



8 Forest Rd, Warriewood Proposed Residential Development

Traffic and Parking Assessment Report



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1 Introduction

MLA Transport Planning (MLA) has been commissioned by Warriewood Vale Pty Ltd to prepare this traffic and parking assessment report to accompany two concurrent development applications for a proposed residential development at 8 Forest Road, Warriewood.

The proposed development will be undertaken over two stages. Stage 1 involves the demolition of the existing dwelling, introduction of an internal road network, and subdivision of land within the subject site to provide 17 Torrens title residential lots, one superlot (to accommodate a residential flat building), two lots for the construction of private internal roads with associated civil works and one community lot.

Stage 2 proposed development involves the construction of a three-storey residential flat building within the superlot. The proposed residential flat building comprises 64 residential apartment units with a single level basement car park containing 139 car parking spaces.

The two concurrent development applications will be lodged with Northern Beaches Council seeking approval for the proposed development. This traffic report relates to both Stage 1 and Stage 2 proposed development.

This report has been prepared to assess the traffic and parking implications of Stage 1 and Stage 2 proposed development. The report is set out as follows:

- Chapter 2 discusses the existing conditions including a description of the subject site
- Chapter 3 presents a brief description of the proposed development
- Chapter 4 provides a summary of a previously approved development on the subject site
- Chapter 5 assesses the proposed on-site parking provision and internal layout
- Chapter 6 examines the traffic generation and its impact, if any, and
- Chapter 7 presents the conclusions of the assessment.

2 Existing Conditions

2.1 Site Description

The subject site is located at 8 Forest Road, Warriewood and falls within the Northern Beaches Council local government area. It is legally described as Lot 1 in DP5055. The site is irregular in shape and is bound by bushland to the south and west, the Narrabeen Creek to the north and established housing to the east. It is also noted that the Forest Road and Boundary Street easements are located on the southern and western boundaries of the subject site, respectively.

The location of the subject site and its surrounding environs are presented in Figure 2.1.

Figure 2.1: Site Locality Plan



2.2 Road Network

The road network in the vicinity of the subject site includes Ponderosa Parade, Macpherson Street, Jubilee Avenue and Forest Road. Below is a description of the local road network.

2.2.1 Ponderosa Parade

Ponderosa Parade is a collector road under the care and maintenance of Northern Beaches Council. It is aligned generally in a north-south direction providing access to light industrial properties. It is the continuation of Macpherson Street and connects to Mona Vale Road. It is configured as a two-lane, two-way road with kerbside parking lanes on either side of the road. The kerbside parking on Ponderosa Parade, north of Jubilee Avenue is time restricted to 4-hour parking, whilst kerbside parking south of Jubilee Avenue is unrestricted. Ponderosa Parade is located within a 50km/hr speed area.

2.2.2 Macpherson Street

Macpherson Street is also a collector road under the jurisdiction of Northern Beaches Council. It is aligned in a north-south direction north of Forest Road and re-aligns in a north-west to south-east direction south of Forest Road. It connects to Mona Vale Road via Ponderosa Parade to the north and to Pittwater Road via Warriewood Road to the south. It is configured as a two-lane, two-way local road with indented kerbside parking being available intermittently on either side of the road. Macpherson Street is also located within a 50km/hr speed area.

2.2.3 Jubilee Avenue

Jubilee Avenue is a local two-lane, two-way road aligns generally in an east-west direction and re-aligns in a north-south direction approximately 250m west of Ponderosa Avenue. It becomes Vineyard Street (which is predominantly a residential street) at Foley Street. Jubilee Avenue provides access to light industrial properties abutting it and at its southern end it provides access to a small pocket of residential dwellings. It generally has one traffic lane with kerbside parking in each direction. Kerbside parking is generally unrestricted, but east of Ponderosa Avenue it is time restricted. Jubilee Avenue is also located within a 50km/hr speed area.

2.2.4 Forest Road

Forest Road is a local road with one traffic lane in each direction. It provides access to residential properties fronting it as well as the Mater Maria Catholic College. Kerbside parking is available on the southern side of Forest Road as indented parking lane with those closer to the Mater Maria Catholic signed posted as drop off and pick up spaces

during school hours, otherwise as unrestricted parking. Parking on the northern side of Forest Road is also unrestricted. It has a default speed limit of 50km/hr.

It is noted that Forest Road has a road easement extending in a westerly direction along the southern boundary of the subject site. The completion of the Forest Road extension would permit the site's access to be relocated from Jubilee Avenue to Forest Road.

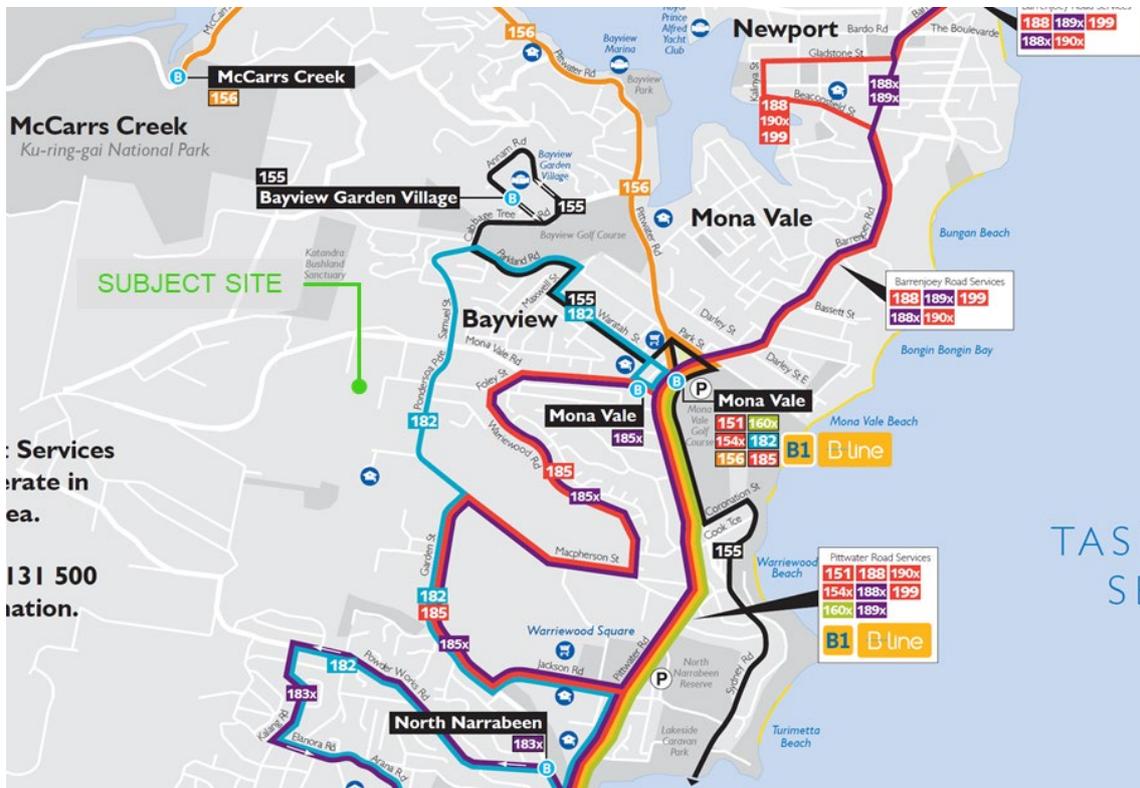
2.3 Public Transport

At present, the nearest bus stop to the subject site is located approximately 650m walking distance from the subject site on Macpherson Street. This bus stop provides regular scheduled bus services to the City, Mona Vale, Narrabeen and Warringah Mall.

The completion of Forest Road extension in the future would result in the site being located within a 450m walking distance to the nearest bus stop.

Figure 2.2 shows a map of the existing available bus services in the vicinity of the subject site. Table 2.1 shows the frequency of the bus services in the area.

Figure 2.2: Bus Network



Source: <https://transportsw.info/>

Table 2.1: Available Bus Services

Route No.	Route Description	Weekday Peak Period Frequency
182	Mona Vale to Narrabeen	60 minutes
185	Mona Vale to Warringah Mall via Warriewood	30 minutes
185X	Mona Vale to City Wynyard via Warriewood (Express Service) (Weekday Peak Direction Service Only)	15 minutes

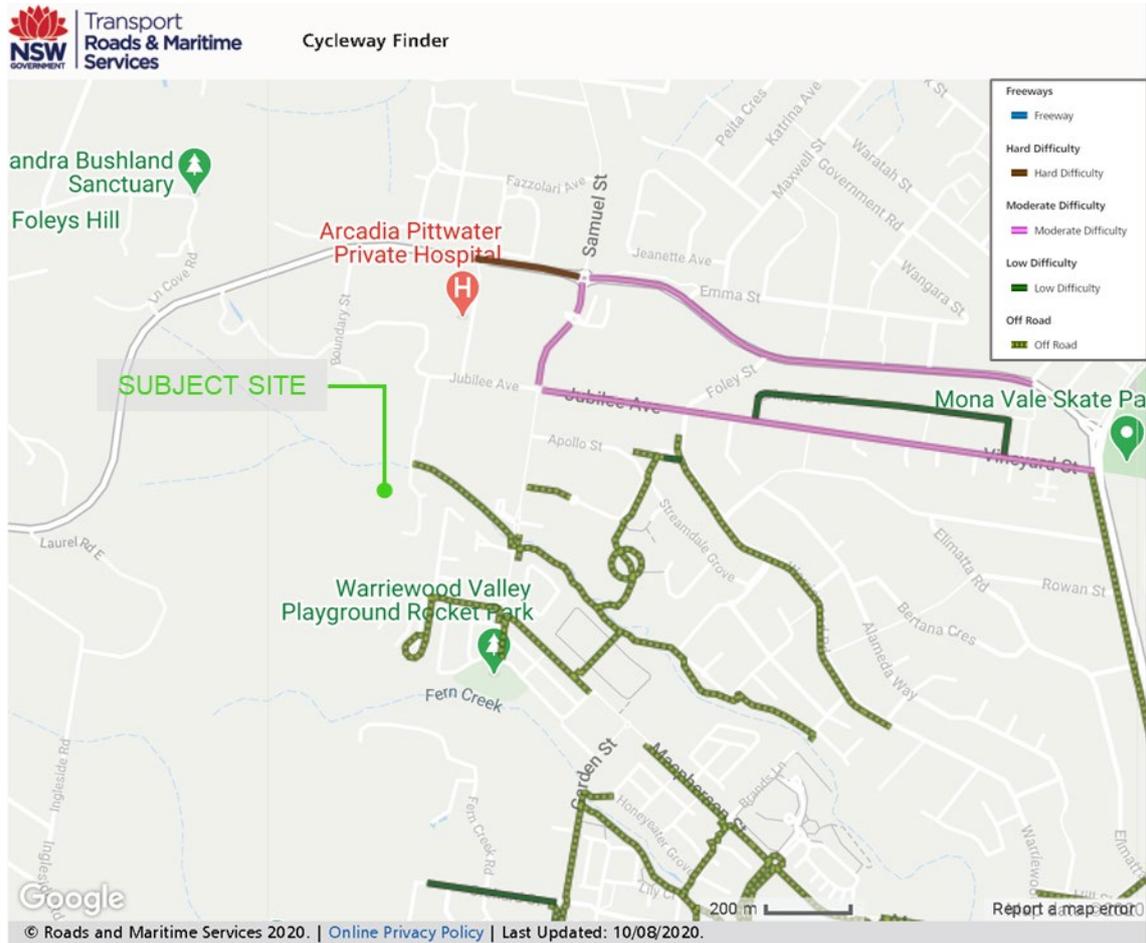
Source: <https://transportnsw.info/>

2.4 Pedestrian and Cycle Network

At present, fully constructed pedestrian footpath is generally provided along either side of all roads in the nearby vicinity of the site except for the southern section of Jubilee Avenue near the site. In this section of Jubilee Avenue, pedestrians share the roadway with vehicular traffic. It is also noted that vehicular traffic on this section of Jubilee Avenue would be relatively less than that on other sections of Jubilee Avenue.

The available cycle routes in the vicinity of the site are shown in Figure 2.3.

Figure 2.3: Cycle Network



Source: https://www.rms.nsw.gov.au/maps/cycleway_finder

3 Approved Development

In October 2015, Warriewood Vale Pty Ltd lodged a development application (N0440/15) seeking approval for the subdivision of land within the subject site and the construction of a residential development incorporating 81 dwellings and associated civil and landscape works. The proposal comprises 66 apartments within 4 residential flat buildings, 14 dwellings in multi dwelling housing and the retention of the existing dwelling house.

Following a deemed refusal, Warriewood Vale Pty Ltd lodged an appeal (16/151186) with the Land and Environment Court (LEC). With consideration of expert advice from four separate town planners, the LEC proceedings resulted in the appeal being upheld.

In the proceedings, the Commissioner found that:

I am satisfied that the development of 8 Forest Road for 81 dwellings is consistent with cl 6.1(1)(a) of LEP 2014 and consequently [sic], there is no barrier to the approval of a development on 8 Forest Road that has a dwelling yield of 81 dwellings.

Thus, the findings from the LEC confirms that that the subject site can be re-developed to provide 81 dwellings.

4 Development Description

4.1 Development Description

4.1.1 Development Staging

The proposed development will be undertaken in two stages. Stage 1 involves the subdivision the subject site into three lots, whilst Stage 2 involves the development of the residential flat building. Two concurrent development applications will be lodged with Northern Beaches Council – one for each development stage.

This traffic report relates to both Stage 1 (DA 1) and Stage 2 (DA 2) proposed developments.

The proposed development and works are described further below.

4.1.2 Proposed Torrens Title Subdivision DA 1

DA 1 involves the following works:

- demolition of the existing dwelling
- introduction of an internal road network, and
- Torrens title subdivision of the existing lot into three lots, namely:
 - Proposed Lot 1
 - Proposed Lot 2, and
 - Proposed Lot 3.

The proposed three lots are shown in Subdivision 1 Plan contained in Appendix A of this report.

Proposed Lot 1 in Subdivision 1 Plan comprises a Community Scheme with 19 lots as follow:

- Lot 1 is the Community Lot
- Lots 2 – 18 are created to accommodate future dwelling houses, and
- Lot 19 is created to accommodate a future residential flat building.

The above proposed subdivision lots are shown in Subdivision 2 Plan contained in Appendix A of this report.

Proposed Lot 2 in Subdivision 1 Plan comprises the Inner 25m creek line corridor which is to be dedicated to Council.

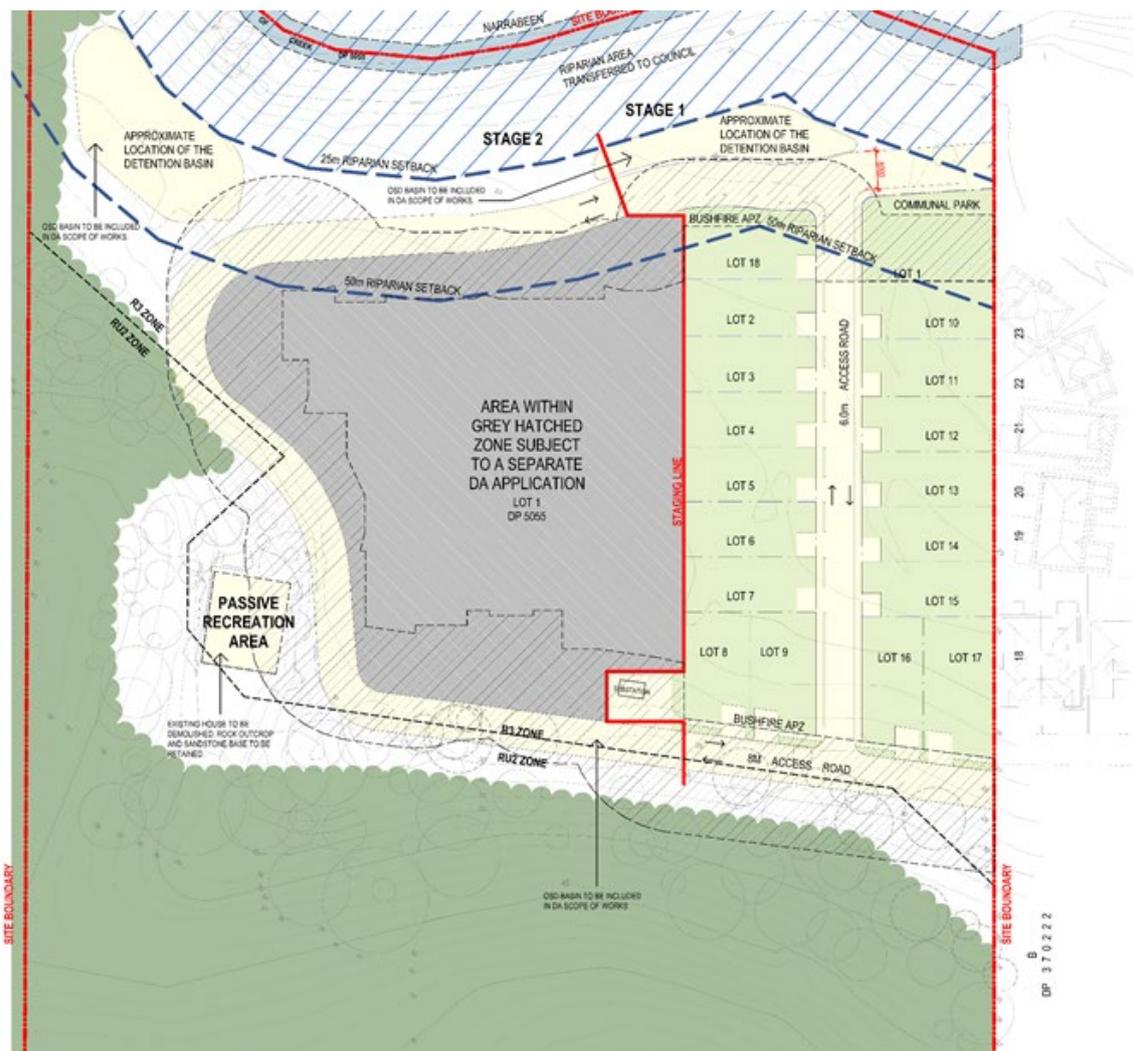
Proposed Lot 3 in Subdivision 1 Plan comprises the RU2 Rural Landscape zoned portion of the development site with an area of 2.821ha. Required rights of carriageway and a restriction as to user for the purpose of an APZ are to be created.

DA 1 also includes the provision of the required roads, stormwater infrastructure, APZ's, creek line rehabilitation works, community lot landscaping and services to each of the proposed lots.

The internal road network includes a 6.0m wide accessway running in a north-south direction traversing down the between of the Torrens title subdivision lots and an 8.0m wide ring road located on the periphery of the overall site. The accessway intersects with the ring road at two locations forming two priority controlled T-intersections. The accessway and ring road will permit two-way traffic flows. The ring road will also be used as a fire access road.

Figure 4.1 shows the proposed internal road network.

Figure 4.1: Proposed Internal Road Network



The ring road will connect to Jubilee Avenue at the north-eastern corner of the site. In addition, the ring road has been designed to enable it to connect to the future extension of Forest Road near the south-eastern corner of the site when the extension of Forest Road is complete. At that time, the connection to Jubilee Avenue will be removed and all vehicular access to and from the site will be via Forest Road.

The accessway and ring road will remain as private roads.

4.1.3 Proposed Residential Flat Building DA 2

DA 2 involves the construction of a three-storey residential flat building containing 64 apartments with basement parking and Communal Landscape Zones.

The proposed three-storey residential flat building comprises four buildings with a combined single level basement car park. The proposed apartment mix for the residential flat building is presented in Table 4.1.

Table 4.1: Proposed Apartment Mix by Building

Building	1-Bedroom Units	2-Bedroom Units	3-Bedroom Units	Total
Building A1	0	12	6	18
Building A2	6	3	9	18
Building B1	1	7	5	13
Building B2	3	3	9	15
Total	10	25	29	64

Of the 64 proposed apartments, 16 of these are proposed as adaptable apartments.

The proposed basement car park contains 139 car parking spaces comprising:

- 118 resident car parking spaces including 16 accessible car parking spaces, and
- 21 visitor car parking spaces including one accessible car parking space.

It is noted that eight nose-to-tail tandem (8 x 2 = 16) car parking spaces are proposed. The proposed tandem spaces will comprise resident non-accessible car parking spaces only and each tandem pair of parking spaces will be allocated to the same residential (two or more bedroom) unit.

Vehicle access to the proposed residential flat building car park is proposed to be via a combined two-lane, two-way driveway/access ramp located off the ring road near the approximate mid-point along the northern boundary of the subject site.

A loading area is also proposed to serve the residential flat building. It is proposed to locate the loading area on the ring road near the car park access. The loading area has been designed to accommodate service vehicles up to a 9.7m long Council's

waste collection vehicle. A garbage collection area with an enclosure and access doors are also proposed adjacent to the loading area.

Appendix B contains the architectural layout plans of the proposed basement car park beneath the residential flat building.

5 Parking Assessment

5.1 Preamble

In relation to car parking requirement for the proposed 17 dwellings in the Torrens title lots, it is expected that following the sub-division of the subject site, the development of each these individual lots will be subject to future development and building applications. As such, parking requirements for these Torrens title dwellings will be assessed at that stage.

In the light of the above, this chapter deals with parking requirements for the proposed residential flat building only.

5.2 Car Parking Requirement

The car parking requirement for the proposed development has been assessed against Northern Beaches Council's Pittwater 21 Development Control Plan (DCP), specifically Section B6 Access and Parking. This assessment is presented in Table 5.1.

Table 5.1: Car Parking Assessment

No. of Dwellings	No. of Dwellings	DCP Minimum Parking Rates	Minimum Car Parking Requirement
1-Bedroom Dwellings	10	1.0 space per dwelling	10
2-Bedroom Dwellings	25	2.0 spaces per dwelling	50
3-Bedroom Dwellings	29	2.0 spaces per dwelling	58
Visitors	-	1 space per 3 dwellings	21
Total	64	-	139

Based on the DCP requirements presented in Table 5.1, the proposed development is required to provide a minimum of 139 car parking spaces comprising:

- 118 resident parking spaces, and
- 21 visitor parking space.

5.3 Adequacy of Car Parking Spaces

The proposed development will provide a total of 139 car parking spaces including 21 visitor parking spaces and 17 accessible parking spaces (16 residential accessible spaces and one visitor accessible space).

The proposed development also includes eight tandem car parking spaces. Each pair of tandem car parking spaces will be allocated to the same (two or more bedroom) apartment.

The proposed car parking provision for the proposed development is therefore satisfactory.

5.4 Accessible Parking

The DCP states that residential flat buildings are to have 20 per cent of the proposed dwellings to be provided as adaptable units. In this case, this equates to 13 adaptable units.

In addition, Australian Standard for Adaptable Housing AS4299:1995 requires each adaptable unit to have at least one accessible car space.

It is proposed to provide a total of 16 adaptable dwellings requiring 16 accessible car parking spaces.

In relation to accessible car parking for visitors, the DCP requires three per cent of the required car parking spaces to be provided as accessible car parking spaces. In this case, one visitor accessible car parking space is required.

The proposed development provides 17 accessible car parking spaces including one accessible car space for visitors.

Therefore, the proposed provision of accessible car parking spaces is satisfactory.

5.5 Bicycle Parking

Northern Beaches DCP requires residential developments to have secured bicycle parking provided at a rate of one bike rack per three dwellings. The DCP has no specific bicycle parking requirement for visitors.

On this basis, the proposed development would require 21 bicycle spaces to comply with the DCP.

It is proposed to provide 21 bicycle parking spaces. These are located inside the basement car park.

The bicycle parking spaces are proposed to be designed to meet the design requirements set out in AS2890.3:2015.

5.6 Motorcycle Parking

The DCP has no specific requirements for the provision of motorcycle parking spaces for residential developments.

5.7 Service and Delivery Vehicle Requirements

It is proposed that servicing of the Torrens title dwellings occur from the street similar to other housing dwellings in the local area and those generally through the Sydney area and beyond. This will include waste collection, removalist trucks, bulky items deliveries (refrigerators, televisions, washing machines) etc.

On each collection day, waste bins will be placed in front of each respective dwellings by the residents. Waste vehicles will then collect the bins on one side of the accessway for unloading by proceeding down the accessway in a southerly direction. It will then continue by making a left turn into the ring road towards Lot 17 and then conduct a reverse manoeuvre back towards Lot 9 before making a left turn into the accessway to continue in a northerly direction to collect the bins on the other side of the accessway before exiting the site.

In the case when the access via Jubilee Avenue is removed and the Forest Road access in operation, the reverse will occur.

In relation to the proposed residential flat building, it is proposed to provide a loading area to be located on the ring road near the car park access. A bin store enclosure adjacent to the loading area is also proposed.

The loading area has been designed to accommodate service vehicles up to a 9.7m waste collection vehicle. Relevant swept path diagrams are provided in Appendix C.

It is further noted that the proposed loading area will also be used by other delivery vehicles and removalist trucks.

5.8 Car Park Design Review

The residential car parking spaces have been designed to comply with Australian Standard Class 1A parking facilities for residents. Class 1A requires car spaces to have dimensions of 2.4m wide by 5.4m long with an aisle width of 5.8m. Similarly, the

proposed visitor parking spaces also have minimum dimensions of 2.4m wide by 5.4m long.

The accessible car spaces and the adjacent shared area have been designed with dimensions of 2.4m wide by 5.4m long which are in accordance with AS2890.6.

The car park review also assessed the following design elements:

- an additional width of 300mm has been provided for car spaces adjacent to a wall
- all columns are located outside of the parking space design envelope
- minimum clear head heights of 2.2m for residential car parking spaces and 2.5m for accessible parking spaces are provided within the basement car park as required by AS2890.1 and AS2890.6
- the width and length of the parking spaces and the width of the aisle comply with the minimum requirements stipulated in AS2890.1
- the first 6m of the access ramp has a maximum vertical grade of 1:20 in accordance with AS2890.1, and
- maximum vertical grade of 1:5 with 2m transitions at 1:8 have been provided along the ramp in accordance with AS2890.1.

It is considered that the proposed parking layout generally complies with the design requirements set out in the Australian Standard for car parking facilities in AS2890.1 and AS2890.6.

Swept path analysis of an Australian Standard 5.2m vehicle entering and leaving the basement car park has been conducted. This demonstrates that a B99 vehicle can enter and exit the car park without any issues. The swept path diagrams are provided in Appendix C.

Therefore, the design of the proposed car park and associated elements is satisfactory.

6 Traffic Assessment

6.1 Previous Scheme

As indicated previously, the subject site has an approval for a residential development following proceedings in the Land and Environment Court upholding the appeal. The court proceedings determined that the subject site can be redeveloped to accommodate 81 dwellings.

The court proceedings considered evidence provided by expert traffic engineers for the applicant (Mr Calum Hutcheson) and Council (Mr John Coady). The traffic experts conducted their own independent traffic assessment. Below is a summary of their assessments.

The expert traffic engineers' estimates of the traffic generation potential of the scheme considered during the court proceedings are presented in Table 6.1.

Table 6.1: Previous Scheme Traffic Estimates

Proposed Land Use	Quantity	Mr Calum Hutcheson		Mr John Coady	
		Trip Rates [§]	Trips [†]	Trip Rates [§]	Trips [†]
Detached Dwellings	1	0.85	1	0.85	1
Townhouses	14	0.575	8	0.65	9
1/2 Bedroom Apartments	6	0.45	3	0.5	3
3/4 Bedroom Apartments	60	0.575	35	0.65	39
Total	81	-	46	-	52

[§] denotes two-way vehicle trips per peak hour per dwelling

[†] denotes estimated two-way vehicle trips per peak hour

From Table 6.1, it can be seen that the expert traffic engineers have estimated the previous scheme would generate 46 vehicles per hour (vph) and 52 vph, respectively.

The traffic experts also conducted intersection capacity analysis using SIDRA at the Ponderosa Avenue intersection with Jubilee Avenue. It is noted Mr Calum Hutcheson did not conduct the analysis during the LEC proceedings, instead the analysis was conducted as part of the original traffic assessment that accompanied the development application for a different scheme with fractionally higher level of development traffic (49 vph).

Intersection capacity analysis results from the two traffic experts were consistent in that they both indicated that the Jubilee Avenue intersection under existing condition

would operate with satisfactory level of service (LoS D or better) in both peak periods. Both traffic experts also forecast that the assessed intersection in the future would continue to operate with LoS B during the morning peak, while the level of service during evening peak would deteriorate from LoS D to LoS E.

It is further noted that both experts attributed the poor performance of the assessed intersection in the future as a consequence of traffic generated by the industrial development located on the western side of the intersection. The traffic experts' opinion is that the subject site would not contribute traffic resulting in the poor performance of the intersection. Mr John Coady also commented that during the evening peak the majority of development traffic from the subject site is returning to the site such that additional traffic demand on the western approach due to the subject site would only be 8 vph.

6.2 Current Scheme

The proposed development in the current scheme comprises:

- detached (Torrens title Lots 2-18) dwellings – 17 dwellings
- 1 and 2-bedroom apartments – 35 apartments, and
- 3-bedroom apartments – 29 apartments.

Using the same traffic assessment methodologies as that employed by the traffic experts in the LEC proceedings, the development traffic for the revised scheme has been estimated and is presented in Table 6.2.

It is noted that the traffic generation rates adopted by the expert traffic engineers were sourced from the previous RTA guidelines which is dated 2002 and contains traffic generation rates based on traffic surveys conducted in the late 1980s and early 1990s. At the time, the RTA guidelines provides the most up to date traffic generation data for residential developments similar to that proposed.

In recognition of the outdated data, Transport for NSW (TfNSW, formerly Roads and Maritime Services, RMS) in 2017 commissioned additional traffic generation surveys of high density "car based" residential developments not serviced by high frequency and high capacity public transport. The new survey data indicates the following traffic generation rates for these sites:

- weekday morning peak – 0.28 vehicle trips per peak hour per dwelling, and
- weekday evening peak – 0.32 vehicle trips per peak hour per dwelling.

As such, Table 6.2 also shows the estimated development traffic for the current scheme using more recent survey data from TfNSW.

Table 6.2: Current Scheme Traffic Estimates

Proposed Land Use	Quantity	Mr Calum Hutcheson		Mr John Coady		TfNSW Updated Surveys	
		Trip Rates [§]	Trips [†]	Trip Rates [§]	Trips [†]	Trip Rates [§]	Trips [†]
Detached Dwellings	17	0.85	14	0.85	14	0.99	17
Townhouses	0	0.575	0	0.65	0	-	-
1/2 Bedroom Apartments	35	0.45	16	0.5	18	0.32 [‡]	11
3/4 Bedroom Apartments	29	0.575	17	0.65	19	0.32 [‡]	9
Total	81	-	47	-	51	-	37

§ denotes trip rate per peak hour per dwelling

† denotes estimated trips per peak hour

‡ average of all surveyed sites within metropolitan and sub-metro sites

From Table 6.2, it can be seen that the current scheme can be expected to generate 47 vph using traffic generation rates adopted by Mr Calum Hutcheson. Based on the traffic generation rates adopted by Mr John Coady, the current scheme is expected to generate 51 vph. In addition, using the more recent data from TfNSW surveys, the expected traffic generation of the current scheme would be 37 vph. That is, using the various methods the current scheme is expected to generate up to 51 vph.

From the above, it can be seen that current scheme would generate development traffic less than that estimated for the previous approved scheme using the same methodology (as that employed by Mr John Coady) i.e. 51 vph from the current scheme compared to 52 vph in the previous scheme.

Based on the higher traffic generation estimated for the previous scheme, the traffic experts in the LEC proceedings concluded that the proposed development at the subject site would not contribute traffic resulting in the poor performance of the nearby Jubilee Avenue intersection with Ponderosa Parade.

Given that the current scheme is expected to generate less development traffic than the previous scheme (albeit by 1 vph in the worst case scenario), the conclusion drawn by the traffic experts in the court proceedings is still valid. In addition, it is worthwhile to note that in providing evidence to the LEC proceedings, Mr John Coady also conducted a separate and additional traffic assessment whereby the development traffic arising from the subject site was doubled from 52 vph to 104 vph as a way to account for development traffic from other sites such as 4 Forest Road as the type and scale of those future developments were not known. This additional assessment found that both the Jubilee Avenue-Ponderosa Avenue and Forest Road-Macpherson Street intersections would continue to operate with satisfactory intersection performance under existing and future traffic demand in the morning and evening peak periods.

Furthermore, notwithstanding the above, the revised scheme based on more recent TfNSW data is expected to generate substantially less traffic than the previous scheme considered in the LEC proceedings.

In the light of above, it is concluded that the proposed development is not expected to generate any adverse traffic impact to the local road network.

6.3 Other Matter from the Pre-DA Minutes

In the pre-DA minutes, Council has requested for intersection capacity assessment using SIDRA be conducted at the Ponderosa Parade intersections with Jubilee Avenue and Mona Vale Road and also at Pittwater Road with Vineyard Street.

Assessment of the Ponderosa Parade intersection with Jubilee Avenue has been addressed above. In relation to the Ponderosa Parade intersection with Mona Vale Road and the Pittwater Road intersection with Vineyard Street, it is considered further assessment of these two intersections is not warranted for reasons explained below.

The Mona Vale Road-Ponderosa Parade intersection and the Pittwater Road-Vineyard Street intersection are located relatively remote from the subject site such that development traffic arising from the subject site accessing these intersections (if any) would be diluted to the point that changes to the traffic at these two intersections would be minute and as such would only contribute a small fraction of the overall traffic at these intersections. It is expected that the change in traffic at these intersections would be very low, to the point that a computer modelling tool such as SIDRA is unlikely to register any changes in intersection performance statistics.

In addition, it is noted that the Mona Vale Road-Ponderosa Parade intersection is configured as a dual lane roundabout compared to the single lane roundabouts at the Jubilee Avenue-Ponderosa Parade and Forest Road-Macpherson Street intersections. As such, the Mona Vale Road intersection would have greater intersection capacity than the two single lane roundabouts. If the single lane roundabouts at Jubilee Avenue and Forest Road intersections would continue to operate satisfactorily under existing and future traffic demand as concluded by the traffic experts in the LEC proceedings, the Mona Vale Road intersection as a dual lane roundabout with greater traffic capacity would also operate satisfactorily.

The Pittwater Road intersection with Vineyard Street permits only left turn movements to/from Pittwater Road from Vineyard Street. As such, the number of traffic conflict points is significantly reduced and thus providing greater traffic capacity than other similar intersections. In addition, it is not expected development traffic from the subject site would access this intersection due to its location relatively to the subject site and the overall road network in the vicinity of the subject site.

The above is consistent with the traffic experts' methodology in assigning and distributing the traffic to the local road network. That is, development traffic from the subject site has not been assigned to travel down Vineyard Street to access its intersection with Pittwater Road. All traffic arising from the subject site has been assigned to use Ponderosa Parade to access Mona Vale Road or along Macpherson Street/Garden Street or Warriewood Road to access Pittwater Road. A small proportion of traffic was also assigned to use Foley Street to access Pittwater Road. No traffic from subject site has been assigned to use Vineyard Street. It is further noted that the consultant engaged by Council, AECOM who prepared the *Warriewood Valley Strategic Transport Study* also adopted the same traffic distribution.

From the above, it is concluded further assessment of these intersections are not warranted.

7 Summary and Conclusion

This report examines the traffic and parking implications of a proposed residential development at 8 Forest Road, Warriewood. The proposed development will occur over two stages. Two concurrent development applications are to be submitted to Northern Beaches Council – one for each development stage. This traffic report relates to both development stages and accompanies both development applications.

The salient findings of this assessment are presented below.

- Previous proceedings in the Land and Environment Court (LEC) found that “*there is no barrier to the approval of a development on 8 Forest Road that has a dwelling yield of 81 dwellings*”.
- The revised scheme in the subject development applications also includes a yield of 81 dwellings.
- Stage 1, Development Application 1 involves the following works:
 - the demolition of the existing dwelling, the introduction of an internal road network and subdivision of land into three lots as follows:
 - ▶ proposed Lot 1 comprises a community scheme which Lot 1 and Lot 20 as Community Lots, Lots 2-18 to accommodate future Torrens title dwelling houses and Lot 19 to accommodate a future residential flat building
 - ▶ proposed Lot 2 comprises 25m creek line corridor to be dedicated to Council, and
 - ▶ proposed Lot 3 comprises the RU2 Rural Landscape zoned portion of the development site.
- In relation to Torrens title dwelling houses, it is noted that Development Application 1 is for the subdivision of the land to enable the dwellings. Additional development and building applications will be required for each of lot in the future.
- Stage 2, Development Application 2 involves the construction of a three-storey residential flat building containing 64 apartments with basement car park.
- Vehicular access to the basement car park for the residential flat building is proposed to be provided off the ring road via a tow-lane, two-way driveway.
- Loading/unloading activities will occur on the ring road within a dedicated loading area. The loading area has been designed to accommodate service vehicles up to 9.7m long Council's waste collection vehicle.
- Based on DCP requirements, the proposed residential flat building is required to provide a minimum of 139 car parking spaces. The proposed residential flat

building includes a total of 139 car parking spaces. The proposed parking provision is therefore satisfactory.

- Bicycle parking spaces are proposed to be provided in compliance with the requirements set out in the DCP.
- The design of the residential flat building car park and associated elements complies and/or meets the design intents stipulated in the relevant Australian Standard for car parking facilities, namely AS2890.1:2004, AS2890.3:2015 and AS2890.6:2009.
- Evidence given by traffic experts in the LEC proceedings confirms a proposed residential development with a yield of 81 dwellings has the potential to generate up to 52 vph.
- Intersection assessment conducted by the traffic experts indicate that the assessed intersections under existing and future traffic demand would continue to operate with satisfactory intersection performance during the morning and evening peak periods, even if the estimated development traffic was doubled to 104 vph.
- Using the same traffic estimation methodology as that employed by the traffic experts in the LEC proceedings, the revised scheme would generate 51 vph.
- Using more recent data from TfNSW, the revised development is expected to generate 37 vph, representing approximately 30 per cent reduction of the maximum traffic generation estimated by the traffic experts in the LEC proceedings.
- As the revised development is expected to generate less development traffic than the approved scheme, the conclusion drawn by the traffic experts during the LEC proceeding i.e. operating performance of the assessed intersections is satisfactory during both the morning and evening peak periods will remain valid.
- The findings from the LEC proceedings that “*there is no barrier to the approval of a development on 8 Forest Road that has a dwelling yield of 81 dwellings*” is also valid.

Overall, from a traffic and parking perspective the proposed development is considered to be satisfactory.

Appendix A

Subdivision Plans

CREATED EASEMENT
(ROW) RIGHT OF WAY VARIABLE WIDTH

SUBDIVISION 1



NO BOUNDARY HAS BEEN SURVEYED OR MARKED. ALL MAIN EXTERNAL BOUNDARY'S HAVE BEEN COMPILED FROM ARCHITECTURAL PLANS ONLY

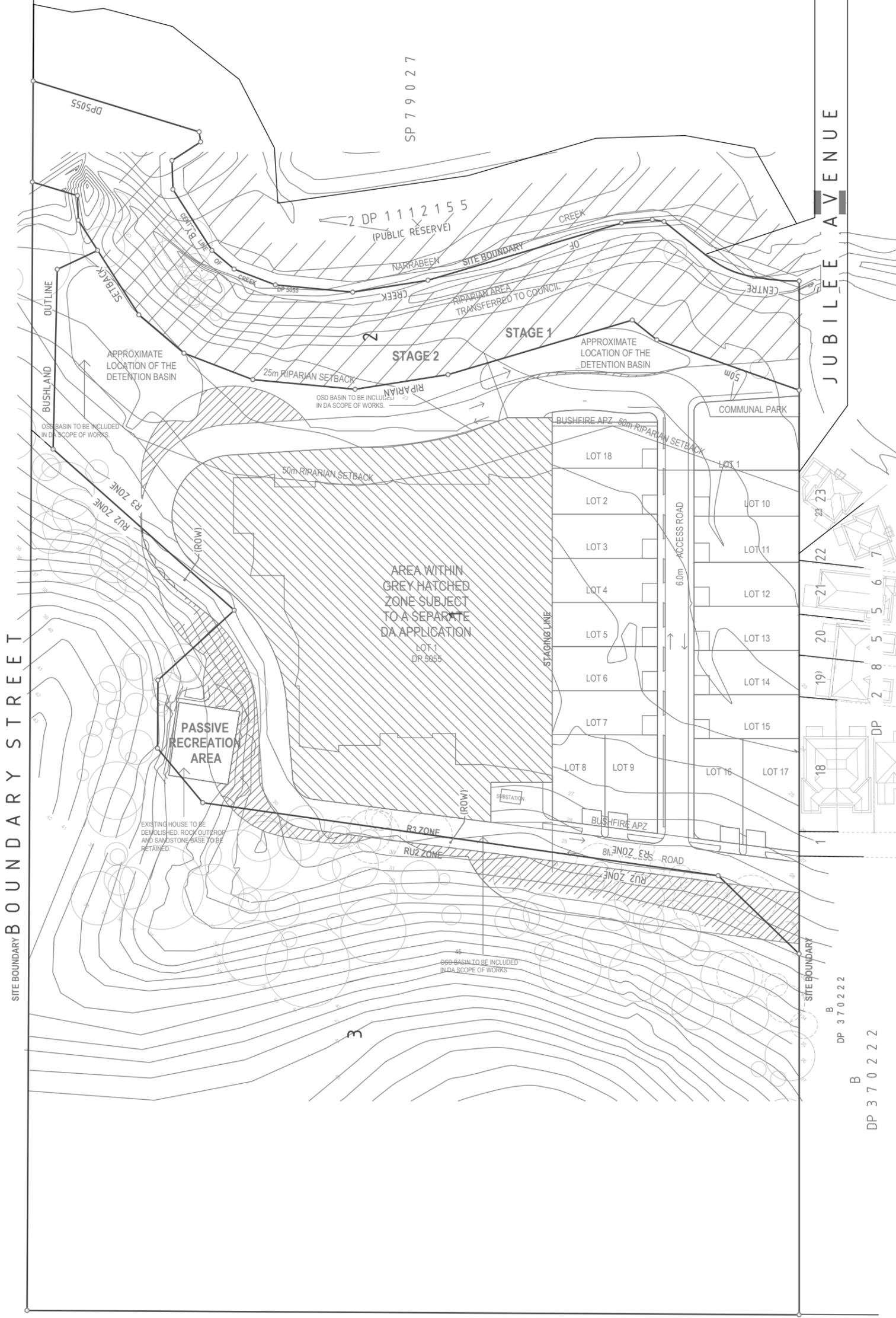
CRITICAL DESIGN ADJACENT TO OR ON MAIN EXTERNAL BOUNDARY'S SHOULD BE CONFIRMED BY A FURTHER BOUNDARY SURVEY TO DETERMINE LAND AVAILABLE, AS IT MAY IMPACT ON DESIGN.

ANY ENROACHING STRUCTURE ON ADJOINING LAND OR NOT APPROVED BY COUNCIL ON PUBLIC LAND WILL PREVENT REGISTRATION OF SUBDIVISION.

LOT AREA(S) SHOWN ON THIS PLAN HAVE BEEN CALCULATED FROM COMPILED BOUNDARIES AND MAY DIFFER TO TITLE DIAGRAM OR BOUNDARY SURVEY.

MINOR CHANGES MAY OCCUR DURING CONSTRUCTION. DIMENSIONS & AREAS ARE COMPILED & APPROXIMATE AND SUBJECT TO FINAL SURVEY. THE PLAN IS A DRAFT ONLY AND IS NOT CHECKED OR REGISTERED BY THE LAND TITLES OFFICE. ALTERATIONS MAY BE REQUIRED PRIOR TO ITS ACCEPTANCE AND REGISTRATION.

THERE ARE DISCREPANCIES IN THE BOUNDARY DIMENSIONS OF THE BASE PLAN OF THE LAND AND ADVISE THAT A PLAN OF SURVEY IS REQUIRED TO ACCURATELY DETERMINE THE DIMENSIONS OF LAND AVAILABLE.



Surveyor : ANTHONY GUY MITCHELL
 Date of Survey : 24/07/2020
 Surveyor's Ref : 4444DP01-SUB-STAGE1

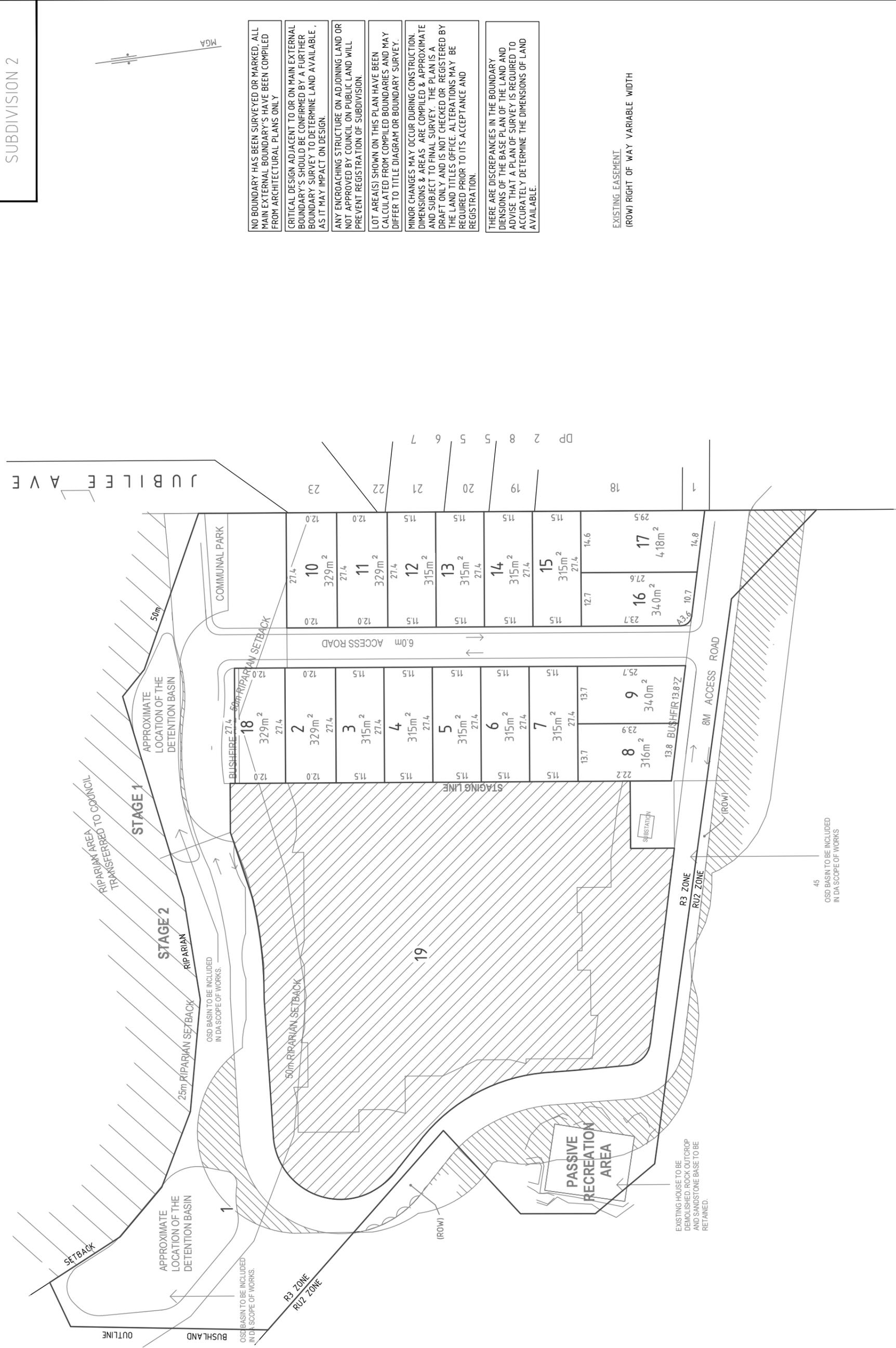
PLAN OF SUBDIVISION OF LOT 1 IN DP5055

LGA: NORTHERN BEACHES
 Locality : WARRIEWOOD
 Subdivision No:
 Lengths are in metres. Reduction Ratio 1:750

Registered

DP

DRAFT
PPN/DP



NO BOUNDARY HAS BEEN SURVEYED OR MARKED. ALL MAIN EXTERNAL BOUNDARY'S HAVE BEEN COMPILED FROM ARCHITECTURAL PLANS ONLY

CRITICAL DESIGN ADJACENT TO OR ON MAIN EXTERNAL BOUNDARY'S SHOULD BE CONFIRMED BY A FURTHER BOUNDARY SURVEY TO DETERMINE LAND AVAILABLE, AS IT MAY IMPACT ON DESIGN.

ANY ENROACHING STRUCTURE ON ADJOINING LAND OR NOT APPROVED BY COUNCIL ON PUBLIC LAND WILL PREVENT REGISTRATION OF SUBDIVISION.

LOT AREAS(S) SHOWN ON THIS PLAN HAVE BEEN CALCULATED FROM COMPILED BOUNDARIES AND MAY DIFFER TO TITLE DIAGRAM OR BOUNDARY SURVEY.

MINOR CHANGES MAY OCCUR DURING CONSTRUCTION DIMENSIONS & AREAS ARE COMPILED & APPROXIMATE AND SUBJECT TO FINAL SURVEY. THE PLAN IS A DRAFT ONLY AND IS NOT CHECKED OR REGISTERED BY THE LAND TITLES OFFICE. ALTERATIONS MAY BE REQUIRED PRIOR TO ITS ACCEPTANCE AND REGISTRATION.

THERE ARE DISCREPANCIES IN THE BOUNDARY DIMENSIONS OF THE BASE PLAN OF THE LAND AND ADVISE THAT A PLAN OF SURVEY IS REQUIRED TO ACCURATELY DETERMINE THE DIMENSIONS OF LAND AVAILABLE.

EXISTING EASEMENT (ROW) RIGHT OF WAY VARIABLE WIDTH

Surveyor : ANTHONY GUY MITCHELL
 Date of Survey : 30/09/2020
 Surveyor's Ref : 444DP02-SUB-STAGE2

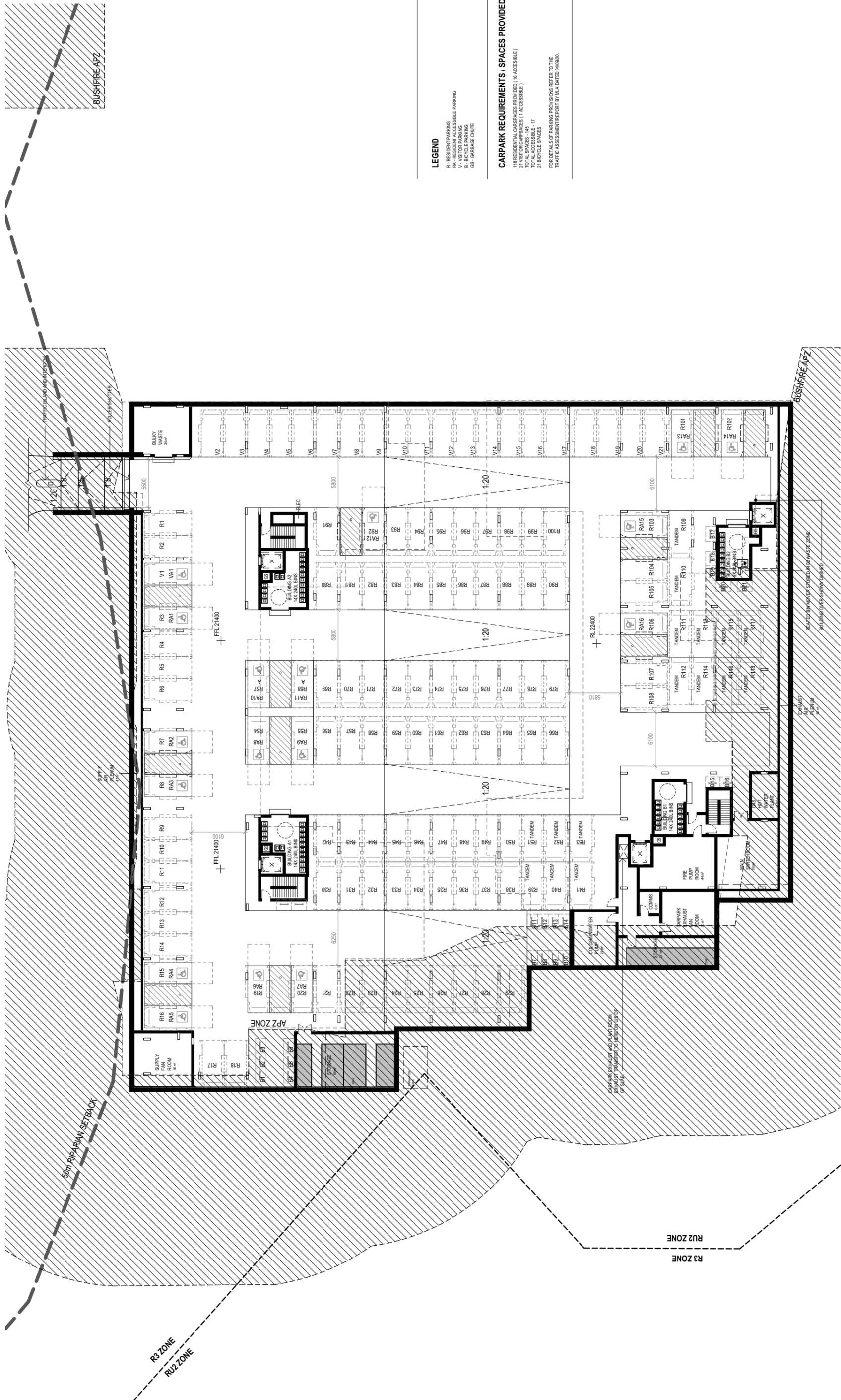
PLAN OF SUBDIVISION OF LOT 1 IN
 DP...(BEING LOT 1 IN
 SUBDIVISION OF DP5055)

LGA: NORTHERN BEACHES
 Locality : WARRIEWOOD
 Subdivision No: ----
 Lengths are in metres. Reduction Ratio 1:600

Registered
 DP
 DRAFT
 PPN

Appendix B

Architectural Car Park Plan



LEGEND
 R- RESIDENT PARKING
 RA- RESIDENT ACCESSIBLE PARKING
 V- VISITOR PARKING
 VA- VISITOR ACCESSIBLE PARKING
 T- TANDEM PARKING
 TA- TANDEM ACCESSIBLE PARKING
 SS- GARBAGE CHUTE

CARPARK REQUIREMENTS / SPACES PROVIDED
 118 RESIDENTIAL CARSPACES PROVIDED (16 ACCESSIBLE)
 21 VISITOR CARSPACES (1 ACCESSIBLE)
 TOTAL SPACES - 145
 TOTAL ACCESSIBLE - 17
 21 BICYCLE SPACES
 FOR DETAILS OF PARKING PROVISIONS REFER TO THE TRAFFIC ASSESSMENT REPORT BY M.A. DATED 04/09/20.

PROJECT
 FOREST ROAD
 WARREWOOD
 Lot 1, Pier 8-9, 23 Hickson Road
 Warwood, South Australia
 T 01 2 9390 2722 F 01 2 9390 1150
 E sydney@jacksonteece.com
 Jackson Teece Chartered Valuers Pty Ltd
 ANS 15 08 182 200
 Nominations Address: Human Resources, John Gow Property, Level 10, 100 St Georges Street, Sydney, NSW 2000

JACKSON TEECE

CLIENT
 WARREWOOD VALE PTY LTD
 8 FOREST ROAD WARREWOOD

FLOOR PLAN - BASEMENT 1

DATE 23/07/20
SCALE @ A1 As indicated
PROJECT NUMBER 2019068
DISCIP. DRAWING NUMBER A DA-109
ISSUE MR
DRAWN MR
E

AMENDMENTS

ISSUE	DESCRIPTION / REVISION	DATE	APPROVED	DATE
B	PRELIMINARY INFORMATION	03.08.20		
C	ISSUE FOR REVIEW	13.07.20		
D	ISSUE FOR DEVELOPMENT APPROVAL	21.08.20		

THIS DRAWING ISSUE HAS BEEN REVIEWED FOR

PRELIMINARY

MR JS
 APPROVED BY: JS
 SIGNATURE: *JS*

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CERTIFICATE NO.: 0005225510
ASSESSOR NAME: Amir Gligis
ACCREDITATION NO.: 20579
CERTIFICATE DATE: 22 Sep 2020

AVERAGE STAR RATING: 7.8
NATIONWIDE HOUSE ENERGY RATING SCHEME
 www.nationwide.gov.au

ABS
 Australian Building Sustainability Association
 100 Collins Street, Melbourne, VIC 3000
 Phone: +61 (0)3 9600 1000
 Email: info@abs.org.au
 Member since: 2019
 Member Number: 20579

8 Forrest Road Warwood, NSW 2102
 www.nathers.gov.au

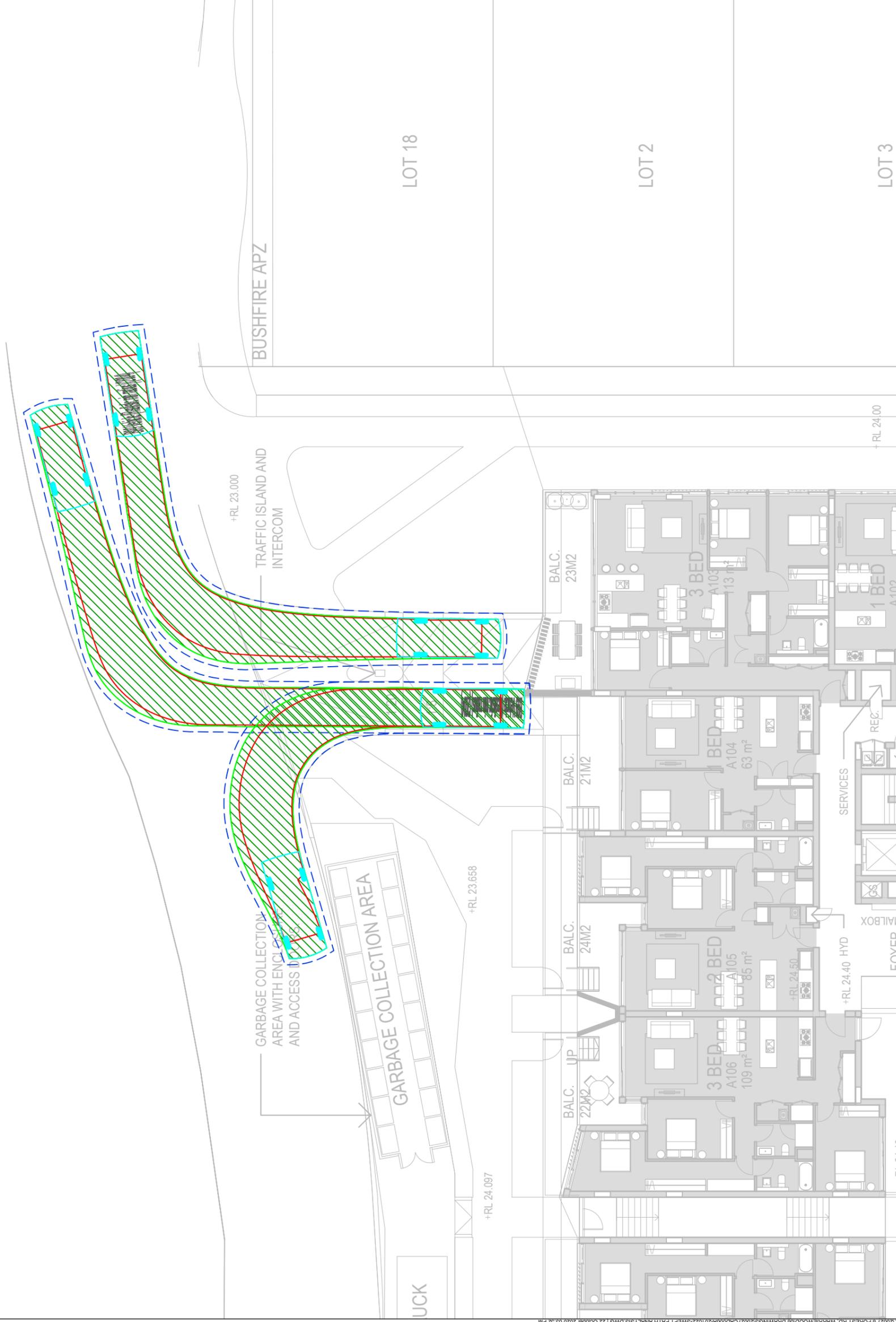
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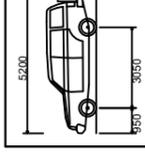
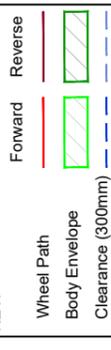
Date generated: 22/09/2020 5:02:39 PM

Appendix C

Swept Path Diagrams



KEY:



B99 Vehicle (Realistic min radius) (2004)
Overall Length 5200mm
Overall Width 1940mm
Overall Body Height 1878mm
Min Body Ground Clearance 272mm
Track Width 1640mm
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6250mm

DATE:

22 OCTOBER 2020

SCALE:

1:200@A3

DRAWING NO.:

20027CAD006A-001

REV:

A

DRAWING TITLE:

SWEPT PATH ANALYSIS -
AS2890.1 5.2M B99 VEHICLES
ENTERING AND EXITING
BASEMENT

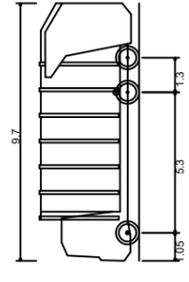
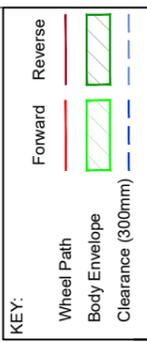
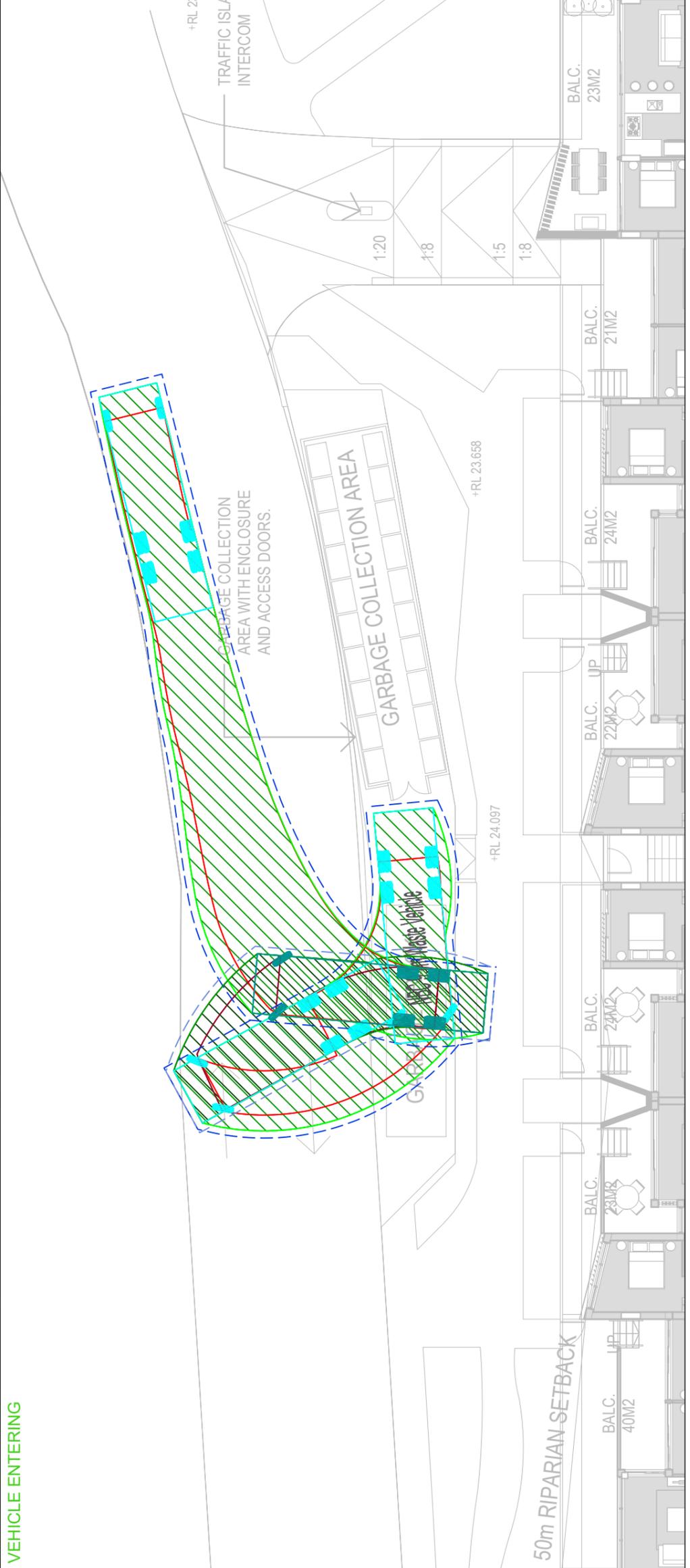
PROJECT:

8 FOREST RD, WARRIEWOOD

VEHICLE ENTERING



VEHICLE ENTERING



NBC 9.7m Waste Vehicle
Overall Length 9.700m
Overall Width 2.500m
Overall Body Height 3.751m
Min Body Ground Clearance 0.304m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 9.500m

DATE:	22 OCTOBER 2020	SCALE:	1:200@A3
DRAWING NO.:	20027CAD006A-002	REV:	A
DRAWING TITLE: SWEPT PATH ANALYSIS - NORTHERN BEACHES COUNCIL 9.7M WASTE VEHICLE ACCESSING WASTE AREA			
PROJECT: 8 FOREST RD, WARRIEWOOD			

MLA Transport Planning

Zenith Towers | Level 20 | Tower A | The Zenith

821 Pacific Highway | Chatswood | NSW | 2067

PO Box 628 | Chatswood | NSW | 2057

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