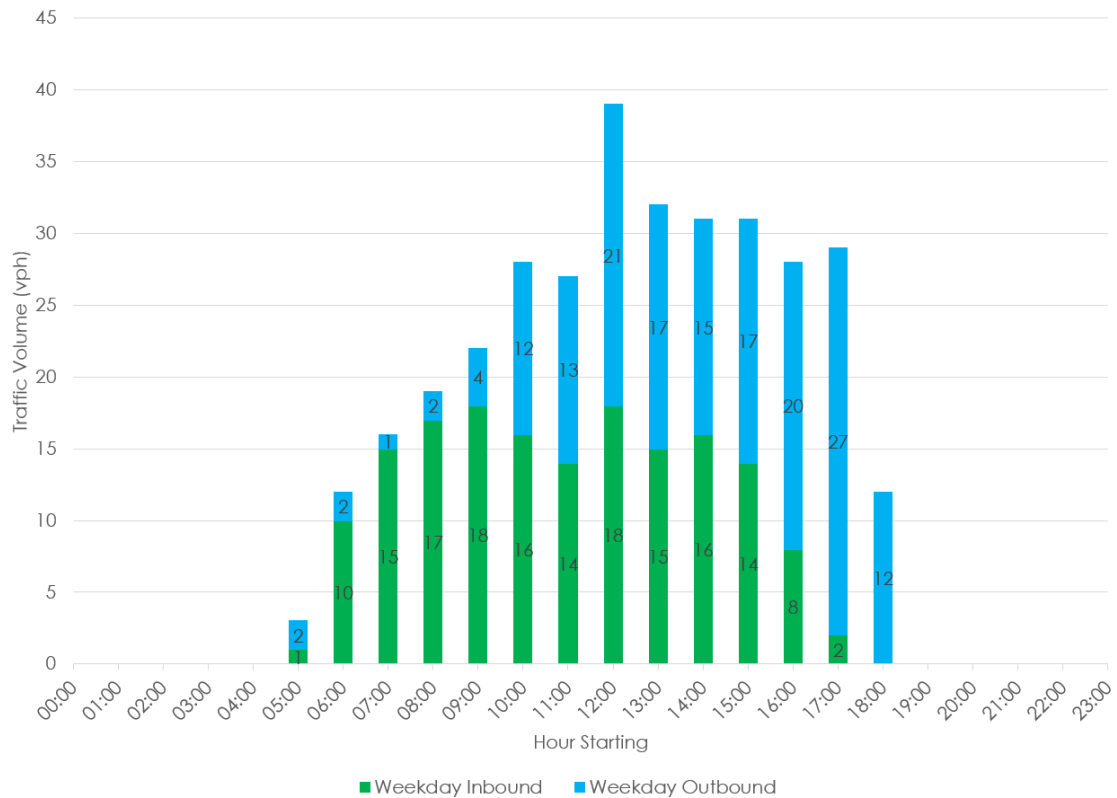
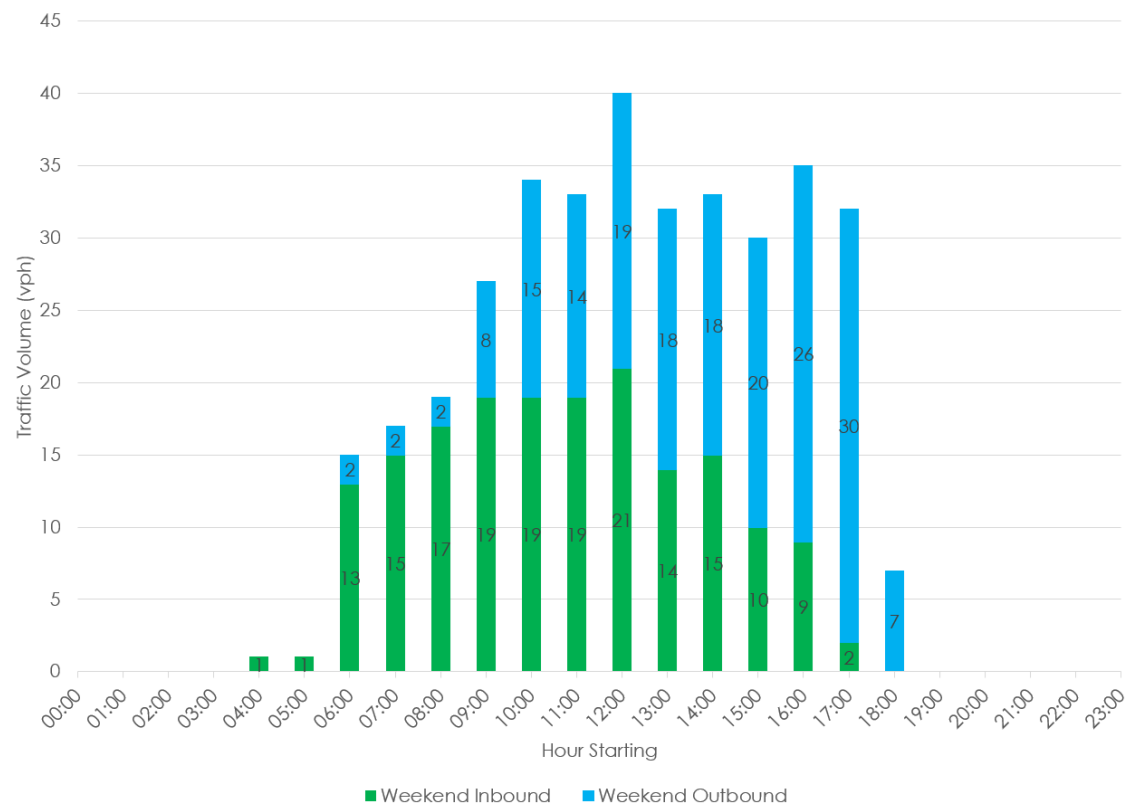


Figure 2.10: Average Hourly Weekend Traffic Volume at the Existing Golf Club



Based on the above, the existing site peak hour times were generally found to be as follows:

- Weekday AM Peak @ 8am-9am 19 two-way trips (17 in and 2 out)
- Weekday PM Peak @ 4:15pm-5:15pm 28 two-way trips (8 in and 20 out)
- Weekend Peak @ 12:45pm-1:45pm 40 two-way trips (21 in and 19 out)

Based on information provided by the Club, pre-Covid patronage numbers were higher by some 11 per cent on weekdays and higher by 45 per cent on Saturdays compared to current patronage numbers to/from the Club.

On this basis, the above site traffic generation figures could theoretically be in the order of 21 to 58 trips (two-way) during the site's busiest hour, as shown in Table 2.1.

Table 2.1: Adjusted Existing Club Traffic Generation

Day	Peak	Existing Survey Trips (Two-Way)	Adjustment Factor	Adjusted trip
Thursday	AM Peak 8am-9am	19 trips	11%	21 trips
	PM Peak 4:15pm-5:15pm	28 trips		31 trips
Saturday	Midday 12:45pm-1:45pm	40 trips	45%	58 trips

2.9.2 Surrounding Key Intersections

TTPP commissioned traffic surveys on Thursday 16 September 2021 between 7:30am and 9:30am and between 4:00pm and 8:00pm and Saturday 18 September 2021 between 11:00am and 2:00pm at the following key intersections:

- Ellis Street / Bettington Road / Club access (north access)
- Bettington Road / Club access (south access – exit only)
- Bettington Road / Prindle Street / Belmore St E (roundabout)

The survey locations are shown in Figure 2.11 for reference.

Figure 2.11: Location of Key Intersections



Based on the traffic surveys, the following peak hours were identified:

- Thursday morning peak: 8:00am-9:00am
- Thursday evening peak: 4:15pm-5:15pm
- Saturday midday peak: 12:45pm-1:45pm

2.9.2.1 Covid Adjustment Factor

The current Covid-19 situation has generally affected the typical number of vehicle trips to work or for local shopping in the survey area. Furthermore, restrictions on group gatherings and sports and recreation are considered key factors which would affect traffic volumes along Bettington Road and in and out of the existing Oatlands Golf Club.

As such, in order to appreciate the level of traffic volume fluctuations, a comparative assessment of the traffic volumes at the Pennant Hills Road / Cumberland Highway – Bettington Road signalised intersection has been undertaken to quantify the traffic fluctuations and derive adjustment factors that could be applied to the traffic survey data with an increase to the surveyed traffic volumes.

SCATS traffic count data at the Pennant Hills Road / Cumberland Highway – Bettington Road (TCS 717) intersection was obtained from TfNSW for the following dates:

- Thursday 19 September 2019 (i.e. pre-Covid conditions)
- Saturday 21 September 2019 (i.e. pre-Covid conditions)
- Thursday 16 September 2021 (i.e. during Covid restrictions)
- Saturday 18 September 2021 (i.e. during Covid restrictions)

The SCATS 2019 and 2021 data was used to derive adjustment factors to be applied on through traffic along Bettington Road for each of the assessed peak hours.

Based on this data, traffic volumes were observed to be higher along Bettington Road by a factor of 1.47 to 4.11 during pre-Covid conditions, as summarised in Table 2.2.

Table 2.2: Covid-19 Adjustment Factors Applied to the Surveyed Traffic Volumes (Sep 2021)

Road	Direction	AM Peak	PM Peak	Sat Peak
Bettington Road	Northbound	4.11	2.15	1.47
	Southbound	2.07	1.85	1.57

TPP has applied the above traffic adjustment factors to the surveyed traffic volumes on Bettington Road to consider the traffic impacts associated with Covid-19 (i.e. reduced traffic volumes due to Covid restrictions/events).

A summary of the adjusted peak hour traffic volumes on a weekday AM, PM and Saturday at the key surrounding intersections and site access points are shown in Figure 2.12, Figure 2.13 and Figure 2.14 respectively.

Figure 2.12: AM Peak Intersection Volumes

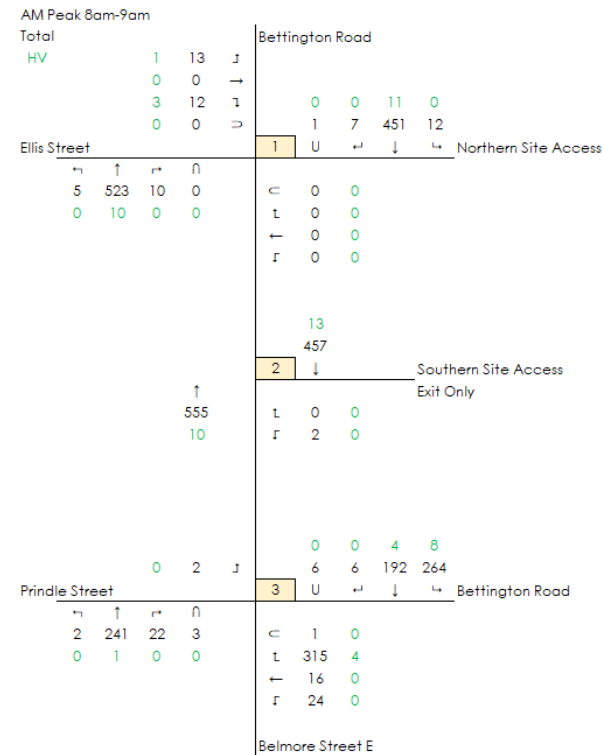


Figure 2.13: PM Peak Intersection Volumes

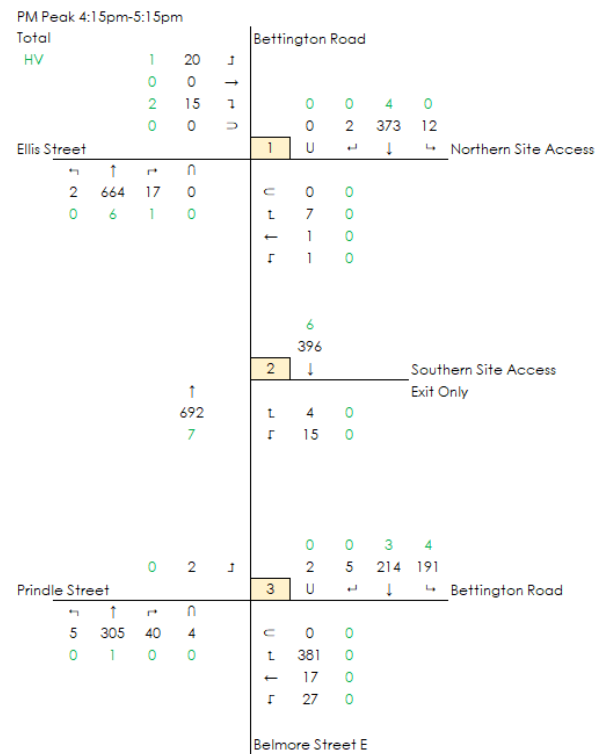
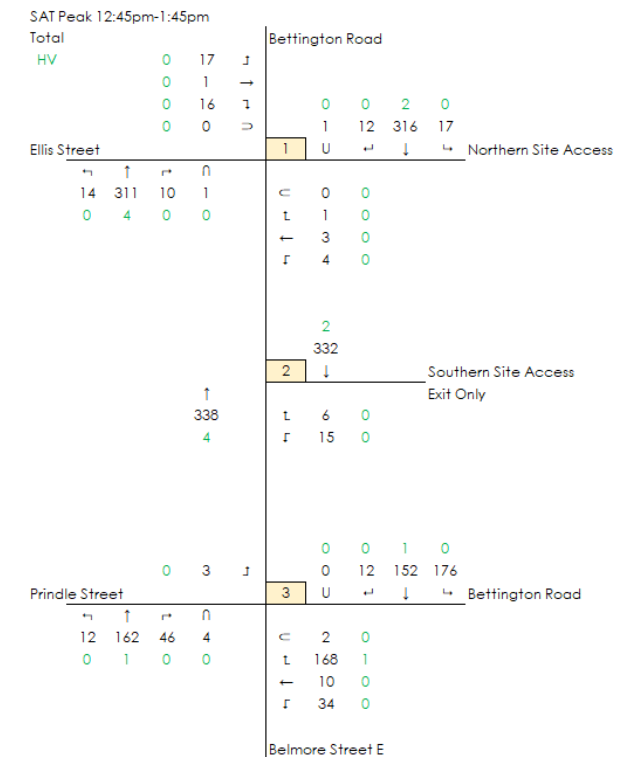


Figure 2.14: Sat Peak Intersection Volumes



2.10 Network Capacity Analysis

Network capacity analysis has been conducted using SIDRA Intersection 9 modelling software to ascertain the performance of the key surrounding intersections as shown in Figure 2.11.

Transport for NSW (TfNSW) uses the performance measure level of service to define how efficient an intersection is operating under given prevailing traffic conditions.

Level of service is directly related to the delays experienced by traffic travelling the intersection. Level of service ranges from LoS A to LoS F. LoS A indicates the intersection is operating with spare capacity, while LoS F indicates the intersection is operating above capacity. LoS D is the long-term desirable level of service.

At signalised intersections, the average delay is the volume weighted average of all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the worst movement.

Table 2.3 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

Table 2.3: TfNSW Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

Based on the traffic surveys outlined in Figure 2.12, Figure 2.13 and Figure 2.14, a summary of the existing weekday AM, PM and Saturday peak hour modelling results is provided in Table 2.4. The full movement summaries are provided in **Appendix A**.

Table 2.4: Existing Peak Hour Traffic Modelling Results

Intersection	Control	AM Peak			PM Peak			SAT Peak		
		Ave. Delay (s)	LoS	95 th Queue (m)	Ave. Delay (s)	LoS	95 th Queue (m)	Ave. Delay (s)	LoS	95 th Queue (m)
Bettington Rd - Ellis St - Club Northern Access	RAB	12	A	18	14	A	26	10	A	12
Bettington Rd - Club Southern Access (Exit Only)	Priority	8	A	0	10	A	1	4	A	1
Bettington Rd - Prindle St - Belmore St E	RAB	11	A	19	13	A	27	10	A	12

Table 2.4 indicates that the key surrounding intersections currently operate well at LoS A during weekday AM, PM and Saturday peak periods. These traffic modelling results include the adjusted Covid-19 factor to represent “typical” traffic volumes pre-Covid conditions as detailed in Section 2.9.2.1.

Overall, the assessed intersections currently perform at an acceptable level with spare capacity.

3 Proposed Development

3.1 Proposal Description

The proposal intends to redevelop the existing Oatlands Golf Club to include new seniors living housing (over 55's) comprising 193 senior living units, as well as modifications to existing Club and ancillary facilities.

The overall Club would be redeveloped with additional floor space to support existing Club operations, particularly during busy golf days and function/events. It should however be noted that the proposed Club is expected to operate as per existing conditions, as detailed in Section 2.2.

A summary of the proposed additional uses is provided as follows:

- 193 independent living units (ILU), with the following apartment mix:
 - 1 x 1-bedroom unit
 - 162 x 2-bedroom units
 - 30 x 3-bedroom units
- 1,200m² GFA additional Club space.

The proposed masterplan is shown in Figure 3.1, with full architectural plans provided in **Appendix B**.

Figure 3.1: Proposed Site Plan



Source: Mirvac Design

3.2 Vehicle Access

As part of the masterplan, it is proposed to consolidate the existing vehicle access points on Bettington Road to one access to provide direct access to a new porte cochere within the site, as well as basement car parking and the proposed loading dock, via an internal road.

Swept path analysis has been conducted and demonstrates that appropriate vehicle accessibility to/from the proposed access based on its intended use. This swept path assessment is provided in Appendix C.

Overall, the proposed access arrangements to/from the Club are considered satisfactory.

3.3 Proposed Refuse Collection and Loading Facilities

An at-grade loading dock is proposed within the site to serve the proposed development with vehicle access provided off Bettington Road. This loading dock would be designed to accommodate a vehicle up to and including an 8.8m long medium rigid vehicle.

A swept path assessment has been conducted using an 8.8m long medium rigid vehicle which demonstrates appropriate manoeuvrability into and out of the loading dock. All service vehicles would enter and exit the site in a forward direction. This swept path assessment is provided in **Appendix C**.

4 Parking Assessment

4.1 Car Parking Requirements

The DCP does not stipulate car parking rates for senior living housing, nor for golf/recreation clubs.

Based on information provided by the Club operator, a total of 200 car parking spaces are required for the proposed Club. This equates to an additional 52 car parking spaces compared to existing Club car parking provisions.

The proposed 200 Club car parking spaces are expected to be accommodate any overflow car parking demand arising from busy function and event days. The Club car parking spaces would continue to be managed by the Club to ensure appropriate car parking allocation and arrangements are in place during events, as detailed in Section 2.8.

The car parking requirements for the proposed additional seniors housing use have been assessed against the State Environmental Planning Policy (SEPP Housing for Seniors or People with a Disability) 2004 for self-contained dwellings. This is summarised in Table 4.1.

Table 4.1: SEPP Housing for People with a Disability 2004 Parking Requirement

Development Type	Units		Bedrooms	SEPP HSPD 2004 requirement	Car Parking Requirement
Self-Contained Dwelling	1-bed unit	1	1	-	-
	2-bed unit	162	324	-	-
	3-bed unit	30	90	-	-
Total		193	415	0.5 space per bedroom	208 car spaces

Table 4.1 indicates that the proposed additional seniors housing use will require 208 car parking spaces to satisfy SEPP requirements. It is proposed to comply with these requirements and provide 209 car parking spaces for seniors housing use within the basement car park.

It is also proposed to provide 200 car parking spaces for the Club within the basement car park to satisfy car parking requirements/advice provided by the Club operator.

Overall, the car parking provision is considered satisfactory to serve the proposed development. It is however noted that the car parking requirements would be further assessed as part of any future development application for the site.

The car park and associated elements are also proposed to be designed in accordance with relevant design requirements as set out in the Australian Standards.

4.2 Motorcycle and Bicycle Parking

No motorcycle or bicycle parking spaces are currently provided for the existing Club. The SEPP does not stipulate any motorcycle or bicycle parking requirements for seniors living. On this basis, it is not proposed to provide any motorcycle and bicycle parking.

5 Traffic Assessment

This section assesses the potential traffic generation and impacts associated with the proposed development.

5.1 Traffic Generation Estimates

5.1.1 Club Traffic Generation Rates

The Oatlands Golf Club redevelopment proposal includes the existing Club operations, 193 independent living units and an additional 1,200m² GFA of Club space.

The Club operations are not expected to change as part of the proposed development as the proposed Club additions are expected to be ancillary to existing operations. As such, the proposed additions are not expected to generate any substantial traffic, if any.

However, for the purpose of the assessment, traffic generation arising from the proposed Club additions have been conservatively assessed based on existing traffic generation surveys at the existing Club site.

Based on existing traffic generation surveys detailed in Section 2.9.1, the existing Club of some 1,640m² GFA currently generates 21 and 31 trips during the weekday AM and PM peak periods and 58 trips during the Saturday peak period.

This equates to the following trip rates for the existing Club:

- Weekday AM Peak – 1.28 trips per 100m² GFA
- Weekday PM Peak – 1.89 trips per 100m² GFA
- Saturday Peak – 3.54 trips per 100m² GFA

5.1.2 Proposed Senior Living Traffic Generation Rates

TfNSW provides traffic generation rates for different land uses in their *Guide to Traffic Generation Developments* (Guide) and in their technical direction TDT 2013/4a containing revised rates.

Based on this, TfNSW suggests a trip rate of 0.4 trips per dwelling for seniors during the weekday peak hour, noting that the morning peak does not typically coincide with the road network peak.

On this basis, TTPP has also reviewed the Roads and Maritime Services *Trip Generation and Parking Generation Surveys Housing for Seniors* (2009) which surveyed a number of self-contained senior living sites.

Based on similar metropolitan senior living (self-contained) developments, the following average trip generation rates were derived for the road network peak periods:

- Weekday Peak – 0.18 trips per dwelling (no AM surveys were carried out)
- Weekend Peak – 0.13 trips per dwelling

5.1.3 Proposed Development Traffic Generation Estimate

Table 5.1 provides a summary of the estimated traffic generation arising from the proposed additions to the existing Club.

Table 5.1: Proposed Development Additional Traffic Generation Estimates

Land Use	Size	Trip Generation Rate			Trip Generation		
		Weekday AM Peak	Weekday PM Peak	Saturday Peak	Weekday AM Peak	Weekday PM Peak	Saturday Peak
ILU	193 dwellings	0.09 trips per dwelling ^[1]	0.18 trips per dwelling	0.13 trips per dwelling	17	35	25
Club	1,200m ²	1.28 trips per 100m ²	1.89 trips per 100m ²	3.54 trips per 100m ²	15	23	43
Total					32	58	68

[1] The AM peak does not generally coincide with the network peak hour. It has therefore been assumed that 50 per cent of PM peak trips would occur during the AM peak.

Table 5.1 indicates that the proposed development is expected to generate an additional 32 and 58 trips during the weekday AM and PM peak periods respectively and an additional 68 trips during the Saturday peak. It is however noted that the proposed Club and ILU development are envisaged to be complementary uses such that ILU residents would use the proposed Club facilities, which would negate the need to drive outside of the site.

5.2 Distribution and Assignment of Development Traffic

In terms of traffic distribution of the proposed development traffic on the surrounding road network, the following distribution patterns have been assumed:

- Senior Living use
 - morning peak: 30% inbound / 70% outbound
 - evening peak: 70% inbound / 30% outbound
 - weekend peak: 50% inbound / 50% outbound
- Golf Club
 - morning peak: 90% inbound / 10% outbound (based on existing traffic surveys)
 - evening peak: 30% inbound / 70% outbound (based on existing traffic surveys)
 - weekend peak: 50% inbound / 50% outbound (based on existing traffic surveys)

Taking the above into consideration, the proposed development trips have been distributed equally 50 per cent northbound and 50 per cent southbound to/from the site as patrons are generally expected to come from various locations within the local catchment area. The resultant inbound and outbound traffic distributions arising from the proposed development is provided in Table 5.2.

Table 5.2: Proposed Development Trip Generation Distribution

Direction	AM Peak		PM Peak		SAT Peak	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
North	9	7	16	13	17	17
South	9	7	16	13	17	17
Total	18	14	32	26	34	34
	32		58		68	

5.3 Network Capacity Analysis

Network capacity analysis has been conducted on the key surrounding intersections and proposed new access to assess the traffic implications arising from the proposal.

A future 10-year design horizon has been assessed as part of the future modelling, as follows:

- Year 2031 Future Base case (no development)
- Year 2031 Ultimate Case (with development)

The 10-year base traffic growth factors have been obtained from TfNSW's Sydney Strategic Travel Forecasting Model (STFM) which is maintained by Transport Performance and Analytics (TPA). It is noted that no weekend model is currently available and therefore, the traffic growth factors during the weekday PM peak have been adopted for the Saturday traffic model for the purpose of this assessment.

A summary of the future traffic modelling results without and with the proposed development traffic is provided in Table 5.3 and Table 5.4 respectively. Full movement summaries are provided in **Appendix A**.

Table 5.3: Year 2031 Future Base Case – No Development

Intersection	Control	AM Peak			PM Peak			SAT Peak		
		Ave. Delay (s)	LoS	95 th Queue (m)	Ave. Delay (s)	LoS	95 th Queue (m)	Ave. Delay (s)	LoS	95 th Queue (m)
Bettington Rd - Ellis St - Club Northern Access	RAB	15	B	28	18	B	44	11	A	18
Bettington Rd - Club Southern Access (Exit Only)	Priority	17	B	0	22	B	1	7	A	1
Bettington Rd - Prindle St - Belmore St E	RAB	11	A	23	15	B	46	10	A	15

Table 5.4: Year 2031 Future Case – With Development

Intersection	Control	AM Peak			PM Peak			SAT Peak		
		Ave. Delay (s)	LoS	95 th Queue (m)	Ave. Delay (s)	LoS	95 th Queue (m)	Ave. Delay (s)	LoS	95 th Queue (m)
Bettington Rd - Ellis St	RAB	15	A	28	18	B	37	11	A	18
Bettington Rd - New Club Access	Priority	18	B	4	27	B	7	7	A	3
Bettington Rd - Prindle St - Belmore St E	RAB	11	A	23	16	B	50	10	A	16

Based on the above results, the key intersections including the proposed new site access would continue to operate satisfactorily at LoS B or better in the ultimate future scenario in all assessed peak periods. Further to this, the proposed new access is expected to operate satisfactory, noting that queues will not extend beyond adjacent intersections to the north and south on Bettington Road, nor impact surrounding intersection performance.

On this basis, the proposed development is not expected to compromise the existing intersection performance on the surrounding road network, nor result in any safety or operational issues. Therefore, the proposal is considered acceptable from a traffic capacity perspective.

6 Conclusion

This report examines the traffic and parking implications of the proposed redevelopment of the existing Oatlands Golf Club. The key findings of the report are presented below.

- It is proposed to adaptively reuse the existing Club and redevelop the site with a new Club, seniors living accommodation and ancillary Club facilities. This includes a new seniors living development comprising 193 independent living units and an additional 1,200m² of Club space.
- It is proposed to consolidate the existing two vehicle access points on Bettington Road to provide one single two-way vehicular crossover to provide direct vehicle access to a new porte cochere, basement car park and loading dock.
- The at-grade loading dock has been designed to facilitate vehicles up to and including an 8.8m long medium rigid vehicle.
- A total of 409 car parking spaces are proposed within a basement car park (200 Club and 209 residential parking spaces). These spaces are proposed to be designed in accordance with relevant design requirements as set out in the Australian Standards for car parking facilities.
- The proposed car parking provision is considered satisfactory to serve the anticipated use of the site and complies with SEPP car parking requirements for seniors living and car parking requirements as provided by the Club operator.
- The proposed development is expected to generate an additional 32 and 58 trips during the weekday AM and PM peak periods respectively and an additional 68 trips during the Saturday peak.
- Traffic modelling results indicate that the key surrounding intersections will continue to operate at an acceptable level of service at LoS B or better during peak periods in Year 2031 with the proposed development. The proposed new access to the Club is also expected to operate satisfactory, noting that queues will not extend beyond adjacent intersections to the north and south on Bettington Road, nor impact surrounding intersection performance.

Overall, it is concluded that the traffic and parking aspects of the proposed development would be acceptable.

Appendix A

SIDRA Movement Summaries

MOVEMENT SUMMARY

 Site: [EX AM - Bettington Rd-Ellis St-Club Northern Access
(Site Folder: Existing)]

 Network: [EX AM (Network
Folder: Existing)]

Site Category: Existing 2021
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
1	L2	5	0.0	5	0.0	0.381	4.3	LOS A	2.3	16.2	0.08	0.45	0.08	35.6
2	T1	551	1.9	551	1.9	0.381	3.5	LOS A	2.3	16.2	0.08	0.45	0.08	40.2
3	R2	11	0.0	11	0.0	0.381	6.3	LOS A	2.3	16.2	0.08	0.45	0.08	21.6
3u	U	1	0.0	1	0.0	0.381	7.6	LOS A	2.3	16.2	0.08	0.45	0.08	28.9
Approach		567	1.9	567	1.9	0.381	3.6	LOS A	2.3	16.2	0.08	0.45	0.08	38.8
East: Club Northern Access														
4	L2	1	0.0	1	0.0	0.004	3.6	LOS A	0.0	0.1	0.56	0.40	0.56	19.2
5	T1	1	0.0	1	0.0	0.004	3.1	LOS A	0.0	0.1	0.56	0.40	0.56	21.4
6	R2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.1	0.56	0.40	0.56	22.7
Approach		3	0.0	3	0.0	0.004	3.8	LOS A	0.0	0.1	0.56	0.40	0.56	21.2
North: Bettington Rd-N														
7	L2	13	0.0	13	0.0	0.357	4.6	LOS A	2.5	18.2	0.17	0.45	0.17	23.4
8	T1	475	2.4	475	2.4	0.357	4.0	LOS A	2.5	18.2	0.17	0.45	0.17	37.7
9	R2	7	0.0	7	0.0	0.357	6.6	LOS A	2.5	18.2	0.17	0.45	0.17	39.9
9u	U	1	0.0	1	0.0	0.357	7.9	LOS A	2.5	18.2	0.17	0.45	0.17	42.3
Approach		496	2.3	496	2.3	0.357	4.0	LOS A	2.5	18.2	0.17	0.45	0.17	35.9
West: Ellis St-W														
10	L2	14	7.7	14	7.7	0.052	9.3	LOS A	0.2	1.9	0.61	0.73	0.61	32.3
11	T1	1	0.0	1	0.0	0.052	8.9	LOS A	0.2	1.9	0.61	0.73	0.61	20.6
12	R2	13	25.0	13	25.0	0.052	12.2	LOS A	0.2	1.9	0.61	0.73	0.61	23.1
12u	U	1	0.0	1	0.0	0.052	12.2	LOS A	0.2	1.9	0.61	0.73	0.61	30.5
Approach		28	14.8	28	14.8	0.052	10.7	LOS A	0.2	1.9	0.61	0.73	0.61	28.0
All Vehicles		1095	2.4	1095	2.4	0.381	4.0	LOS A	2.5	18.2	0.14	0.46	0.14	37.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: [EX AM - Bettington Rd-Club Southern Access/Exit Only (Site Folder: Existing)]

Network: [EX AM (Network Folder: Existing)]

Site Category: Existing 2021
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total HV] veh/h %		ARRIVAL FLOWS [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bettington Rd-S														
2	T1	584	1.8	584	1.8	0.303	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		584	1.8	584	1.8	0.303	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
East: Club Southern Access -Exit Only														
4	L2	2	0.0	2	0.0	0.005	1.7	LOS A	0.0	0.1	0.52	0.39	0.52	19.2
6	R2	1	0.0	1	0.0	0.005	8.0	LOS A	0.0	0.1	0.52	0.39	0.52	19.2
Approach		3	0.0	3	0.0	0.005	3.8	LOS A	0.0	0.1	0.52	0.39	0.52	19.2
North: Bettington Rd-N														
8	T1	481	2.8	481	2.8	0.251	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		481	2.8	481	2.8	0.251	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1068	2.3	1068	2.3	0.303	0.0	NA	0.0	0.1	0.00	0.00	0.00	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: [EX AM - Bettington Rd-Prindle St-Belmore St E (Site Folder: Existing)]

 Network: [EX AM (Network Folder: Existing)]

Site Category: Existing 2021
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Belmore St E-S														
1	L2	2	0.0	2	0.0	0.352	7.1	LOS A	2.2	15.6	0.64	0.71	0.64	34.2
2	T1	254	0.4	254	0.4	0.352	6.8	LOS A	2.2	15.6	0.64	0.71	0.64	24.9
3	R2	23	0.0	23	0.0	0.352	9.6	LOS A	2.2	15.6	0.64	0.71	0.64	31.9
3u	U	3	0.0	3	0.0	0.352	11.0	LOS A	2.2	15.6	0.64	0.71	0.64	29.0
Approach		282	0.4	282	0.4	0.352	7.0	LOS A	2.2	15.6	0.64	0.71	0.64	26.0
East: Bettington Rd-E														
4	L2	25	0.0	25	0.0	0.398	6.3	LOS A	2.5	18.0	0.52	0.69	0.52	29.4
5	T1	17	0.0	17	0.0	0.398	5.8	LOS A	2.5	18.0	0.52	0.69	0.52	34.4
6	R2	332	1.3	332	1.3	0.398	8.6	LOS A	2.5	18.0	0.52	0.69	0.52	24.6
6u	U	1	0.0	1	0.0	0.398	9.9	LOS A	2.5	18.0	0.52	0.69	0.52	28.4
Approach		375	1.1	375	1.1	0.398	8.3	LOS A	2.5	18.0	0.52	0.69	0.52	25.8
North: Bettington Rd-N														
7	L2	278	3.0	278	3.0	0.342	4.5	LOS A	2.6	18.6	0.18	0.47	0.18	39.7
8	T1	202	2.1	202	2.1	0.342	4.0	LOS A	2.6	18.6	0.18	0.47	0.18	40.9
9	R2	6	0.0	6	0.0	0.342	6.7	LOS A	2.6	18.6	0.18	0.47	0.18	41.9
9u	U	6	0.0	6	0.0	0.342	8.1	LOS A	2.6	18.6	0.18	0.47	0.18	39.4
Approach		493	2.6	493	2.6	0.342	4.4	LOS A	2.6	18.6	0.18	0.47	0.18	40.2
West: Prindle St-W														
10	L2	2	0.0	2	0.0	0.003	7.1	LOS A	0.0	0.1	0.62	0.55	0.62	30.9
Approach		2	0.0	2	0.0	0.003	7.1	LOS A	0.0	0.1	0.62	0.55	0.62	30.9
All Vehicles		1152	1.6	1152	1.6	0.398	6.3	LOS A	2.6	18.6	0.40	0.60	0.40	34.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site:** [EX PM - Bettington Rd-Ellis St-Club Northern Access
(Site Folder: Existing)]

 **Network:** N101 [EX PM
(Network Folder: Existing)]

Site Category: Existing 2021
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
1	L2	2	0.0	2	0.0	0.479	4.4	LOS A	3.6	25.6	0.11	0.45	0.11	35.4
2	T1	699	0.9	699	0.9	0.479	3.6	LOS A	3.6	25.6	0.11	0.45	0.11	40.1
3	R2	18	5.9	18	5.9	0.479	6.3	LOS A	3.6	25.6	0.11	0.45	0.11	21.6
3u	U	1	0.0	1	0.0	0.479	7.6	LOS A	3.6	25.6	0.11	0.45	0.11	28.6
Approach		720	1.0	720	1.0	0.479	3.6	LOS A	3.6	25.6	0.11	0.45	0.11	38.3
East: Club Northern Access														
4	L2	1	0.0	1	0.0	0.012	3.0	LOS A	0.1	0.4	0.52	0.45	0.52	19.2
5	T1	1	0.0	1	0.0	0.012	2.6	LOS A	0.1	0.4	0.52	0.45	0.52	21.4
6	R2	7	0.0	7	0.0	0.012	4.1	LOS A	0.1	0.4	0.52	0.45	0.52	22.7
Approach		9	0.0	9	0.0	0.012	3.8	LOS A	0.1	0.4	0.52	0.45	0.52	22.2
North: Bettington Rd-N														
7	L2	13	0.0	13	0.0	0.307	4.6	LOS A	2.0	14.3	0.19	0.45	0.19	23.4
8	T1	393	1.1	393	1.1	0.307	4.0	LOS A	2.0	14.3	0.19	0.45	0.19	37.5
9	R2	2	0.0	2	0.0	0.307	6.7	LOS A	2.0	14.3	0.19	0.45	0.19	39.8
9u	U	1	0.0	1	0.0	0.307	8.0	LOS A	2.0	14.3	0.19	0.45	0.19	42.1
Approach		408	1.0	408	1.0	0.307	4.1	LOS A	2.0	14.3	0.19	0.45	0.19	35.4
West: Ellis St-W														
10	L2	21	5.0	21	5.0	0.079	11.1	LOS A	0.4	2.9	0.69	0.79	0.69	30.8
11	T1	1	0.0	1	0.0	0.079	10.8	LOS A	0.4	2.9	0.69	0.79	0.69	20.2
12	R2	16	13.3	16	13.3	0.079	13.7	LOS A	0.4	2.9	0.69	0.79	0.69	21.3
12u	U	1	0.0	1	0.0	0.079	14.1	LOS A	0.4	2.9	0.69	0.79	0.69	28.7
Approach		39	8.1	39	8.1	0.079	12.2	LOS A	0.4	2.9	0.69	0.79	0.69	27.2
All Vehicles		1177	1.3	1177	1.3	0.479	4.1	LOS A	3.6	25.6	0.16	0.46	0.16	36.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: [EX PM - Bettington Rd-Club Southern Access/Exit Only (Site Folder: Existing)]

Network: N101 [EX PM (Network Folder: Existing)]

Site Category: Existing 2021
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total HV] [Veh. %]		ARRIVAL FLOWS [Total HV] [Veh. %]		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] [veh m]		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bettington Rd-S														
2	T1	728	1.0	728	1.0	0.376	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		728	1.0	728	1.0	0.376	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
East: Club Southern Access -Exit Only														
4	L2	16	0.0	16	0.0	0.027	1.4	LOS A	0.1	0.6	0.48	0.39	0.48	19.3
6	R2	4	0.0	4	0.0	0.027	10.0	LOS A	0.1	0.6	0.48	0.39	0.48	19.3
Approach		20	0.0	20	0.0	0.027	3.3	LOS A	0.1	0.6	0.48	0.39	0.48	19.3
North: Bettington Rd-N														
8	T1	417	1.5	417	1.5	0.216	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		417	1.5	417	1.5	0.216	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1165	1.2	1165	1.2	0.376	0.1	NA	0.1	0.6	0.01	0.01	0.01	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: [EX PM - Bettington Rd-Prindle St-Belmore St E (Site Folder: Existing)]

 Network: N101 [EX PM (Network Folder: Existing)]

Site Category: Existing 2021
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Belmore St E-S														
1	L2	5	0.0	5	0.0	0.500	8.8	LOS A	3.8	26.7	0.76	0.83	0.83	32.0
2	T1	321	0.3	321	0.3	0.500	8.4	LOS A	3.8	26.7	0.76	0.83	0.83	22.2
3	R2	42	0.0	42	0.0	0.500	11.3	LOS A	3.8	26.7	0.76	0.83	0.83	29.4
3u	U	4	0.0	4	0.0	0.500	12.6	LOS A	3.8	26.7	0.76	0.83	0.83	26.8
Approach		373	0.3	373	0.3	0.500	8.8	LOS A	3.8	26.7	0.76	0.83	0.83	23.6
East: Bettington Rd-E														
4	L2	28	0.0	28	0.0	0.479	6.6	LOS A	3.4	23.5	0.59	0.71	0.59	29.0
5	T1	18	0.0	18	0.0	0.479	6.1	LOS A	3.4	23.5	0.59	0.71	0.59	34.0
6	R2	401	0.0	401	0.0	0.479	8.9	LOS A	3.4	23.5	0.59	0.71	0.59	24.1
6u	U	1	0.0	1	0.0	0.479	10.2	LOS A	3.4	23.5	0.59	0.71	0.59	28.1
Approach		448	0.0	448	0.0	0.479	8.6	LOS A	3.4	23.5	0.59	0.71	0.59	25.2
North: Bettington Rd-N														
7	L2	201	2.1	201	2.1	0.322	4.6	LOS A	2.4	17.1	0.24	0.47	0.24	39.5
8	T1	225	1.4	225	1.4	0.322	4.1	LOS A	2.4	17.1	0.24	0.47	0.24	40.7
9	R2	5	0.0	5	0.0	0.322	6.8	LOS A	2.4	17.1	0.24	0.47	0.24	41.7
9u	U	2	0.0	2	0.0	0.322	8.2	LOS A	2.4	17.1	0.24	0.47	0.24	39.0
Approach		434	1.7	434	1.7	0.322	4.4	LOS A	2.4	17.1	0.24	0.47	0.24	40.1
West: Prindle St-W														
10	L2	2	0.0	2	0.0	0.004	8.3	LOS A	0.0	0.1	0.69	0.58	0.69	29.0
Approach		2	0.0	2	0.0	0.004	8.3	LOS A	0.0	0.1	0.69	0.58	0.69	29.0
All Vehicles		1257	0.7	1257	0.7	0.500	7.2	LOS A	3.8	26.7	0.52	0.66	0.54	32.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 Site: [EX SAT - Bettington Rd-Ellis St-Club Northern Access
(Site Folder: Existing)]

 Network: N101 [EX SAT
(Network Folder: Existing)]

Site Category: Existing 2021
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bettington Rd-S														
1	L2	15	0.0	15	0.0	0.254	4.4	LOS A	1.3	9.1	0.10	0.46	0.10	35.4
2	T1	327	1.3	327	1.3	0.254	3.6	LOS A	1.3	9.1	0.10	0.46	0.10	40.0
3	R2	11	0.0	11	0.0	0.254	6.3	LOS A	1.3	9.1	0.10	0.46	0.10	21.6
3u	U	1	0.0	1	0.0	0.254	7.6	LOS A	1.3	9.1	0.10	0.46	0.10	28.6
Approach		354	1.2	354	1.2	0.254	3.7	LOS A	1.3	9.1	0.10	0.46	0.10	37.7
East: Club Northern Access														
4	L2	4	0.0	4	0.0	0.010	2.7	LOS A	0.0	0.3	0.48	0.34	0.48	19.4
5	T1	3	0.0	3	0.0	0.010	2.2	LOS A	0.0	0.3	0.48	0.34	0.48	21.6
6	R2	1	0.0	1	0.0	0.010	3.7	LOS A	0.0	0.3	0.48	0.34	0.48	22.9
Approach		8	0.0	8	0.0	0.010	2.6	LOS A	0.0	0.3	0.48	0.34	0.48	20.8
North: Bettington Rd-N														
7	L2	18	0.0	18	0.0	0.268	4.6	LOS A	1.7	11.8	0.16	0.46	0.16	23.4
8	T1	333	0.6	333	0.6	0.268	4.0	LOS A	1.7	11.8	0.16	0.46	0.16	37.7
9	R2	13	0.0	13	0.0	0.268	6.6	LOS A	1.7	11.8	0.16	0.46	0.16	39.9
9u	U	1	0.0	1	0.0	0.268	7.9	LOS A	1.7	11.8	0.16	0.46	0.16	42.2
Approach		364	0.6	364	0.6	0.268	4.1	LOS A	1.7	11.8	0.16	0.46	0.16	34.5
West: Ellis St-W														
10	L2	18	0.0	18	0.0	0.049	6.9	LOS A	0.2	1.6	0.49	0.65	0.49	35.1
11	T1	1	0.0	1	0.0	0.049	6.9	LOS A	0.2	1.6	0.49	0.65	0.49	21.0
12	R2	17	0.0	17	0.0	0.049	9.0	LOS A	0.2	1.6	0.49	0.65	0.49	26.6
12u	U	1	0.0	1	0.0	0.049	10.2	LOS A	0.2	1.6	0.49	0.65	0.49	33.5
Approach		37	0.0	37	0.0	0.049	8.0	LOS A	0.2	1.6	0.49	0.65	0.49	31.0
All Vehicles		763	0.8	763	0.8	0.268	4.1	LOS A	1.7	11.8	0.15	0.47	0.15	35.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

Site: [EX SAT - Bettington Rd-Club Southern Access/Exit Only (Site Folder: Existing)]

Network: N101 [EX SAT (Network Folder: Existing)]

Site Category: Existing 2021
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total HV] [veh/h %]		ARRIVAL FLOWS [Total HV] [veh/h %]		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] [veh m]		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bettington Rd-S														
2	T1	356	1.2	356	1.2	0.184	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		356	1.2	356	1.2	0.184	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
East: Club Southern Access -Exit Only														
4	L2	16	0.0	16	0.0	0.023	1.1	LOS A	0.1	0.6	0.41	0.32	0.41	19.6
6	R2	6	0.0	6	0.0	0.023	4.4	LOS A	0.1	0.6	0.41	0.32	0.41	19.6
Approach		22	0.0	22	0.0	0.023	2.1	LOS A	0.1	0.6	0.41	0.32	0.41	19.6
North: Bettington Rd-N														
8	T1	349	0.6	349	0.6	0.180	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		349	0.6	349	0.6	0.180	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		727	0.9	727	0.9	0.184	0.1	NA	0.1	0.6	0.01	0.01	0.01	43.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 Site: [EX SAT - Bettington Rd-Prindle St-Belmore St E (Site Folder: Existing)]

 Network: N101 [EX SAT (Network Folder: Existing)]

Site Category: Existing 2021
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Belmore St E-S														
1	L2	13	0.0	13	0.0	0.248	5.6	LOS A	1.4	10.2	0.46	0.59	0.46	35.1
2	T1	171	0.6	171	0.6	0.248	5.3	LOS A	1.4	10.2	0.46	0.59	0.46	26.3
3	R2	48	0.0	48	0.0	0.248	8.1	LOS A	1.4	10.2	0.46	0.59	0.46	33.0
3u	U	4	0.0	4	0.0	0.248	9.5	LOS A	1.4	10.2	0.46	0.59	0.46	29.9
Approach		236	0.4	236	0.4	0.248	6.0	LOS A	1.4	10.2	0.46	0.59	0.46	29.0
East: Bettington Rd-E														
4	L2	36	0.0	36	0.0	0.234	5.7	LOS A	1.3	9.1	0.42	0.64	0.42	30.3
5	T1	11	0.0	11	0.0	0.234	5.2	LOS A	1.3	9.1	0.42	0.64	0.42	35.3
6	R2	177	0.6	177	0.6	0.234	8.0	LOS A	1.3	9.1	0.42	0.64	0.42	25.7
6u	U	2	0.0	2	0.0	0.234	9.3	LOS A	1.3	9.1	0.42	0.64	0.42	29.2
Approach		225	0.5	225	0.5	0.234	7.5	LOS A	1.3	9.1	0.42	0.64	0.42	27.4
North: Bettington Rd-N														
7	L2	185	0.0	185	0.0	0.270	4.6	LOS A	1.7	12.2	0.23	0.48	0.23	39.6
8	T1	160	0.7	160	0.7	0.270	4.2	LOS A	1.7	12.2	0.23	0.48	0.23	40.7
9	R2	13	0.0	13	0.0	0.270	6.9	LOS A	1.7	12.2	0.23	0.48	0.23	41.6
9u	U	1	0.0	1	0.0	0.270	8.2	LOS A	1.7	12.2	0.23	0.48	0.23	39.0
Approach		359	0.3	359	0.3	0.270	4.5	LOS A	1.7	12.2	0.23	0.48	0.23	40.1
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.004	5.4	LOS A	0.0	0.1	0.47	0.50	0.47	34.0
Approach		3	0.0	3	0.0	0.004	5.4	LOS A	0.0	0.1	0.47	0.50	0.47	34.0
All Vehicles		823	0.4	823	0.4	0.270	5.7	LOS A	1.7	12.2	0.35	0.56	0.35	35.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: [FB AM - Bettington Rd-Ellis St-Club Northern Access (Site Folder: Future Base)]  Network: [FB AM (Network Folder: Future Base)]

Site Category: Future Base
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
1	L2	5	0.0	5	0.0	0.512	4.4	LOS A	3.8	26.7	0.10	0.45	0.10	35.5
2	T1	759	1.4	759	1.4	0.512	3.6	LOS A	3.8	26.7	0.10	0.45	0.10	40.1
3	R2	11	0.0	11	0.0	0.512	6.3	LOS A	3.8	26.7	0.10	0.45	0.10	21.6
3u	U	1	0.0	1	0.0	0.512	7.6	LOS A	3.8	26.7	0.10	0.45	0.10	28.8
Approach		776	1.4	776	1.4	0.512	3.6	LOS A	3.8	26.7	0.10	0.45	0.10	39.1
East: Club Northern Access														
4	L2	1	0.0	1	0.0	0.005	5.0	LOS A	0.0	0.2	0.64	0.46	0.64	18.9
5	T1	1	0.0	1	0.0	0.005	4.5	LOS A	0.0	0.2	0.64	0.46	0.64	21.1
6	R2	1	0.0	1	0.0	0.005	6.0	LOS A	0.0	0.2	0.64	0.46	0.64	22.4
Approach		3	0.0	3	0.0	0.005	5.2	LOS A	0.0	0.2	0.64	0.46	0.64	20.9
North: Bettington Rd-N														
7	L2	13	0.0	13	0.0	0.463	4.6	LOS A	3.9	27.7	0.20	0.45	0.20	23.4
8	T1	636	1.8	636	1.8	0.463	4.0	LOS A	3.9	27.7	0.20	0.45	0.20	37.5
9	R2	7	0.0	7	0.0	0.463	6.7	LOS A	3.9	27.7	0.20	0.45	0.20	39.8
9u	U	1	0.0	1	0.0	0.463	7.9	LOS A	3.9	27.7	0.20	0.45	0.20	42.1
Approach		657	1.8	657	1.8	0.463	4.0	LOS A	3.9	27.7	0.20	0.45	0.20	36.1
West: Ellis St-W														
10	L2	14	7.7	14	7.7	0.063	11.8	LOS A	0.3	2.4	0.70	0.80	0.70	29.9
11	T1	1	0.0	1	0.0	0.063	11.3	LOS A	0.3	2.4	0.70	0.80	0.70	20.1
12	R2	13	25.0	13	25.0	0.063	15.1	LOS B	0.3	2.4	0.70	0.80	0.70	20.3
12u	U	1	0.0	1	0.0	0.063	14.7	LOS B	0.3	2.4	0.70	0.80	0.70	27.8
Approach		28	14.8	28	14.8	0.063	13.4	LOS A	0.3	2.4	0.70	0.80	0.70	25.7
All Vehicles		1464	1.8	1464	1.8	0.512	4.0	LOS A	3.9	27.7	0.16	0.45	0.16	37.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: [FB AM - Bettington Rd-Club Southern Access/Exit Only (Site Folder: Future Base)]

Network: [FB AM (Network Folder: Future Base)]

Site Category: Future Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total HV] veh/h %		ARRIVAL FLOWS [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bettington Rd-S														
2	T1	807	1.3	807	1.3	0.418	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		807	1.3	807	1.3	0.418	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
East: Club Southern Access -Exit Only														
4	L2	2	0.0	2	0.0	0.008	2.7	LOS A	0.0	0.2	0.67	0.57	0.67	18.5
6	R2	1	0.0	1	0.0	0.008	16.6	LOS B	0.0	0.2	0.67	0.57	0.67	18.5
Approach		3	0.0	3	0.0	0.008	7.3	LOS A	0.0	0.2	0.67	0.57	0.67	18.5
North: Bettington Rd-N														
8	T1	644	2.1	644	2.1	0.335	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		644	2.1	644	2.1	0.335	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
All Vehicles		1455	1.7	1455	1.7	0.418	0.1	NA	0.0	0.2	0.00	0.00	0.00	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 Site: [FB AM - Bettington Rd-Prindle St-Belmore St E (Site Folder: Future Base)]  Network: [FB AM (Network Folder: Future Base)]

Site Category: Future Base
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Belmore St E-S														
1	L2	2	0.0	2	0.0	0.418	7.3	LOS A	2.8	19.7	0.69	0.73	0.69	33.9
2	T1	302	0.3	302	0.3	0.418	7.0	LOS A	2.8	19.7	0.69	0.73	0.69	24.6
3	R2	23	0.0	23	0.0	0.418	9.9	LOS A	2.8	19.7	0.69	0.73	0.69	31.6
3u	U	3	0.0	3	0.0	0.418	11.2	LOS A	2.8	19.7	0.69	0.73	0.69	28.7
Approach		331	0.3	331	0.3	0.418	7.3	LOS A	2.8	19.7	0.69	0.73	0.69	25.4
East: Bettington Rd-E														
4	L2	25	0.0	25	0.0	0.441	7.1	LOS A	2.9	20.3	0.61	0.74	0.61	28.5
5	T1	24	0.0	24	0.0	0.441	6.5	LOS A	2.9	20.3	0.61	0.74	0.61	33.5
6	R2	332	1.3	332	1.3	0.441	9.4	LOS A	2.9	20.3	0.61	0.74	0.61	23.6
6u	U	1	0.0	1	0.0	0.441	10.7	LOS A	2.9	20.3	0.61	0.74	0.61	27.6
Approach		382	1.1	382	1.1	0.441	9.0	LOS A	2.9	20.3	0.61	0.74	0.61	25.0
North: Bettington Rd-N														
7	L2	278	3.0	278	3.0	0.386	4.5	LOS A	3.1	22.5	0.19	0.47	0.19	39.7
8	T1	271	1.6	271	1.6	0.386	4.0	LOS A	3.1	22.5	0.19	0.47	0.19	40.9
9	R2	6	0.0	6	0.0	0.386	6.7	LOS A	3.1	22.5	0.19	0.47	0.19	41.9
9u	U	6	0.0	6	0.0	0.386	8.1	LOS A	3.1	22.5	0.19	0.47	0.19	39.4
Approach		561	2.3	561	2.3	0.386	4.3	LOS A	3.1	22.5	0.19	0.47	0.19	40.3
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.005	7.6	LOS A	0.0	0.2	0.65	0.57	0.65	30.2
Approach		3	0.0	3	0.0	0.005	7.6	LOS A	0.0	0.2	0.65	0.57	0.65	30.2
All Vehicles		1277	1.4	1277	1.4	0.441	6.5	LOS A	3.1	22.5	0.44	0.62	0.44	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 **Site:** [FB PM - Bettington Rd-Ellis St-Club Northern Access
(Site Folder: Future Base)]

 **Network:** N101 [FB PM
(Network Folder: Future Base)]

Site Category: Future Base
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
1	L2	2	0.0	2	0.0	0.620	4.4	LOS A	6.2	43.8	0.14	0.44	0.14	35.2
2	T1	923	0.7	923	0.7	0.620	3.6	LOS A	6.2	43.8	0.14	0.44	0.14	39.9
3	R2	18	5.9	18	5.9	0.620	6.3	LOS A	6.2	43.8	0.14	0.44	0.14	21.5
3u	U	1	0.0	1	0.0	0.620	7.6	LOS A	6.2	43.8	0.14	0.44	0.14	28.2
Approach		944	0.8	944	0.8	0.620	3.6	LOS A	6.2	43.8	0.14	0.44	0.14	38.5
East: Club Northern Access														
4	L2	1	0.0	1	0.0	0.014	4.2	LOS A	0.1	0.5	0.60	0.51	0.60	19.0
5	T1	1	0.0	1	0.0	0.014	3.7	LOS A	0.1	0.5	0.60	0.51	0.60	21.1
6	R2	7	0.0	7	0.0	0.014	5.2	LOS A	0.1	0.5	0.60	0.51	0.60	22.4
Approach		9	0.0	9	0.0	0.014	4.9	LOS A	0.1	0.5	0.60	0.51	0.60	21.9
North: Bettington Rd-N														
7	L2	13	0.0	13	0.0	0.409	4.7	LOS A	3.1	22.0	0.22	0.45	0.22	23.4
8	T1	542	0.8	542	0.8	0.409	4.1	LOS A	3.1	22.0	0.22	0.45	0.22	37.3
9	R2	2	0.0	2	0.0	0.409	6.7	LOS A	3.1	22.0	0.22	0.45	0.22	39.7
9u	U	1	0.0	1	0.0	0.409	8.0	LOS A	3.1	22.0	0.22	0.45	0.22	42.0
Approach		558	0.8	558	0.8	0.409	4.1	LOS A	3.1	22.0	0.22	0.45	0.22	35.7
West: Ellis St-W														
10	L2	21	5.0	21	5.0	0.101	14.9	LOS B	0.5	3.9	0.78	0.87	0.78	27.8
11	T1	1	0.0	1	0.0	0.101	14.5	LOS A	0.5	3.9	0.78	0.87	0.78	19.6
12	R2	16	13.3	16	13.3	0.101	17.7	LOS B	0.5	3.9	0.78	0.87	0.78	18.0
12u	U	1	0.0	1	0.0	0.101	17.8	LOS B	0.5	3.9	0.78	0.87	0.78	25.4
Approach		39	8.1	39	8.1	0.101	16.1	LOS B	0.5	3.9	0.78	0.87	0.78	24.2
All Vehicles		1551	1.0	1551	1.0	0.620	4.1	LOS A	6.2	43.8	0.19	0.45	0.19	36.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

Site: [FB PM - Bettington Rd-Club Southern Access/Exit Only (Site Folder: Future Base)]

Network: N101 [FB PM (Network Folder: Future Base)]

Site Category: Future Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total HV] veh/h %		ARRIVAL FLOWS [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bettington Rd-S														
2	T1	962	0.8	962	0.8	0.496	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach		962	0.8	962	0.8	0.496	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.7
East: Club Southern Access -Exit Only														
4	L2	16	0.0	16	0.0	0.045	2.3	LOS A	0.1	1.0	0.62	0.55	0.62	18.7
6	R2	4	0.0	4	0.0	0.045	22.3	LOS B	0.1	1.0	0.62	0.55	0.62	18.7
Approach		20	0.0	20	0.0	0.045	6.5	LOS A	0.1	1.0	0.62	0.55	0.62	18.7
North: Bettington Rd-N														
8	T1	575	1.1	575	1.1	0.297	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		575	1.1	575	1.1	0.297	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1557	0.9	1557	0.9	0.496	0.2	NA	0.1	1.0	0.01	0.01	0.01	46.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 Site: [FB PM - Bettington Rd-Prindle St-Belmore St E (Site Folder: Future Base)]

 Network: N101 [FB PM (Network Folder: Future Base)]

Site Category: Future Base
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Belmore St E-S														
1	L2	5	0.0	5	0.0	0.649	11.4	LOS A	6.6	46.3	0.87	0.97	1.08	29.4
2	T1	423	0.2	423	0.2	0.649	11.0	LOS A	6.6	46.3	0.87	0.97	1.08	19.1
3	R2	42	0.0	42	0.0	0.649	13.9	LOS A	6.6	46.3	0.87	0.97	1.08	26.5
3u	U	4	0.0	4	0.0	0.649	15.2	LOS B	6.6	46.3	0.87	0.97	1.08	24.3
Approach		475	0.2	475	0.2	0.649	11.3	LOS A	6.6	46.3	0.87	0.97	1.08	20.2
East: Bettington Rd-E														
4	L2	28	0.0	28	0.0	0.540	8.3	LOS A	4.2	29.4	0.70	0.80	0.75	27.2
5	T1	23	0.0	23	0.0	0.540	7.7	LOS A	4.2	29.4	0.70	0.80	0.75	32.2
6	R2	401	0.0	401	0.0	0.540	10.5	LOS A	4.2	29.4	0.70	0.80	0.75	22.0
6u	U	1	0.0	1	0.0	0.540	11.8	LOS A	4.2	29.4	0.70	0.80	0.75	26.4
Approach		454	0.0	454	0.0	0.540	10.2	LOS A	4.2	29.4	0.70	0.80	0.75	23.3
North: Bettington Rd-N														
7	L2	201	2.1	201	2.1	0.381	4.7	LOS A	3.2	22.4	0.27	0.47	0.27	39.4
8	T1	312	1.0	312	1.0	0.381	4.2	LOS A	3.2	22.4	0.27	0.47	0.27	40.6
9	R2	5	0.0	5	0.0	0.381	6.9	LOS A	3.2	22.4	0.27	0.47	0.27	41.6
9u	U	2	0.0	2	0.0	0.381	8.2	LOS A	3.2	22.4	0.27	0.47	0.27	38.9
Approach		520	1.4	520	1.4	0.381	4.4	LOS A	3.2	22.4	0.27	0.47	0.27	40.1
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.006	9.5	LOS A	0.0	0.2	0.75	0.62	0.75	27.4
Approach		3	0.0	3	0.0	0.006	9.5	LOS A	0.0	0.2	0.75	0.62	0.75	27.4
All Vehicles		1452	0.6	1452	0.6	0.649	8.5	LOS A	6.6	46.3	0.60	0.74	0.69	30.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: [FB SAT - Bettington Rd-Ellis St-Club Northern Access
(Site Folder: Future Base)]

 Network: N101 [FB SAT
(Network Folder: Future Base)]

Site Category: Future Base
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
1	L2	15	0.0	15	0.0	0.323	4.4	LOS A	1.8	12.6	0.11	0.45	0.11	35.4
2	T1	433	1.0	433	1.0	0.323	3.6	LOS A	1.8	12.6	0.11	0.45	0.11	40.0
3	R2	11	0.0	11	0.0	0.323	6.3	LOS A	1.8	12.6	0.11	0.45	0.11	21.6
3u	U	1	0.0	1	0.0	0.323	7.6	LOS A	1.8	12.6	0.11	0.45	0.11	28.5
Approach		459	0.9	459	0.9	0.323	3.7	LOS A	1.8	12.6	0.11	0.45	0.11	38.2
East: Club Northern Access														
4	L2	4	0.0	4	0.0	0.012	3.6	LOS A	0.1	0.4	0.56	0.40	0.56	19.3
5	T1	3	0.0	3	0.0	0.012	3.1	LOS A	0.1	0.4	0.56	0.40	0.56	21.4
6	R2	1	0.0	1	0.0	0.012	4.6	LOS A	0.1	0.4	0.56	0.40	0.56	22.7
Approach		8	0.0	8	0.0	0.012	3.5	LOS A	0.1	0.4	0.56	0.40	0.56	20.6
North: Bettington Rd-N														
7	L2	18	0.0	18	0.0	0.353	4.6	LOS A	2.5	17.5	0.18	0.45	0.18	23.4
8	T1	459	0.5	459	0.5	0.353	4.0	LOS A	2.5	17.5	0.18	0.45	0.18	37.6
9	R2	13	0.0	13	0.0	0.353	6.6	LOS A	2.5	17.5	0.18	0.45	0.18	39.9
9u	U	1	0.0	1	0.0	0.353	7.9	LOS A	2.5	17.5	0.18	0.45	0.18	42.2
Approach		491	0.4	491	0.4	0.353	4.1	LOS A	2.5	17.5	0.18	0.45	0.18	35.2
West: Ellis St-W														
10	L2	18	0.0	18	0.0	0.054	7.8	LOS A	0.3	1.8	0.55	0.69	0.55	34.1
11	T1	1	0.0	1	0.0	0.054	7.8	LOS A	0.3	1.8	0.55	0.69	0.55	20.9
12	R2	17	0.0	17	0.0	0.054	9.8	LOS A	0.3	1.8	0.55	0.69	0.55	25.3
12u	U	1	0.0	1	0.0	0.054	11.1	LOS A	0.3	1.8	0.55	0.69	0.55	32.4
Approach		37	0.0	37	0.0	0.054	8.8	LOS A	0.3	1.8	0.55	0.69	0.55	30.0
All Vehicles		995	0.6	995	0.6	0.353	4.1	LOS A	2.5	17.5	0.16	0.46	0.16	35.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: [FB SAT - Bettington Rd-Club Southern Access/Exit Only (Site Folder: Future Base)]

Network: N101 [FB SAT (Network Folder: Future Base)]

Site Category: Future Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total HV] veh/h %		ARRIVAL FLOWS [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bettington Rd-S														
2	T1	469	0.9	469	0.9	0.242	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		469	0.9	469	0.9	0.242	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
East: Club Southern Access -Exit Only														
4	L2	16	0.0	16	0.0	0.029	1.8	LOS A	0.1	0.7	0.50	0.43	0.50	19.3
6	R2	6	0.0	6	0.0	0.029	6.7	LOS A	0.1	0.7	0.50	0.43	0.50	19.3
Approach		22	0.0	22	0.0	0.029	3.2	LOS A	0.1	0.7	0.50	0.43	0.50	19.3
North: Bettington Rd-N														
8	T1	482	0.4	482	0.4	0.248	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		482	0.4	482	0.4	0.248	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		974	0.6	974	0.6	0.248	0.1	NA	0.1	0.7	0.01	0.01	0.01	44.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: [FB SAT - Bettington Rd-Prindle St-Belmore St E (Site Folder: Future Base)]

 Network: N101 [FB SAT (Network Folder: Future Base)]

Site Category: Future Base
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Belmore St E-S														
1	L2	13	0.0	13	0.0	0.305	5.7	LOS A	1.9	13.3	0.49	0.60	0.49	35.1
2	T1	225	0.5	225	0.5	0.305	5.4	LOS A	1.9	13.3	0.49	0.60	0.49	26.2
3	R2	48	0.0	48	0.0	0.305	8.2	LOS A	1.9	13.3	0.49	0.60	0.49	32.9
3u	U	4	0.0	4	0.0	0.305	9.6	LOS A	1.9	13.3	0.49	0.60	0.49	29.9
Approach		291	0.4	291	0.4	0.305	5.9	LOS A	1.9	13.3	0.49	0.60	0.49	28.4
East: Bettington Rd-E														
4	L2	36	0.0	36	0.0	0.254	6.2	LOS A	1.4	10.1	0.48	0.67	0.48	29.7
5	T1	14	0.0	14	0.0	0.254	5.7	LOS A	1.4	10.1	0.48	0.67	0.48	34.8
6	R2	177	0.6	177	0.6	0.254	8.5	LOS A	1.4	10.1	0.48	0.67	0.48	25.0
6u	U	2	0.0	2	0.0	0.254	9.8	LOS A	1.4	10.1	0.48	0.67	0.48	28.7
Approach		228	0.5	228	0.5	0.254	8.0	LOS A	1.4	10.1	0.48	0.67	0.48	26.9
North: Bettington Rd-N														
7	L2	185	0.0	185	0.0	0.313	4.7	LOS A	2.2	15.1	0.24	0.48	0.24	39.6
8	T1	220	0.5	220	0.5	0.313	4.2	LOS A	2.2	15.1	0.24	0.48	0.24	40.7
9	R2	13	0.0	13	0.0	0.313	6.9	LOS A	2.2	15.1	0.24	0.48	0.24	41.6
9u	U	1	0.0	1	0.0	0.313	8.3	LOS A	2.2	15.1	0.24	0.48	0.24	39.0
Approach		419	0.3	419	0.3	0.313	4.5	LOS A	2.2	15.1	0.24	0.48	0.24	40.2
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.004	5.8	LOS A	0.0	0.1	0.51	0.52	0.51	33.3
Approach		3	0.0	3	0.0	0.004	5.8	LOS A	0.0	0.1	0.51	0.52	0.51	33.3
All Vehicles		941	0.3	941	0.3	0.313	5.8	LOS A	2.2	15.1	0.38	0.56	0.38	35.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site:** [FB + DEV AM - Bettington Rd-Ellis St (Site Folder: Future Base + Development)]

 **Network:** [FB + DEV AM (Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bettington Rd-S														
1	L2	5	0.0	5	0.0	0.505	4.3	LOS A	3.7	25.9	0.09	0.44	0.09	35.7
2	T1	766	1.4	766	1.4	0.505	3.5	LOS A	3.7	25.9	0.09	0.44	0.09	40.3
3u	U	1	0.0	1	0.0	0.505	7.6	LOS A	3.7	25.9	0.09	0.44	0.09	29.0
Approach		773	1.4	773	1.4	0.505	3.6	LOS A	3.7	25.9	0.09	0.44	0.09	40.3
North: Bettington Rd-N														
8	T1	646	1.8	646	1.8	0.441	3.9	LOS A	3.9	27.9	0.15	0.44	0.15	37.9
9	R2	7	0.0	7	0.0	0.441	6.6	LOS A	3.9	27.9	0.15	0.44	0.15	40.1
9u	U	1	0.0	1	0.0	0.441	7.8	LOS A	3.9	27.9	0.15	0.44	0.15	42.4
Approach		655	1.8	655	1.8	0.441	3.9	LOS A	3.9	27.9	0.15	0.44	0.15	38.0
West: Ellis St-W														
10	L2	14	7.7	14	7.7	0.061	11.8	LOS A	0.3	2.3	0.70	0.80	0.70	29.9
12	R2	13	25.0	13	25.0	0.061	15.0	LOS B	0.3	2.3	0.70	0.80	0.70	20.3
12u	U	1	0.0	1	0.0	0.061	14.6	LOS B	0.3	2.3	0.70	0.80	0.70	27.8
Approach		27	15.4	27	15.4	0.061	13.4	LOS A	0.3	2.3	0.70	0.80	0.70	26.5
All Vehicles		1455	1.8	1455	1.8	0.505	3.9	LOS A	3.9	27.9	0.13	0.45	0.13	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 **Site:** [FB + DEV AM - Bettington Rd-New Site Access (Site Folder: Future Base + Development)]

 **Network:** [FB + DEV AM (Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
2	T1	807	1.3	807	1.3	0.443	0.3	LOS A	0.6	4.0	0.07	0.02	0.10	48.4
3	R2	21	0.0	21	0.0	0.443	10.4	LOS A	0.6	4.0	0.07	0.02	0.10	25.3
Approach		828	1.3	828	1.3	0.443	0.6	NA	0.6	4.0	0.07	0.02	0.10	45.4
East: New Site Access														
4	L2	9	0.0	9	0.0	0.052	2.8	LOS A	0.2	1.1	0.73	0.69	0.73	18.1
6	R2	7	0.0	7	0.0	0.052	18.1	LOS B	0.2	1.1	0.73	0.69	0.73	18.1
Approach		17	0.0	17	0.0	0.052	9.5	LOS A	0.2	1.1	0.73	0.69	0.73	18.1
North: Bettington Rd-N														
7	L2	23	0.0	23	0.0	0.347	4.3	LOS A	0.0	0.0	0.00	0.02	0.00	48.8
8	T1	644	2.1	644	2.1	0.347	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	48.4
Approach		667	2.1	667	2.1	0.347	0.2	NA	0.0	0.0	0.00	0.02	0.00	48.5
All Vehicles		1513	1.6	1513	1.6	0.443	0.5	NA	0.6	4.0	0.05	0.02	0.06	43.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 Site: [FB + DEV AM - Bettington Rd-Prindle St-Belmore St E
(Site Folder: Future Base + Development)]

 Network: [FB + DEV AM
(Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Belmore St E-S														
1	L2	2	0.0	2	0.0	0.423	7.4	LOS A	2.8	20.0	0.70	0.74	0.70	33.8
2	T1	302	0.3	302	0.3	0.423	7.1	LOS A	2.8	20.0	0.70	0.74	0.70	24.4
3	R2	23	0.0	23	0.0	0.423	10.0	LOS A	2.8	20.0	0.70	0.74	0.70	31.4
3u	U	3	0.0	3	0.0	0.423	11.3	LOS A	2.8	20.0	0.70	0.74	0.70	28.6
Approach		331	0.3	331	0.3	0.423	7.4	LOS A	2.8	20.0	0.70	0.74	0.70	25.3
East: Bettington Rd-E														
4	L2	25	0.0	25	0.0	0.452	7.1	LOS A	3.0	21.1	0.61	0.74	0.61	28.5
5	T1	24	0.0	24	0.0	0.452	6.6	LOS A	3.0	21.1	0.61	0.74	0.61	33.5
6	R2	342	1.2	342	1.2	0.452	9.4	LOS A	3.0	21.1	0.61	0.74	0.61	23.5
6u	U	1	0.0	1	0.0	0.452	10.7	LOS A	3.0	21.1	0.61	0.74	0.61	27.6
Approach		393	1.1	393	1.1	0.452	9.1	LOS A	3.0	21.1	0.61	0.74	0.61	24.9
North: Bettington Rd-N														
7	L2	285	3.0	285	3.0	0.391	4.5	LOS A	3.2	22.9	0.19	0.47	0.19	39.7
8	T1	271	1.6	271	1.6	0.391	4.0	LOS A	3.2	22.9	0.19	0.47	0.19	40.9
9	R2	6	0.0	6	0.0	0.391	6.7	LOS A	3.2	22.9	0.19	0.47	0.19	41.9
9u	U	6	0.0	6	0.0	0.391	8.1	LOS A	3.2	22.9	0.19	0.47	0.19	39.4
Approach		568	2.2	568	2.2	0.391	4.3	LOS A	3.2	22.9	0.19	0.47	0.19	40.3
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.005	7.7	LOS A	0.0	0.2	0.65	0.58	0.65	30.0
Approach		3	0.0	3	0.0	0.005	7.7	LOS A	0.0	0.2	0.65	0.58	0.65	30.0
All Vehicles		1295	1.4	1295	1.4	0.452	6.6	LOS A	3.2	22.9	0.45	0.62	0.45	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 **Site:** [FB + DEV PM - Bettington Rd-Ellis St (Site Folder: Future Base + Development)]

 **Network:** N101 [FB + DEV PM (Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
1	L2	2	0.0	2	0.0	0.593	4.3	LOS A	5.2	36.7	0.06	0.45	0.06	35.9
2	T1	937	0.7	937	0.7	0.593	3.5	LOS A	5.2	36.7	0.06	0.45	0.06	40.5
3u	U	1	0.0	1	0.0	0.593	7.5	LOS A	5.2	36.7	0.06	0.45	0.06	29.3
Approach		940	0.7	940	0.7	0.593	3.5	LOS A	5.2	36.7	0.06	0.45	0.06	40.5
North: Bettington Rd-N														
8	T1	559	0.8	559	0.8	0.385	3.9	LOS A	3.2	22.6	0.15	0.44	0.15	37.9
9	R2	2	0.0	2	0.0	0.385	6.6	LOS A	3.2	22.6	0.15	0.44	0.15	40.1
9u	U	1	0.0	1	0.0	0.385	7.8	LOS A	3.2	22.6	0.15	0.44	0.15	42.4
Approach		562	0.7	562	0.7	0.385	3.9	LOS A	3.2	22.6	0.15	0.44	0.15	37.9
West: Ellis St-W														
10	L2	21	5.0	21	5.0	0.094	14.6	LOS B	0.5	3.6	0.76	0.86	0.76	28.0
12	R2	16	13.3	16	13.3	0.094	17.4	LOS B	0.5	3.6	0.76	0.86	0.76	18.1
12u	U	1	0.0	1	0.0	0.094	17.5	LOS B	0.5	3.6	0.76	0.86	0.76	25.6
Approach		38	8.3	38	8.3	0.094	15.9	LOS B	0.5	3.6	0.76	0.86	0.76	24.8
All Vehicles		1540	0.9	1540	0.9	0.593	4.0	LOS A	5.2	36.7	0.11	0.45	0.11	39.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

Site: [FB + DEV PM - Bettington Rd-New Site Access (Site Folder: Future Base + Development)]

Network: N101 [FB + DEV PM (Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bettington Rd-S														
2	T1	962	0.8	962	0.8	0.534	0.5	LOS A	1.0	7.0	0.10	0.02	0.14	47.8
3	R2	35	0.0	35	0.0	0.534	10.4	LOS A	1.0	7.0	0.10	0.02	0.14	25.2
Approach		997	0.7	997	0.7	0.534	0.8	NA	1.0	7.0	0.10	0.02	0.14	44.0
East: New Site Access														
4	L2	31	0.0	31	0.0	0.228	3.3	LOS A	0.7	4.9	0.78	0.83	0.84	17.3
6	R2	26	0.0	26	0.0	0.228	26.8	LOS B	0.7	4.9	0.78	0.83	0.84	17.3
Approach		57	0.0	57	0.0	0.228	14.1	LOS A	0.7	4.9	0.78	0.83	0.84	17.3
North: Bettington Rd-N														
7	L2	29	0.0	29	0.0	0.313	4.3	LOS A	0.0	0.0	0.00	0.03	0.00	48.7
8	T1	575	1.1	575	1.1	0.313	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	47.8
Approach		604	1.0	604	1.0	0.313	0.2	NA	0.0	0.0	0.00	0.03	0.00	48.1
All Vehicles		1658	0.8	1658	0.8	0.534	1.1	NA	1.0	7.0	0.08	0.05	0.12	39.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site:** [FB + DEV PM - Bettington Rd-Prindle St-Belmore St E
(Site Folder: Future Base + Development)]

 **Network:** N101 [FB + DEV
PM (Network Folder: Future
Base + Development)]

Site Category: Future Base + Development
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Belmore St E-S														
1	L2	5	0.0	5	0.0	0.662	11.9	LOS A	6.9	48.4	0.89	1.00	1.13	28.8
2	T1	423	0.2	423	0.2	0.662	11.6	LOS A	6.9	48.4	0.89	1.00	1.13	18.5
3	R2	42	0.0	42	0.0	0.662	14.5	LOS A	6.9	48.4	0.89	1.00	1.13	25.9
3u	U	4	0.0	4	0.0	0.662	15.8	LOS B	6.9	48.4	0.89	1.00	1.13	23.7
Approach		475	0.2	475	0.2	0.662	11.9	LOS A	6.9	48.4	0.89	1.00	1.13	19.6
East: Bettington Rd-E														
4	L2	28	0.0	28	0.0	0.558	8.5	LOS A	4.5	31.7	0.71	0.81	0.77	26.9
5	T1	23	0.0	23	0.0	0.558	8.0	LOS A	4.5	31.7	0.71	0.81	0.77	31.9
6	R2	418	0.0	418	0.0	0.558	10.7	LOS A	4.5	31.7	0.71	0.81	0.77	21.8
6u	U	1	0.0	1	0.0	0.558	12.1	LOS A	4.5	31.7	0.71	0.81	0.77	26.2
Approach		471	0.0	471	0.0	0.558	10.5	LOS A	4.5	31.7	0.71	0.81	0.77	22.9
North: Bettington Rd-N														
7	L2	215	2.0	215	2.0	0.390	4.7	LOS A	3.3	23.4	0.27	0.47	0.27	39.4
8	T1	312	1.0	312	1.0	0.390	4.2	LOS A	3.3	23.4	0.27	0.47	0.27	40.6
9	R2	5	0.0	5	0.0	0.390	6.9	LOS A	3.3	23.4	0.27	0.47	0.27	41.6
9u	U	2	0.0	2	0.0	0.390	8.2	LOS A	3.3	23.4	0.27	0.47	0.27	38.9
Approach		534	1.4	534	1.4	0.390	4.4	LOS A	3.3	23.4	0.27	0.47	0.27	40.1
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.006	9.7	LOS A	0.0	0.2	0.76	0.63	0.76	27.1
Approach		3	0.0	3	0.0	0.006	9.7	LOS A	0.0	0.2	0.76	0.63	0.76	27.1
All Vehicles		1482	0.6	1482	0.6	0.662	8.7	LOS A	6.9	48.4	0.61	0.75	0.71	30.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

 **Site:** [FB + DEV SAT - Bettington Rd-Ellis St (Site Folder: Future Base + Development)]

 **Network:** N101 [FB + DEV SAT (Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bettington Rd-S														
1	L2	15	0.0	15	0.0	0.321	4.4	LOS A	1.8	12.4	0.09	0.45	0.09	35.6
2	T1	451	0.9	451	0.9	0.321	3.6	LOS A	1.8	12.4	0.09	0.45	0.09	40.3
3u	U	1	0.0	1	0.0	0.321	7.6	LOS A	1.8	12.4	0.09	0.45	0.09	28.9
Approach		466	0.9	466	0.9	0.321	3.6	LOS A	1.8	12.4	0.09	0.45	0.09	40.1
North: Bettington Rd-N														
8	T1	477	0.4	477	0.4	0.338	3.9	LOS A	2.5	17.5	0.14	0.45	0.14	38.0
9	R2	13	0.0	13	0.0	0.338	6.6	LOS A	2.5	17.5	0.14	0.45	0.14	40.1
9u	U	1	0.0	1	0.0	0.338	7.8	LOS A	2.5	17.5	0.14	0.45	0.14	42.4
Approach		491	0.4	491	0.4	0.338	4.0	LOS A	2.5	17.5	0.14	0.45	0.14	38.1
West: Ellis St-W														
10	L2	18	0.0	18	0.0	0.053	7.8	LOS A	0.2	1.7	0.55	0.69	0.55	34.0
12	R2	17	0.0	17	0.0	0.053	9.9	LOS A	0.2	1.7	0.55	0.69	0.55	25.2
12u	U	1	0.0	1	0.0	0.053	11.2	LOS A	0.2	1.7	0.55	0.69	0.55	32.3
Approach		36	0.0	36	0.0	0.053	8.9	LOS A	0.2	1.7	0.55	0.69	0.55	31.0
All Vehicles		993	0.6	993	0.6	0.338	4.0	LOS A	2.5	17.5	0.13	0.46	0.13	38.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\21372 Oatlands Golf Club - Mirvac\07 Modelling Files\Model\21372-Oatlands Golf Club-211025.sip9

MOVEMENT SUMMARY

Site: [FB + DEV SAT - Bettington Rd-New Site Access (Site Folder: Future Base + Development)]

Network: N101 [FB + DEV SAT (Network Folder: Future Base + Development)]

Site Category: Future Base + Development
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bettington Rd-S														
2	T1	469	0.9	469	0.9	0.270	0.3	LOS A	0.4	2.6	0.10	0.03	0.10	48.1
3	R2	28	0.0	28	0.0	0.270	7.4	LOS A	0.4	2.6	0.10	0.03	0.10	25.3
Approach		498	0.8	498	0.8	0.270	0.7	NA	0.4	2.6	0.10	0.03	0.10	42.3
East: New Site Access														
4	L2	38	0.0	38	0.0	0.102	1.9	LOS A	0.3	2.4	0.54	0.51	0.54	19.1
6	R2	28	0.0	28	0.0	0.102	7.2	LOS A	0.3	2.4	0.54	0.51	0.54	19.1
Approach		66	0.0	66	0.0	0.102	4.2	LOS A	0.3	2.4	0.54	0.51	0.54	19.1
North: Bettington Rd-N														
7	L2	37	0.0	37	0.0	0.268	4.3	LOS A	0.0	0.0	0.00	0.04	0.00	48.7
8	T1	482	0.4	482	0.4	0.268	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	47.0
Approach		519	0.4	519	0.4	0.268	0.3	NA	0.0	0.0	0.00	0.04	0.00	47.6
All Vehicles		1083	0.6	1083	0.6	0.270	0.7	NA	0.4	2.6	0.08	0.07	0.08	36.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site:** [FB + DEV SAT - Bettington Rd-Prindle St-Belmore St E
(Site Folder: Future Base + Development)]

 **Network:** N101 [FB + DEV
SAT (Network Folder: Future
Base + Development)]

Site Category: Future Base + Development
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Belmore St E-S														
1	L2	13	0.0	13	0.0	0.312	5.9	LOS A	1.9	13.7	0.51	0.61	0.51	34.9
2	T1	225	0.5	225	0.5	0.312	5.5	LOS A	1.9	13.7	0.51	0.61	0.51	26.0
3	R2	48	0.0	48	0.0	0.312	8.4	LOS A	1.9	13.7	0.51	0.61	0.51	32.7
3u	U	4	0.0	4	0.0	0.312	9.7	LOS A	1.9	13.7	0.51	0.61	0.51	29.7
Approach		291	0.4	291	0.4	0.312	6.1	LOS A	1.9	13.7	0.51	0.61	0.51	28.2
East: Bettington Rd-E														
4	L2	36	0.0	36	0.0	0.274	6.3	LOS A	1.6	11.0	0.49	0.68	0.49	29.7
5	T1	14	0.0	14	0.0	0.274	5.7	LOS A	1.6	11.0	0.49	0.68	0.49	34.7
6	R2	195	0.5	195	0.5	0.274	8.5	LOS A	1.6	11.0	0.49	0.68	0.49	24.9
6u	U	2	0.0	2	0.0	0.274	9.8	LOS A	1.6	11.0	0.49	0.68	0.49	28.6
Approach		246	0.4	246	0.4	0.274	8.1	LOS A	1.6	11.0	0.49	0.68	0.49	26.7
North: Bettington Rd-N														
7	L2	203	0.0	203	0.0	0.325	4.7	LOS A	2.3	16.0	0.25	0.48	0.25	39.5
8	T1	220	0.5	220	0.5	0.325	4.2	LOS A	2.3	16.0	0.25	0.48	0.25	40.6
9	R2	13	0.0	13	0.0	0.325	6.9	LOS A	2.3	16.0	0.25	0.48	0.25	41.6
9u	U	1	0.0	1	0.0	0.325	8.3	LOS A	2.3	16.0	0.25	0.48	0.25	39.0
Approach		437	0.2	437	0.2	0.325	4.5	LOS A	2.3	16.0	0.25	0.48	0.25	40.1
West: Prindle St-W														
10	L2	3	0.0	3	0.0	0.004	5.9	LOS A	0.0	0.1	0.52	0.52	0.52	33.1
Approach		3	0.0	3	0.0	0.004	5.9	LOS A	0.0	0.1	0.52	0.52	0.52	33.1
All Vehicles		977	0.3	977	0.3	0.325	5.9	LOS A	2.3	16.0	0.39	0.57	0.39	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

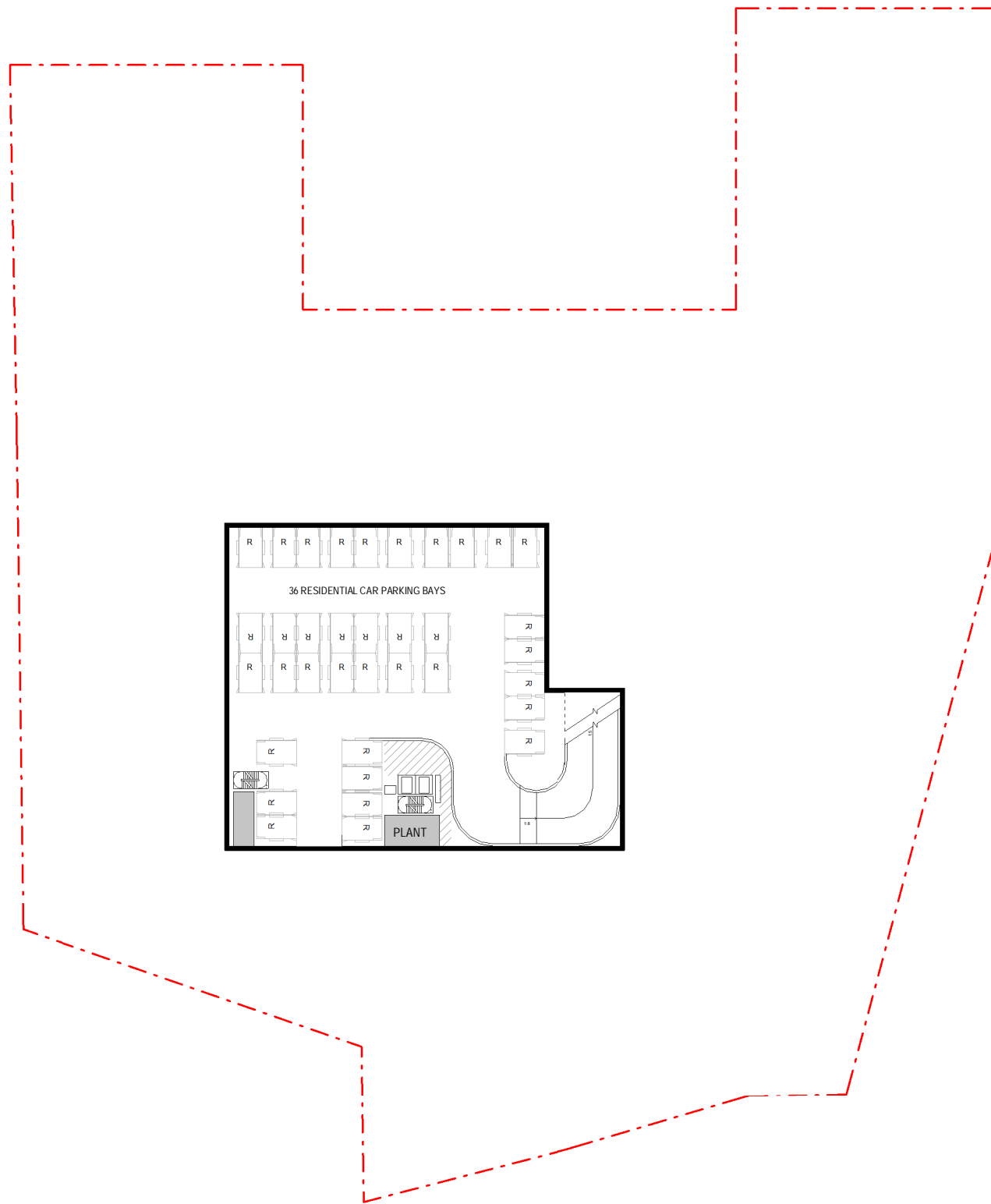
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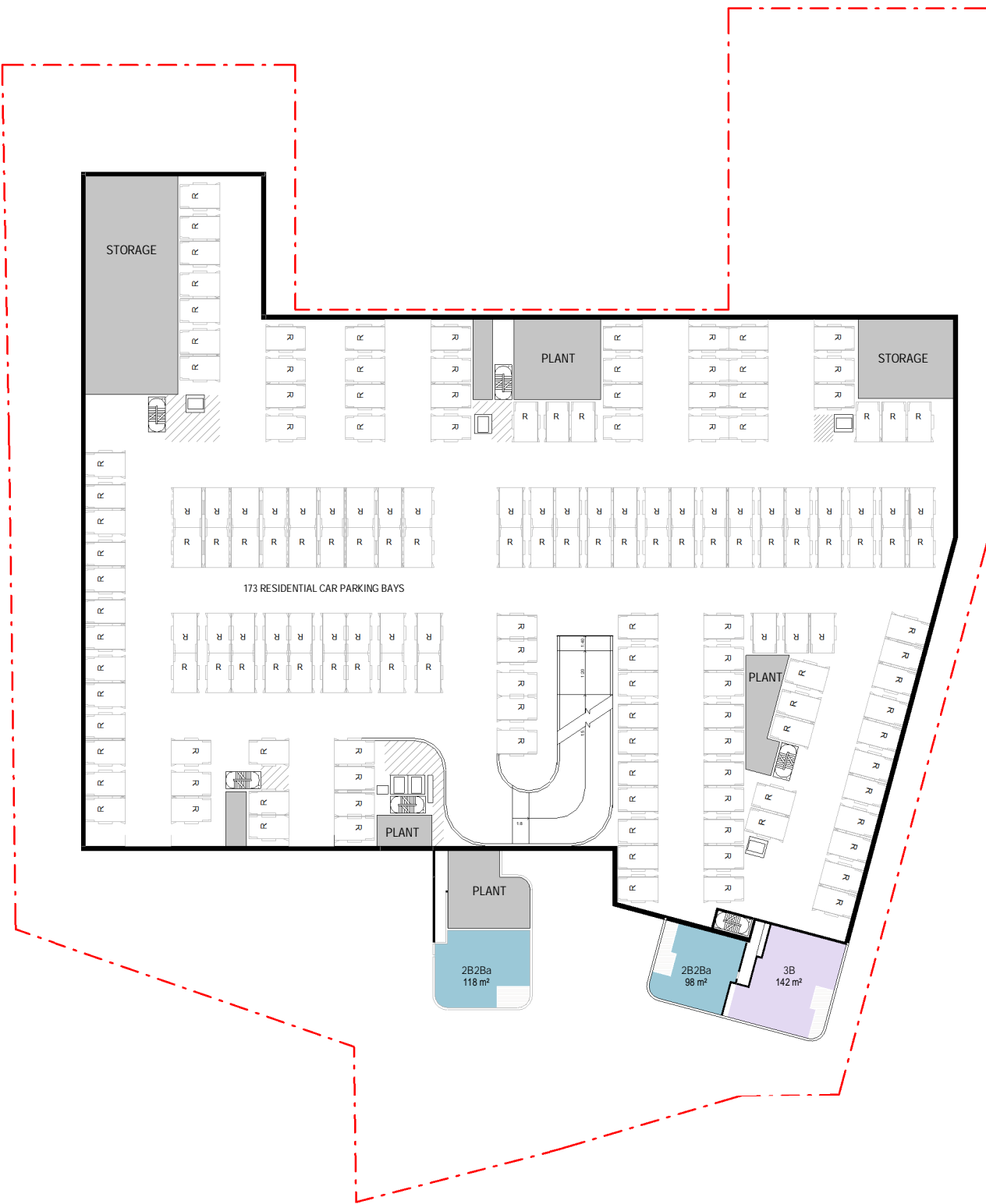
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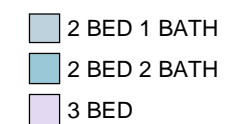
Appendix B

Architectural Layout Plans

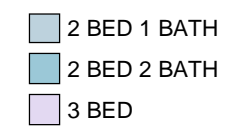


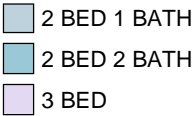
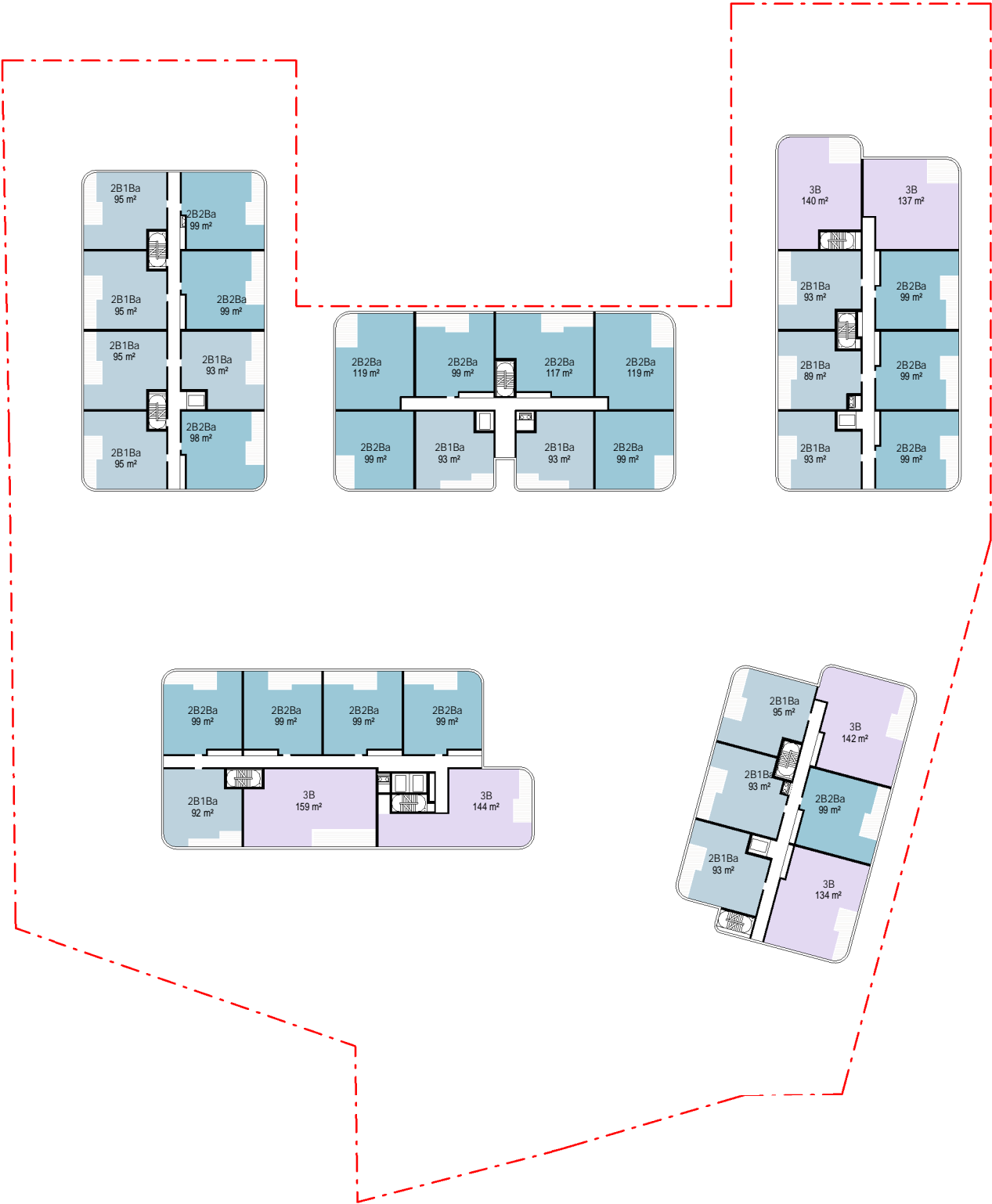


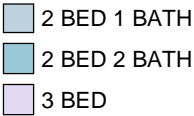
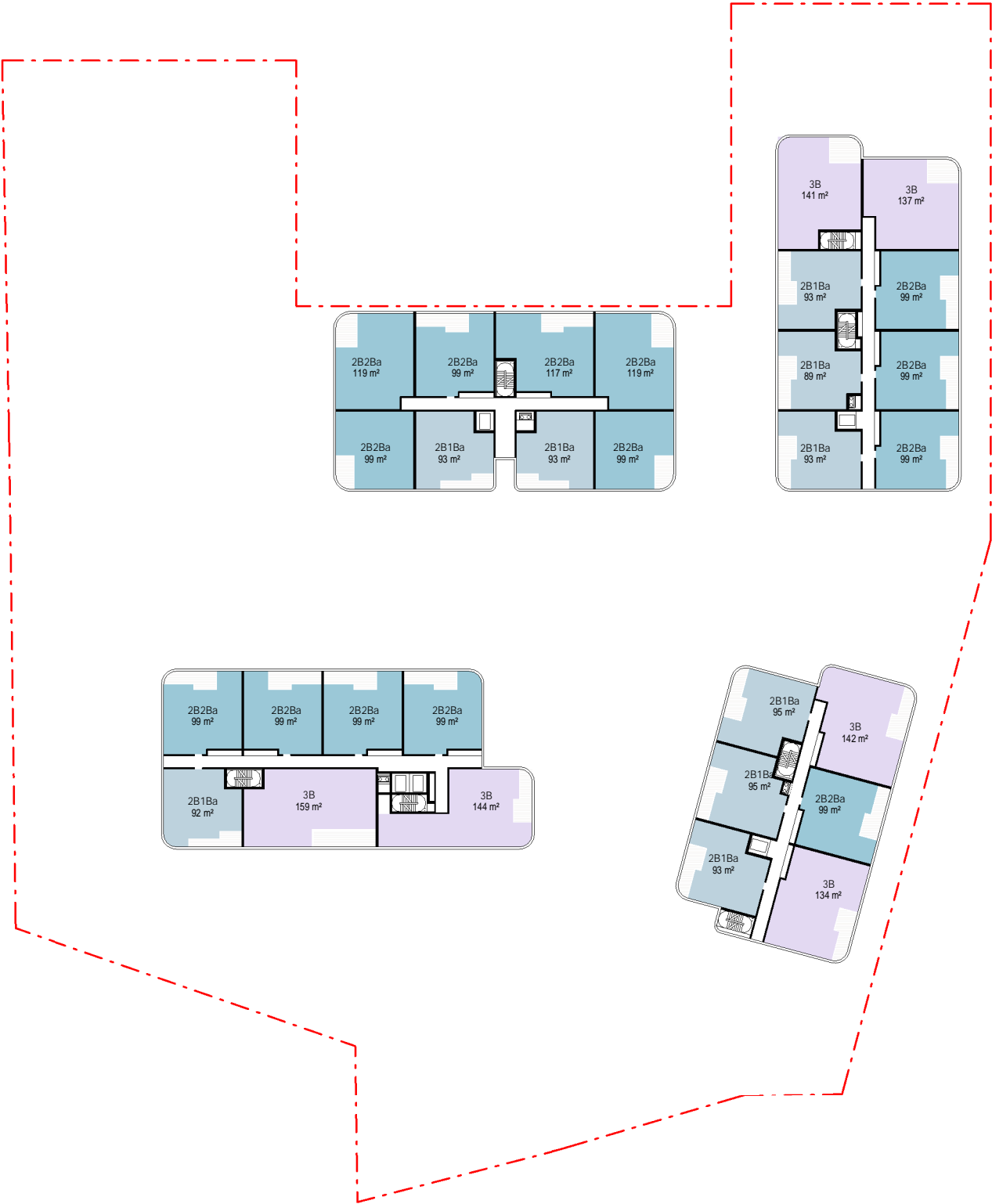
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- 3 BED

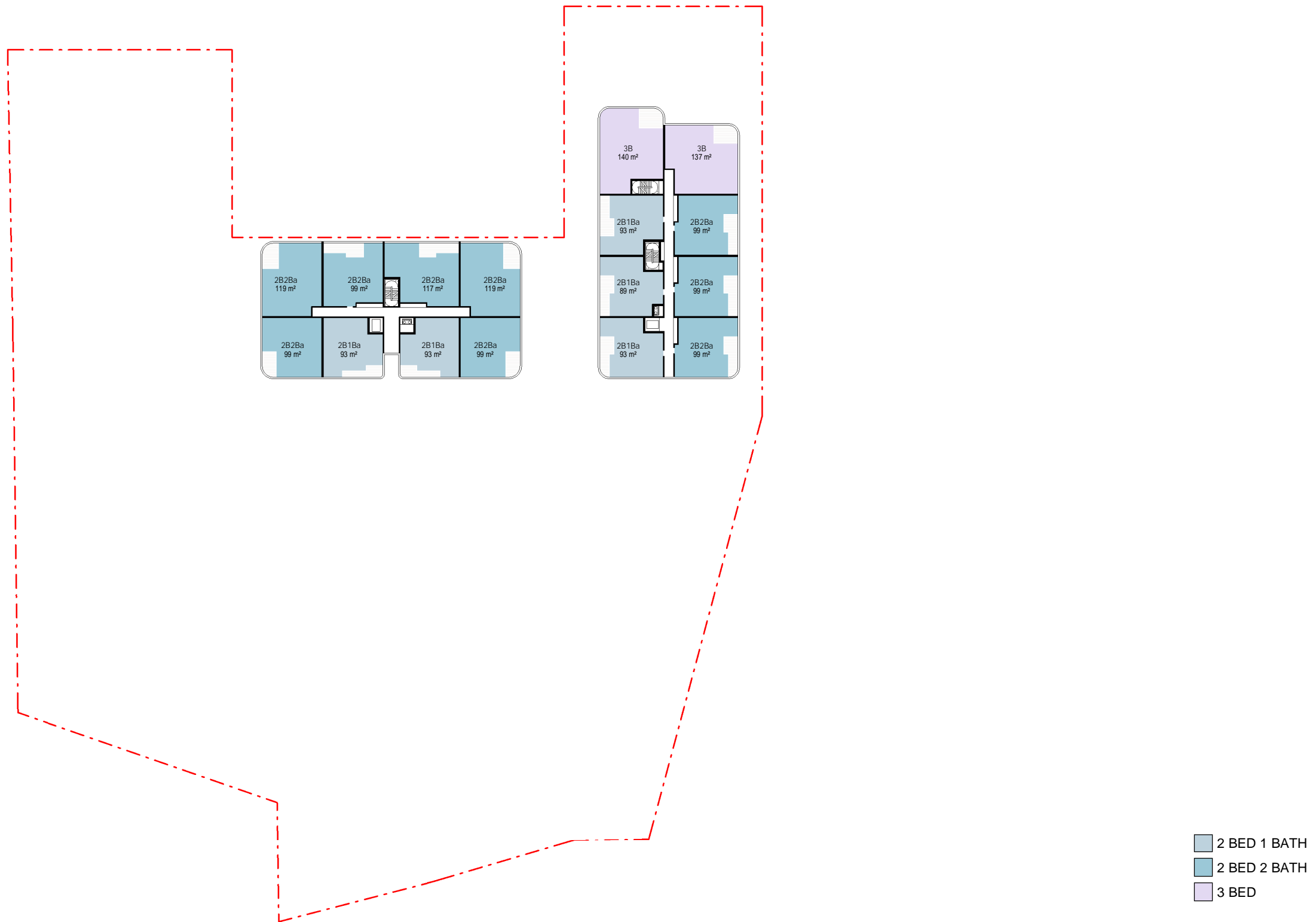








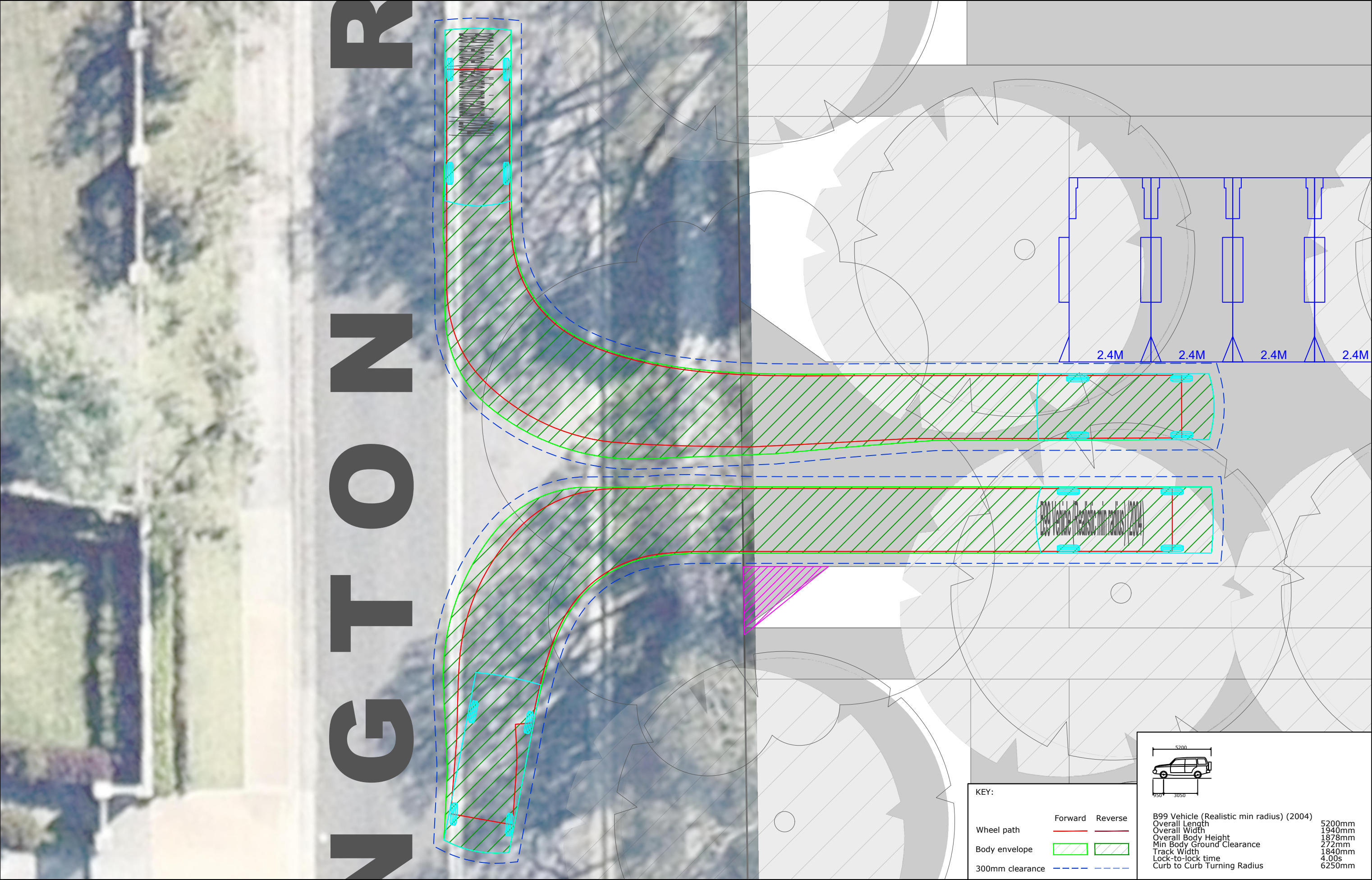




Appendix C

Swept Path Assessment

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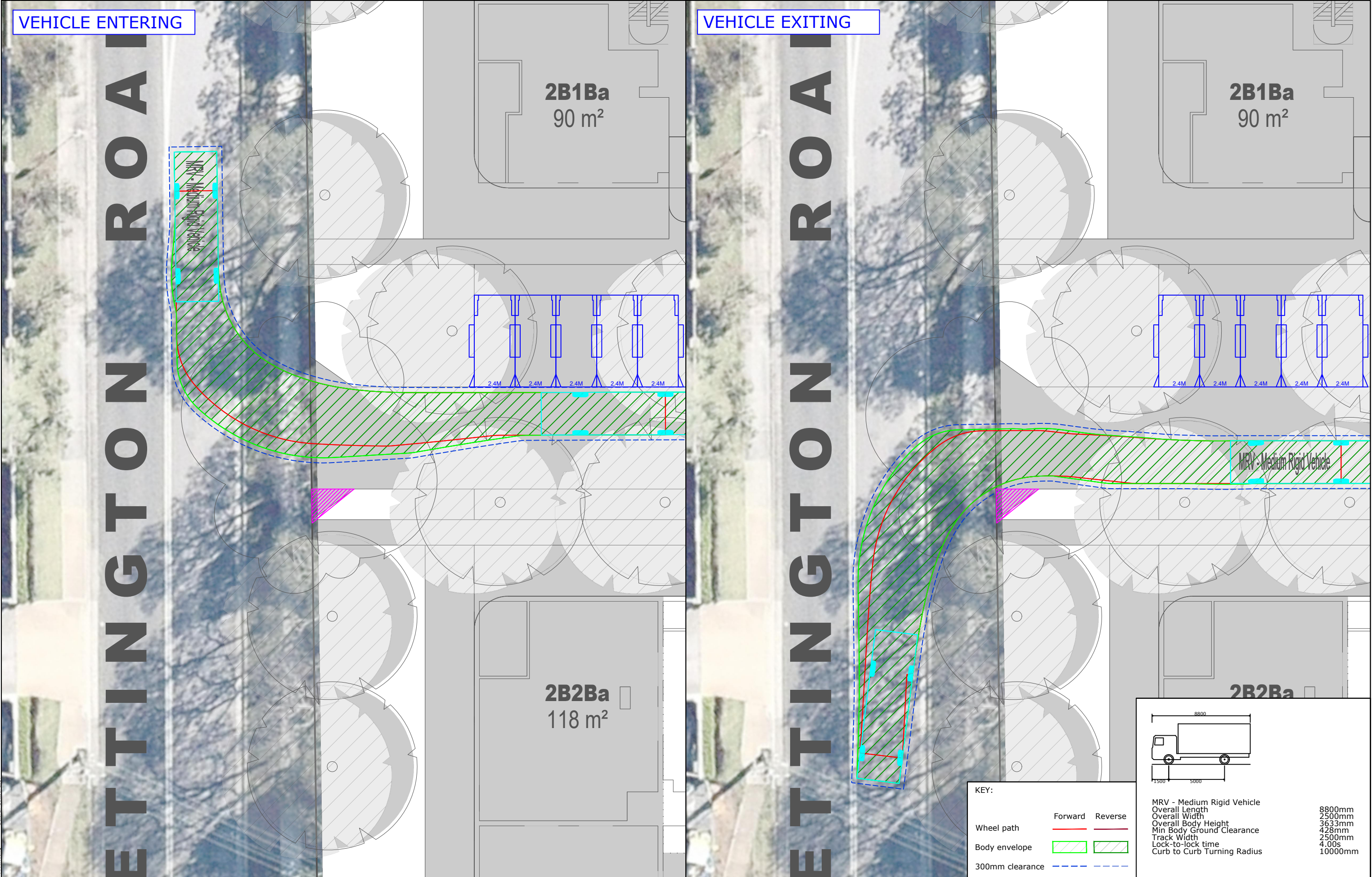


REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JN	WJ	27/10/21



PROJECT	OATLANDS GOLF COURSE	
TITLE	5.2m B99 VEHICLE SWEEP PATH LEVEL 1	

DWG No. 21372CAD003 FIGURE 1	
DATE STAMP 27 OCTOBER 2021	
PROJECT No. 21372	SCALE 1:100 @A3
REV. A	



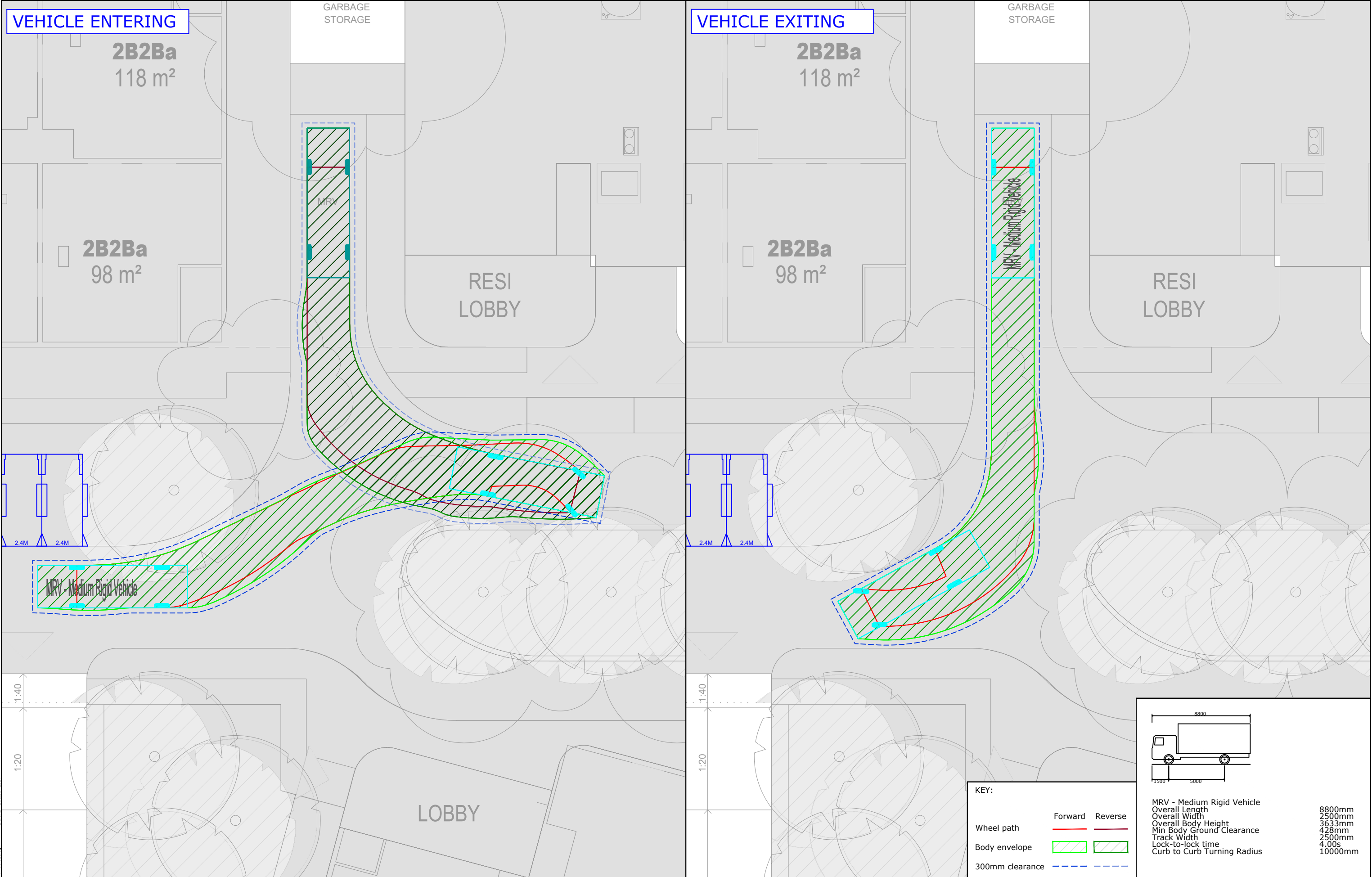
REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JN	WJ	27/10/21



PROJECT	OATLANDS GOLF COURSE	
TITLE	8.8m MEDIUM RIGID VEHICLE SWEEP PATH LEVEL 1	

DWG No. 21372CAD003 FIGURE 2	
DATE STAMP 27 OCTOBER 2021	
PROJECT No. 21372	SCALE 1:200 @A3
REV. A	

Filename: 21372CAD003-21 007 SWEEP PATH.dwg Date: 27 October 2021



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JN	WJ	27/10/21



PROJECT	OATLANDS GOLF COURSE		
TITLE	8.8m MEDIUM RIGID VEHICLE SWEEP PATH LEVEL 1		

DWG No.			21372CAD003		
			FIGURE 3		
DATE STAMP			27 OCTOBER 2021		
PROJECT No.		SCALE		REV.	
21372		1:200 @A3		A	

Filename: 21372CAD003-21027-SWEEP PATH.dwg Date: 27 October 2021

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