



Reference: 19.197r01v01

23 May 2019

Classic Plans
1 Maxwell Avenue
Maroubra Beach, NSW 2035

Attention: Mr Erol Ozdirik

Re: 68a Queenscliff Road, Queenscliff
Proposed Mixed-Use Development
Traffic Impact Statement

Dear Erol,

TRAFFIX has been commissioned to assess the traffic impacts in support of a Development Application (DA) relating to a mixed-use development located at 68a Queenscliff Road, Queenscliff. The proposed development will involve the construction of a ground floor retail tenancy with residential units on the upper floors. The subject site is located within the Northern Beaches Local Government Area and has been assessed under that Council's controls.

This statement documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE), prepared separately. The proposed development is considered to be a minor development with less than 300 dwellings. As such, the DA will not require referral to the Roads and Maritime Services (RMS) under the provisions of State Environmental Planning Policy (Infrastructure) 2007.

► Site and Location

The subject site at 68a Queenscliff Road, Queenscliff and is located approximately 12 kilometres northeast of Sydney central business district (CBD). More specifically, it is located on the south-western corner of the intersection of Queenscliff Road and Bridge Road in Queenscliff.

The site is rectangular in configuration and has a total site area of 315.3m². It has a northern frontage of 36.725 metres to Queenscliff Road and an eastern frontage of 12.32 metres to a residential property. It shares a southern boundary of 23.915 metres to a residential dwelling and a western boundary of 12.765 metres to a residential flat development.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should be made to the Photographic Record presented in **Attachment 1**, which provides an appreciation of the general character of roads and other key attributes within proximity of the site.



Figure 1: Location Plan



Figure 2: Site Plan



► Road Hierarchy

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

- **Pittwater Road:** an RMS Main Road (MR159) that traverses in a north-south direction between Maccarn's Creek Road, Bayview in the north and Sydney Road, Fairlight in the south. Within the vicinity of the site, Pittwater Road is subject to 60km/hr speed zoning and accommodates two (2) lanes of traffic in each direction. Pittwater Road permits kerbside parallel parking on its eastern side but prohibits parking on its western side.
- **Oliver Street:** an RMS Secondary Road (SR2102) that traverses in a diagonal direction from north-east to south-west as it pertains to the site, between Bennett Street in the north-east and Pittwater Road in the south-west. Within the vicinity of the site, Oliver Street is subject to 60km/hr speed zoning and accommodates two (2) lanes of traffic travelling north-east and a single lane of traffic travelling south-west. Oliver Street permits kerbside parallel parking along its south-east side but prohibits parking on its north-west side.
- **Queenscliff Road:** a section of a local unclassified regional road (7343) that serves as a local collector road for the area. The road traverses in an east-west direction from Pittwater Road in the west and ending in a cul-de-sac lookout 1,300 metres west. Within the vicinity of the site, Queenscliff Road is subject to 50km/hr speed zoning and accommodates a single lane of traffic in either direction without marked centrelines. Queenscliff Road permits kerbside parallel parking along both sides of the road.
- **Greycliffe Street:** a section of a local unclassified regional road (7343) that serves as a local collector road for the area. The road curves significantly as it pertains to the area but can be approximated to traverse in an east-west direction between Bridge Road in the east and Queenscliff Road in the west. Within the vicinity of the site, Greycliffe Street is subject to 50km/hr speed zoning and accommodates a single lane of traffic in either direction without marked centrelines. Greycliffe Road primarily prohibits kerbside parallel parking along both sides of the street.
- **Pavilion Street:** a local road that traverses in an east-west direction between two intersections (CH 0+780m and CH 1+150m) along Queenscliff Road. Within the vicinity of the site, Pavilion Street is subject to 50km/hr speed zoning and accommodates a single lane of traffic in either direction without marked centrelines. Pavilion Street permits kerbside parallel parking along both sides of the street.
- **Bridge Road:** a local road that traverses in a north-south direction between Queenscliff Road in the north and Greycliffe Street in the south. Bridge Street is subject to 50km/hr speed zoning and accommodates a single lane of traffic in either direction without marked centrelines. Bridge Road permits on-street parking along both sides of the road. Notably, Bridge Road is subject to a steep 10% - 12.5% slope.

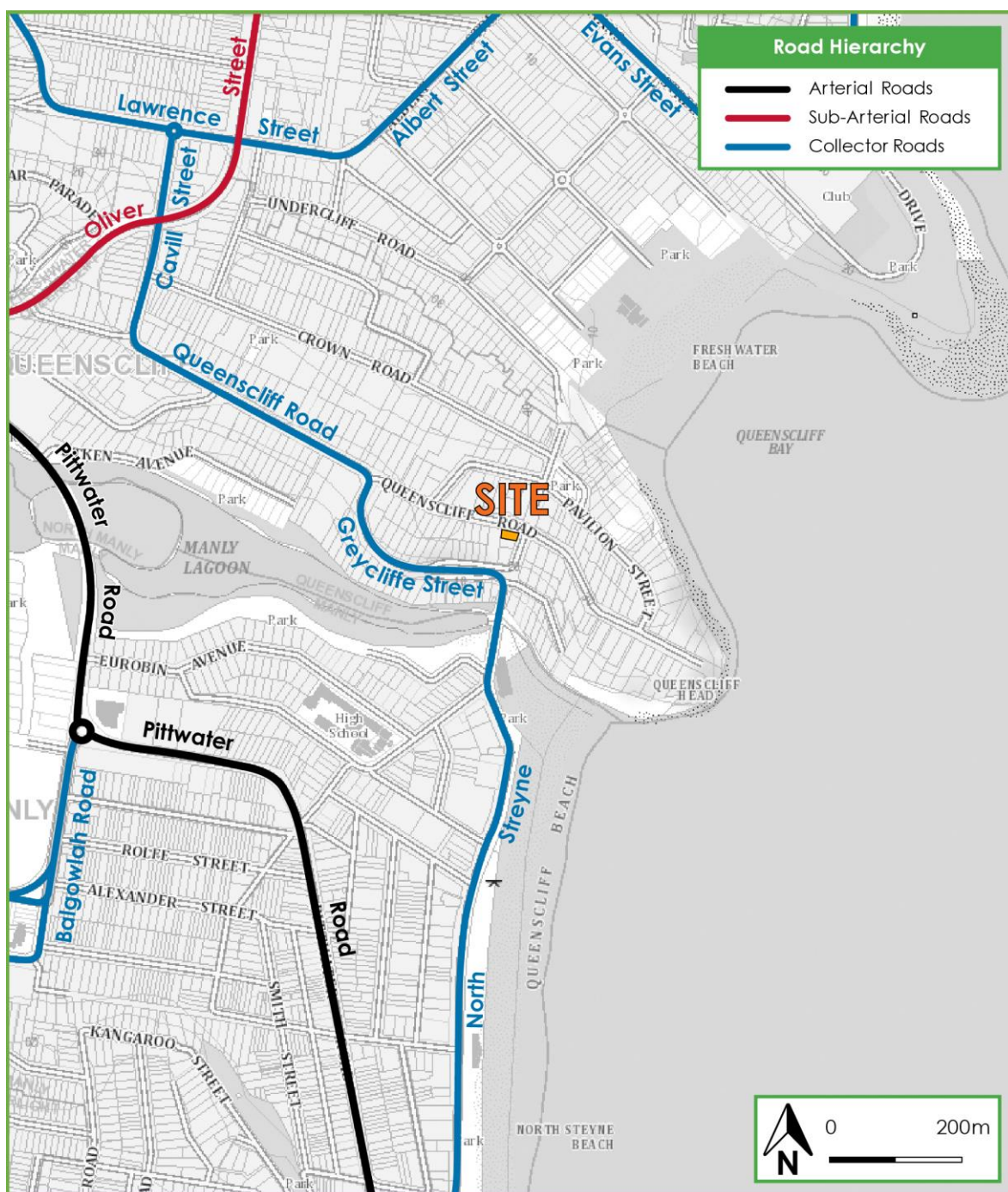


Figure 3: Road Hierarchy



Public Transport

The subject site is within optimal walking distance (400 metres) of two (2) major bus services operating in the locality. These bus services are presented in **Figure 4** and are summarised as follows:

- 136 – Prepay Only: Manly to Chatswood, which operates at a modal frequency of 1 per 10 minutes during weekday peak periods and 1 per 15 minutes during off-peak daytime periods and weekends.
- 139 – Prepay Only: Warringah Mall to Manly, which operates at a modal frequency of 1 per 30 minutes Monday – Sunday.

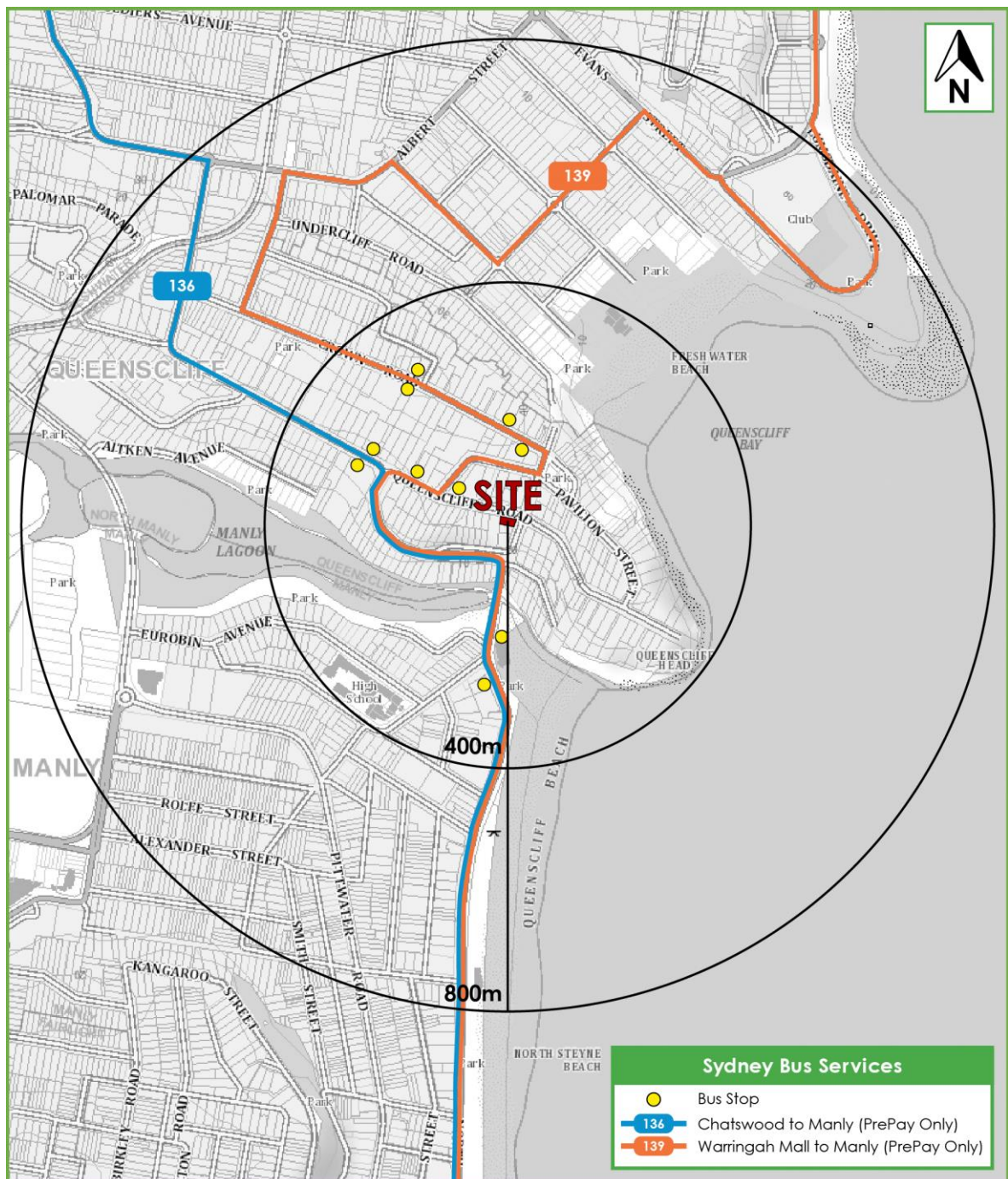


Figure 4: Public Transport



► Existing Development

The existing site is a mixed-use development comprised of three storeys, expressed as:

- Two commercial tenancies at ground level, including a café and office tenancy
- Four (4) x double-bedroom dwellings on the upper two (2) levels
- Three (3) car spaces are provided at ground level.

► Description of Proposed Development

A full description of the proposed development can be found in the SEE, prepared separately. In summary, the development for which approval is now sought comprises the following components:

- Construction of a multi-dwelling mixed-use development comprising:
 - Two (2) x commercial properties at ground floor with a total GFA of 112m²;
 - Three (3) x single-bedroom dwellings at first floor;
 - One (1) x double-bedroom dwelling at second floor;
 - One (1) x triple-bedroom dwelling at second floor.
- Provision of six (6) car parking spaces within the basement level, comprising:
 - Five (5) residential parking spaces; and
 - One (1) commercial parking space.

Reference should be made to the plans submitted separately to Council that are presented at a reduced scale in **Attachment 2**.

► Parking Requirements

Car Parking

Northern Beaches Council is an amalgamation of Warringah, Pittwater and Manly Council. Queenscliff was previously under Warringah Council jurisdiction and is subject to Warringah LEP (2011) until Council supersedes said legislation.

The parking rates applicable to the site and the response have been summarised in **Table 1** below:



Table 1 – DCP Car Parking Rate and Provisions

Type	Number of Dwellings / GFA	DCP Car Parking Rate	Parking Required	Parking Provided
1-Bedroom Dwelling	3	1 space per dwelling	5.7	5
2-Bedroom Dwelling	1	1.2 spaces per dwelling		
3-Bedroom Dwelling	1	1.5 spaces per dwelling		
Visitors	5	1 space per 5 units	1	0
Retail	112m ²	6.1 spaces per 100m ²	6.8	1
Totals			13.5	6

It can be seen from **Table 1** that the proposed development is nominally required to provide a minimum of 13 car parking spaces under the DCP controls.

In response, the development will provide a total of six (6) car parking spaces comprising of five (5) residential spaces and one (1) commercial space. This provision is considered supportable for the following reasons:

- The current development on the site is of a comparable size and scale to the proposed development (including a reduction of bedrooms on the site from 8 to 7) and comparable ground floor retail tenancies. However, the current site provides just three (3) spaces on site. The increase to six (6) spaces doubles the available parking provision over the existing arrangement resulting in a net improvement.
- The provision of six spaces allows for each unit on site to have one car space, in addition to a car space on site for the larger commercial tenancy. This provision will allow residents and tenants to store a private vehicle off street if desired.
- The restrained parking provision will encourage the use of sustainable transport modes for the site, including public and active transport, in line with Council and State Government objectives.
- A 'Green Travel Plan' can be prepared to raise awareness of public transport alternatives to increase the uptake of these services. This can be displayed in a common area for visitors, and distributed to new residents, and include information such as network maps and timetables for bus services, cycling maps, taxi contact numbers and location of key attractions. This is a matter that can be conditioned.
- It is noted the site is constrained, with a width of just 12m and a steeply sloping topography, resulting in significant challenges to providing additional on-site parking.
- It is recommended that visitor parking should not be provided on site due to the challenges of the site constraints and limited area manoeuvring within the basement. All spaces shall be assigned to a tenancy or unit ensuring a controlled environment where users of the basement will have a familiarity with the site constraints.



Bicycle Parking

The Warringah DCP Section C3(a) provides the bicycle parking rates and provisions for residential and retail developments. These rates and provisions are summarised in **Table 2** below:

Table 2 – DCP Bicycle Parking Rate and Provisions

Type	Number of Dwellings / GFA	DCP Bicycle Parking Rate	Parking Required*	Parking Provided
Residential Accommodation				
Residents	5	1 per dwelling	4	4
Visitors		1 per 10 dwellings	0.4 (1)	2
Commercial Tenancies				
Retail	112m²	1 per 200m²		
Retail Visitor		1 per 600m®		
Totals			5	6

* The minimum number of bicycle parking spaces is to be rounded up to the nearest whole number, as per the DCP.

It can be seen from **Table 2** that the proposed development is required to provide a minimum of five (5) bicycle parking spaces. In response, the development proposes to provide a total of six (6) bicycle parking spaces located at the basement car park in the form of bicycle loops. This provision is superior and compliant with the minimum requirements of the DCP. In addition, the bicycle parking spaces are designed in accordance with AS 2890.3 (2015).

Servicing and Refuse Collection

No change is proposed to the existing refuse collection arrangements with bins to be presented for kerbside collection by Council's waste collection vehicle.

Furthermore, servicing requirements for the development are anticipated to be modest given the size and scale of the development and shall continue as per the existing arrangements for the development.

Traffic Generation

The subject site is currently a mixed-use development as expressed above. According to the *RMS Guide to Traffic Generating Developments 2002 (AGTGD)*, the following rates are relevant to the site:

- Medium density flat building (4 units) 0.4 – 0.5 trips per peak hour per unit
- Secondary Retail (100m² café) 4.4 trips per 100m² GFA

Application of the above rates to the **existing** development will result in the following traffic generation:

- 6.4 veh/hour in the AM peak; and,
- 6.4 veh/hour in the PM peak

In regards to the proposed development, the *RMS Guide to Traffic Generating Developments 2002* recommends the following traffic generation rate for a medium density residential development:



- Medium density flat building (5 units) 0.4 – 0.5 trips per peak hour per dwelling
- Secondary Retail (112m²) 4.4 trips per 100m² GFA

Application of the above rates to the proposed development will result in the following traffic generation:

- 7.5 veh/hr during the AM peak period; and,
- 7.5 veh/hr during the PM peak period.

This anticipated traffic generation is considered to be negligible and would not adversely affect the local and surrounding road network, particularly when compared to the traffic generation of the existing approved development.

Access and Internal Design

Access and Queuing

The proposed development incorporates a total of six (6) car parking spaces with access to and from Queenscliff Road (local collector road). In accordance with AS 2890.1 (2004), the proposed development requires a Category 1 vehicular driveway, being a combined entry and exit driveway of 3.0 to 5.5 metres. In response, the development provides a driveway width of 3.6 metres, thereby is within complicit range of AS 2890.1 (2004) requirements. Noting the site constraints, a swept path analysis has been undertaken with a B85 design vehicle (in accordance with the concession provided on Clause B2.2 and B2.3 of AS2890.1) that demonstrates satisfactory vehicle movements. This swept path analysis is provided in **Attachment 3**.

The single lane ramp does not permit passing opportunities, as such a signal system is proposed to control traffic movements. The signal will have a default green for entering vehicles, reverting to red on street only when a car is required to exit, thus minimising queuing.

A queuing analysis has been undertaken for the operation of the signals to determine the likelihood of queuing and the requirement for a waiting bay at the site entry. The results of the analysis are included in **Attachment 4** for reference and demonstrate the 98th percentile queue scenario comfortably represents just one vehicle arriving. With the default for the signal at street level being green vehicles will be able to access the lift without a need to wait or queue, hence no waiting bay is required under AS2890.1.

Internal Design

The basement level car park generally complies with the requirements of AS 2890.1 (2004), AS 2890.3 (2015) and AS 2890.6 (2009), with the following characteristics noteworthy:

- All six (6) residential car parking spaces have been designed in accordance with AS 2890.1 (2004) User Class 1A, being a minimum width of 2.4 metres, length of 5.4 metres, and providing an aisle width of 5.8 metres.
- All spaces adjacent to obstructions greater than 150mm in height are to be provided with an additional width of 300mm.
- It is noted the blind aisle does not extended by 1.0 metre beyond the last car parking space. Hence this space has been designated a 'small car space' and provided with an increased aisle width to aid manoeuvring as shown in the swept path assessment included in **Attachment 3**.
- A minimum clear head height of 2.2 metres is to be provided for all trafficable areas.



- All columns are located outside of the parking space design envelope as shown in Figure 5.2 of AS 2890.1 (2004).
- It is noted the footpath is located five metres clear of the site boundary, with no obstructions to sightlines. As such there is sufficient visibility to passing pedestrians, meeting the requirements of Clause 3.2.4 of AS2890.1.

In summary, the internal configuration of the basement level car park has been designed in accordance with AS 2890.1 (2004), noting the concessions applied due to the site constraints. It is however envisaged that a condition of consent would be imposed requiring compliance with these standards. As such, any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

Conclusion

On the basis of the above, the proposed mixed-use development at 68a Queenscliff Road, Queenscliff is in our view is considered supportable.

We trust the above is of assistance and request that you contact the undersigned should you have any queries or require any further information. In the event that any concerns remain, we request an opportunity to discuss these with Council officers prior to any determination being made.

Yours faithfully,

Traffix



Geoff Higgins
Technical Director

Encl: Attachment 1 – Photographic Record
Attachment 2 – Reduced Plans
Attachment 3 – Swept Path Analysis
Attachment 4 – Queuing Analysis

ATTACHMENT 1

Photographic Records



Subject Development Area



Subject Development Area



Subject Development Area



Intersection of Queenscliff Road and Bridge Road



Long Section of Queenscliff Road, looking West



Long Section of Queenscliff Road, looking East



Long Section of Bridge Road, looking North



Long Section of Bridge Road, looking South

ATTACHMENT 2

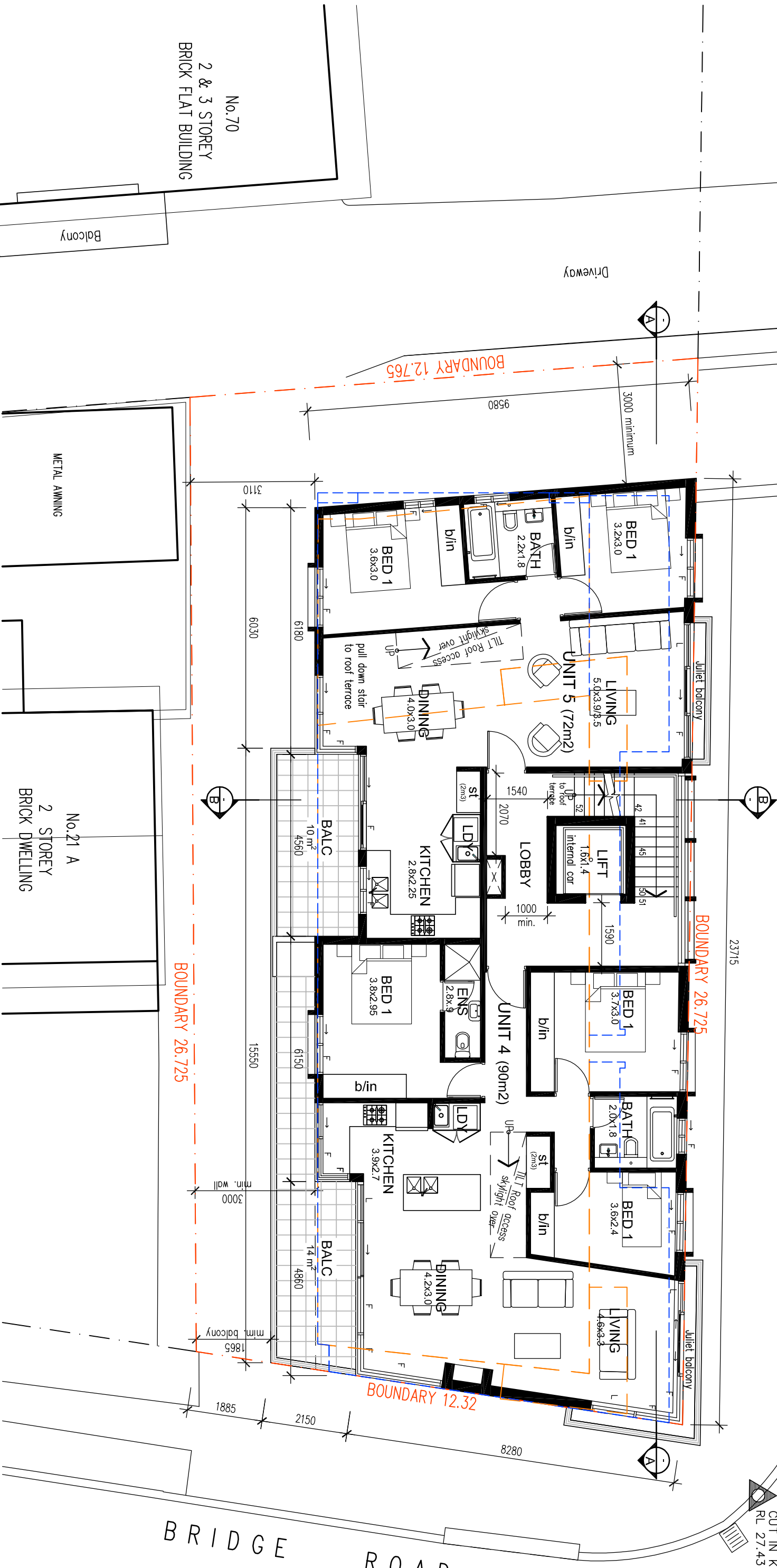
Reduced Plans

GENERAL NOTES:

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BENCH MARK
CUT IN KERB
RL 28.77 AHD

BENCH MARK
CUT IN KERB
RL 27.43 AHD



No.70
2 & 3 STOREY
BRICK FLAT BUILDING

Balcony

METAL AWNING

No.21 A
2 STOREY
BRICK DWELLING

SECOND FLOOR PLAN

classic plans

in collaboration with

NEXUS ARCHITECTURE PTY. LTD.

1 Maxwell Avenue, Maroubra Beach NSW 2035

Ph. 9349 3656 or 0425 208 897

Email: classicplans@optusnet.com.au

project:

PROPOSED NEW RESIDENTIAL/COMMERCIAL DEVELOPMENT
68A QUEENSCLIFF ROAD, QUEENSCLIFF

LOT A

DP 961049

client:

COULITS FAMILY

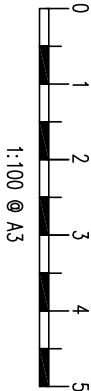
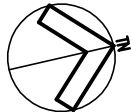
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date - 07/02/19

DA - issue A

dwg. no. - 040/19

sheet 5 of 11



Legend

Denotes footprint of existing structure

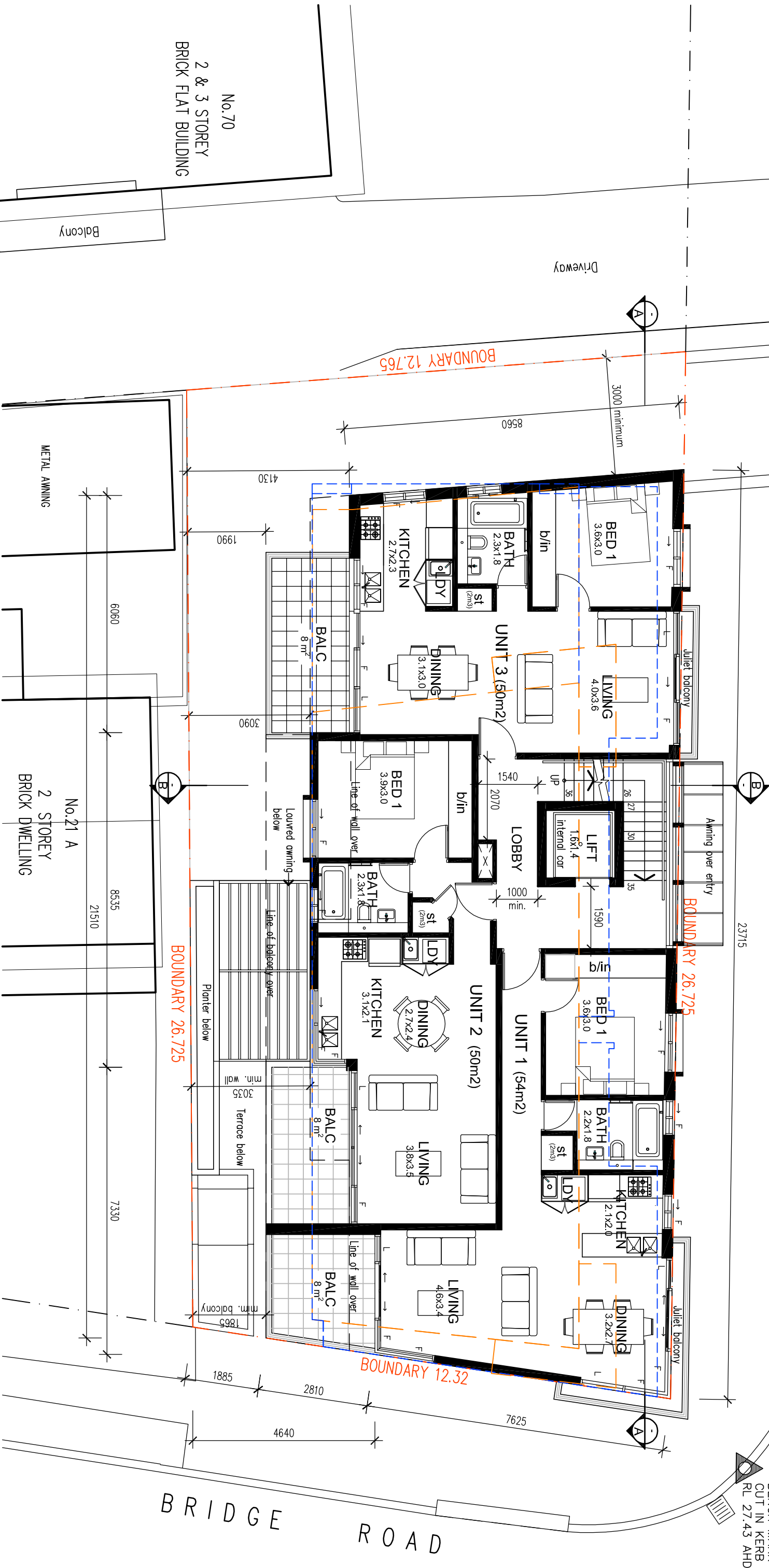
Denotes footprint of previous approval DA2015/1079

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BENCH MARK
CUT IN KERB
RL 28.77 AHD

BENCH MARK
CUT IN KERB
RL 27.43 AHD



No.70
2 & 3 STOREY
BRICK FLAT BUILDING

Balcony

METAL AWNING

No.21 A
2 STOREY
BRICK DWELLING

FIRST FLOOR PLAN

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project:

PROPOSED NEW RESIDENTIAL/COMMERCIAL DEVELOPMENT

68A QUEENSCLIFF ROAD, QUEENSCLIFF

LOT A

DP 961049

client:

COULITS FAMILY

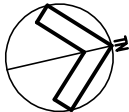
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date - 07/02/19

DA - issue A

dwg. no. - 040/19

sheet 4 of 11



Legend

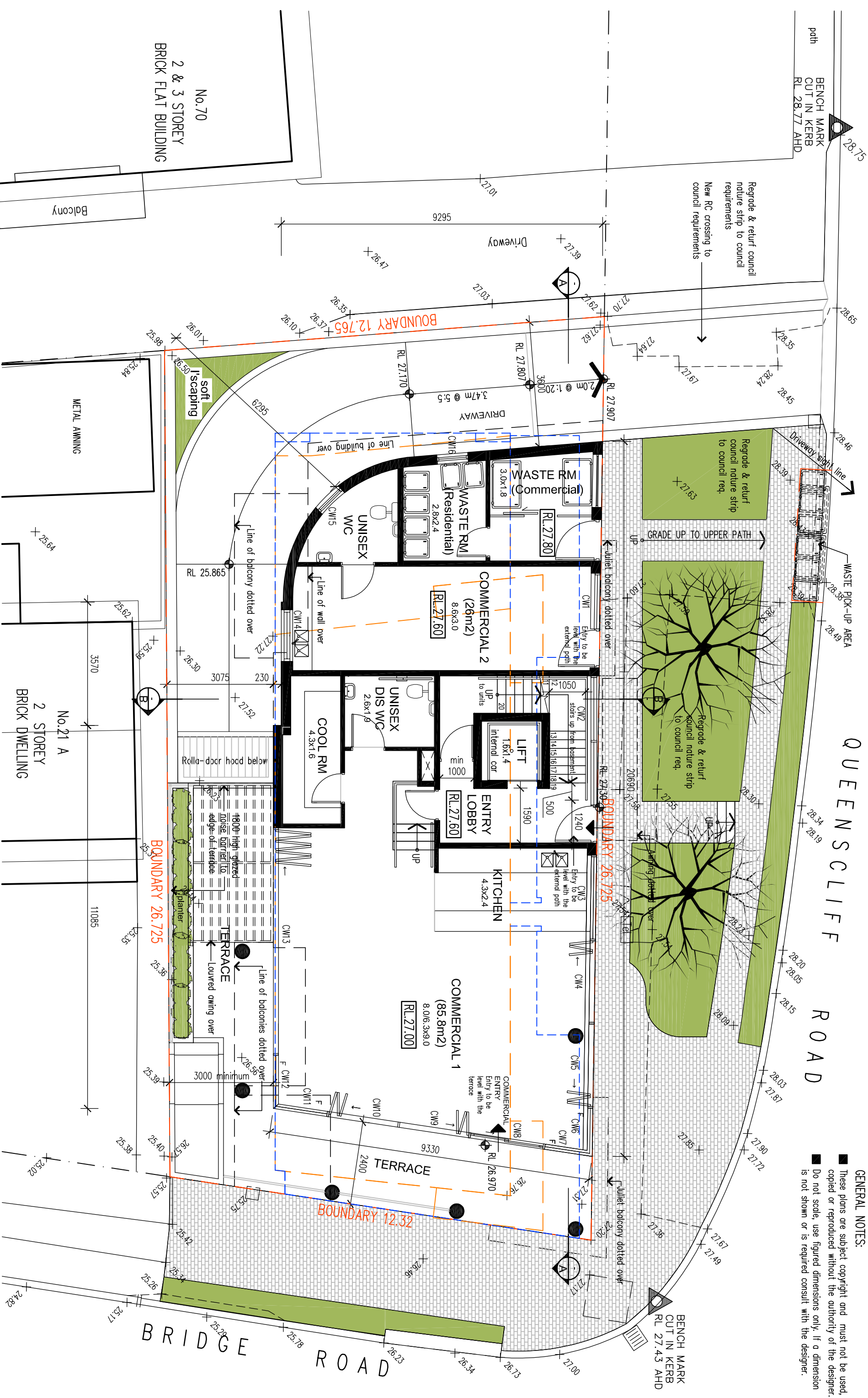
Denotes footprint of existing structure

Denotes footprint of previous approval DA2015/1079

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QUEENSCLIFF ROAD



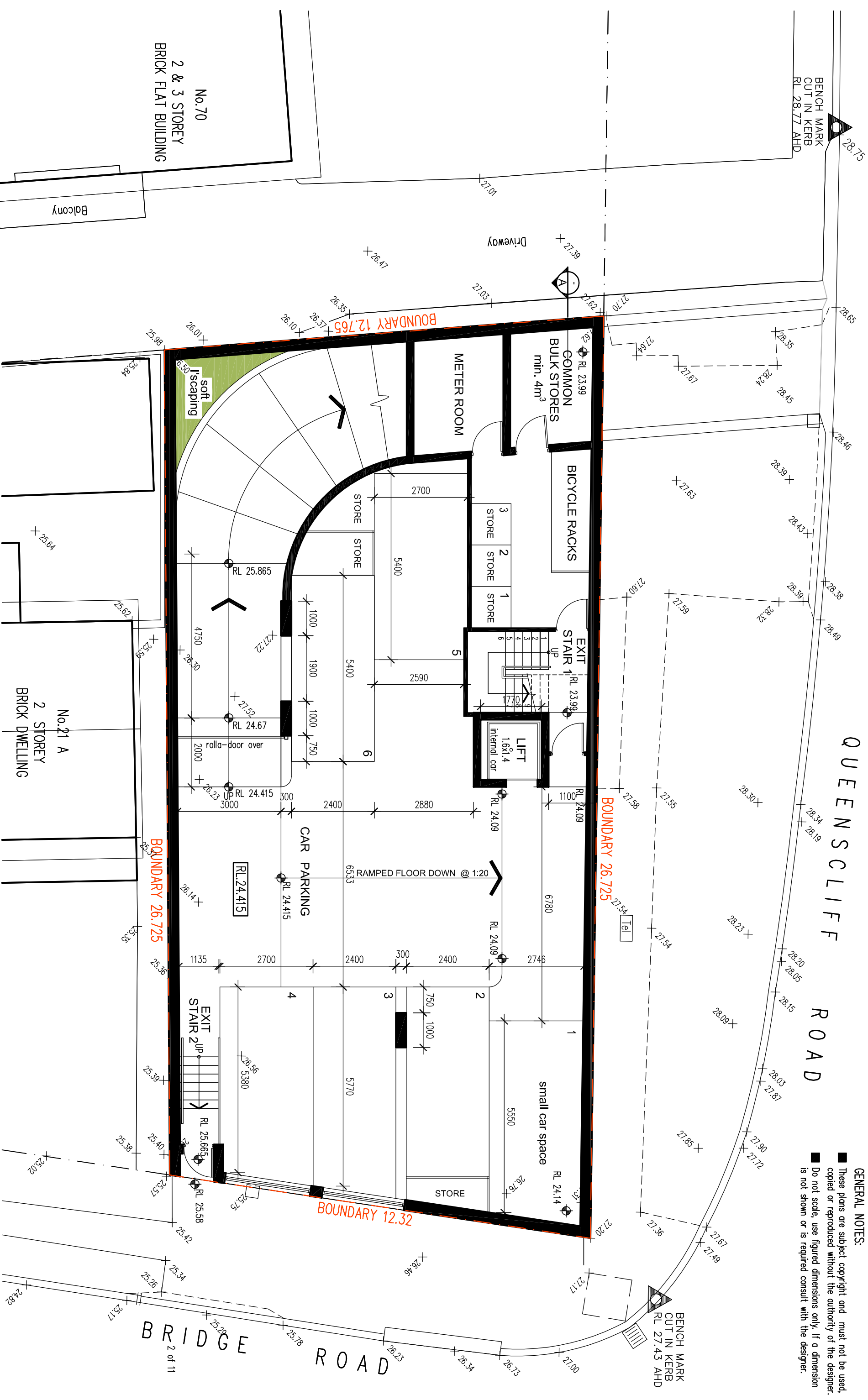
SITE & GROUND FLOOR PLAN

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Email: classicplans@optusnet.com.au

Project: PROPOSED NEW RESIDENTIAL/COMMERCIAL DEVELOPMENT
68A QUEENSCLIFF ROAD, QUEENSCLIFF
LOT A
client: COULTIS FAMILY

scale - 1:100 @ A3
date - 07/02/19
DA - issue A
dwg. no. - 040/19
sheet 3 of 11

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QUEENSCLIFF BOULEVARD

BRIDGE ROAD

No.70
2 & 3 STOREY
BRICK FLAT BUILDING

No.21 A
2 STOREY
BRICK DWELLING

Legend

Denotes footprint of existing structure

Denotes footprint of previous approval DA2015/1079

BASEMENT FLOOR PLAN

classic plans

NEXUS ARCHITECTURE PTY. LTD.

classic plans in collab
NEXUS ARCHITECTURE PT
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Email: classicplans@optusnet.com.au

project: PROPOSED ALTERATIONS & ADDITIONS
68A QUEENSCLIFF ROAD, QUEENSCLIFF
LOT A DP 981049

client: COULITS FAMILY

LOT A	DP 961049
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COULITS FAMILY

scale – 1:100 @ A3
date – 07/02/19
DA – issue A
dwg. no. – 040/19

sheet 2 of 11

ATTACHMENT 3

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 Initial Design Review LL 00-00-00

Swept Path Legend

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

Architect

Classic Plans

Client

Christine Coultis

Scale / Plan Orientation

Project Description

Proposed Mixed Use Development

68a Queenscliff Road, Queenscliff

Drawing Prepared By

TRAFFIX

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Drawing Title

Swept Path Analysis

B85 Design Vehicle

Ground Floor

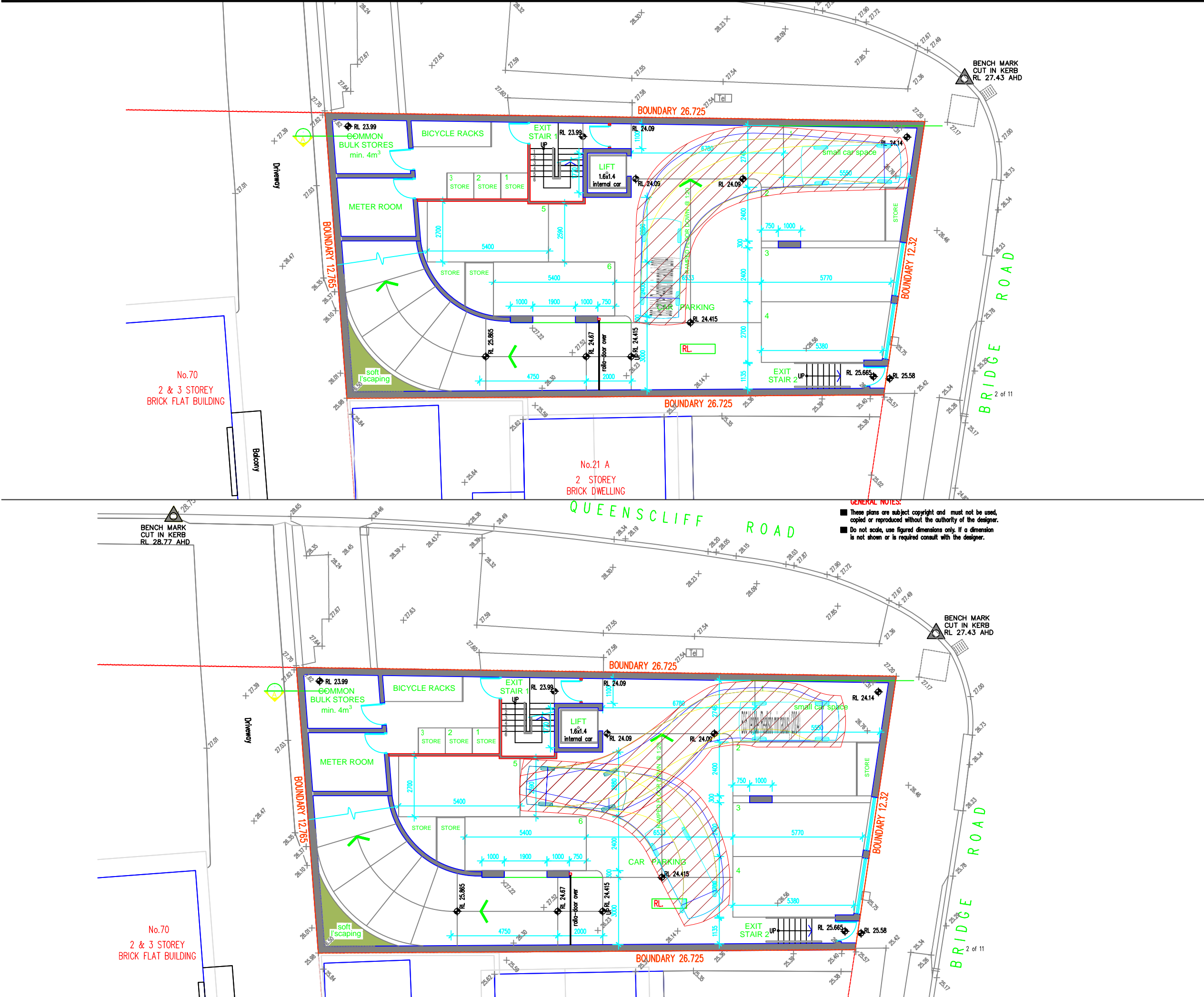
Top: Entry Movement Lower: Exit Movement

Drawn: BL Checked: GH Date: 16-07-19

19.197d02v01 TRAFFIX [190501 Plans] Design Review.dwg

Project No. Drawing Phase Drawing No. Rev.

19.197 DA TX.01 A



Notes:

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Rev.	Revision Note	By.	Date
A	Initial Design Review	LL	00-00-00

Swept Path Legend

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

Architect

Classic Plans

Client

Christine Coultis

Scale / Plan Orientation

Project Description

Proposed Mixed Use Development
68a Queenscliff Road, Queenscliff

Drawing Prepared By

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Drawing Title

Swept Path Analysis
'Small Car' Design Vehicle - Car Space 1
Basement Level
Left: Entry Movement Right: Exit Movement

Drawn:	-	Checked:	-	Date:	00-00-00
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19.197d02v01 TRAFFIX [190501 Plans] Design Review.dwg

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

ATTACHMENT 4

Queuing Analysis

19.197 - 68a Queenscliff Road, Queenscliff

ARRIVALS

Travel Distance		
Level	No Cars/ Motorcycles	Horiz Distance from G (m)
G	0	0
B1	6	24
B2		
B3		
Average Travel Distance		24

Vehicle Arrivals (veh/hr)	5
Travel Speed (m/sec)	2.8
Load & Exit Time (sec) (assumed)	0
Signal Timing	12
Travel Time (sec) for ATD	9
Clearance (sec)	2
Total Service Time for ATD	23

Queuing Theory Factors	
average arrival rate (r)	5.00
average service rate (s)	156.52
utilisation factor (p)	0.03194
mean queue (E(m))	0.00105

*r=(veh/hr)

*s=3600/(Total Average Time)

*p=r/s

*E(m)=(p/(1-p))-p

Probability of Vehicles in System (P(n))		*P(n)=(1-p)p^n
No. Vehicles in System (n)	Probability (%)	Prob of More than n (%)
0	96.8%	3.2%
1	3.1%	0.1%
2	0.1%	0.0%
3	0.0%	0.0%
4	0.0%	0.0%

DEPARTURES

Average Travel Distance		
Level	No Cars/ Motorcycles	Avg. Horiz Distance from G (m)
G	0	0
B1	6	24
Average Travel Distance		24

Vehicle Arrivals (veh/hr)	1
Travel Speed (m/sec)	2.8
Load & Exit Time (sec) (assumed)	0
Signal Timing	21
Travel Time (sec)	9
Clearance (sec)	2
Total Service Time for	32

Queuing Theory Factors	
average arrival rate (r)	1.00
average service rate (s)	171.43
utilisation factor (p)	0.00583
mean queue (E(m))	0.00105

*r=(veh/hr)

*s=3600/(Total Average Time)

*p=r/s

*E(m)=(p/(1-p))-p

Probability of Vehicles in System (P(n))		*P(n)=(1-p)p^n
No. Vehicles in System (n)	Probability (%)	Prob of More than n (%)
0	99.4%	0.6%
1	0.6%	0.0%
2	0.0%	0.0%
3	0.0%	0.0%
4	0.0%	0.0%

PRODUCT

Probability of >0 Arrival	3.2%	
Probability of >0 Departure	0.6%	
Probability of Conflict0.0186342592592593%		
Probability of 'n' Vehicles Queuing at Access	n	%
	1	0.0%
	2	0.0%
	3	0.0%
	4	0.0%
	5	0.0%

100%

The 98th percentile queue is less than 1 vehicle - therefore no dedicated waiting bay required on site under AS2890.1