

TRAFFIC IMPACT ASSESSMENT (TIA)

**Proposed Mixed Use Development
1105-1107 Barrenjoey Road, Palm Beach**

Reference: 18.190r01v01
Date: December 2020

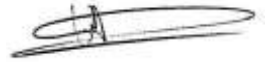
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DOCUMENT VERIFICATION

Job Number	18.190			
Project	1105-1107 Barrenjoey Road, Palm Beach			
Client	Macarthur Projects			
Revision	Date	Prepared By	Checked By	Signed
v01	11/12/2020	Shenara Wanigasekera	Vince Doan	



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1. INTRODUCTION

TRAFFIX has been commissioned by Macarthur Projects to undertake a traffic impact assessment (TIA) in support of a development application (DA) relating to mixed-use development at 1105-1107 Barrenjoey Road, Palm Beach, comprising of three (3) serviced apartments, eight (8) residential units and 262m² retail gross lettable area (GLA). The development is located within the Northern Beaches Council local government area and has been assessed under that Council's controls.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The development is a minor development and does not require referral to TfNSW under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

-) Section 2: Describes the site and its location
-) Section 3: Documents existing traffic conditions
-) Section 4: Describes the proposed development
-) Section 5: Assesses the parking requirements
-) Section 6: Assesses traffic impacts
-) Section 7: Discusses access and internal design aspects
-) Section 8: Presents the overall study conclusions



2. LOCATION AND SITE

The subject site is located at 1105-1107 Barrenjoey Road and is legally identified as Lot 3 and SP87024. It is located on the western side of Barrenjoey Road, at the intersection of Iluka Road and Barrenjoey Road. It is located approximately 570 metres west of Palm Beach and approximately 8.4 kilometres north of Mona Vale Town Centre.

The site has a total site area of 1,366.5m² and consists of a two-story mixed-use development comprising of ground floor commercial area and holiday/residential accommodation. It has an eastern frontage of approximately 39 metres to Barrenjoey Road and is bounded to the north and west by Iluka Road for approximately 26 metres and 45 metres respectively. It is bound to the south by holiday accommodation for approximately 43 metres.

Vehicular access to the site is currently provided via three access driveways along the northern and western boundary of the site from Iluka Road.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**.



Figure 1: Location Plan

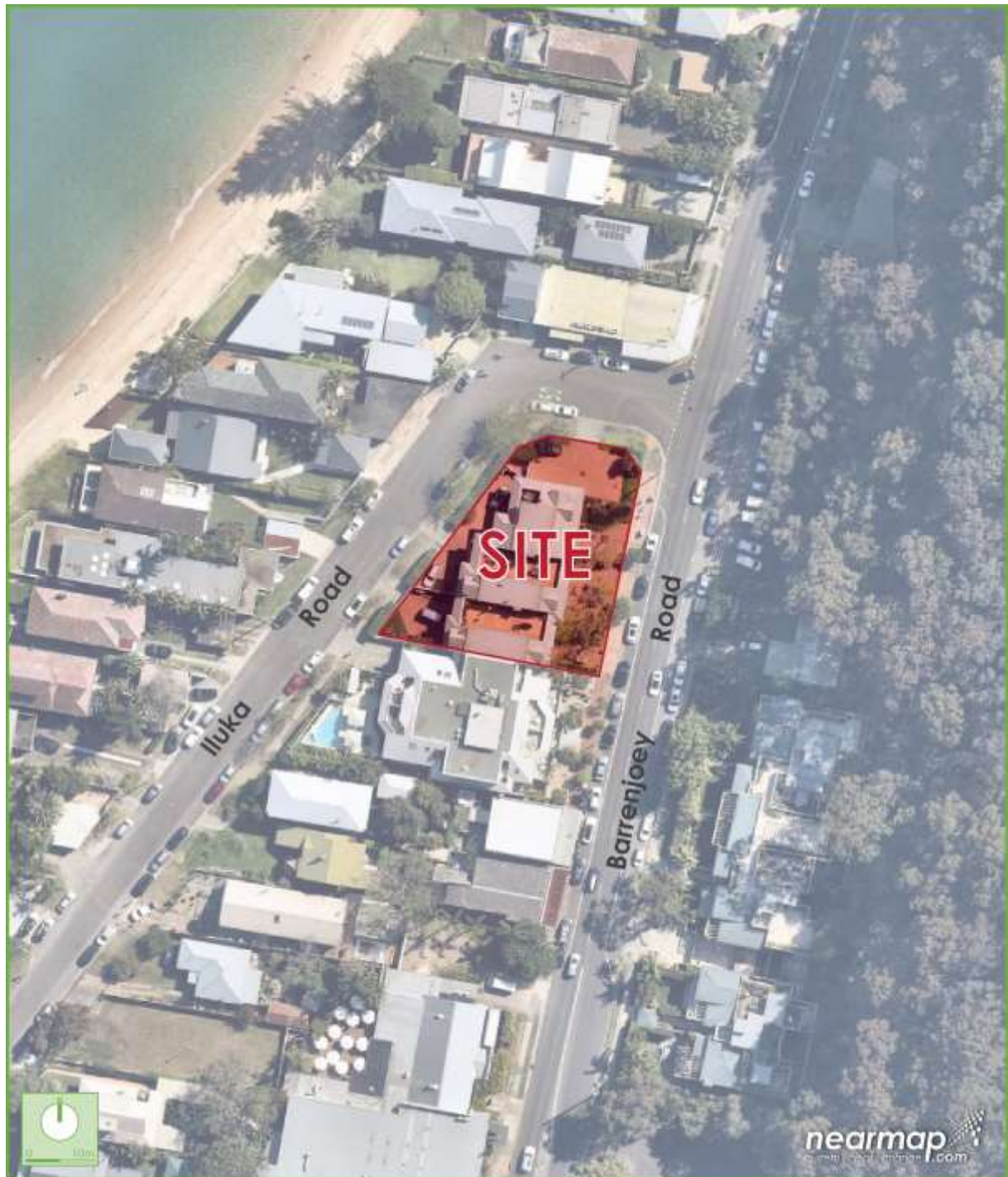


Figure 2: Site Plan



3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- › Barrenjoey Road: part of an RMS Main Road (MR 164) that generally traverses north-south between Beach Road in the north and Pittwater Road in the south. In the vicinity of the site, Barrenjoey Road accommodates a single lane of traffic in each direction within an undivided carriageway and is subject to 50km/h speed zoning in the vicinity of the site. Kerbside parking is generally permitted along either side of Barrenjoey Road, subject to restriction. Additionally, angled parking is available opposite the subject site, subject to restrictions.
- › Iluka Road: a local road that generally traverses north-south in a loop from Barrenjoey Road in the north to Barrenjoey Road in the south. Iluka Road accommodates two-way flow of traffic within an undivided carriageway and is subject to 50km/h speed zoning. In the vicinity of the site, a combination of restricted and unrestricted kerbside parking is permitted along either side of Iluka Road.

It can be seen from **Figure 3** that the site is conveniently located with respect to the arterial and local road systems serving the region. Barrenjoey Road is the main road to access the Palm Beach suburb.

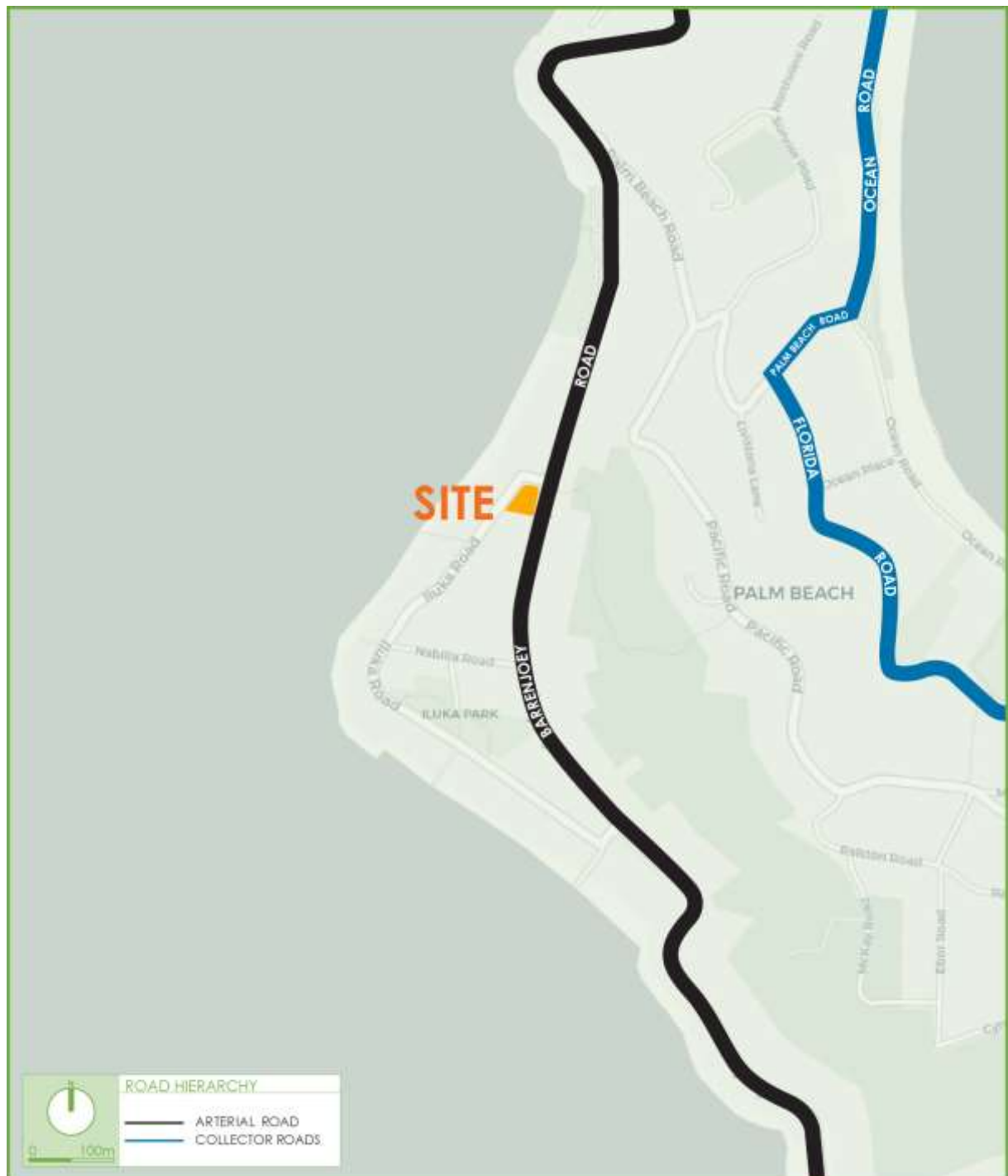


Figure 3: Road Hierarchy



3.2 Public Transport

3.2.1 Bus Services

The existing public transport services that operate in the locality are presented in **Figure 4** and are summarised as follows :

-) 190X – Palm Beach to City Wynyard (Express Service)
-) 199 – Palm Beach to Manly

3.2.2 Ferry Services

The site is located approximately within 400 metres Palm Beach Wharf. These private ferry services are also presented in Figure 4 and are summarised as follows:

-) PLMB – Palm Beach to Palm Beach (loop) Service
-) WAGE – Palm Beach to Ettalong Service





4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is now sought is a 3-storey mixed-use development comprising of the following components:

-) 8 x three-bedroom residential apartments;
-) 3 x one-bedroom serviced apartments;
-) A total of 262m² GLA of ground floor retail; and
-) A basement level providing parking for 31 vehicles.

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix A**.



5. PARKING REQUIREMENTS

5.1 Car Parking

The Pittwater 21 Development Control Plan (DCP), Part B6.3 – Off-Street Vehicle Parking Requirements, requires car parking for mixed-use developments to be determined at the minimum rate shown in **Table 1**:

Table 1: Car Parking Rates and Provision

Type	Area / Units	Minimum Parking Rate	Minimum Spaces Required	Spaces Provided
Serviced Apartments ¹				
1 Bed	3	1 space per dwelling	3	3
Subtotal			3	3
Residential				
3 Bed	8	2 spaces per dwelling	16	16
Visitor		1 space per 3 units ²	2.7 (3)	3
Subtotal			19	19
Retail				
Retail Premises	262m ²	1 space per 30m ² GLA	8.7 (9)	9
Subtotal			9	9
Total			31	31

¹Parking rate for Residential Flat Buildings adopted from DCP for serviced apartments

²Visitor Parking rounded up to nearest whole number in accordance with DCP

It is evident from **Table 1** that the proposed development requires a minimum total of 31 spaces under Council's DCP. In response, the development provides a total of 31 spaces comprising three (3) spaces for serviced apartments, 19 spaces for residential apartments and nine (9) retail parking spaces.

It is noted that there are a total of five (5) tandem spaces provided within the basement. All tandem spaces are allocated for residential uses and are to be allocated to the same dwelling. Therefore, this arrangement is considered acceptable.



Accordingly, the proposed car parking provision satisfies the requirements of Council's DCP and is considered acceptable.

5.2 Accessible Parking

Part B6.3 of Council's DCP, requires accessible parking for shop-top housing (residential) to be determined at the minimum rate shown in **Table 2**:

Table 2: Accessible Parking Rates and Provision

Type	Area / Parking Spaces	Minimum Parking Rate	Minimum Spaces Required	Spaces Provided
Serviced Apartments	3	3% of required parking space excluding adaptable units	0.09 (0)	0
Residential	19		0.57 (1)	2
Retail	9	3% of required parking space or 1 space, whichever is greater	1	1
Total			2	3

It is evident from **Table 2** that the proposed development requires a minimum total of two (2) accessible parking spaces under Council's DCP. In response, the development provides a total of three (3) accessible spaces, including two (2) for the residential component and a single accessible space for the retail component. Accordingly, the proposed accessible parking provision exceeds (superior to) the requirements of Council's DCP and is considered acceptable.

5.3 Bicycle Parking

The Pittwater 21 Development Control Plan (DCP) 2019, Part B6.3 – Off-Street Vehicle Parking Requirements under Northern Beaches Council, requires bicycle parking for mixed use developments to be determined at the minimum rate shown in **Table 3**:



Table 3: Bicycle Parking Rates and Provision

Type	Units / GFA	Minimum Parking Rate	Minimum Spaces Required
Serviced Apartments*	3	1 bicycle rack per 3 units	1
Residential	8		2.7 (3)
Retail Premises	282m ²	1 bicycle rack per 1000m ² GFA, or a minimum of 4 bicycle racks, whichever is greater	4
Total			8

Accordingly, the bicycle parking required under the DCP is a total of eight (8) spaces including a single space allocated for the serviced apartments use, three (3) spaces for the residential use and four (4) spaces for the retail premises.

In response, the development provides a total of eight (8) spaces in the form of bicycle racks within the basement level. This provision meets the minimum requirements of the DCP and is considered acceptable.

In addition to the above, storage cages are provided within the basement car park which could readily accommodate additional bicycles.

5.4 Motorcycle Parking

The DCP does not specify a motorcycle parking rate for service apartment, residential or retail uses. Therefore, the development is not required to provide any motorcycle parking. Accordingly, no motorcycle parking spaces are proposed within the development.

5.5 Refuse Collection and Servicing

The development proposes to undertake all servicing and refuse collection via existing on-street arrangements at the kerbside. Given that refuse collection and servicing demands are relatively infrequent and will occur outside of peak periods in the morning and/or night, this arrangement is considered appropriate.



6. TRAFFIC AND TRANSPORT IMPACTS

6.1 Existing Site Generation

The subject site currently accommodates ground floor retail use and three shop top dwellings. The proposed development seeks to maintain ground floor retail use along the Barrenjoey Road frontage of the site. Therefore, there is expected to be no net change in traffic generation in relation to retail uses. In relation to the existing shop top dwellings, the traffic generation is summarised below:

RMS Guideline to Traffic Generating Developments (2002), provides trip generation rates for medium density residential flat buildings, specifically town house developments. The RMSGTGD recommends an average Sydney weekday peak hour trip rate of 0.4-0.5 vehicles per dwelling. The lower traffic generation rate of 0.4 vehicle trips per hour has been adopted for the existing development. Application of this trip rate to the three (3) existing dwellings and adopting an 80:20 split, results in the following predicted trip generation:

-) 1 vehicle trips per hour in the morning peak period (0 in, 1 out).
-) 1 vehicle trips per hour in the evening peak period (1 in, 0 out).

6.2 Development Trip Generation

The impacts of the proposed development on the external road network have been assessed having regard for the yield scenarios as summarised in **Section 4** above. This assessment has been undertaken in accordance with the requirements of the RMS Guideline to Traffic Generating Developments (2002) and as such, the traffic generation rates published in the RMS Guide have been adopted for each individual land use. The result of this assessment is summarised below.

6.2.1 Residential

The above traffic generation rates for medium density residential flat buildings were adopted for the residential component of the development. Application of this trip rate to the proposed eight (8) dwellings and adopting an 80:20 split, results in the following predicted trip generation:



- › 3 vehicle trips per hour in the morning peak period (1 in, 2 out).
- › 3 vehicle trips per hour in the evening peak period (2 in, 1 out).

6.2.2 Serviced Apartments

The RMSGTGD presents traffic generation rates for Motel uses, being the most applicable for serviced apartment uses. An evening peak hour trip rate of 0.4 vehicles per unit is recommended. Application of this rate to the proposed three (3) serviced apartments and adopting an 80:20 split, results in the following predicted trip generation:

- › 1 vehicle trips per hour in the morning peak period (0 in, 1 out).
- › 1 vehicle trips per hour in the evening peak period (1 in, 0 out).

6.2.3 Combined Traffic Generation

The combined traffic generation of the residential and serviced apartment components can be summarised as follows:

- › 4 vehicle trips per hour in the morning peak period (1 in, 3 out).
- › 4 vehicle trips per hour in the evening peak period (3 in, 1 out).

6.2.4 Net Traffic Generation

It is reiterated that the ground floor retail area of the proposed development is comparable to the existing ground floor retail area of the site and therefore will not contribute to any net addition in traffic generation.

The net traffic generation of the proposed residential and serviced apartment components of the development with respect to the existing development can be summarised as follows:

- › 3 vehicle trips per hour in the morning peak period (1 in, 2 out).
- › 3 vehicle trips per hour in the evening peak period (2 in, 1 out).



6.3 Traffic Impacts

The morning and evening peak hour scenarios of an additional three (3) vehicles per hour is comparable to an additional vehicle every 20 minutes. This volume of additional traffic is minor and is expected to be readily accommodated within the surrounding road network.

As such the development is considered supportable from a traffic planning perspective with no external improvements to the network required.



7. ACCESS AND INTERNAL DESIGN ASPECTS

7.1 Site Vehicular Access

7.1.1 Access

The development proposes a total of 31 parking spaces with access to Iluka Road, a local access road. It is noted that the large majority of car parking spaces within the basement are User Class 1A and therefore require a Category 1 driveway under AS2890.1 (2004), being a combined entry and exit width of 3.0 to 5.5 metres. In response, a 6.6 metre access has been provided at the property boundary, narrowing to 3.4 metres wide on the ramp to the basement.

7.1.2 Traffic Signal System

A signal system has been provided with on-site waiting bays, this provision shall ensure the safe operation of the 3.4m wide ramp. The traffic signal system will operate with a passive green light for all vehicles entering with vehicles required to stop within the allocated waiting bay at the top of the ramp in the event of an exiting vehicle within the basement. Waiting bays are also provided within the basement level with all exiting vehicles be required to position themselves at a waiting bay until the system provides a green light. It is noted that five (5) retail spaces are required to wait within their car parking spaces for a green light. The specification so the traffic signals and timing will be designed by a traffic signal consultant at CC stage.

A swept path analysis has been conducted of the largest design vehicle to access the basement. This analysis shows satisfactory movements and is presented in **Appendix B**.

7.2 Internal Design

The internal basement car park complies with the requirements of AS 2890.1 (2004) and AS 2890.6 (2009), and the following characteristics are noteworthy:



7.2.1 Parking Modules

-) All residential and serviced apartment car parking spaces have been designed in accordance with User Class 1A being for residential parking. These spaces are provided with a minimum space length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m.
-) All retail car parking spaces have been designed in accordance with User Class 3 being for short term parking. These spaces are provided with a minimum space length of 5.4m, a minimum width of 2.6m and a minimum aisle width of 5.8m.
-) All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
-) Dead-end aisles are provided with the required 1.0m aisle extension in accordance with **Figure 2.3** of AS2890.1 (2004).
-) All accessible parking spaces have been designed in accordance with AS 2890.6 (2009), being 2.4m wide, 5.4m long and situated immediately adjacent to a dedicated shared area or the circulating aisle.

7.2.2 Ramps

-) The internal ramp has a maximum gradient of 5% (1 in 20) for the first 6.0m inside the property boundary, in accordance with Section 3.3 (a) of AS 2890.1 (2004).
-) The internal ramp has a maximum gradient of 20% (1 in 5) with sag and summit transitions of 12.5% (1:8) respectively. These provisions satisfy the requirements of AS 2890.1 (2004).

7.2.3 Clear Head Heights

-) A minimum clear head height of 2.2m is to be provided for all areas within the basement car park as required by AS 2890.1 (2004).
-) A minimum clear head height of 2.5m is to be provided above all accessible spaces in accordance with AS 2890.6 (2009).



7.2.4 Other Considerations

-) All columns are located outside of the parking space design envelope shown in **Figure 5.2** of AS 2890.1 (2004).
-) Visual splay has been provided at the access driveway in accordance with **Figure 3.3** of AS 2890.1 (2004).

7.3 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS 2890.1 (2004) and AS 2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



8. CONCLUSIONS

In summary:

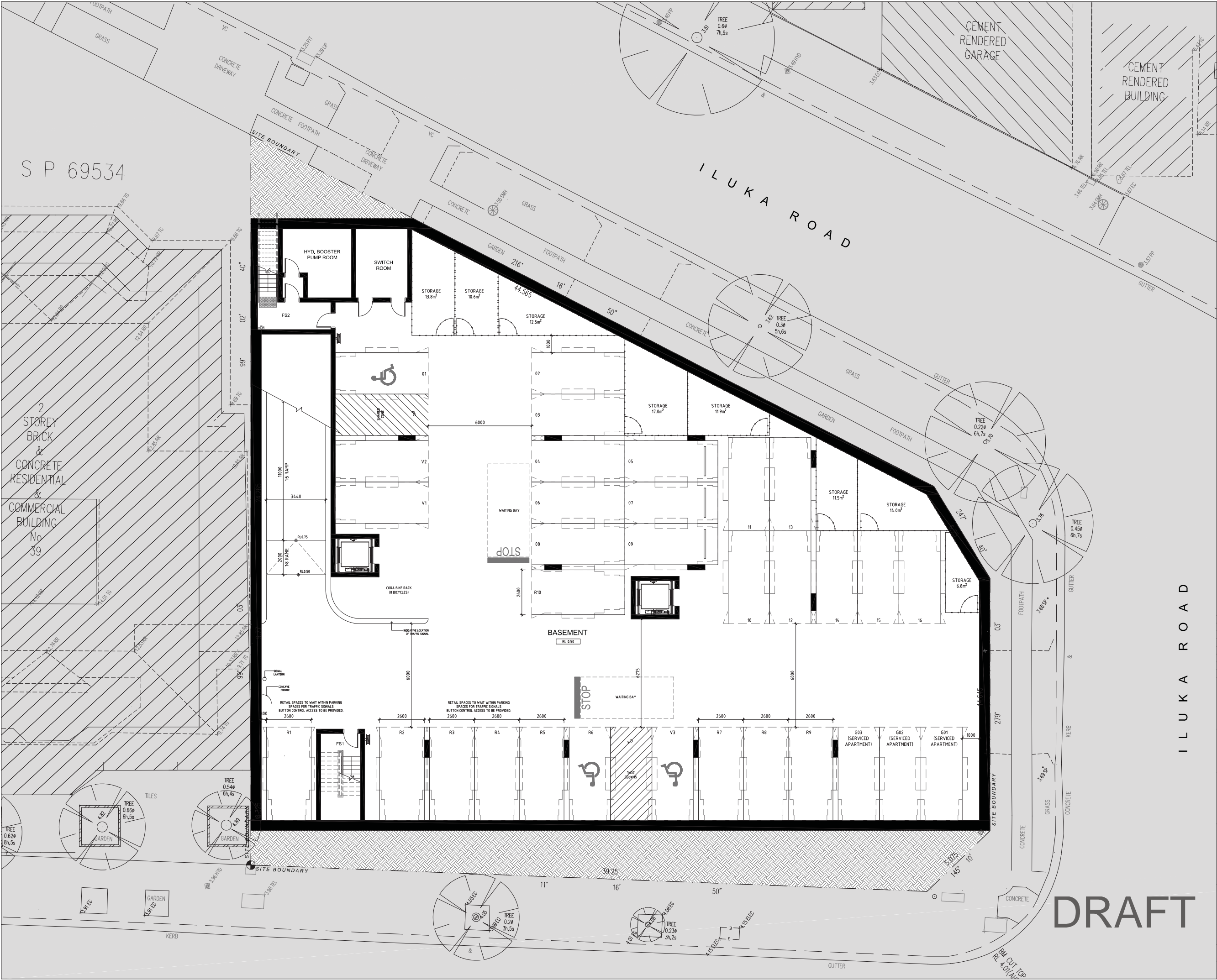
-) The proposal seeks approval to construct a three-storey mixed use development at 1105 - 1107 Barrenjoey Road, Palm Beach, containing eight (8) residential dwellings, three (3) serviced apartments and a total of 262m² of ground floor retail.
-) The subject site is located within walking distance of several bus stops which provide good opportunity to encourage future tenants / visitors to use sustainable transport modes.
-) The proposed development provides 31 parking spaces, including 19 residential parking spaces including three (3) visitor parking spaces, three (3) serviced apartment parking spaces and nine (9) retail parking spaces. This provision complies with the minimum requirements of Council's DCP. As such, all normal parking demands will be readily accommodated on-site.
-) The traffic generation arising from the development has been assessed as a net change over existing conditions, and equates to an additional three (3) vehicle trips per hour during the morning and afternoon peak periods. This is considered a minor increase which is expected to be readily accommodated for within the surrounding road network. As such, no external improvements are required to facilitate the propose development. The traffic impacts of the development are therefore considered acceptable.
-) The basement car park has been assessed to comply with the requirements of AS 2890.1 (2004), and AS 2890.6 (2009), thereby ensuring safe and efficient operation.

This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

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APPENDIX A

Reduced Plans

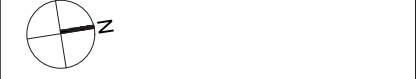


- GENERAL NOTES:
- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
 - DRAWINGS FOR THE PURPOSES OF DA ONLY - FURTHER CONSULTANT/ AUTHORITY COORDINATION WILL BE REQUIRED AT CC STAGE WHICH MAY IMPACT ON DESIGN AND PLANNING LAYOUTS
 - ARCHITECTURAL PLANS TO BE READ IN CONJUNCTION WITH CONSULTANT'S DRAWINGS, SPECIFICATIONS & REPORTS
 - COPYRIGHT OF DESIGN SHOWN HEREON IS RETAINED BY PBD ARCHITECTS AND AUTHORITY IS REQUIRED FOR ANY REPRODUCTION
 - AREA SCHEDULES SUPPLIED ARE APPROXIMATE ONLY - FUTURE ALLOWANCE FOR VERTICAL SERVICE DUCTS, STRUCTURAL WALL SYSTEMS AND CONSULTANT INPUT WILL BE REQUIRED

- LEGEND:
- AW AWNING
 - HW HIGHLIGHT WINDOW
 - CU A/C CONDENSER UNITS
 - PH FIRE HYDRANT
 - FHR FIRE HOSE REEL
 - FS FIRE STAIRS
 - MV MECHANICAL RISER TO FUTURE DETAIL
 - GC GARBAGE CHUTE
 - MB MAILBOX TO FUTURE DETAIL
 - OG OPAQUE GLASS
 - PB PLANTERBOX
 - R 240L RECYCLING BIN
 - SK SKYLIGHT
 - ST STORAGE
 - WT HOT WATER UNITS

- MATERIALS LEGEND:
- AFG ALUMINIUM FRAMED GLAZING
 - AFL ALUMINIUM ELLIPTICAL FIXED LOUVERS
 - AW AWNING TO FUTURE DETAILS
 - BS BATTEN SCREEN (TO FUTURE DETAIL)
 - FB FACE BRICK
 - GB FRAMELESS TOUGHENED GLASS BALUSTRADE (TO BCA/AUSTRALIAN STANDARDS)
 - MC METAL CLADDING
 - MF METAL FENCING (TO FUTURE SELECTION)
 - PS PRIVACY SCREEN (TO FUTURE SELECTION)
 - PTX PAINT FINISH TYPEX
 - RD ROLLER DOOR
 - RP RIVER PEBBLES
 - RW RENDERED WALL/SELECTED PAINT FINISH
 - TC TIMBER CLADDING

A	2020.12.18	DA LODGEMENT
ISSUE	DATE	DESCRIPTION



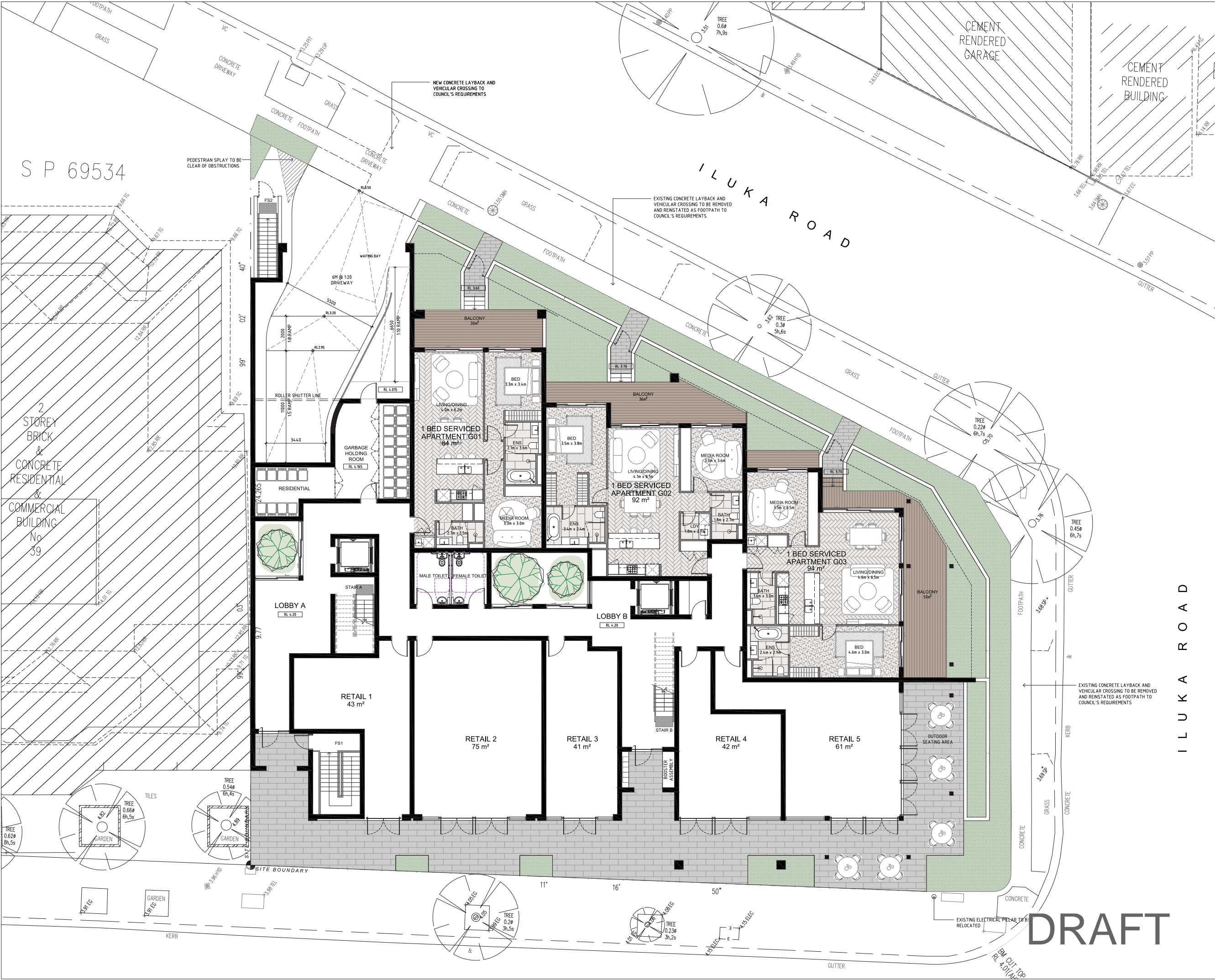
CLIENT: MACARTHUR PROJECTS

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PROJECT: PROPOSED SHOPTOP HOUSING
1105-1107 BARRENJOEY ROAD, PALM BEACH

DECEMBER 2017
DRAWING TITLE: BASEMENT PLAN

SCALE: 1:100@A1 / 1:200@A3	DRAWING NO: DA100	ISSUE: A
PROJECT NO: 1816		



GENERAL NOTES:

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LEGEND:

AW	AWNING
HW	HIGHLIGHT WINDOW
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FHR	FIRE HOSE REEL
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PS	PRIVACY SCREEN (TO FUTURE SELECTION)
PTx	PAINT FINISH TYPEX
RD	ROLLER DOOR
RP	RIVER PEBBLES
RW	RENDERED WALL/SELECTED PAINT FINISH
TC	TIMBER CLADDING

A	2020.12.18	DA LODGEMENT
ISSUE	DATE	DESCRIPTION

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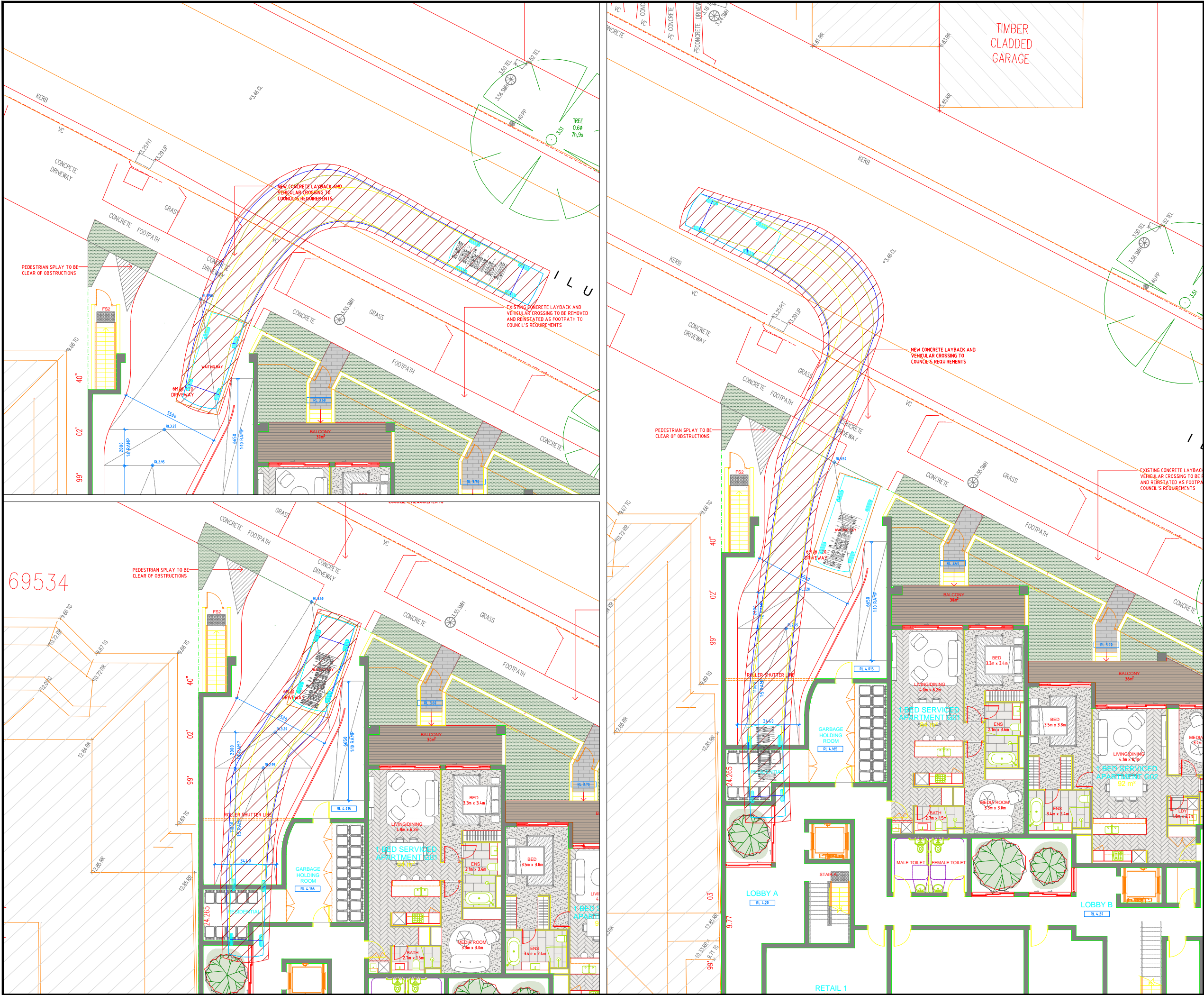
PROJECT: **PROPOSED SHOPTOP HOUSING**
1105-1107 BARRENJOEY ROAD, PALM BEACH

DECEMBER 2017
DRAWING TITLE: **GROUND FLOOR PLAN**

SCALE: 1:100@A1 / 1:200@A3	DRAWING NO: DA101	ISSUE: A
PROJECT NO: 1816		

APPENDIX B

Swept Path Analysis



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1:2004 Parking facilities - Off-street car parking, and/or AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Design Review	SW	08-12-20

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
PBD Architects
Level 2, 52 Albion Street
SURRY HILLS NSW 2010

Client
Macarthur Projects


Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description
1105-1107 Barenjoey Road,
PALM BEACH NSW 2108

Drawing Prepared By

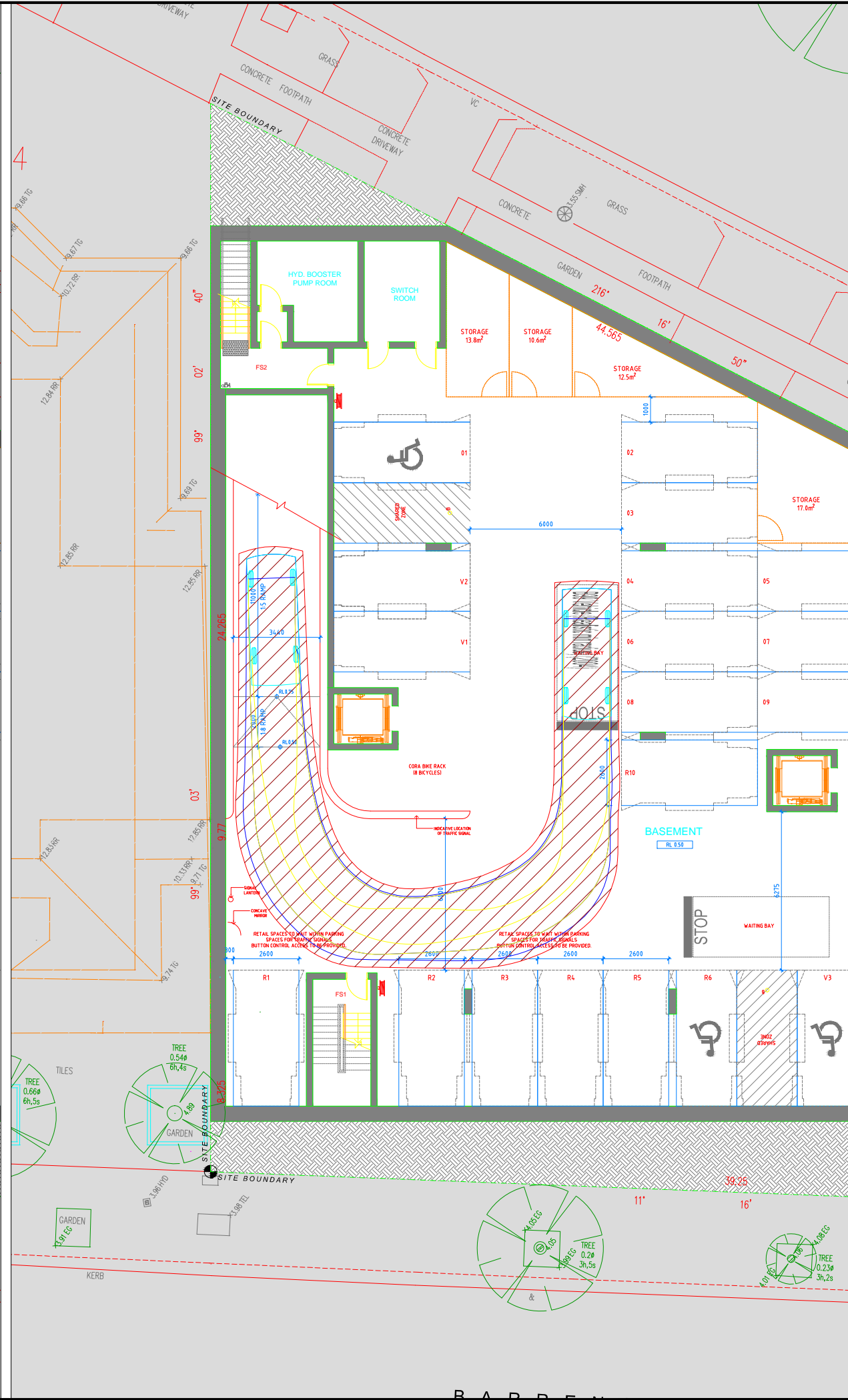
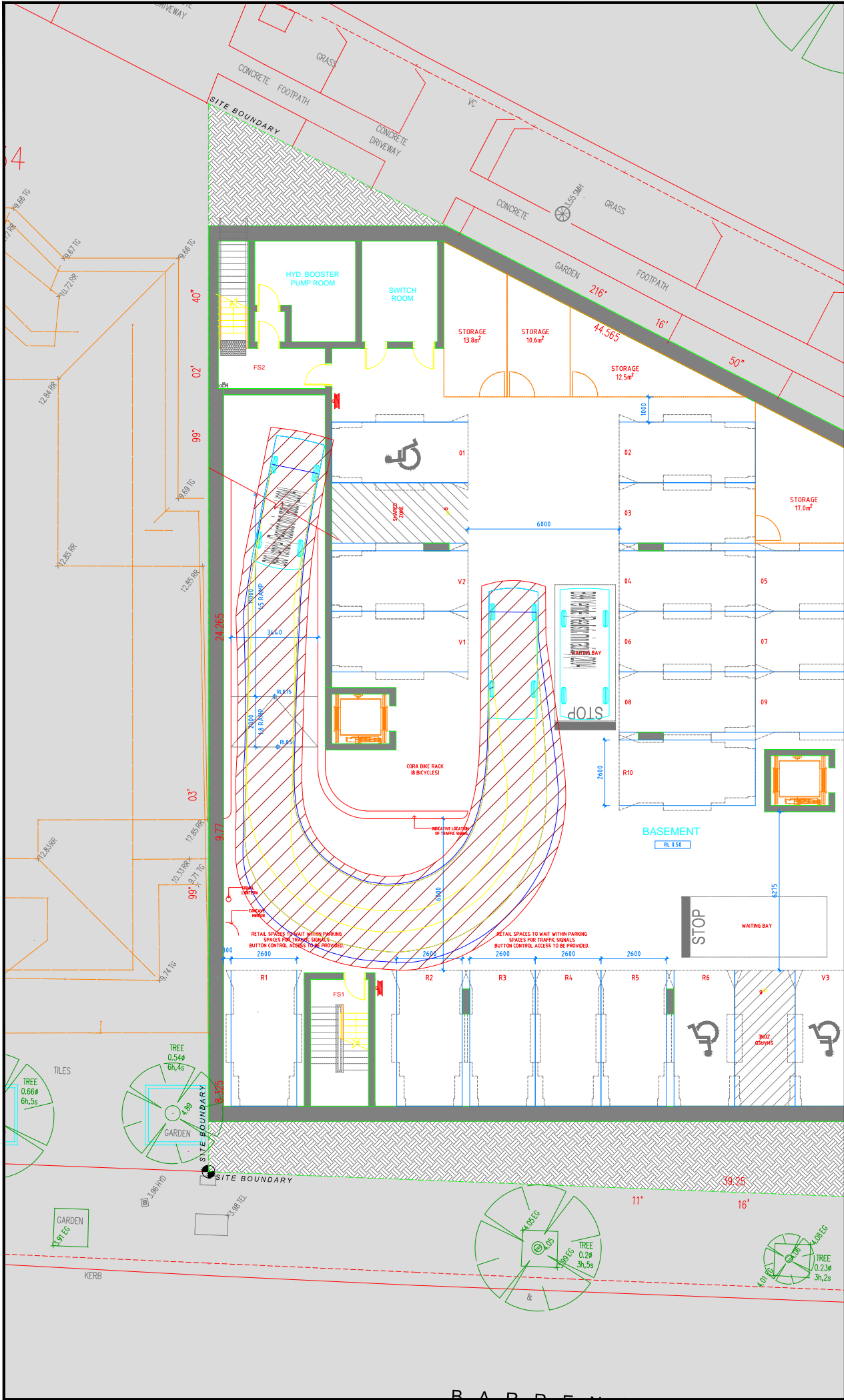
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Drawing Title
Swept Path Analysis
B99 Design Vehicle
Ground Floor
Left: Entry Movements Right: Exit Movement

Drawn: SW	Checked: VD	Date: 08-12-20
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18.190d03v01 TRAFFIX [201202 Plans] Design Review.dwg			
Project No. 18.190	Drawing Phase DA	Drawing No. TX.01	Rev. A



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Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

PBD Architects
Level 2, 52 Albion Street
SURRY HILLS NSW 2010

Client

Macarthur Projects

Scale / Plan Orientation


0 2 4 6 8m

1:200 @ A3

Project Description

1105-1107 Barrenjoey Road,
PALM BEACH NSW 2108

Drawing Prepared By

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w: www.traffix.com.au

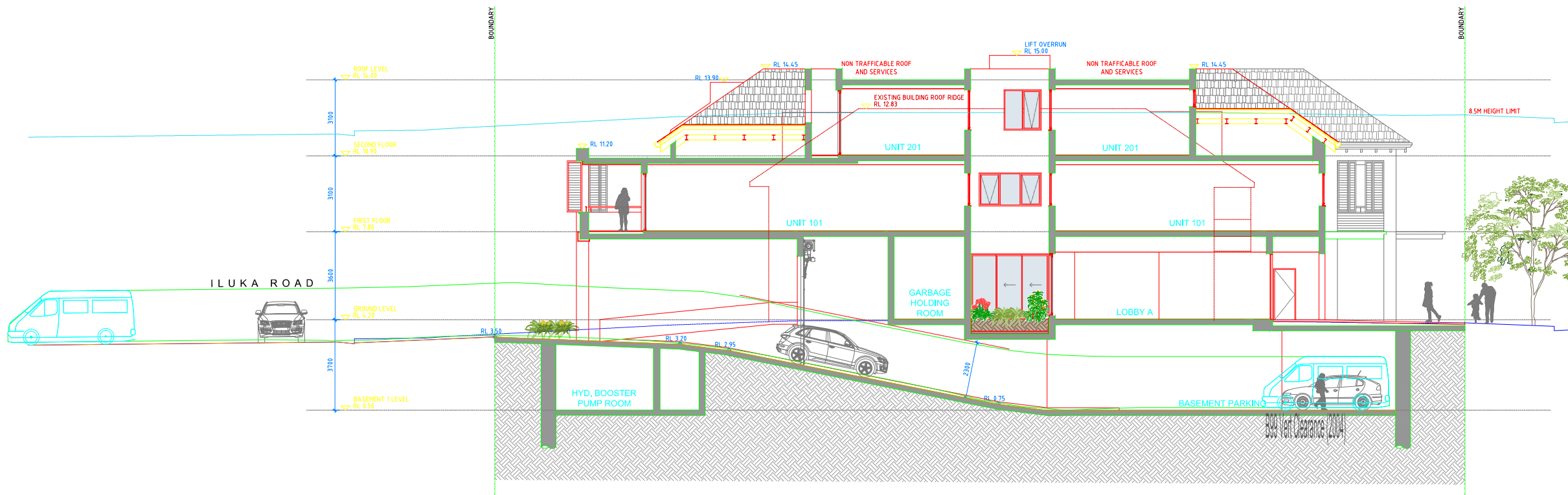
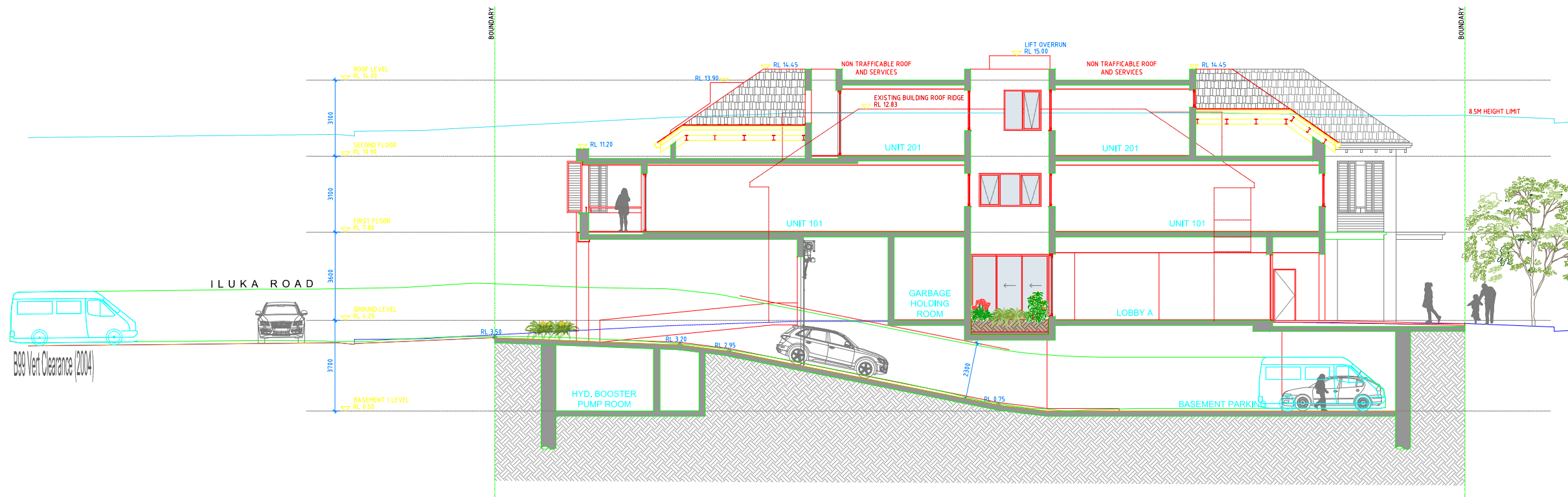
Drawing Title

Swept Path Analysis
B99 Design Vehicle
Basement Floor
Left: Entry Movement Right: Exit Movement

Drawn: SW	Checked: VD	Date: 08-12-20
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18.190d03v01 TRAFFIX [201202 Plans] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
18.190	DA	TX.02	A



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1:2004 Parking facilities - Off-street car parking, and/or AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Vertical Clearance Test	SW	08-12-20

Swept Path Legend	
	Wheel Path
	Vehicle Body Envelope
	Clearance Envelope (300mm)

Architect
PBD Architects
Level 2, 52 Albion Street
SURRY HILLS NSW 2010

Client
Macarthur Projects

Scale / Plan Orientation
0 2 4 6 8m
1:200 @ A3

Project Description
1105-1107 Barrenjoey Road,
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Drawing Prepared By

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Drawing Title
Vertical Clearance Test
B99 Design Vehicle
Ramp Section
Top: Entry Movement Bottom: Exit Movement

Drawn: SW Checked: VD Date: 08-12-20

18.190d03v01 TRAFFIX [201202 Plans] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
18.190	DA	TX.03	A