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7 June 2018

Northern Beaches Council
PO Box 82
Manly NSW 1655

For the Attention of the Development Assessment Manager

Site: 46 Victoria Parade, Manly (SP10040)
Proposal: Section 4.56 Application to Modify a Development Consent (367/2010)
Activity: Residential Flat Building with Basement Level Parking
Subject: Traffic and Parking Statement

Introduction and Background

Consent was granted on 21 August 2014 for a Section 96AA Modification to Development Consent No. 367/2010 for the construction of a five (5) storey Residential Flat Building with basement level parking on the site at 46 Victoria Parade, Manly. Plans of the approved development are included for reference as **Attachment 1**.

Subsequent to this approval, necessary design modifications have resulted in some changes to the traffic elements of the scheme as previously approved.

InRoads Group was engaged to provide input into the design of the amended development scheme as shown in the drawings included **Attachment 2**, reviewing these plans against the approved development plans, as well as the requirements of the relevant design standards and planning controls.

The following sections document the results of our investigations addressing the following key traffic design elements and issues:

- On-site car parking provision;
- Vehicular access arrangements;
- Car park layout and design;
- Mechanical parking installation; and
- The traffic impact of the proposed development.

Subject Site and Adjacent Road Network

The subject site is located at 46 Victoria Parade, Manly, and is described as SP10040 (see **Figure 1** below). It is approximately 626m^2 in area, and is currently vacant. The site previously accommodated a 3-storey residential building containing six (6) units, with at-grade parking for eight (8) vehicles at the rear of the site.

The subject site has frontage to Victoria Parade to the north, and Dungowan Lane to the east.

Victoria Parade is a local road connecting East Esplanade with South Steyne. It has a two-way, two-lane undivided cross-section, and is restricted to a speed limit of 40km/hr as a high pedestrian activity area. 90 degree kerbside parking is provided on both sides of Victoria Parade clear of intersections and property access driveways.

Dungowan Lane is a one-way public laneway connecting from Ashburner Street to Victoria Parade (south to north), providing property access along its length. Dungowan Lane has a width of approximately 4m along the site frontage.

Figure 1: Subject Site **Source: Nearmap**

Approved Development

The approved development is a 5-storey residential building comprising 13 dwelling units, including 6 x one-bedroom units, 6 x two-bedroom units, and 1 x three-bedroom unit, as shown in the approved plans included for reference as **Attachment 1**.

The approved development scheme provided a total of 21 parking spaces, including:

- Three (3) visitor parking spaces at-grade, in a 90-degree configuration off Dungowan Lane;
- 14 spaces within the mechanical parking installation (car stacker) in the basement;
- Two (2) standard parking spaces within the basement; and
- Two (2) accessible parking spaces within the basement.

Vehicular access to the basement under the approved scheme was via a single lane combined entry/exit ramp off Dungowan Lane, controlled by way of a traffic signal system with passive green for the entry movement (i.e. entering traffic given green priority, with all exiting traffic required to stop for a green signal before proceeding up the ramp, in order to minimise any potential for entry queues).

Amended Development Scheme

The scheme which is the subject of this Section 4.56 application is a 5-storey residential building comprising 11 dwelling units, including 5 x one-bedroom units, 3 x two-bedroom units, 2 x three-bedroom units and 1 x four-bedroom unit, as shown in the amended development plans included as **Attachment 2**. The development now proposed therefore comprises two (2) fewer units than the approved development scheme.

As shown in the drawings included as **Attachment 2**, the design of the amended scheme is largely consistent with the approved scheme from a traffic perspective, but includes some modifications to the parking arrangements which have been made as a result of design development.

The key traffic elements of amended scheme which is the subject of this Section 4.56 application are discussed in the following sections.

On-site Car Parking Provision

As shown in the drawings of the amended development scheme included as **Attachment 2**, the amended development scheme comprises a total of 22 parking spaces, including:

- Three (3) visitor parking spaces at-grade, in a 90-degree configuration off Dungowan Lane (consistent with the approved development scheme);
- 17 spaces within the mechanical parking installation (car stacker) in the basement; and
- Two (2) accessible parking spaces within the basement.

The amended development scheme therefore increases the on-site parking provision by one (1) space, whilst reducing the apartment yield by two (2) dwelling units, improving the level of on-site parking provision.

Notwithstanding the above, an assessment of the amended parking provision against the provisions of Council's Development Control Plan (DCP) has been undertaken. The proposed development is within the R3 Medium Density Residential Zone, therefore the applicable parking rates as outlined in Schedule 3 – Part A1 are as follows:

- 1 resident parking space for each dwelling (irrespective of number of bedrooms), plus
- 0.2 resident parking spaces for each 2 bedroom dwelling, plus
- 0.5 resident parking space for each 3 (or more) bedroom dwelling, and plus
- 0.25 visitor parking space for each dwelling (irrespective of number of bedrooms).

The application of the above parking rates to the proposed development yield (5 x one-bedroom units, 3 x two-bedroom units, and 3 x three and four-bedroom units) indicates that a minimum of 14 parking spaces for residents, and three (3) parking spaces for visitors, are required.

The amended development scheme provides 19 parking spaces for residents and three (3) parking spaces for visitors, and therefore complies with Council's DCP parking requirements. Furthermore, the amended development scheme increases the level of on-site parking provision when compared with the approved development scheme, and is therefore considered to represent an improvement on this basis.

In accordance with Condition 4 of Development Consent No. 367/2010, two (2) parking spaces for people with disabilities are proposed within the basement, in convenient proximity to the lift.

Vehicular Access Arrangements

As shown in the approved plans included for reference as **Attachment 1**, vehicular access to the basement under the approved scheme was via a single lane combined entry/exit ramp off Dungowan Lane. This ramp was to be controlled by way of a traffic signal system with passive green for the entry movement (i.e. entering traffic given green priority, and all exiting traffic required to stop for a green signal before proceeding up the ramp, in order to minimise any potential for entry queues).

As shown in the drawings of the amended development scheme included as **Attachment 2**, the access arrangement is generally consistent with the approved development scheme and the requirements of AS2890.1, comprising a single lane ramp which has a width of approximately 3.6m and which will be

adequate to accommodate the entry and exit manoeuvres of a B99 passenger vehicle as shown in the vehicle tracking diagrams included as **Attachment 3** (subject to minor refinement to the northern splay to better accommodate the exit movement of a large car).

The ramp has a small crest approximately 2m inside the property boundary as a result of flooding requirements. A vehicle seeking to exit the site onto Dungowan Lane (positioned inside the property boundary as shown in **Figure 1** below) would be sitting at a gradient of approximately 4% - 5, effectively meeting the requirement for pedestrian safety as stipulated in AS2890.1 (Clause 3.3(a)), which is a maximum gradient of 1:20 (5%) for a distance of 6m inside the property boundary.

In order to achieve satisfactory sight distance to pedestrians, sight splays of 2.5m (inside the property boundary) x 2.0m (along the boundary) should be provided on both sides of the ramp in accordance with Figure 3.3 of AS2890.1. It is anticipated that this requirement could reasonably be addressed at detailed design stage, in response to a condition of the consent.

Overall, the proposed access arrangements are consistent with the approved development, and generally consistent with the requirements stipulated in AS2890.1, subject to refinement at detailed design stage.

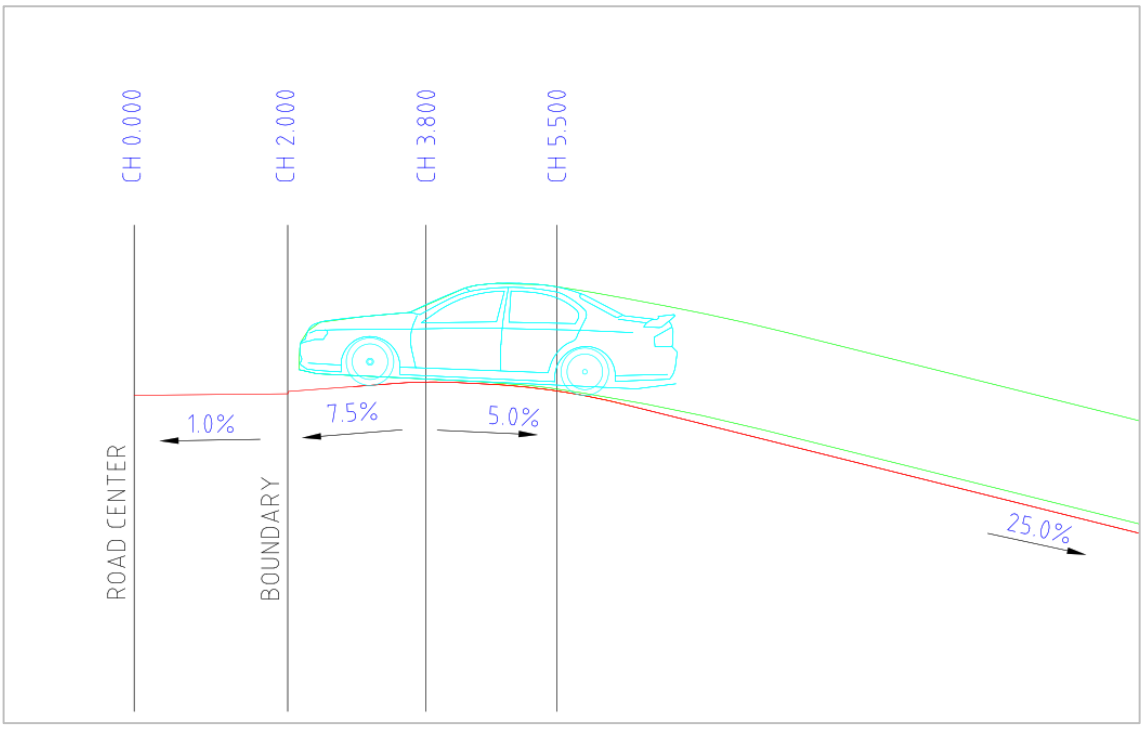


Figure 1: Gradient of Vehicle

Car Park Layout and Design

The modified site layout as shown in the plans included as **Attachment 2** is designed in accordance with the requirements of the relevant Australian Standards (AS2890.1 and AS2890.6), as summarised following:

- Standard parking spaces have minimum dimensions of 2.4m x 5.4m, which is acceptable for low turnover (residential) car parking, and consistent with the approved scheme;
- The ramp has a minimum width of 3.6m between kerbs, with an inside radius on the bend of 4m (with 0.3m clearance) and an outside radius of 7.6m (with 0.5m clearance) in accordance with Table 2.2 and Figure 2.9 in AS2890.1;
- The ramp has a maximum gradient of 1:4, which is acceptable for a ramp in a private car park under Clause 2.5.3 of AS2890.1. Transitions are proposed at the top and bottom of the ramp, and the results of the vertical clearance assessment undertaken by FJA Consulting Engineers (which are

included in **Attachment 4**) demonstrate that the proposed ramp profile should not result in vehicle underside scraping;

- The accessible parking spaces are 2.4m wide and 5.4m long with a 2.4m wide adjacent shared area, in accordance with the requirements of AS2890.6. A bollard (positioned 800mm back from the parking aisle) should be located within the shared area, to prevent vehicles from parking in this area.
- The parking spaces within the mechanical parking installation (car stacker) are 2.7m wide and 5.5m long, exceeding the minimum car parking dimensions in AS2890.1 (2.4m x 5.4m), but in accordance with advice provided by the supplier of the system (SAM Technology on behalf of Wohr);
- The parking aisles in the basement is approximately 6m wide minimum (measured to the fire stairs), which is marginally narrower than the width recommended in AS2890.1, which is 6.1m including 300mm clearance. However given the parking spaces within the car stacker are substantially wider than standard parking bays, the parking aisle width is adequate for manoeuvring into these spaces, as evidenced in the vehicle tracking diagrams included as **Attachment 5**;
- 300mm clearances are provided where parking spaces are adjacent to columns or vertical obstructions, to achieve the required clearance envelope as shown in Figure 5.2 of AS2890.1; and
- A 1m terminated aisle extension is provided at the end of the basement parking level in accordance with Figure 2.3 in AS2890.1, to accommodate manoeuvring to/from the end parking space.

Whilst the effective parking aisle width for the three (3) visitor parking bays on the ground level is less than that recommended in AS2890.1, the vehicle tracking diagrams included as **Attachment 6** demonstrate satisfactory manoeuvring to/from these spaces for a B85 passenger vehicle, subject to reverse entry to the bays (which could be signed accordingly).

Overall, the modified site layout as shown in the plans included as **Attachment 2** is generally consistent with the approved scheme, and is designed generally in accordance with the requirements of the relevant Australian Standards.

Mechanical Parking Installation

The proposed mechanical parking system is the Wohr Combilift 543-2, which is a compact and efficient parking system on three levels, with independent access to all spaces within the system.

The Wohr Combilift 543-2 system will accommodate 17 vehicles in a 6 x 3 grid arrangement, leaving one empty space to shuffle platforms to park and retrieve vehicles. The platforms at the entrance level will shift laterally by one space so that the empty space is above the lower level platform to be raised, or below the upper floor platform to be lowered.

The supplier advises that the operating speed of the system is approximately 1.8m per minute, therefore the wait time to park or retrieve a vehicle is generally no more than 1 – 2 minutes. The system can be operated via operation panel or remote control.

Specifications of the system are included for reference as **Attachment 7**, along with a statement from the supplier in relation to the popularity and reliability of the system. The Wohr Combilift 543-2 system is designed and manufactured in Germany, and maintenance by the supplier will be undertaken every 6 months under an ongoing maintenance program.

In summary, it is anticipated that the Wohr Combilift 543-2 mechanical parking installation will operate safely and effectively, whilst maximizing the on-site parking capacity at the development.

Traffic Impact of Proposal

The approved development comprised 13 units.

The development now proposed comprises 11 units, therefore is expected to generate a lower volume of traffic than the previously approved development, i.e. in the order of six (6) vehicle trips in the peak hours. This equates to one (1) vehicle trip per 10 minutes on average during the peak hours, which is clearly negligible from a traffic engineering and transport planning perspective.

Importantly, given the low volumes of traffic the development will generate, the frequency with which residents would be required to wait or queue to enter or exit the mechanical parking installation is expected to be extremely low, i.e. negligible.

Accordingly, and given the efficient basement car park design, and the approximately 20m queue storage from the basement car park to Dungowan Lane, the potential for any impact upon the adjacent road network due to the operation of the mechanical parking system is considered to be negligible.

Conclusion and Recommendation

In summary, the amended development scheme provides several improvements to the design of traffic elements, when compared with the previously approved scheme. The key improvements are as follows:

- Increased on-site parking provision;
- Improved vehicle manoeuvrability to/from the visitor car parking spaces accessed via Dungowan Lane (through recessing these spaces and increasing the effective aisle width);
- Refinement of positions and dimensions of parking spaces within the basement, to provide necessary clearances and improve vehicle manoeuvrability to/from the spaces;
- Refinement of mechanical parking installation arrangements, to provide clearances and improve vehicle manoeuvrability to/from the car stacker;
- Rationalisation of the accessible parking spaces, so the two (2) spaces proposed share the shared area, and are both in convenient proximity to the lift; and
- Removal of the parking space at the base of the ramp, immediately adjacent to the ramp, which would have been very difficult for a vehicle to access or egress.

On the basis of the above and the information provided herein, it is recommended that the Section 4.56 Application to Modify Development Consent 367/2010, in accordance with the drawings of the amended development scheme included as **Attachment 2**, be approved from a traffic engineering perspective.

We trust this information is of assistance. Should you have any queries regarding the above, please do not hesitate to contact the undersigned.

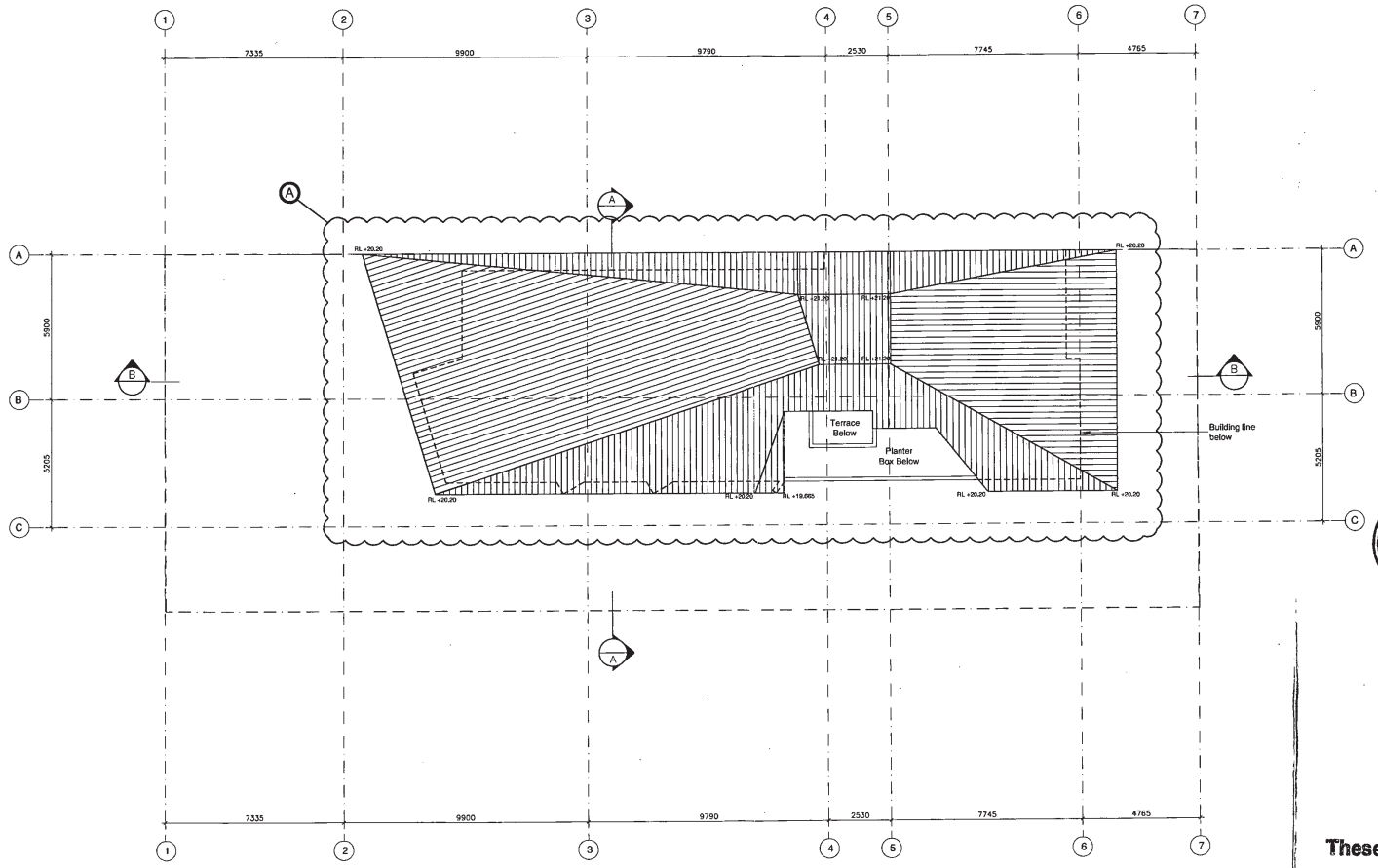
Regards,

Anne Coutts
Director, InRoads Group
BE (Civil) | MIEAust | MAITPM

Attachment 1

Approved Plans of Development

11/8/14



Determined by Manly Independent Assessment Panel

DA# 367/10 (S96)

Date: 21/8/14

These plans relate to Development

Consent No. 367/10-S96(AA)-PS

The plans are NOT for construction.

Roof Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
C	AMENDED IN RESPONSE TO COUNCIL FEEDBACK RECEIVED 26.05.14 & EMAIL DATED 27.05.14	28.05.14	JPB
B	AMENDED IN RESPONSE TO COUNCIL EMAIL CORRESPONDENCE DATED 02.05.14	19.05.14	JPB
A	ISSUED FOR SECTION 96 SUBMISSION	24.01.2014	NM

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N

SHEET TITLE: ROOF PLAN

LODGED AT: MANLY COUNCIL

DRAWN BY:	NM
CHECKED BY:	FG
DATE:	DEC 12
	PROPOSED RESIDENTIAL DEVELOPMENT
	46 VICTORIA PARADE
	MANLY
JOB No.	130526 S96: 200
ISSUE:	C
SCALE:	1: 200

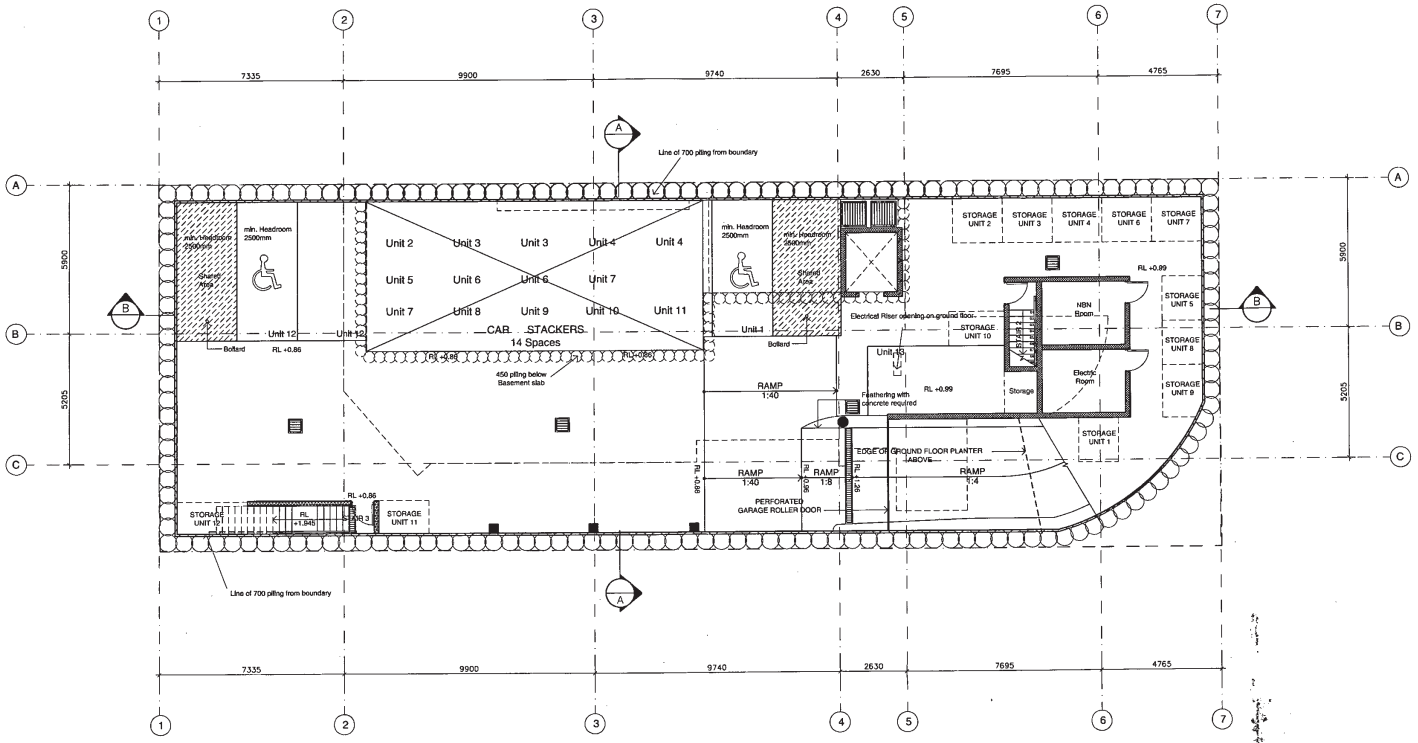
Manly Council

This plan is sheet ....1..... of ....16..... sheet/s referred to in Council's Notice of Determination letter dated ....11/9/14..... in respect Of Development Application No 367/10 - S96(AA) - Part3.
Signed: .....

This plan is to be read in conjunction with conditions contained within the Notice of Determination that may change the form of the development or the manner in which the development proceeds.
These plans are not for construction. Where demolition, site works or building works are proposed a Construction Certificate is to be obtained prior to commencement of work.
A copy of the approved Development Application Plans and Construction Certificate must be kept on site for the duration of the works.

RECEIVED
07 JUL 2014
BY:

11 AUG 14



MANLY COUNCIL

These plans relate to Development

Consent No.367/10-S96(AA)-P3

The plans are NOT for construction.

Basement Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
B	ISSUED FOR SECTION 96 SUBMISSION	28.05.14	JPB

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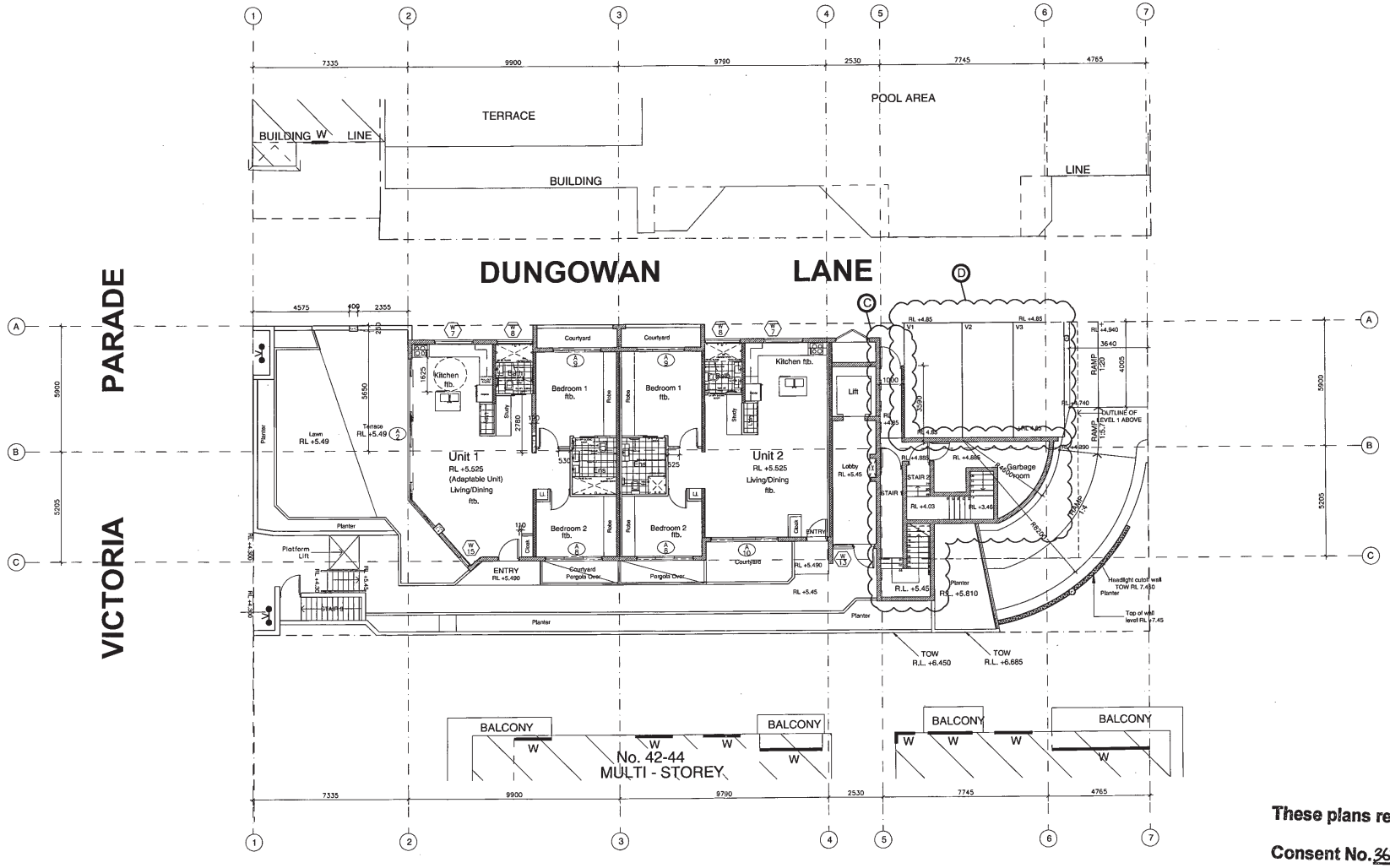
SHEET TITLE: BASEMENT PLAN

LODGED AT: MANLY COUNCIL

DRAWN BY: NM	PROPOSED RESIDENTIAL DEVELOPMENT
CHECKED BY: FG	46 VICTORIA PARADE MANLY
DATE: DEC 12	JOB No. 130526 S96: 206
ISSUE: B	SCALE: 1: 200



These plans relate to Development

Consent No. 367/10-S96(AA)-P3

The plans are NOT for construction.

Ground Floor Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
B	AMENDED IN RESPONSE TO COUNCIL EMAIL CORRESPONDENCE DATED 02.05.14	15.05.14	JPB
A	ISSUED FOR SECTION 96 SUBMISSION	24.01.2014	NM

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SHEET TITLE: GROUND FLOOR PLAN

LODGED AT: MANLY COUNCIL

DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

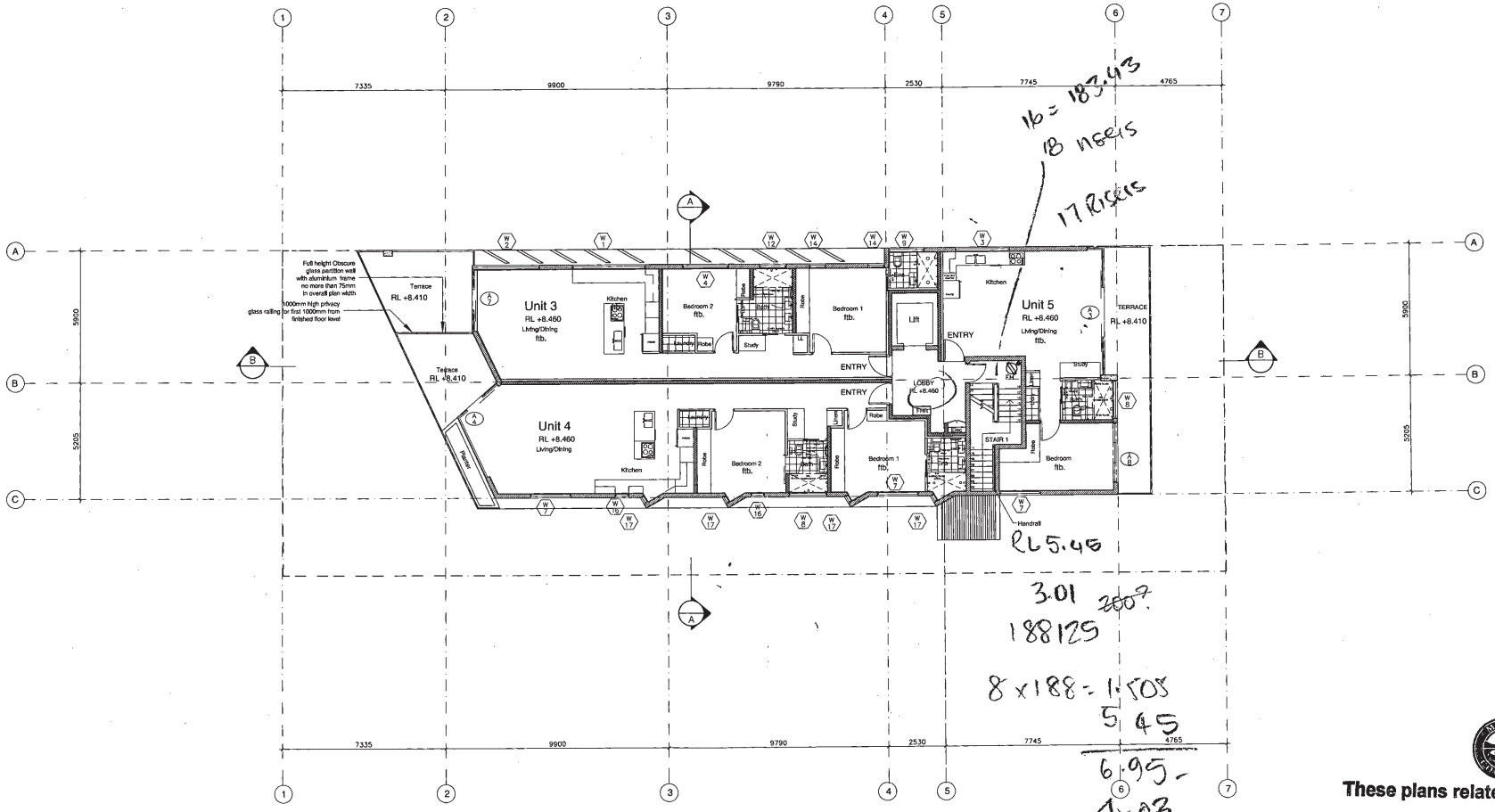
PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY

JOB No. 130526 S96: 204

ISSUE: B

SCALE: 1:200

11A0614



These plans relate to Development

Consent No. 367/10-S96(AA)-P3

The plans are NOT for construction.

First Floor Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
B	ISSUED FOR SECTION 96 SUBMISSION	01.07.14	JPB

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SHEET TITLE: FIRST FLOOR PLAN

LODGED AT: MANLY COUNCIL

DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY
JOB No. 130526 S96: 208

ISSUE: B

SCALE: 1:200

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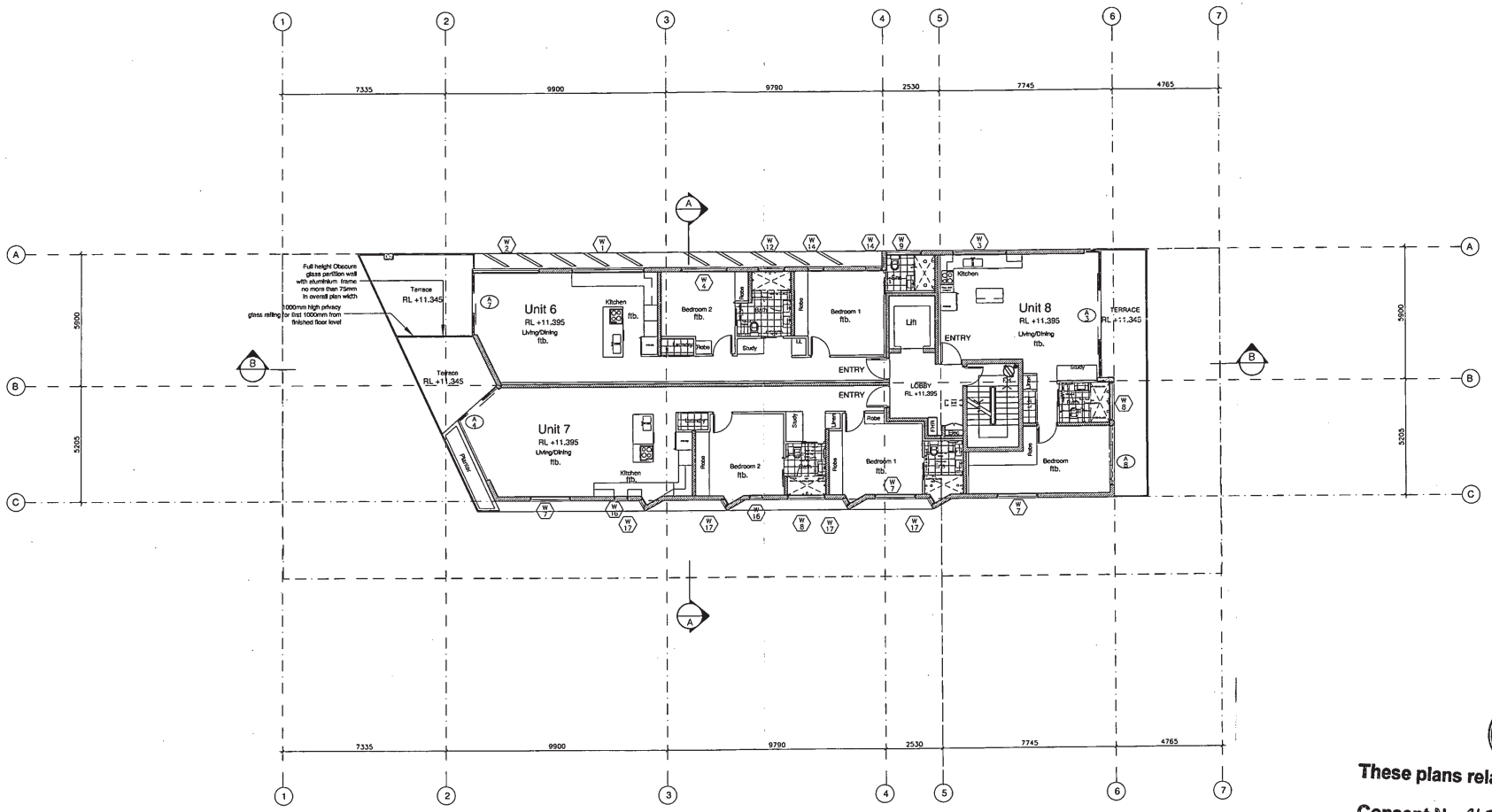

These plans relate to Development Consent No. 367/10-S96(AA)-P3
The plans are NOT for construction.

Second Floor Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
B	ISSUED FOR SECTION 96 SUBMISSION	01.07.14	JPB

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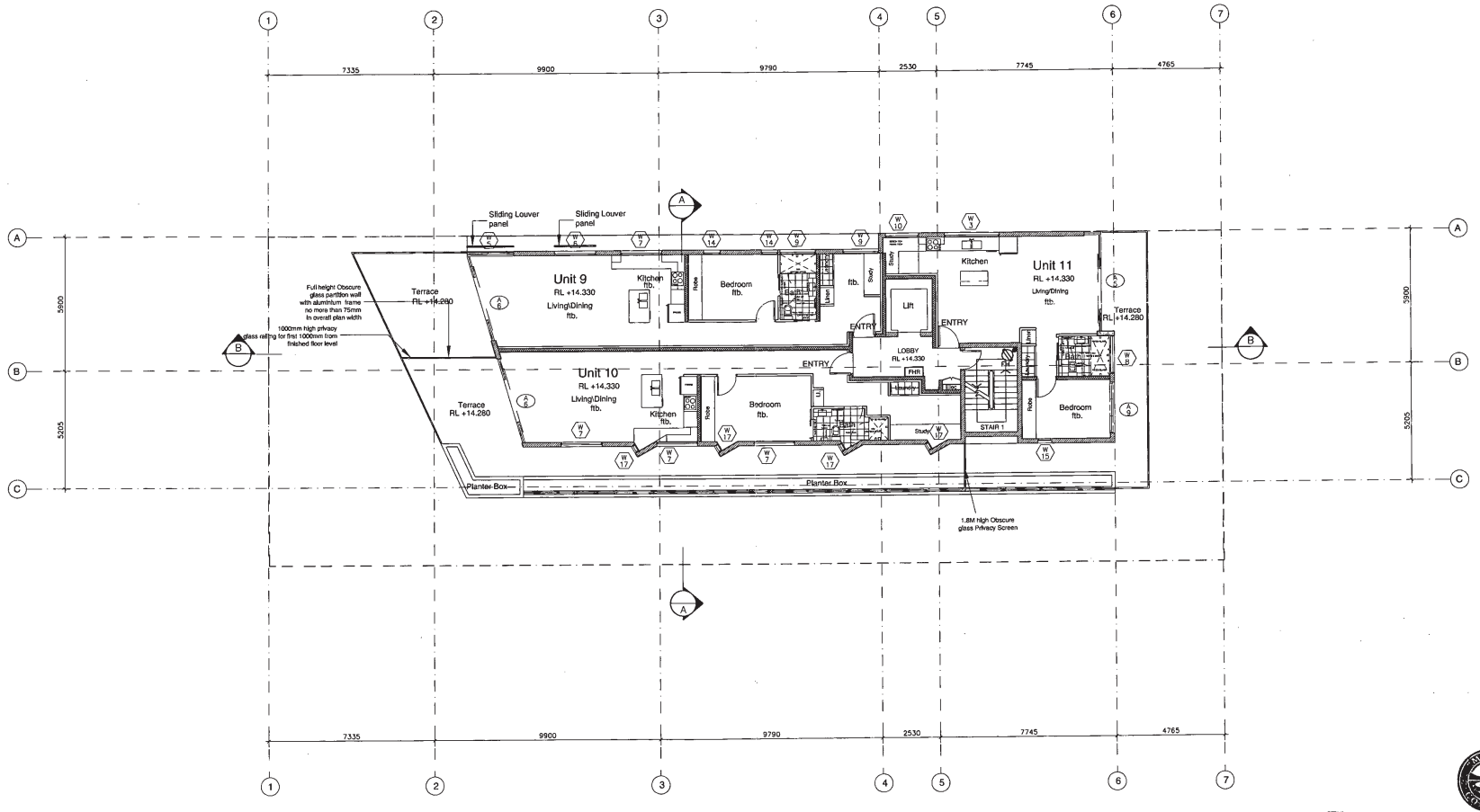
SHEET TITLE: SECOND FLOOR PLAN
LODGED AT: MANLY COUNCIL

DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY

ISSUE: B
JOB No. 130526 S96: 209
SCALE: 1:200

11 AUG 14



These plans relate to Development

Consent No. 367/10-S96(AA)-P3

The plans are NOT for construction.

Third Floor Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
B	ISSUED FOR SECTION 96 SUBMISSION	01.07.14	JPB

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SHEET TITLE: THIRD FLOOR PLAN

LODGED AT: MANLY COUNCIL

DRAWN BY: NM
CHECKED BY: FC
DATE: DEC 12

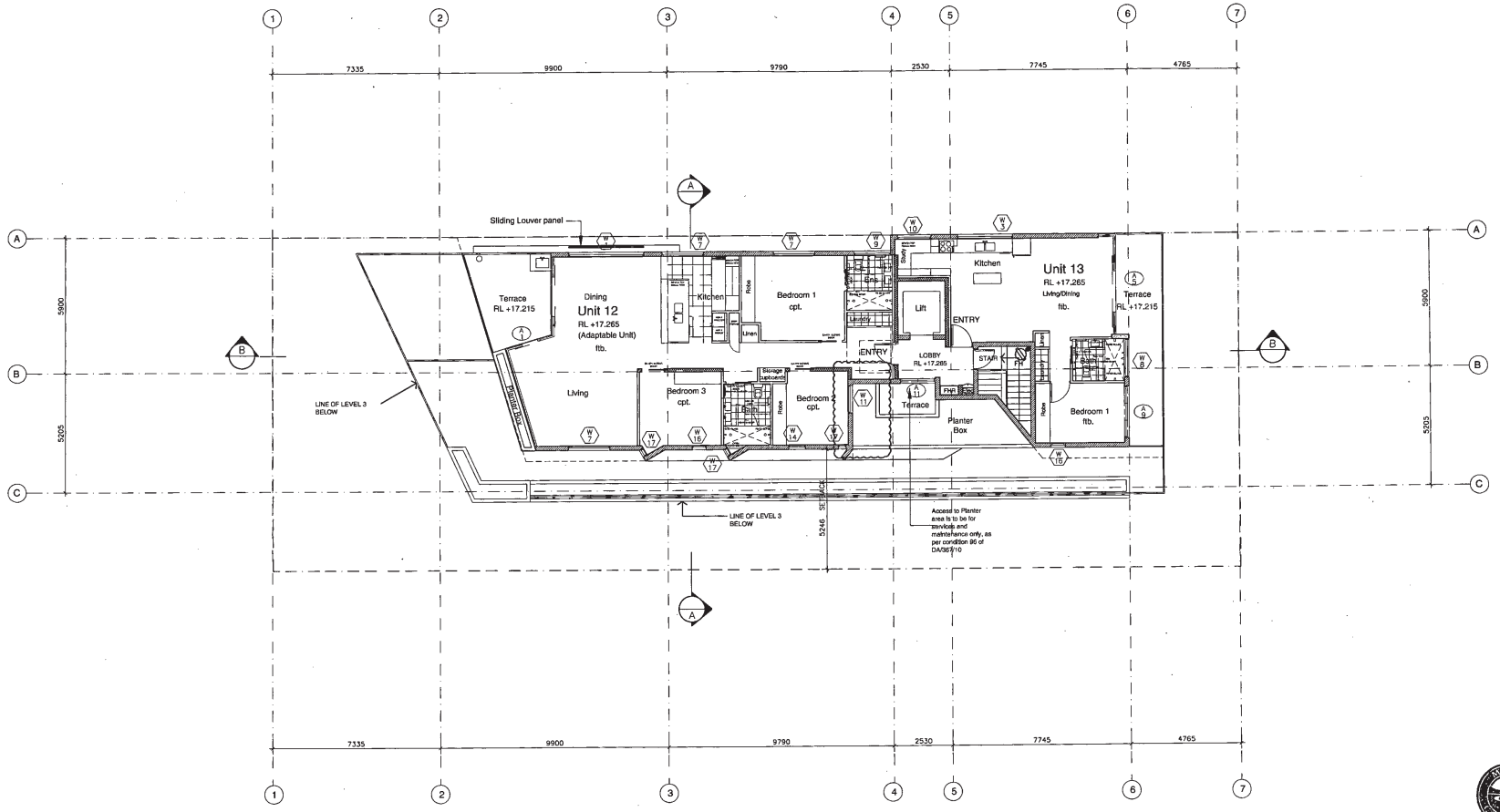
PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY

JOB No. 130526 S96: 210

ISSUE: B

SCALE: 1:200

11/06/14



MANLY COUNCIL

These plans relate to Development Consent No. 367/10-S96(A1)-P3

The plans are NOT for construction.

Fourth Floor Plan

1:200 (on A3)

ISSUE	AMENDMENT	DATE	DRAWN
B	ISSUED FOR SECTION 96 SUBMISSION	28.05.14	JPB

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N

SHEET TITLE: FOURTH FLOOR PLAN

LODGED AT: MANLY COUNCIL

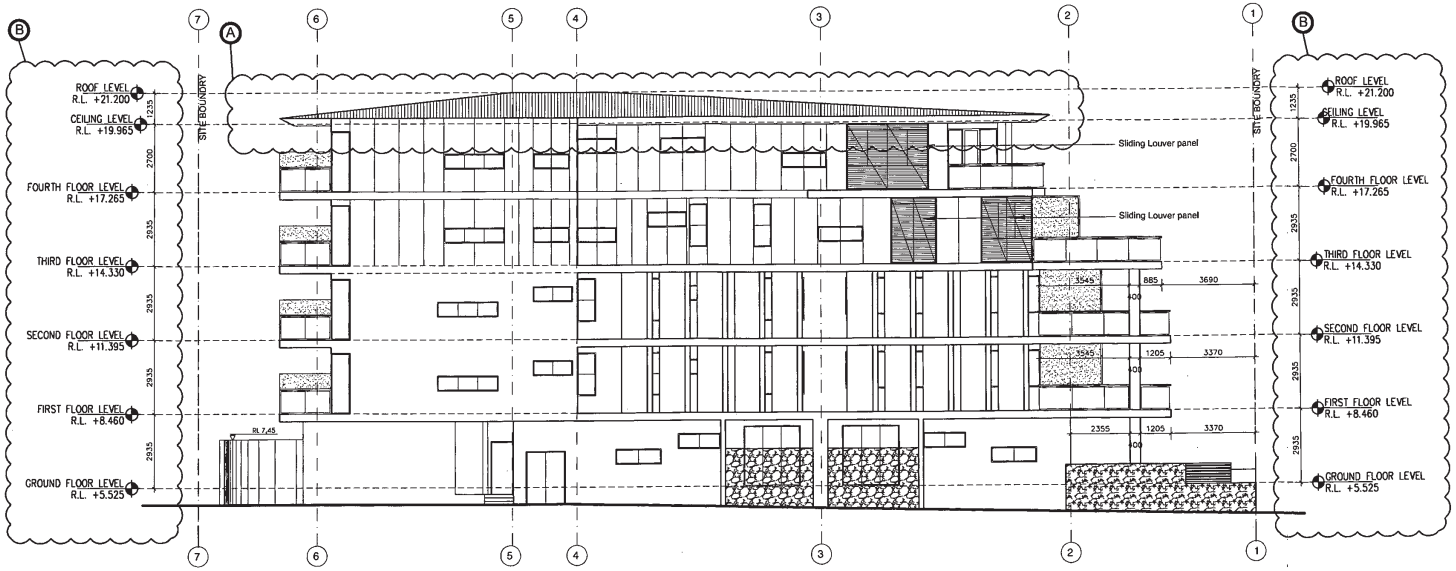
DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY
JOB No. 130526 S96: 207

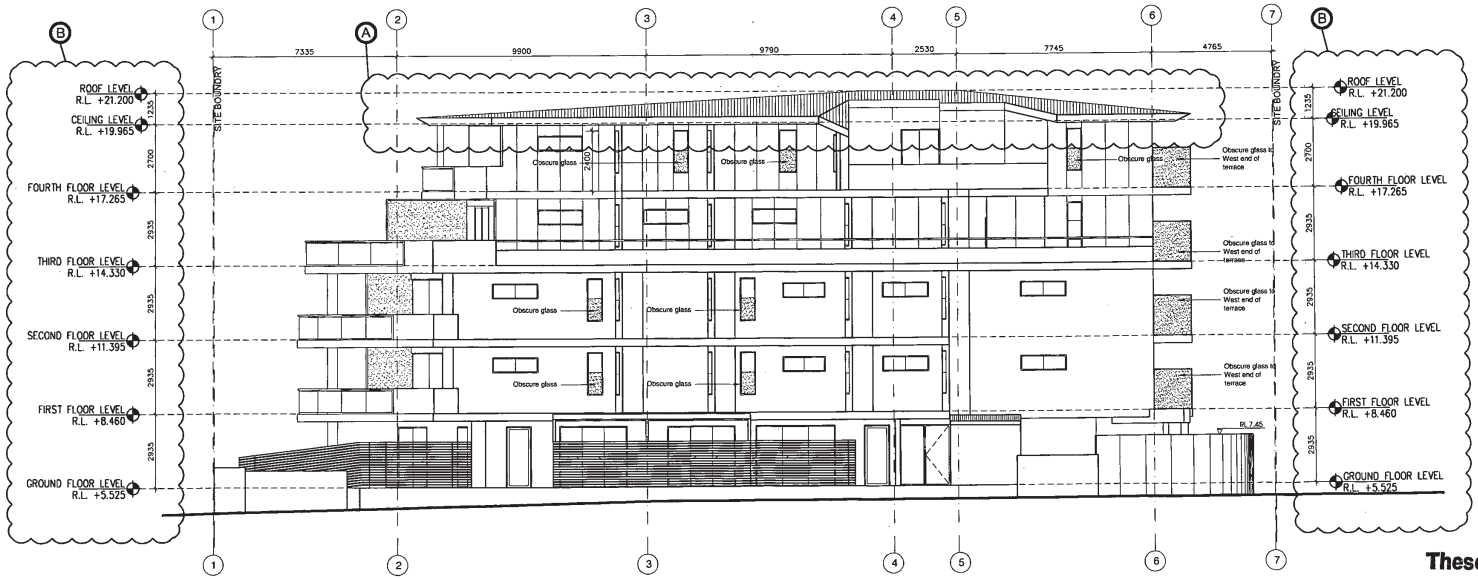
ISSUE: B

SCALE: 1:200

11 AUG 14



East Elevation
1:200 (on A3)



West Elevation
1:200 (on A3)

These plans relate to Development Consent No. 367/10-396(AA)-P3
The plans are NOT for construction.

ISSUE	AMENDMENT	DATE	DRAWN
C	AMENDED IN RESPONSE TO COUNCIL FEEDBACK RECEIVED 26.05.14 & EMAIL DATED 27.05.14	28.05.14	JPB
B	AMENDED IN RESPONSE TO COUNCIL EMAIL CORRESPONDENCE DATED 02.05.14	19.05.14	JPB
A	ISSUED FOR SECTION 96 SUBMISSION	24.01.2014	NM

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SHEET TITLE:
EAST. ELEVATION
WEST ELEVATION

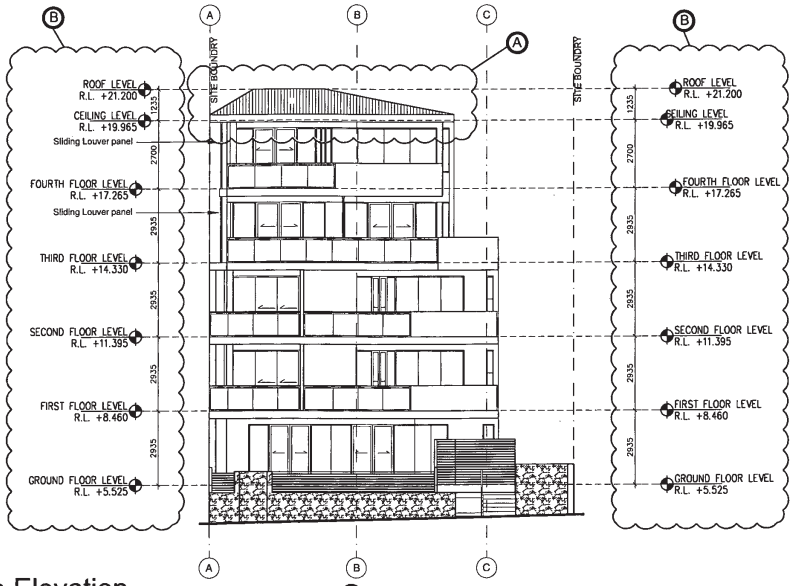
LODGED AT: MANLY COUNCIL

DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

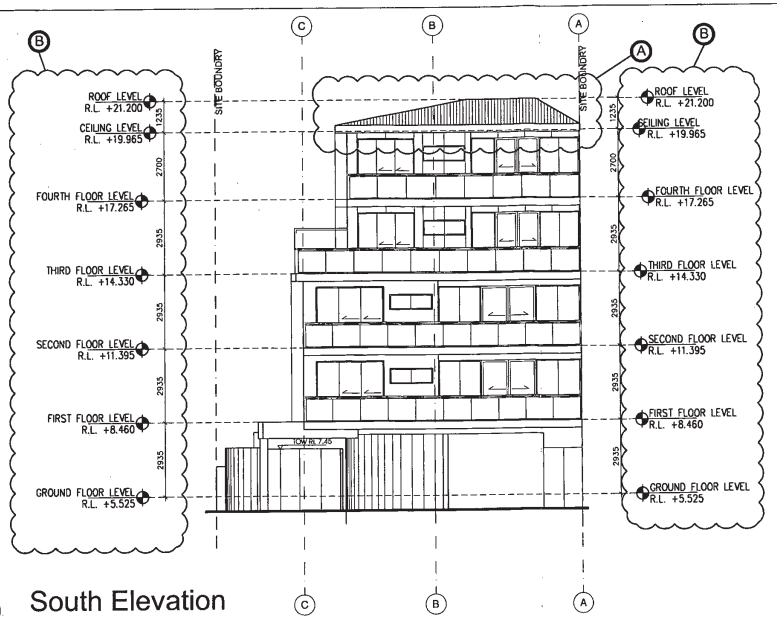
PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY
JOB No. 130526 S96: 201

ISSUE: C
SCALE: 1:200

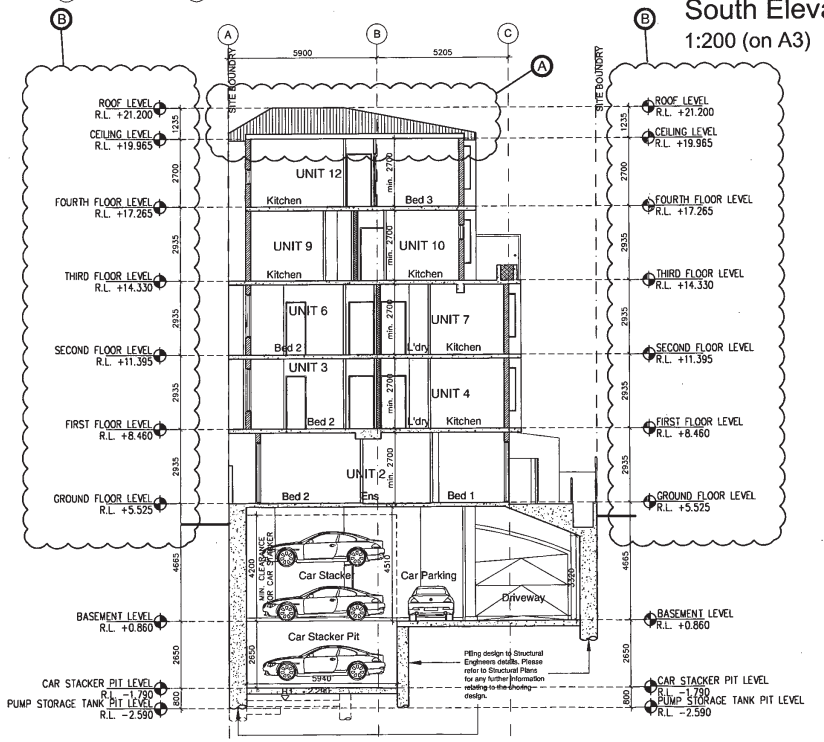
11 AUG 14



North Elevation
1:200 (on A3)



South Elevation
1:200 (on A3)



Section AA
1:200 (on A3)

These plans relate to Development

Consent No. 367/10-S96(AA)-P3

The plans are NOT for construction.

ISSUE	AMENDMENT	DATE	DRAWN
C	AMENDED IN RESPONSE TO COUNCIL FEEDBACK RECEIVED 28.05.14 & EMAIL DATED 27.05.14	28.05.14	JPB
B	AMENDED IN RESPONSE TO COUNCIL EMAIL CORRESPONDENCE DATED 02.05.14	19.05.14	JPB
A	ISSUED FOR SECTION 96 SUBMISSION	24.01.2014	NM

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SHEET TITLE:
NORTH ELEVATION
SOUTH ELEVATION
SECTION AA

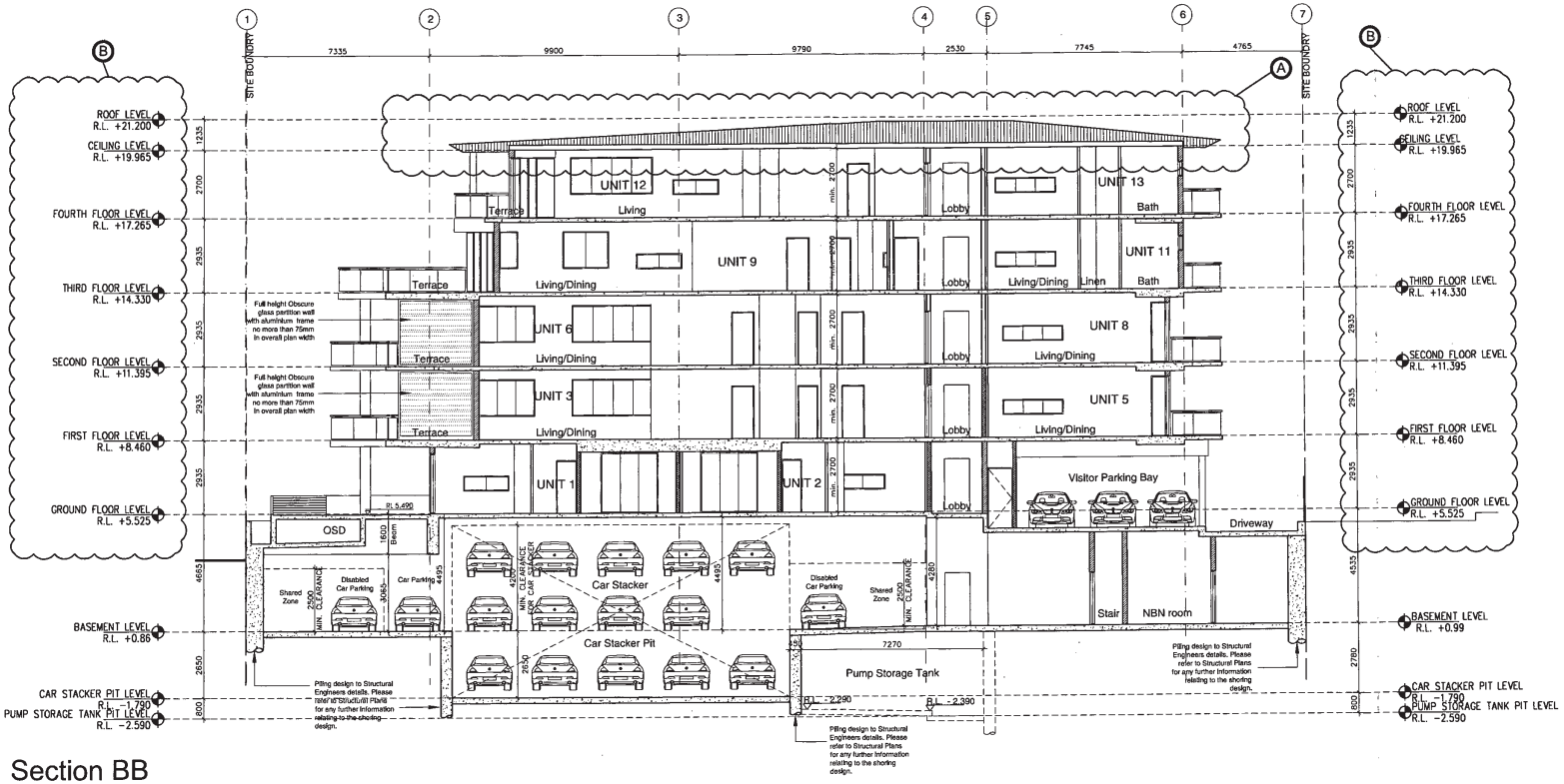
LODGED AT: MANLY COUNCIL

DRAWN BY: NM
CHECKED BY: FG.
DATE: DEC 12

PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY
JOB No. 130526 S96: 202

ISSUE: C
SCALE: 1:200

11 AUG 14



Section BB
1:200 (on A3)

These plans relate to Development

Consent No. 367/10 - S96(AA) - P3

The plans are NOT for construction.

ISSUE	AMENDMENT	DATE	DRAWN
C	AMENDED IN RESPONSE TO COUNCIL FEEDBACK RECEIVED 28.05.14 & EMAIL DATED 27.05.14	28.05.14	JPB
B	AMENDED IN RESPONSE TO COUNCIL EMAIL CORRESPONDENCE DATED 02.05.14	19.05.14	JPB
A	ISSUED FOR SECTION 96 SUBMISSION	24.01.2014	NM

NOTE:
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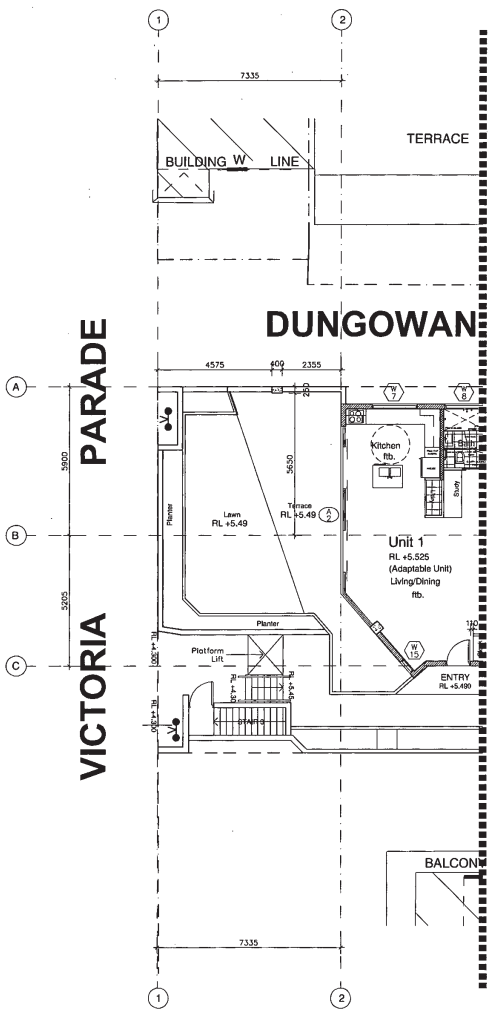
SHEET TITLE: SECTION BB

LODGED AT: MANLY COUNCIL

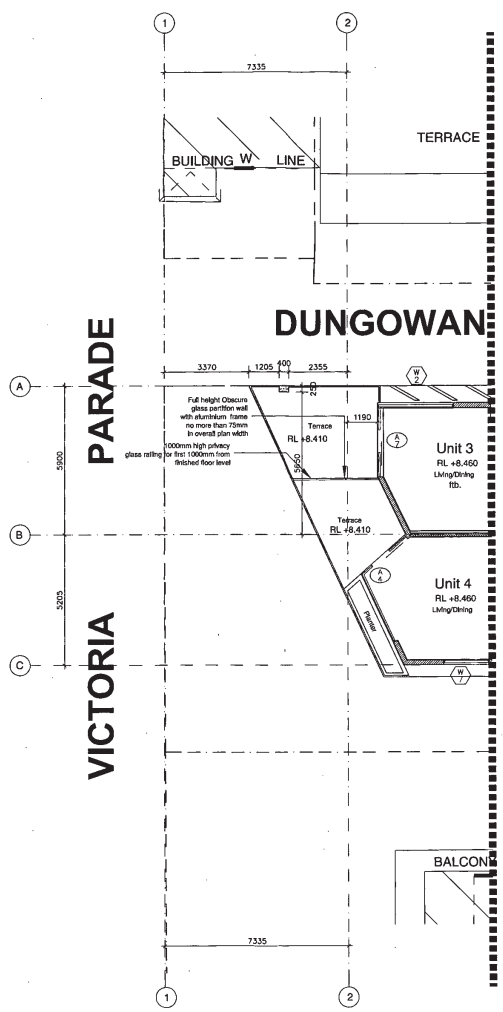
DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY
JOB No. 130526 S96: 203

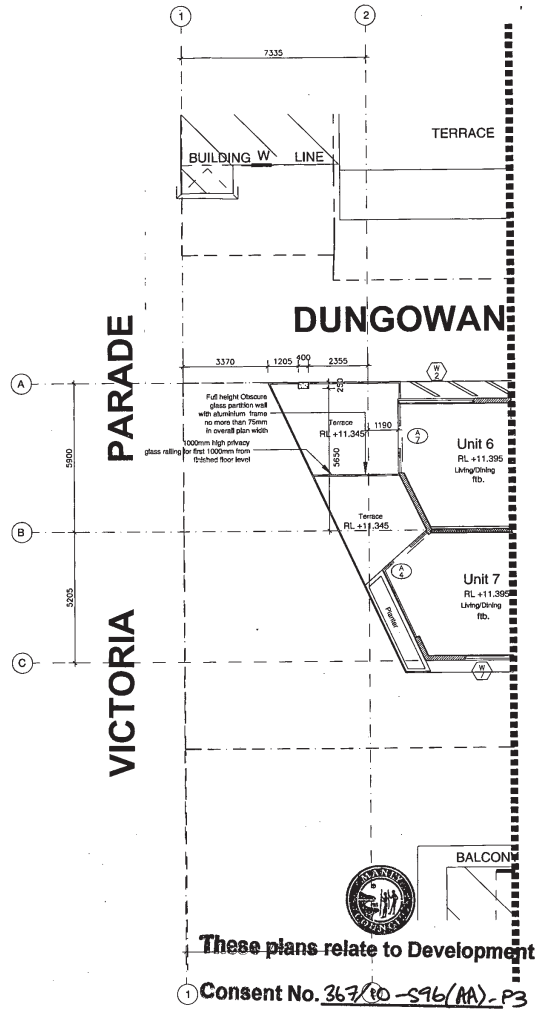
ISSUE: C
SCALE: 1:200



Partial Ground Floor Plan
External Column Location
1:200 (on A3)



Partial First Floor Plan
External Column Location
1:200 (on A3)



Partial Second Floor Plan
External Column Location
1:200 (on A3)

These plans relate to Development Consent No. 367/10 -S96(AA)-P3
The plans are NOT for construction.

ISSUE	AMENDMENT	DATE	DRAWN
B	ISSUED FOR SECTION 96 SUBMISSION	19.05.2014	JPB

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SHEET TITLE:
PARTIAL FLOOR PLANS - EXTERNAL COLUMN LOCATION

LODGED AT: MANLY COUNCIL

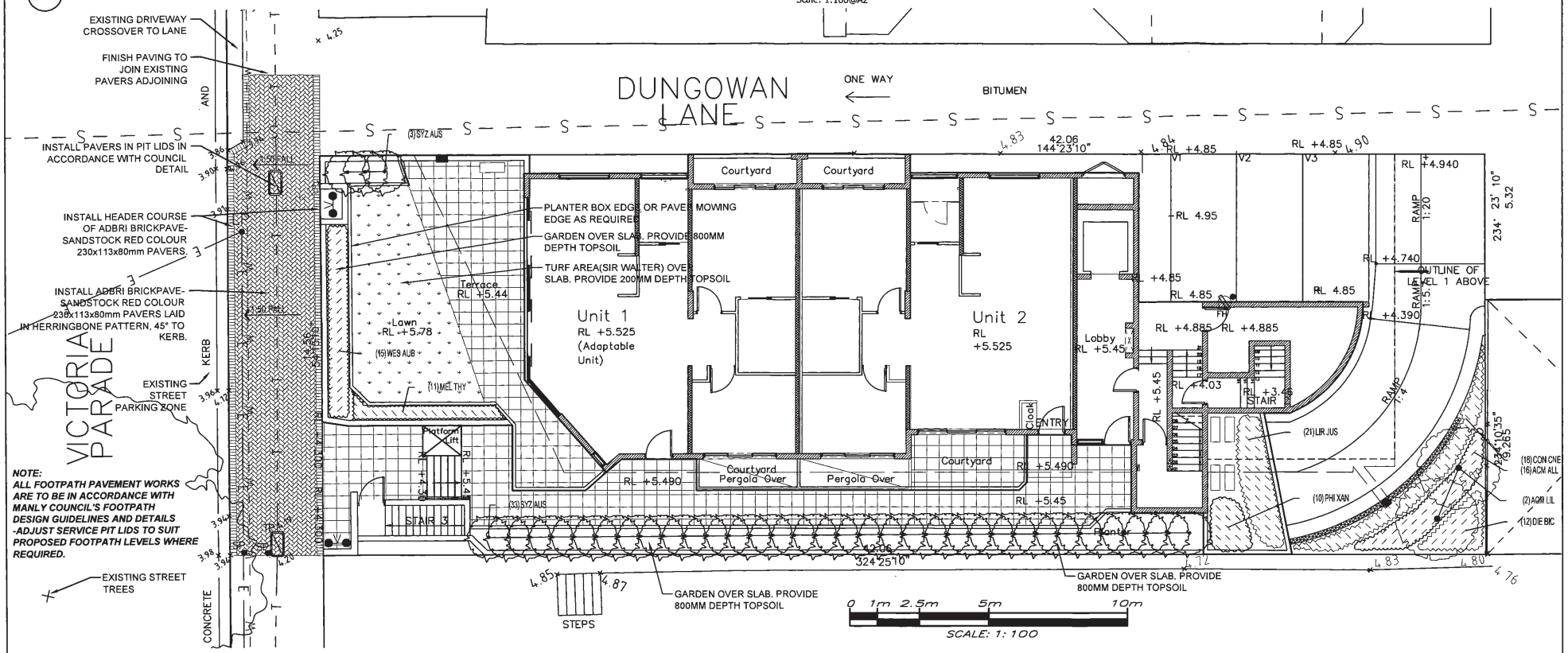
DRAWN BY: NM
CHECKED BY: FG
DATE: DEC 12

PROPOSED RESIDENTIAL DEVELOPMENT
46 VICTORIA PARADE
MANLY
JOB No. 130526 S96: 205

ISSUE: B
SCALE: 1: 200

LANDSCAPE PLAN-GROUND FLOOR

Scale: 1:100@A2



NOTE:
ALL FOOTPATH PAVEMENT WORKS ARE TO BE IN ACCORDANCE WITH MANLY COUNCIL'S FOOTPATH DESIGN GUIDELINES AND DETAILS -ADJUST SERVICE PIT LIDS TO SUIT PROPOSED FOOTPATH LEVELS WHERE REQUIRED.

KEY TO PLAN:

LAWN AREAS

PAVED AREAS

× 4.84 EXISTING SPOT LEVELS

PLANT SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT		QTY
ACM LIL	ACMENA SUBLIME / SUBLIME	25L		2
PALM TREES	**BOTANICAL NAME / COMMON NAME**	**CONT**		**QTY**
RHA EXC	RHAPIS EXCELSA / LADY PALM	300MM		3
SHRUBS	**BOTANICAL NAME / COMMON NAME**	**CONT**		**QTY**
SYZ AUS	SYZYGIUM AUSTRALE `RESILIENCE` / RESILIENCE BRUSH CHERRY	200MM		36
SHRUB AREAS	**BOTANICAL NAME / COMMON NAME**	**CONT**	**DENSITY**	**QTY**
ACM ALL	ACMENA SMITHII `ALLYN MAGIC` / DWARF LILLY PILLY	200 MM	4/m²	16
ASP ELA	ASPIDISTRA ELATIOR / CAST IRON PLANT	200 MM	5/m²	18
MEL THY	MELALEUCA THYMIFOLIA / THYME HONEY-MYRTLE	200 MM	4/m²	11
PHI XAN	PHILODENDRON X `XANADU` / PHILODENDRON	200 MM	5/m²	10
RUS EQU	RUSSELIA EQUISETIFORMIS / FIRECRACKER PLANT	200 MM	4/m²	12
WES AUB	WESTRINGIA AUSSIE BOX / AUSSIE BOX WESTRINGIA	200 MM	4/m²	15
GROUND COVERS	**BOTANICAL NAME / COMMON NAME**	**CONT**	**DENSITY**	**QTY**
CLI MIT	CLIVIA MINIATA / KAFFIR LILLY	140 MM	5/m²	9
CON CNE	CONVOLVULUS CNEORUM / BUSH MORNING GLORY	140 MM	4/m²	18
DIE BIC	DIETES BICOLOR / FORTNIGHT LILY	140 MM	5/m²	12
LIR JUS	LIRIOPE MUSCARI `JUST RIGHT` / JUST RIGHT LIRIOPE	140 MM	5/m²	86

These plans relate to Development Consent No. 367/10-396(AA) - PS
The plans are NOT for construction.

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Email: baldock@bigpond.net.au

CLIENT: **NORTHWEST MANAGEMENT SERVICES PTY LTD**

DRAWING TITLE: **LANDSCAPE PLAN -GROUND LEVEL**

PROJECT DETAILS: 46 VICTORIA PARADE, MANLY NSW 2095

DRAWING NUMBER: 1304-LP1

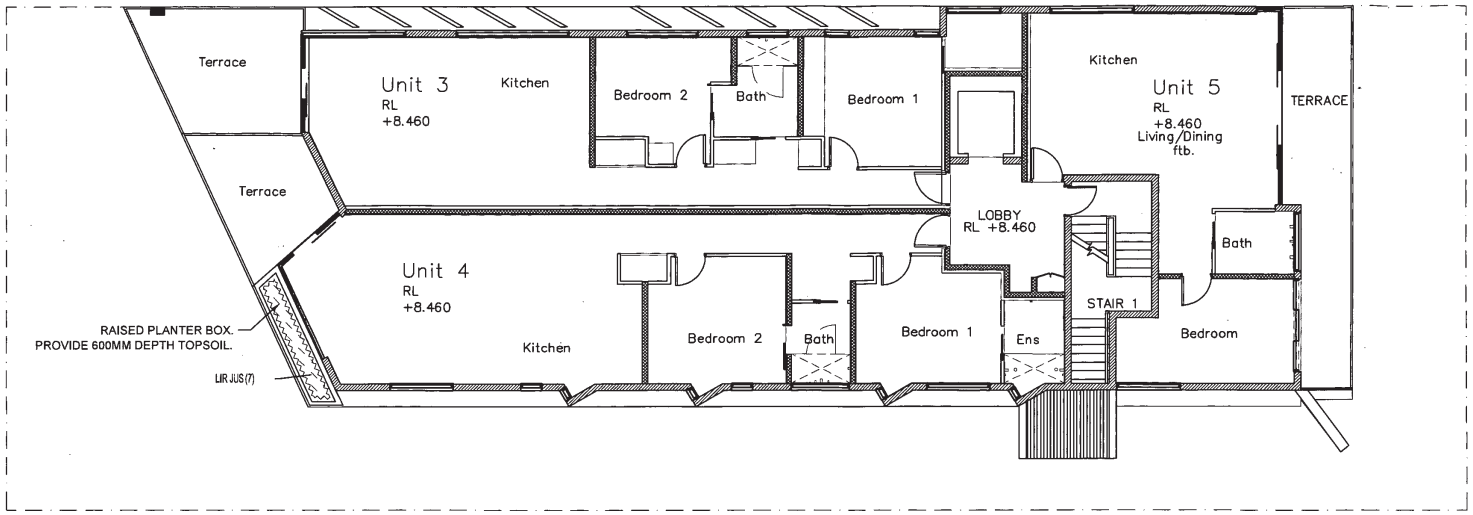
CURRENT ISSUE: G

DATE: January 14

PROJECT NO: 1304

LANDSCAPE PLAN-LEVEL 1

Scale: 1:100@A2

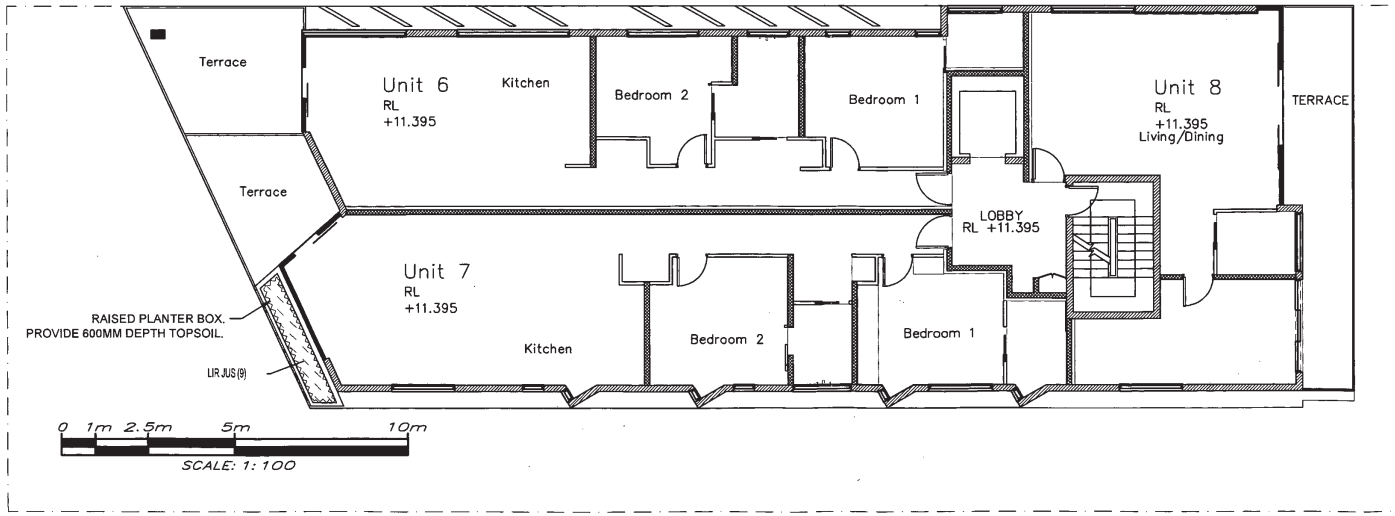


0 1m 2.5m 5m 10m

SCALE: 1: 100

LANDSCAPE PLAN-LEVEL 2

Scale: 1:100@A2



0 1m 2.5m 5m 10m

SCALE: 1: 100

KEY TO PLAN:

LAWN AREAS

PAVED AREAS

× 4.84 EXISTING SPOT LEVELS

These plans relate to Development

Consent No. 367/10-596(AA)-P3

The plans are NOT for construction.

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CLIENT:
NORTHWEST MANAGEMENT SERVICES PTY LTD

DRAWING TITLE
LANDSCAPE PLAN -LEVEL 1, 2

PROJECT DETAILS:
46 VICTORIA PARADE, MANLY NSW 2095

DRAWING NUMBER: 1304-LP2
CURRENT ISSUE: G

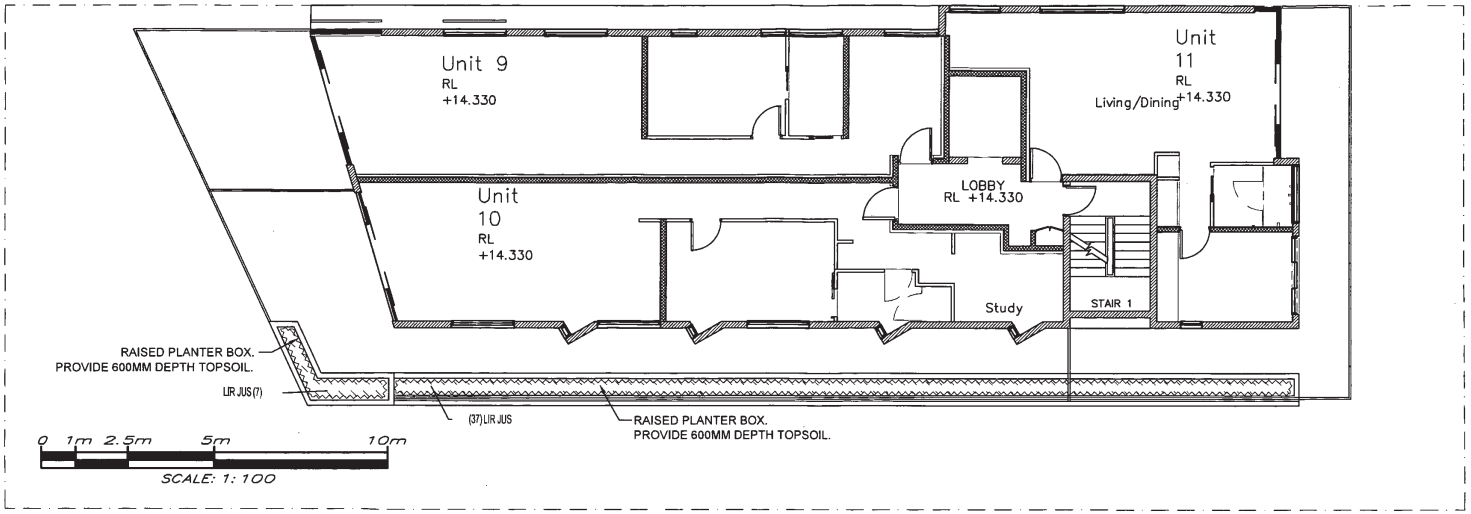
NORTH

DATE: January 14
PROJECT NO: 1304

11 AUG 14

LANDSCAPE PLAN-LEVEL 3

Scale: 1:100@A2

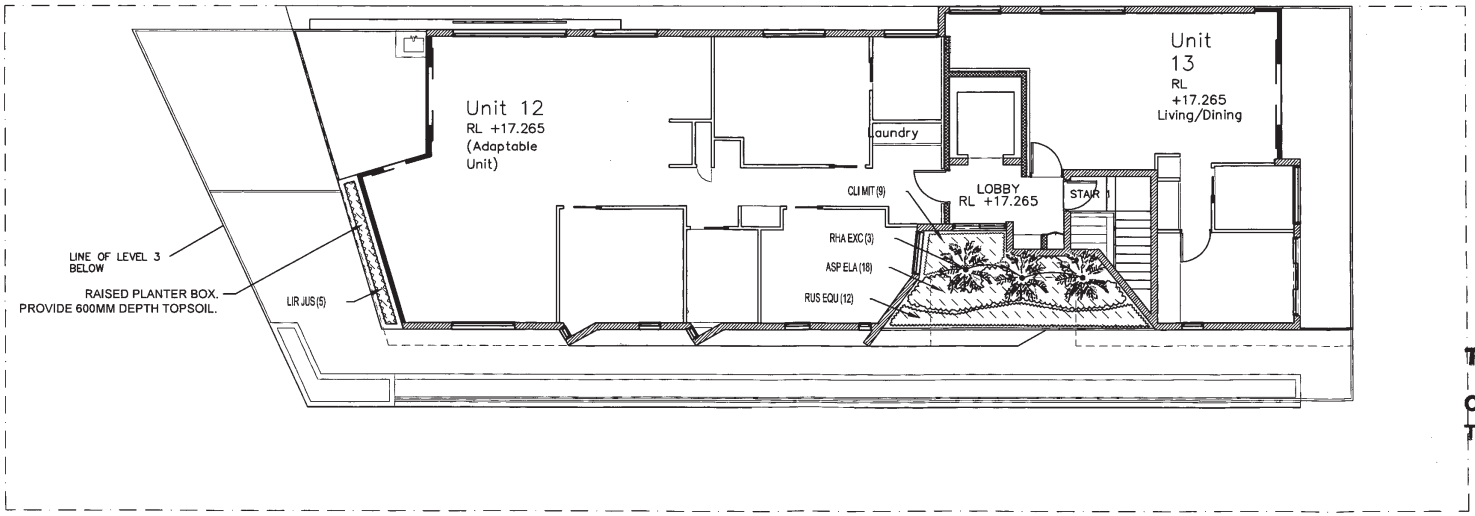


KEY TO PLAN:

- LAWN AREAS
- PAVED AREAS
- x 4.84 EXISTING SPOT LEVELS

LANDSCAPE PLAN-LEVEL 4

Scale: 1:100@A2



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The plans are NOT for construction.

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CLIENT:
NORTHWEST MANAGEMENT SERVICES PTY LTD

DRAWING TITLE
LANDSCAPE PLAN -LEVEL 1, 2

PROJECT DETAILS:
46 VICTORIA PARADE, MANLY NSW 2095

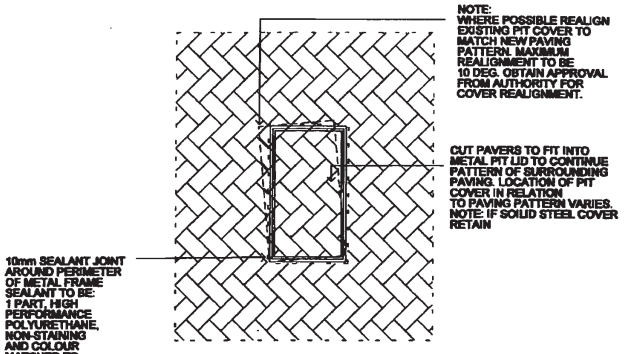
DRAWING NUMBER:
1304-LP3

CURRENT ISSUE:
G

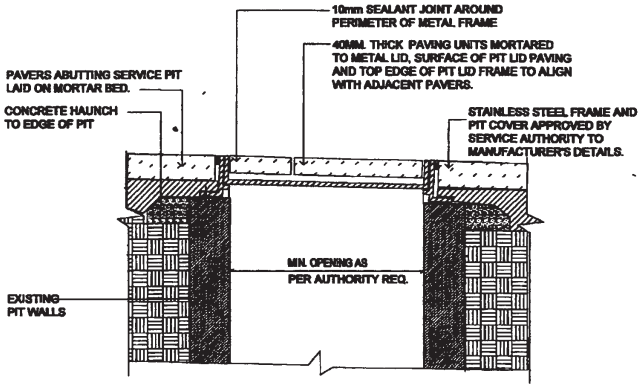
NORTH

DATE:
January 14

PROJECT NO:
1304



Plan 1:20

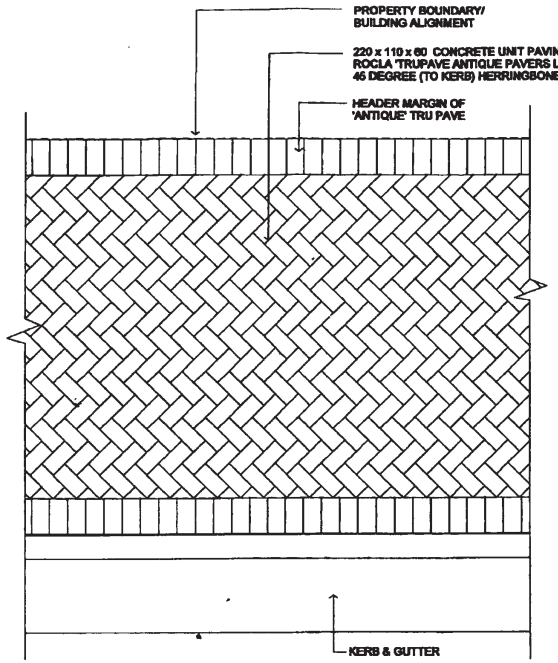


Section 1:10

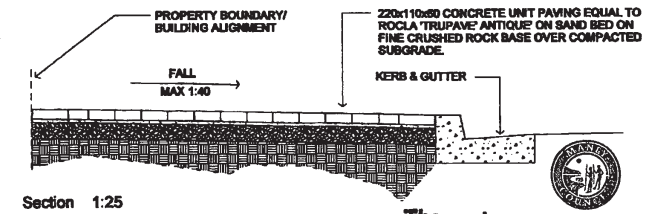
TYPICAL SERVICE PIT COVER (TWO PART COVER SIMILAR)

MANLY COUNCIL — PAVING DESIGN GUIDELINES

NOT TO SCALE



Plan 1:25



Section 1:25

These plans relate to Development

Consent No. 367/10-S96(AA)-P3

The plans are NOT for construction.

PAVING TYPE 2 - TYPICAL PLAN AND SECTION

MANLY COUNCIL — PAVING DESIGN GUIDELINES

NOT TO SCALE

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Email: baldock@bigpond.net.au

CLIENT: NORTHWEST MANAGEMENT SERVICES PTY LTD

DRAWING TITLE: COUNCIL FOOTPATH DETAILS

PROJECT DETAILS: 46 VICTORIA PARADE, MANLY NSW 2095

DRAWING NUMBER: 1304-LP5

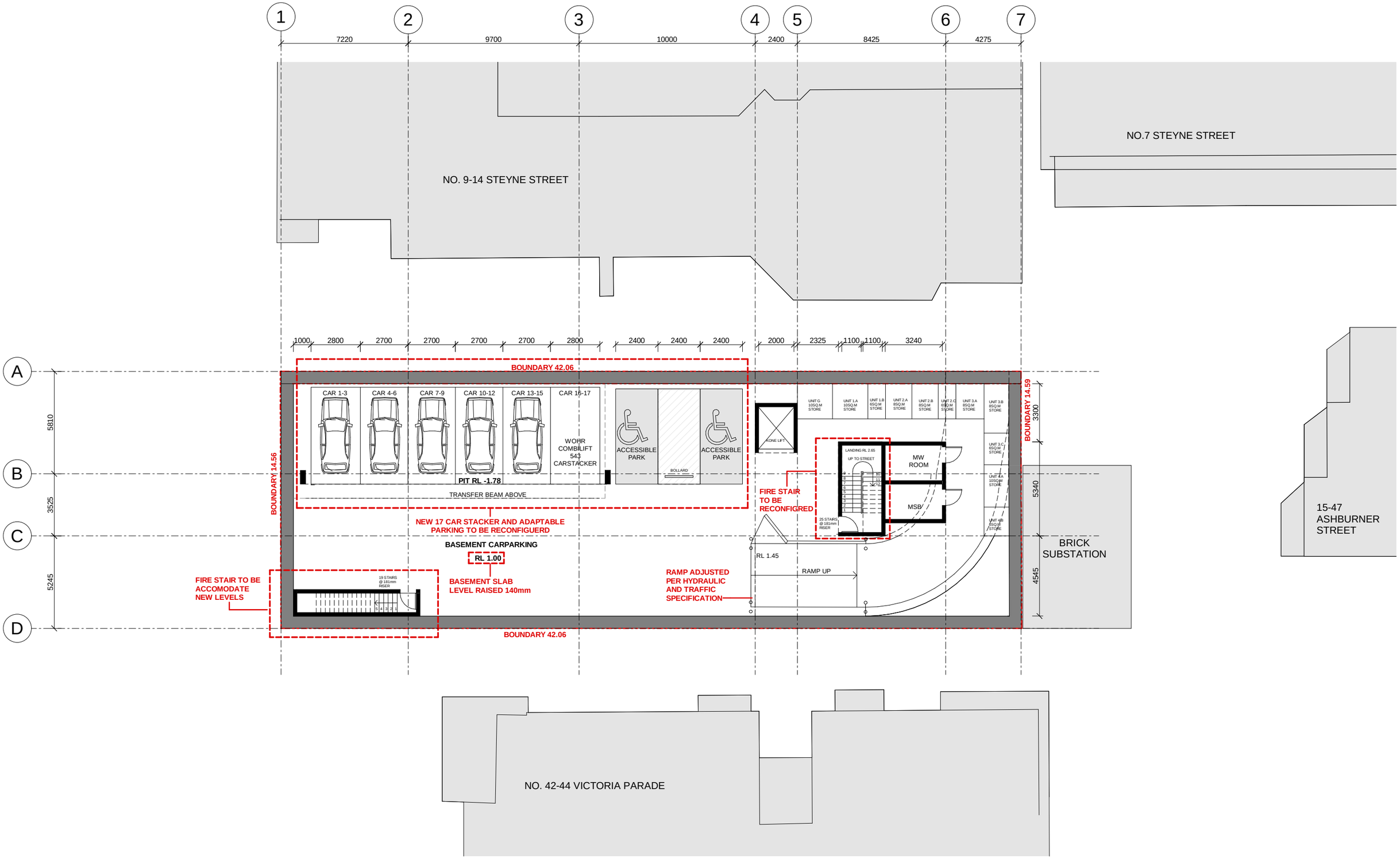
CURRENT ISSUE: G

DATE: January 14

PROJECT NO: 1304

Attachment 2

Plans of Development



REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT

BASEMENT

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-100

SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

Architecture Planning Urban Design

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TEL(02)92230280 FAX(02)9223 0283
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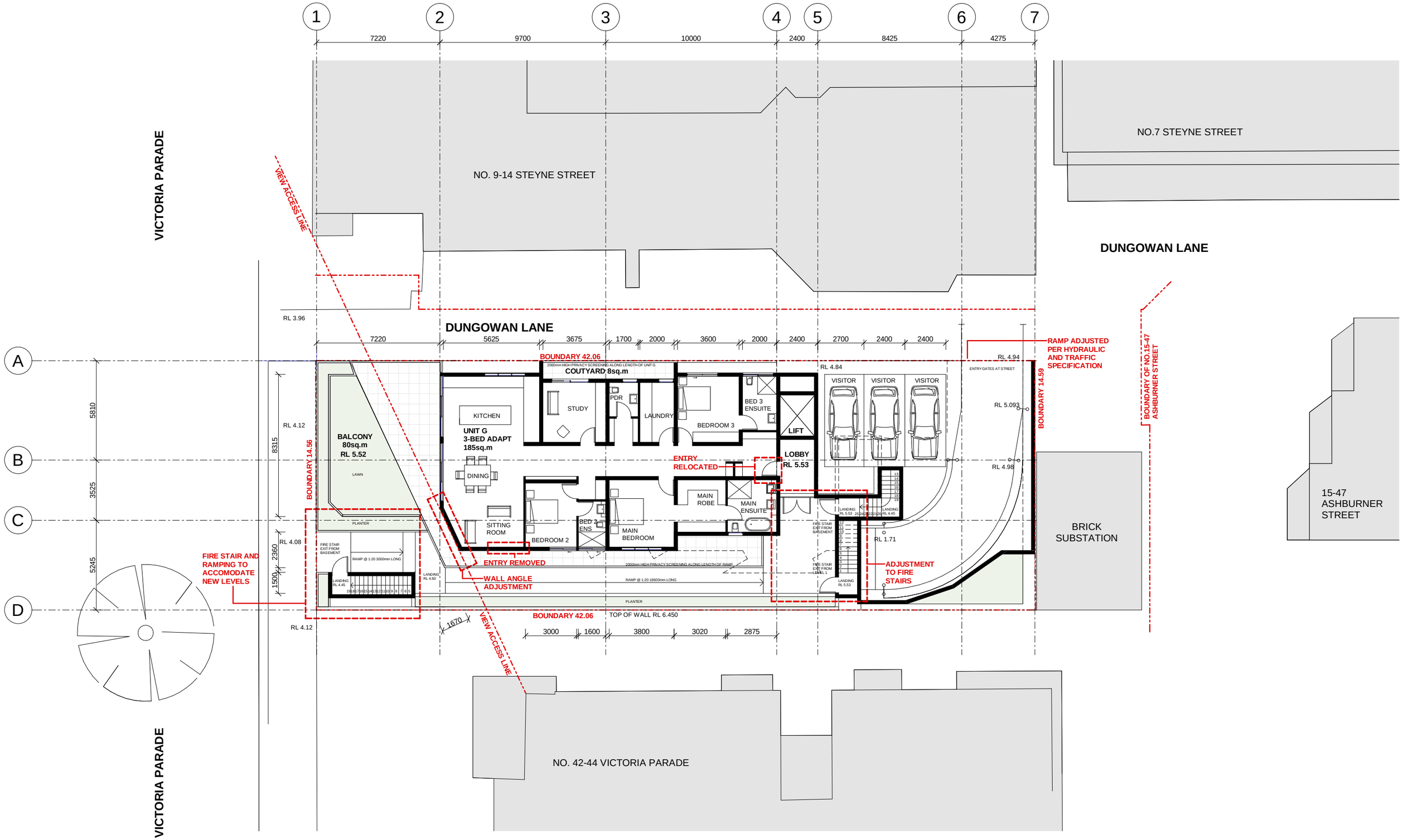

REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT

GROUND FLOOR

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-101

SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

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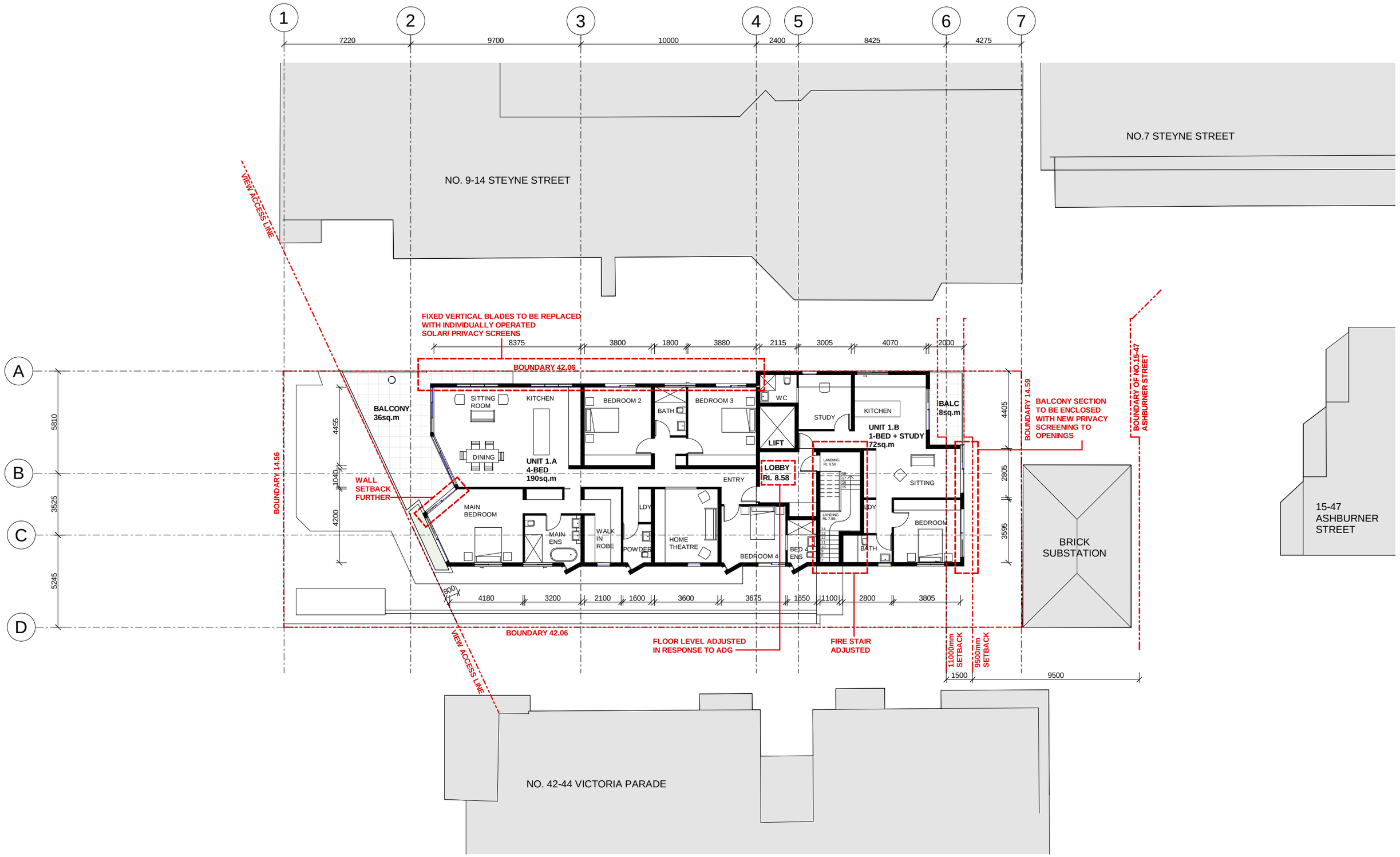

REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT **FIRST FLOOR**

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-102

SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

Architecture Planning Urban Design

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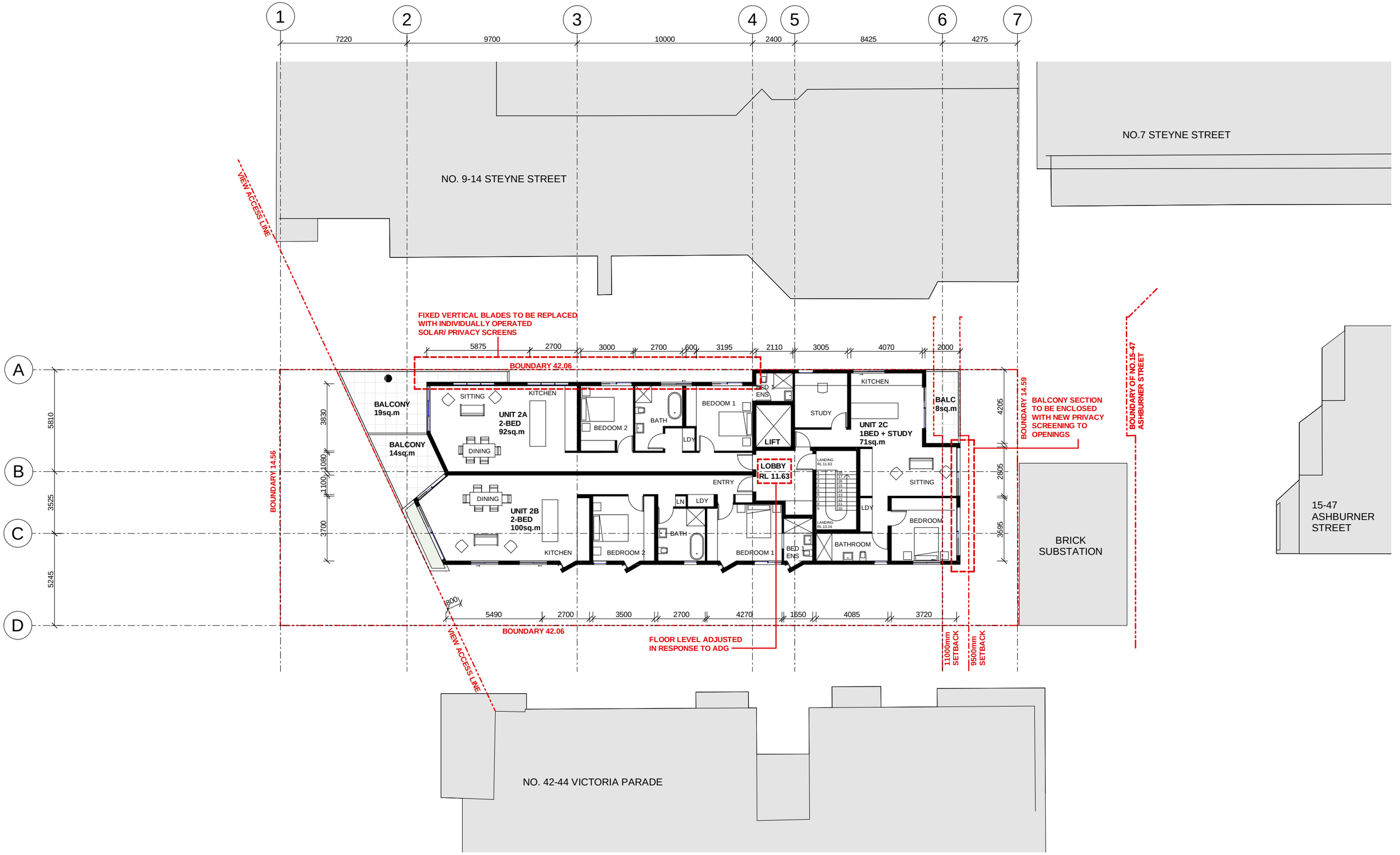

REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT

SECOND FLOOR

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-103

SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

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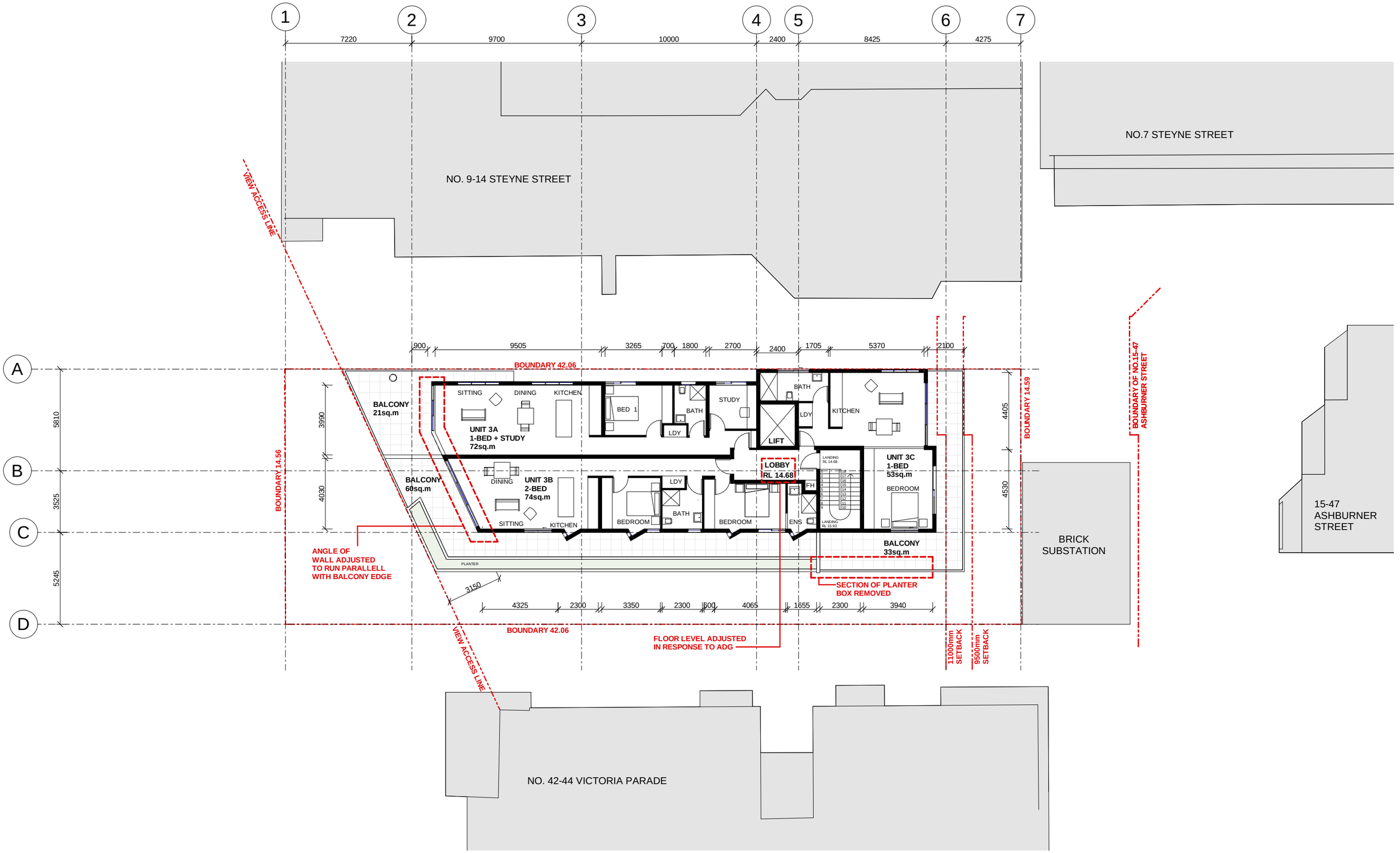
TEL(02)92230280 FAX(02)9223 0283
mail@arcarchitects.com.au



REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT

THIRD FLOOR

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-104

SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

Architecture Planning Urban Design

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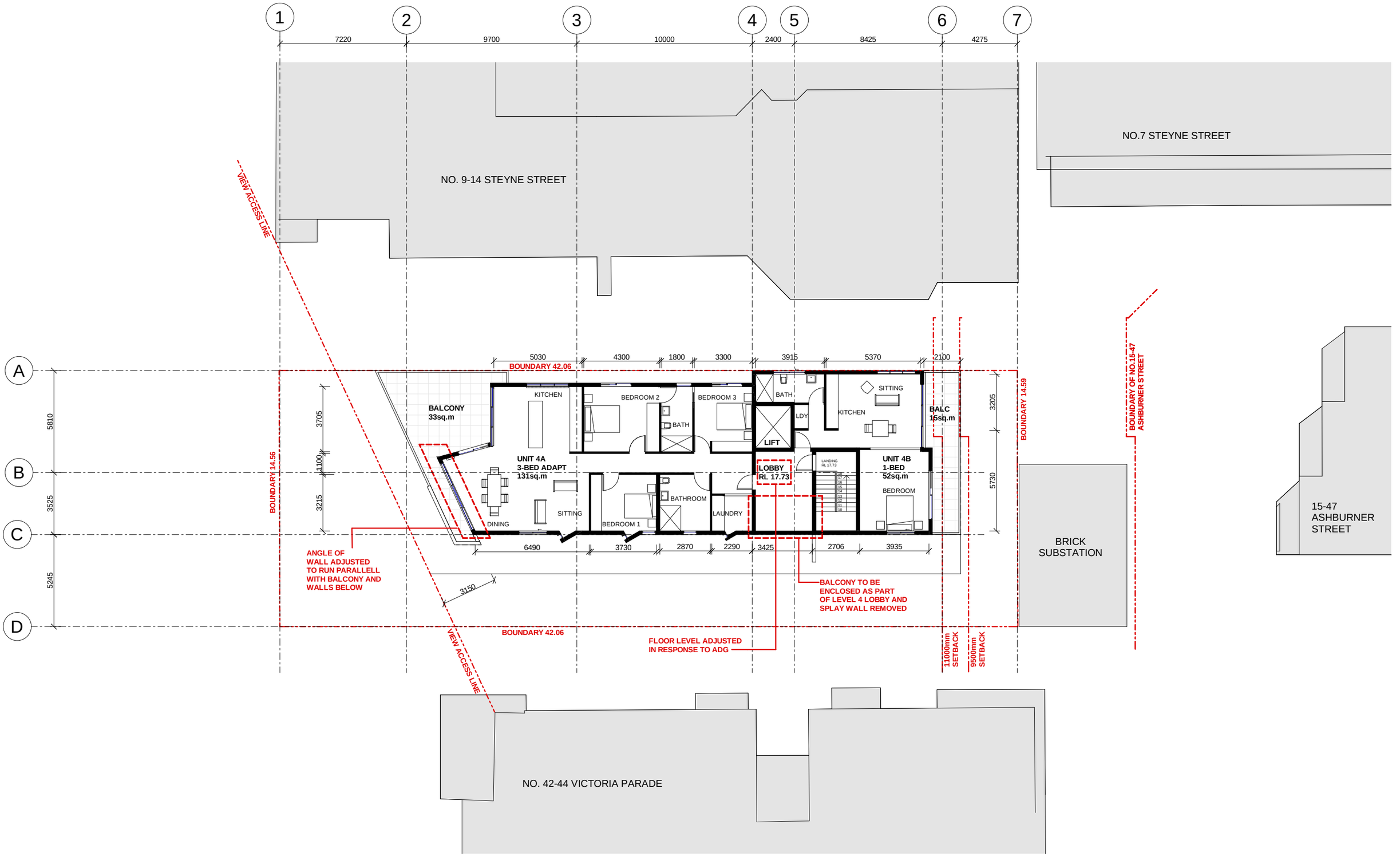
TEL(02)92230280 FAX(02)9223 0283
mail@arcarchitects.com.au



REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT

FOURTH FLOOR

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-105

SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

Architecture Planning Urban Design

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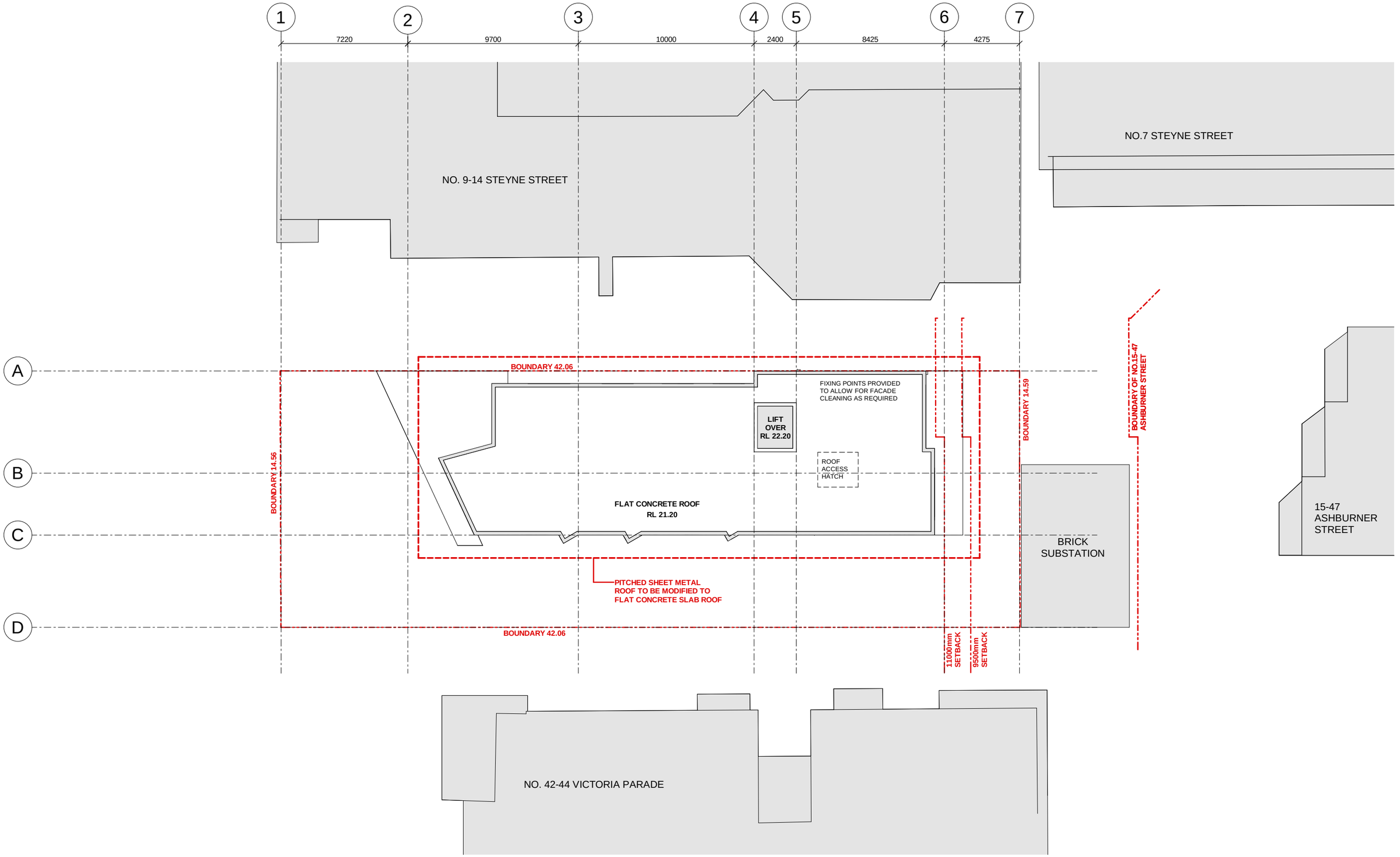
TEL(02)92230280 FAX(02)9223 0283
mail@arcarchitects.com.au



REV	DESCRIPTION	DATE
A	S96 SUBMISSION	2018

RESIDENTIAL DEVELOPMENT

ROOF PLAN

MANLY OWNER'S GROUP
46 VICTORIA PARADE
MANLY, NSW 2095

S96-106

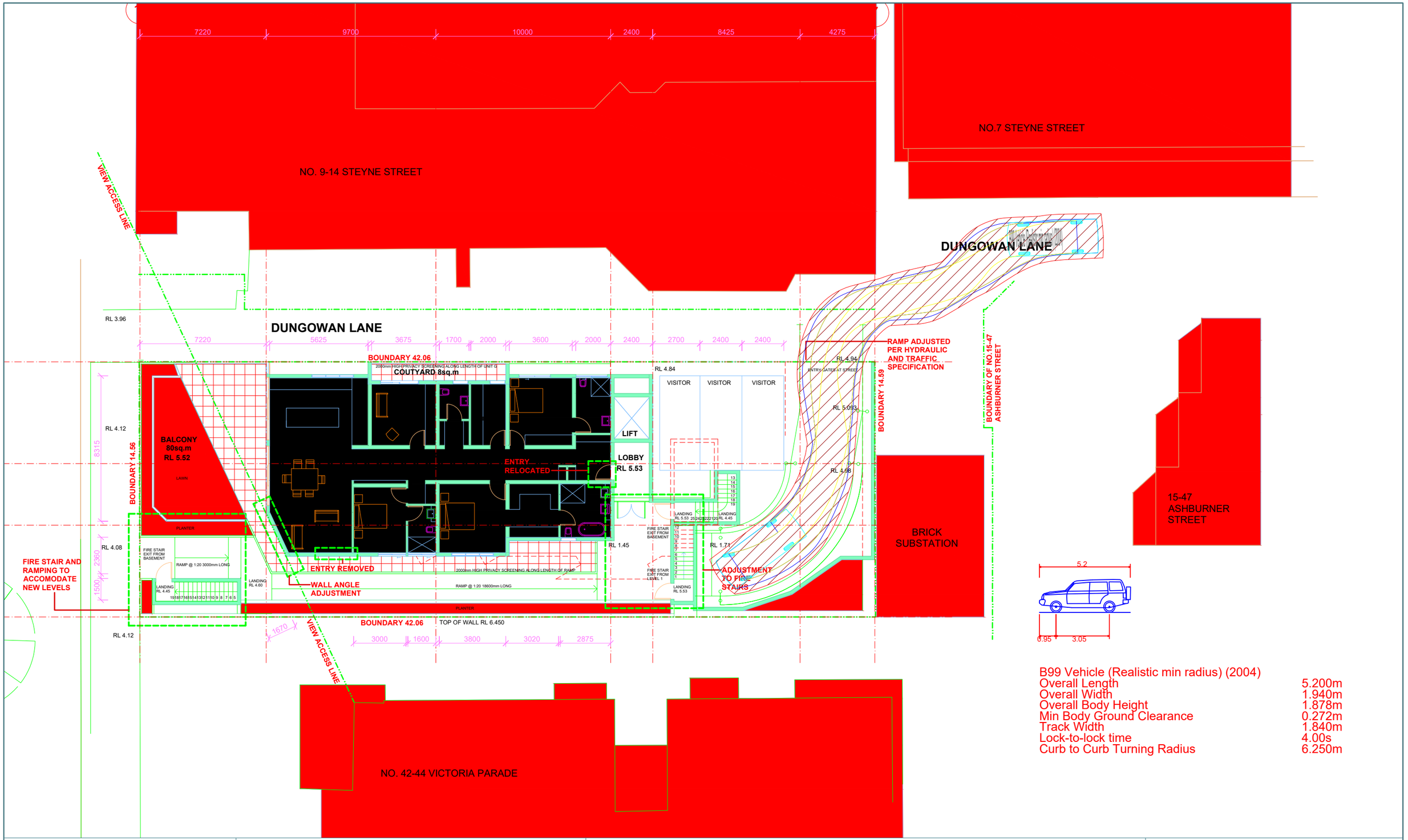
SCALE: **1 : 200**
DATE: **05 JUNE 2018**
DRAWN: **ARC**

Architecture Planning Urban Design

Level 7 90 Pitt Street Sydney NSW 2000
TEL(02)92230280 FAX(02)9223 0283
mail@arcarchitects.com.au

Attachment 3

Vehicle Tracking Diagrams – Access



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project: 46 Victoria Parade, Manly

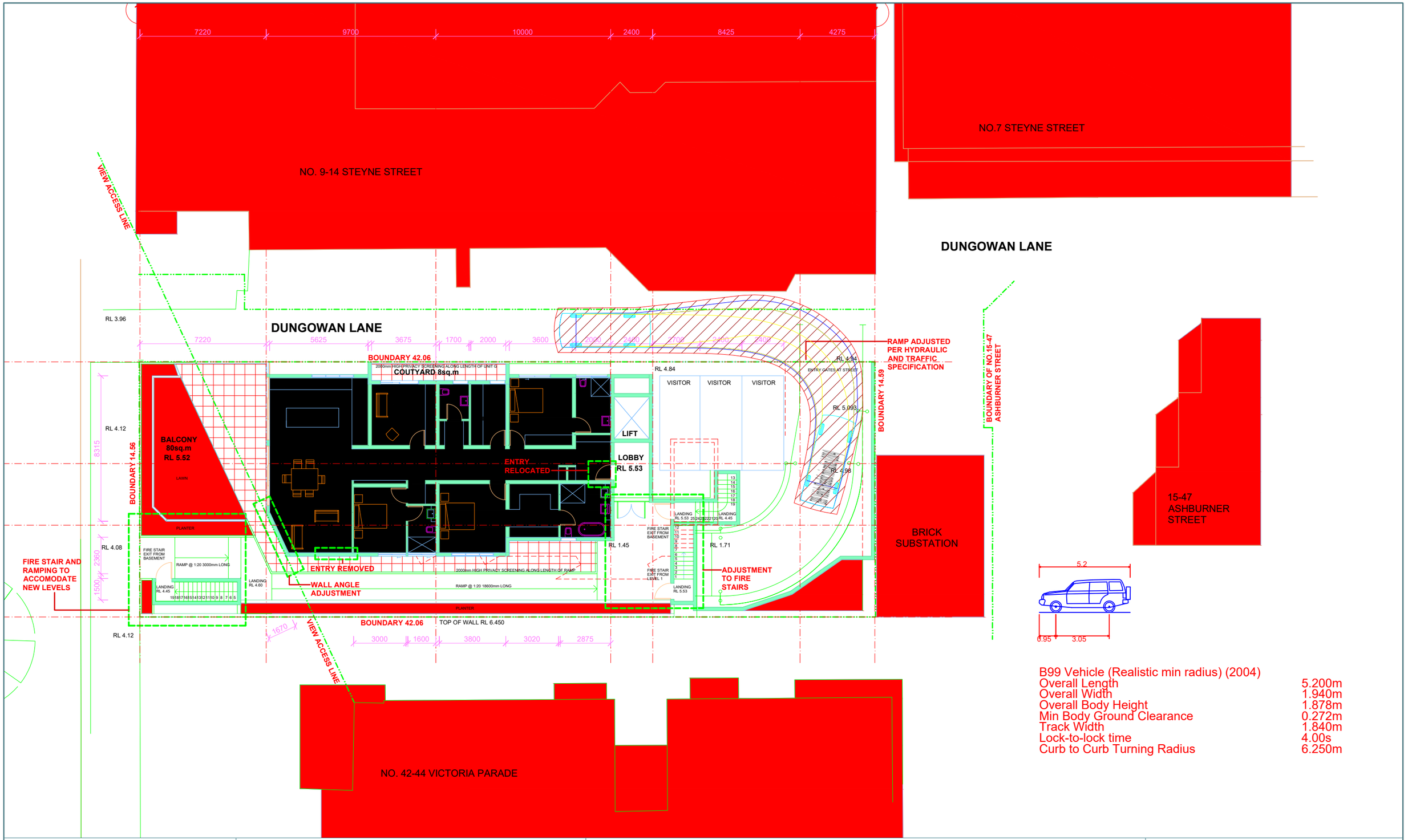
drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
18-014	DWG01	A	06/06/2018	1:200 @ A3

FOR INFORMATION ONLY - NOT FOR CONSTRUCTION

InRoads Group 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 drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards make allowance for 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.



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project: 46 Victoria Parade, Manly

drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
18-014	DWG02	A	06/06/2018	1:200 @ A3

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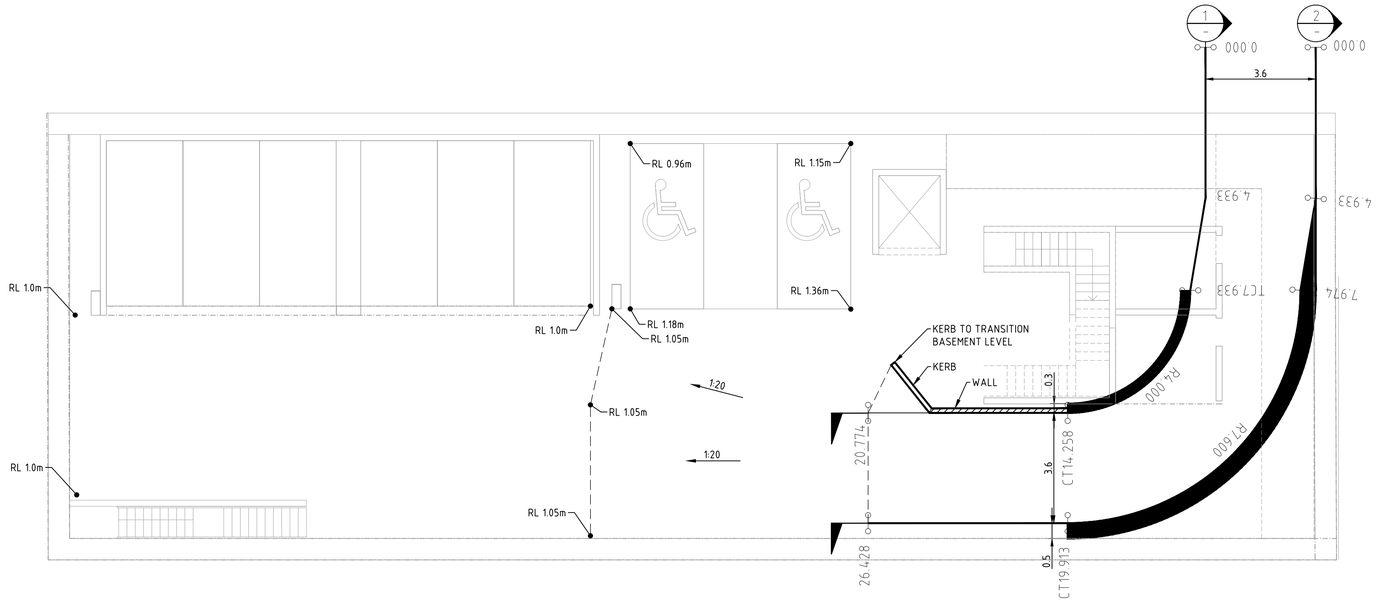
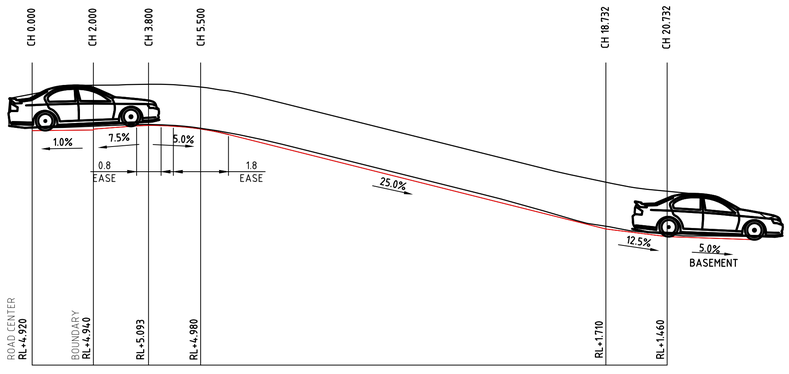
Attachment 4

Ramp Vertical Clearance Assessment



PLAN

SCALE 1:100



SECTION 1

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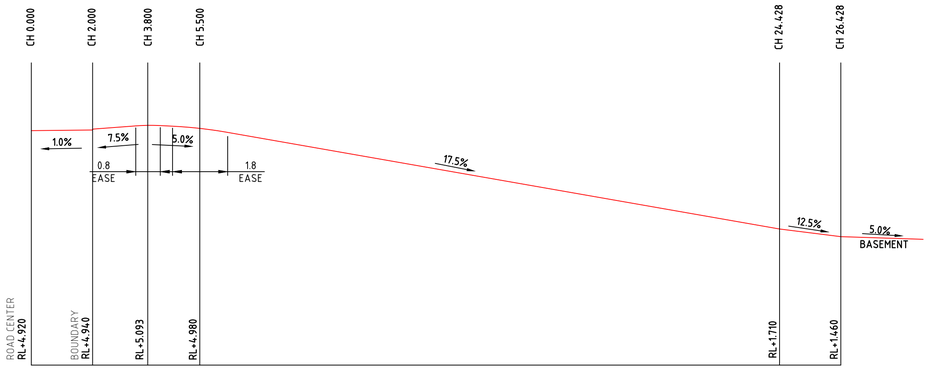


SECTION 2

SCALE 1:100

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	AE	AE	SL	05/06/2018

CLIENT: MPH Pty Ltd

ARCHITECT: ARC

FJA CONSULTING ENGINEERS
LEVEL 12 , 32 MARTIN PLACE
SYDNEY, NSW 2000
EMAIL: info@fjaconsulting.com.au

0 1 2 4 6 8 10m
SCALE 1:100 @A1

DRAWN BY	AE
DRAWN DATE	JUN'18
COORDINATE SYSTEM	MGA-56
HEIGHT DATUM	AHD

PROJECT: 46 VICTORIA PARADE
MANLY NSW 2095

DRAWING TITLE: RAMP CLEARANCE ASSESSMENT

PROJECT NUMBER: 18011

SHEET SIZE: A1

SHEET NO: 1

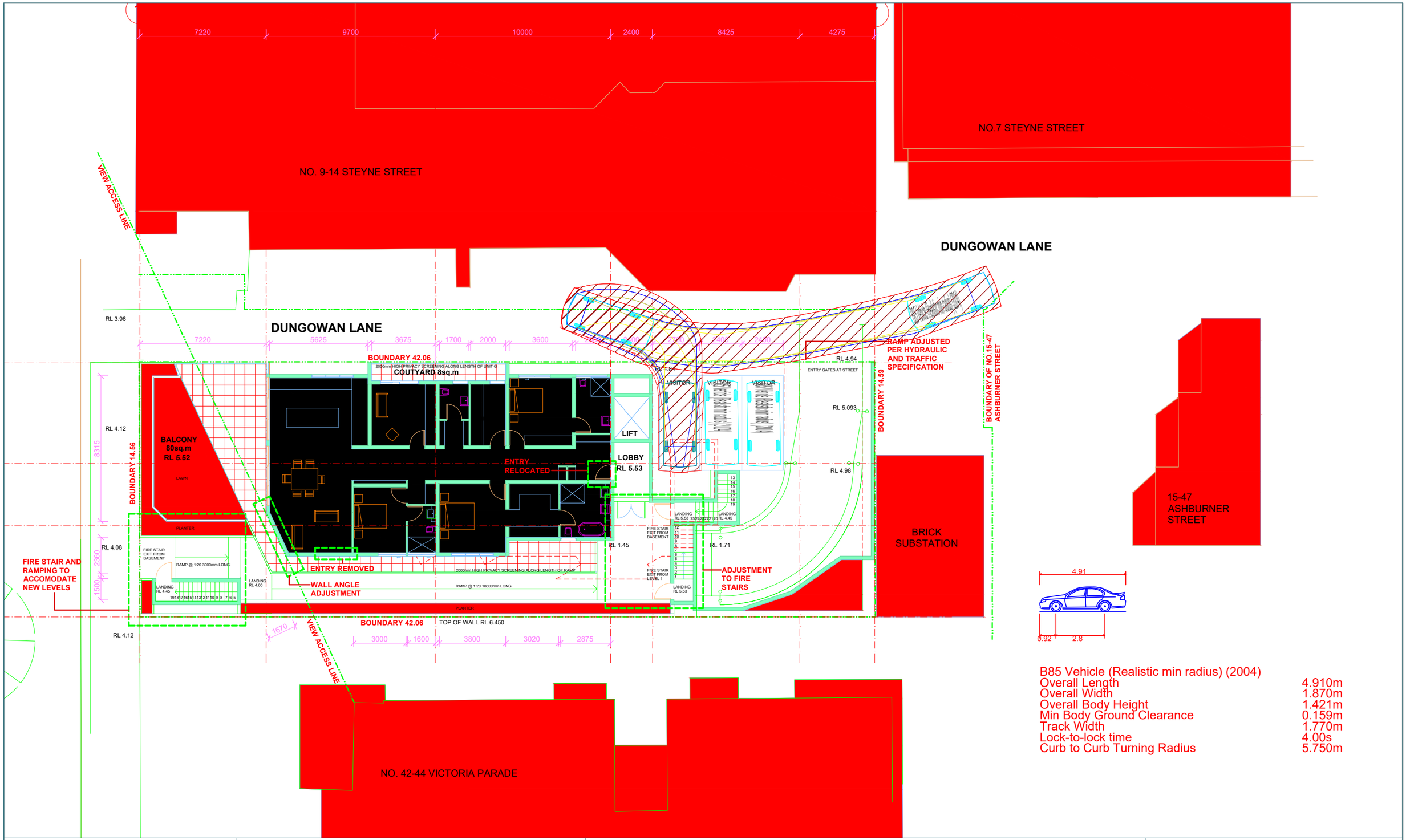
STATUS: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWING NUMBER: SK04

REV: 1

Attachment 5

Vehicle Tracking Diagrams – Ground Level Parking



B85 Vehicle (Realistic min radius) (2004)

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

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project: 46 Victoria Parade, Manly

drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
18-014	DWG03	A	06/06/2018	1:200 @ A3

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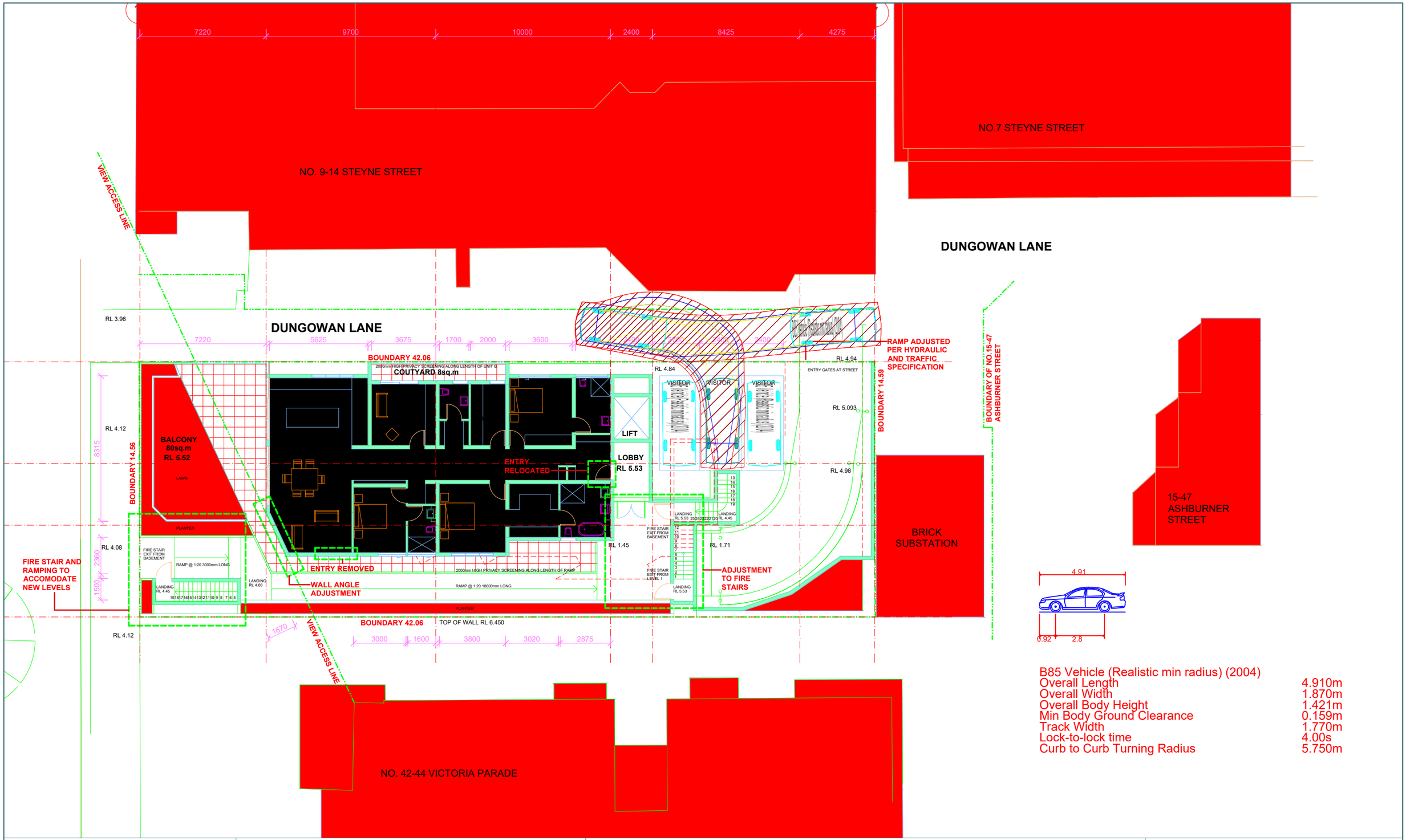

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Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project: 46 Victoria Parade, Manly

drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
18-014	DWG04	A	06/06/2018	1:200 @ A3

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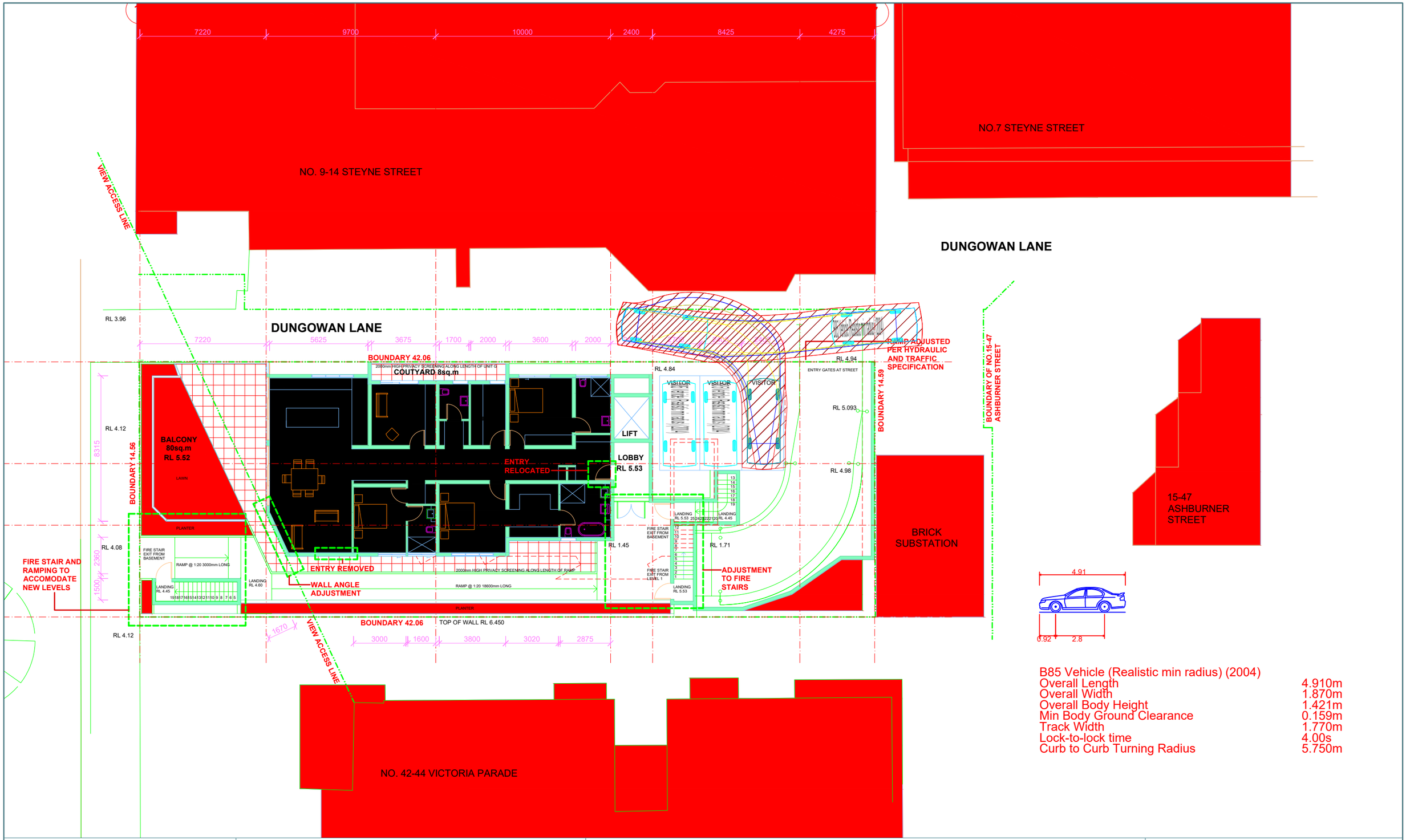

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Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project: 46 Victoria Parade, Manly

drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
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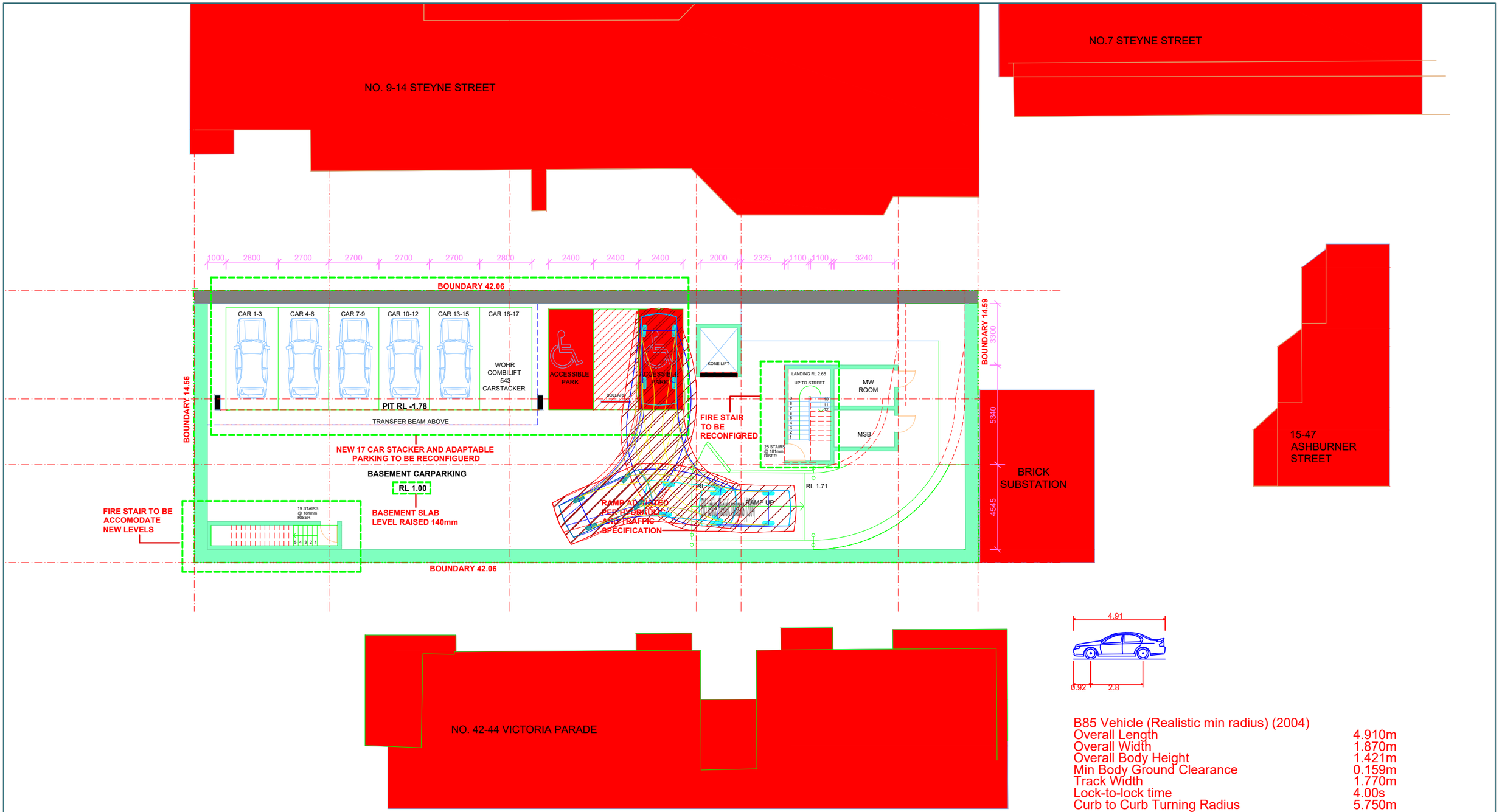
Attachment 6

Vehicle Tracking Diagrams – Basement Parking



B85 Vehicle (Realistic min radius) (2004)

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

INROADS:GROUP

drawing prepared by

InRoads Group

PO Box 596
Potts Point NSW 1335

ABN: 25 608 559 897

project: 46 Victoria Parade, Manly

drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
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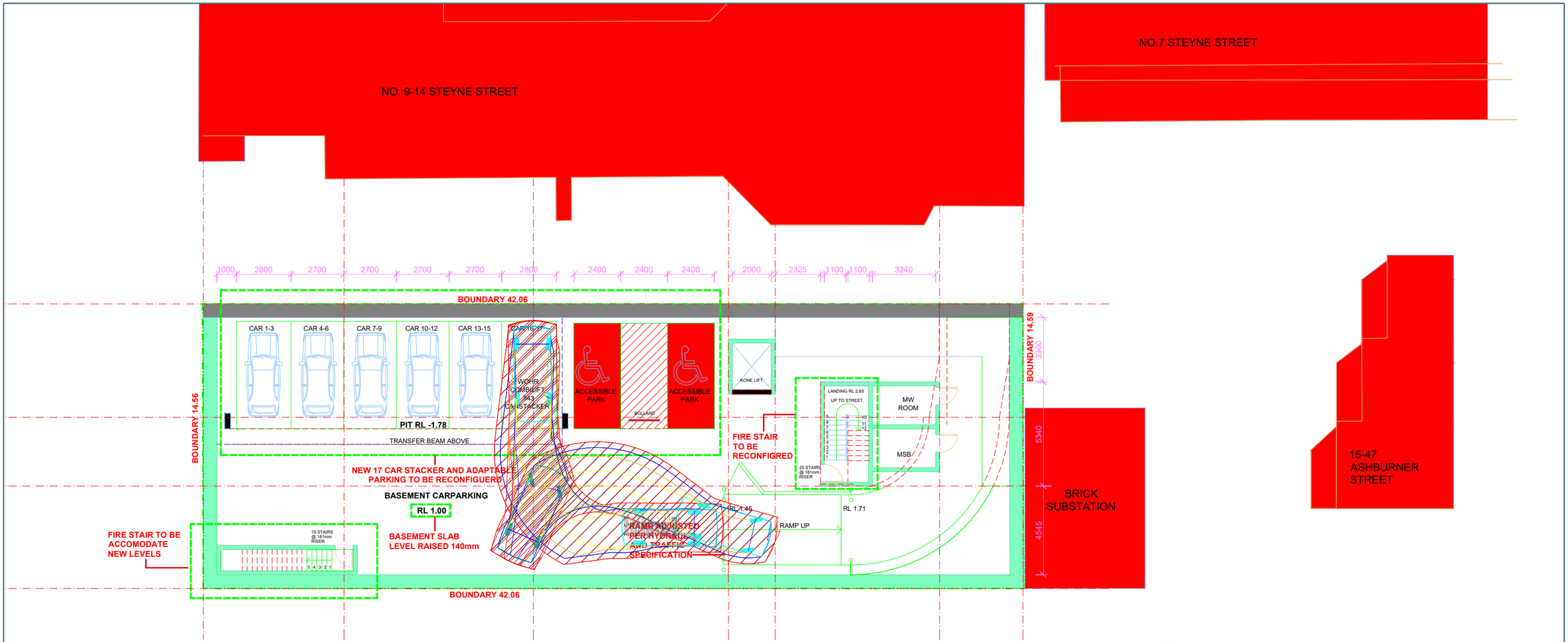

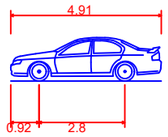

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Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project	46 Victoria Parade, Manly
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
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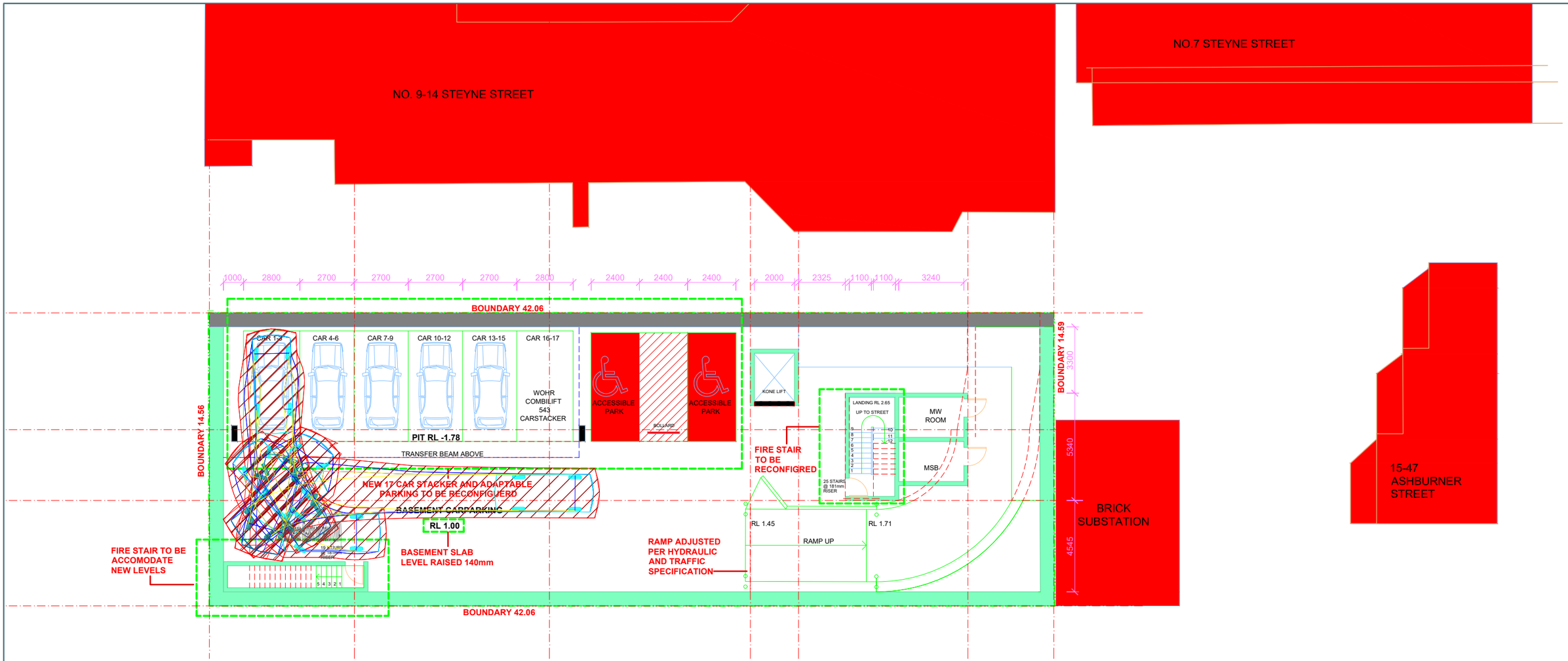

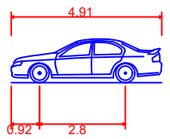

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Min Body Ground Clearance	0.159m
Track Width	1.770m
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Curb to Curb Turning Radius	5.750m

INROADS:GROUP

drawing prepared by

InRoads Group

PO Box 596
Potts Point NSW 1335

ABN: 25 608 559 897

project	46 Victoria Parade, Manly
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
18-014	DWG07	A	06/06/2018	1:200 @ A3

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Attachment 7

Specifications of Mechanical Parking Installation

Data Sheet Wöhr Combilift 543-2,0

Suitable for condominium and office buildings.
For permanent use only!*

* In case of short time user (e.g. for offices, hotels, a.s.o.) technical adjustments are required. Please contact WÖHR!

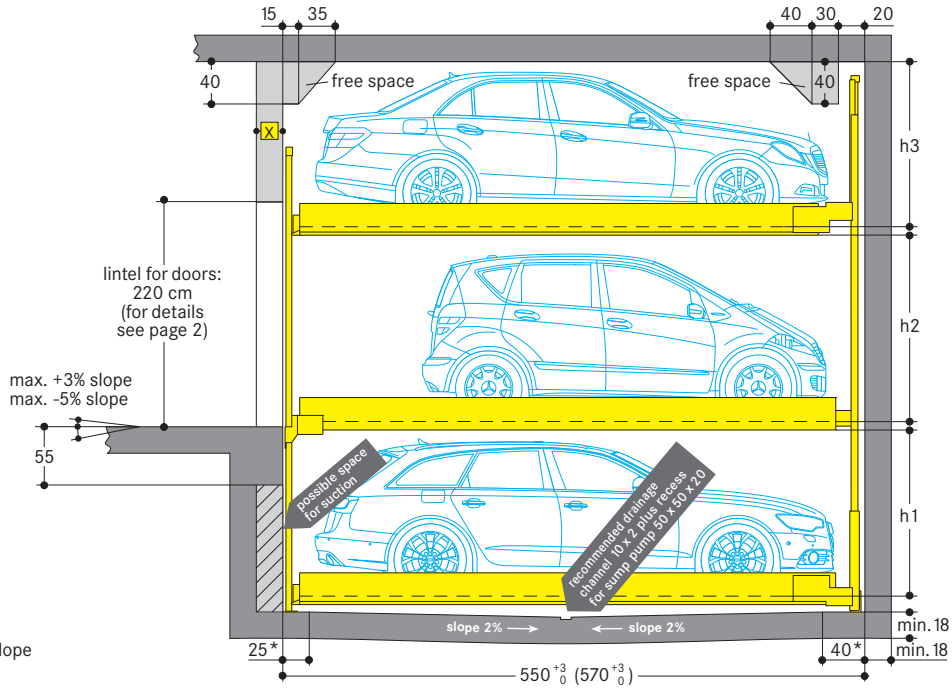
Platforms are in horizontal position to drive on.

Load per platform max. 2000 kg (load per wheel max. 500 kg)

Special reinforced units for higher parking platform load are available (see 543-2,6).

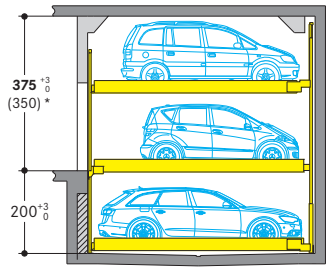
X = Door offset (see page 2 for details)

Dimensions in cm



* in this zone, 0% of downward/upward slope in longitudinal and cross direction

Standard type 543 · 2000 kg

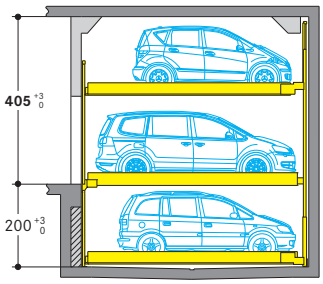


	car height	distance
UL	Cars/Station wagons up to 175 cm	h3 = 180
EL	Cars/Station wagons up to 175 cm	h2 = 180
LL	Cars/Station wagons up to 175 cm	h1 = 180

UL = upper level, EL = entrance level
LL = lower level

* If cars and station wagons with a height of up to **150 cm** are parked on the **upper level**, a clear height of **350 cm** above the entrance level is sufficient.

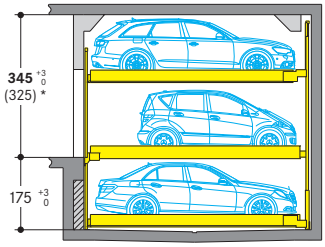
Comfort type 543 · 2000 kg



	car height	distance
UL	Cars/Station wagons up to 175 cm	h3 = 180
EL	Cars/Vans up to 205 cm	h2 = 210
LL	Cars/Station wagons up to 175 cm	h1 = 180
	Cars/Vans up to 2000 kg max.	

With greater h3 height-values, respectively higher cars can be parked on the upper level. Car heights cannot be greater than 205 cm.

Compact type 543 · 2000 kg

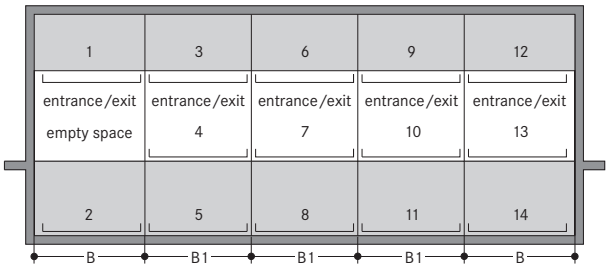


	car height	distance
UL	Cars/Station wagons up to 150 cm	h3 = 155
EL	Cars/Station wagons up to 170 cm	h2 = 175
LL	Cars/Station wagons up to 150 cm	h1 = 155

* If cars and station wagons with a height of up to **150 cm** are parked on the **entrance level**, a clear height of **325 cm** above the entrance level is sufficient.

Please attend to restricted car- and platform distance height!

Width dimensions



Space required B	B1	gives clear platform width
260	250	230
270	260	240
280	**270**	**250**
290	**280**	**260**
300	**290**	**270**

One entry/exit is required on entrance level for each grid.

Notes

1. Pits must always be protected by a sliding shutterdoor (even in underground garages).
2. Arrangements start with 2 grids for 5 cars, 3 grids for 8 cars.
3. Installation length of 550 cm for car length of a max. of 500 cm. Clear platform width of 250 cm for car widths of 190 cm. For large touring sedans we recommend a clear platform width of at least 260–270 cm.
4. For large touring sedans an installation length of 570 cm is recommended. This length offers larger safety distances for potential future developments or projects with short term parkers such as hotels or similar.
5. It is not possible to have channels or undercuts and/or concrete haunches along the pit floor-to-wall joints. In the event that channels or undercuts are necessary, the system width needs to be reduced or the pit needs to be wider.
6. The manufacturer reserves the right to construction or model modifications and/or alterations. Furthermore, the right to any subsequent part modification and/or variations and amendments in procedures and standards due to technical and engineering progresses in the art or due to environmental regulation changes, are also hereby reserved.

Combilift 543-2,0 | 11.2012 | C027-5182 | © Otto Wöhr GmbH

Otto Wöhr GmbH
Auto-Parksysteme
Ölgrabenstrasse 14
71292 Friolzheim | Germany
Fon +49 [0] 7044 46-0
Fax +49 [0] 7044 46-149
www.woehr.de
info@woehr.de

We compact parking space

Doors

According EN 14010, the Combilift 543 must be closed with shutterdoors. The door controls are integrated in the overall system. That means:

a) The doors are electro-mechanically interlocked.

b) The doors can only be opened when the selected parking place has reached the entry/exit position.

c) Any pits are closed in the entrance area.

Local requirements for electrical doors regarding the technology, maintenance and revision are not subject of our delivery. These matters have to be observed and carried out by the customer, according to the local regulations.

Door types:

Manually operated sliding shutterdoors

- for underground garages with galvanized fence filling
- above ground with powder coated metal sheets (RAL 7030)

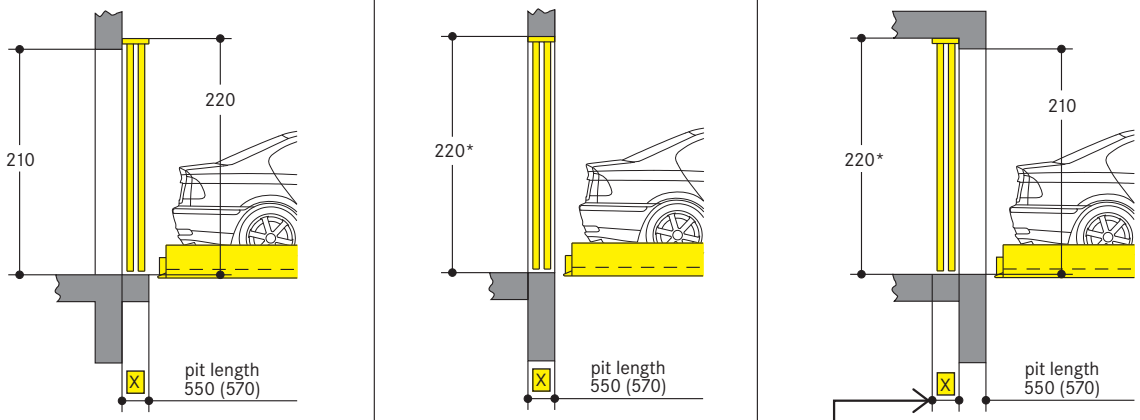
Alternatively, sliding shutterdoors can be supplied with electrical drive.

Installation:
Behind the building pillars with door offset

Installation:
Below the lintel between the building pillars

Installation:
In front of the building pillars

Section

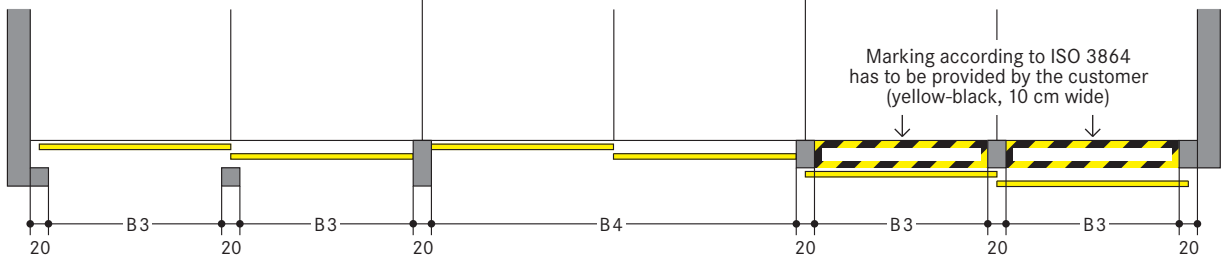


X = 25 cm for manually operated sliding shutterdoors

X = 35 cm for automatic shutterdoors

With installation in front of the pillars, the driving aisle is measured from the door.

Ground plan



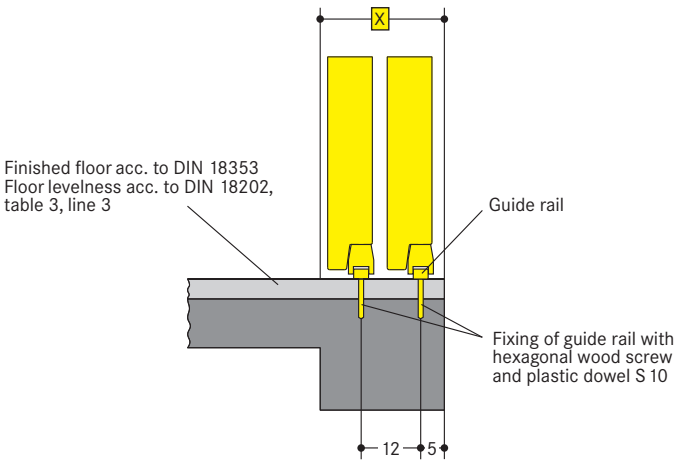
Space required B3	B4	Gives clear platform width
230	480	230
240	500	240
250	**520**	**250**
260	**540**	**260**
270	**560**	**270**

* The lintel of 220 cm is absolutely necessary. With differing heights, additional fixings are required at a surcharge. If no lintel is provided, the gates need to be fitted onto a steel frame (subject to surcharges).

Floor guide for sliding shutterdoors

Floor levelness in door guide range must be conformity with DIN 18202, table 3, line 3.

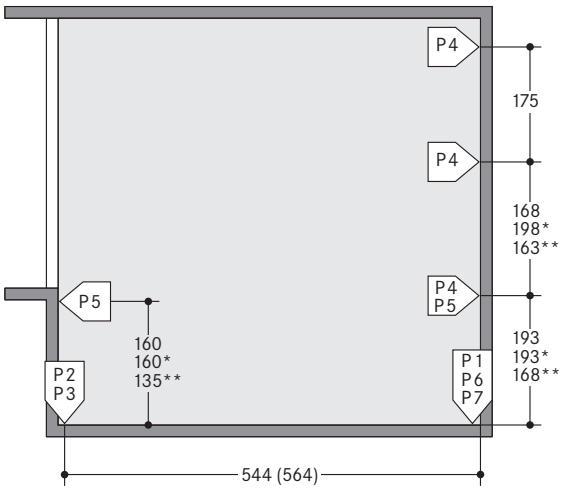
Hole depth for dowels approx. 8 cm.
Remark: When screed is applied in the door area to obtain floor levelness, the hole depth should be increased by screed thickness (max. 40 mm).



Width dimensions and statics

All dimensions shown are minimum. Constructional tolerances must be taken into consideration. **All dimensions in cm.**

Section



( ) dimensions in brackets for longer units

* dimensions for comfort type

** dimensions for compact type

P1 = +70,0 kN [1)]
P2 = +49,0 kN
P3 = +25,0 kN
P4 = ± 5,0 kN
P5 = ± 2,5 kN
P6 = ±30,0 kN
P7 = ±15,0 kN

[1)] all static loadings include the weight of the car

Bearing loads are transmitted by wall plates with min. 30 cm² surface and to the floor by base plates with min. 350 cm² surface.

Wall and base plates to be fixed by heavy duty anchor bolts to a drilling depth of 10-12 cm. When fixing to the waterproof concrete floors chemical anchors are employed (to be advised by Wöhr).

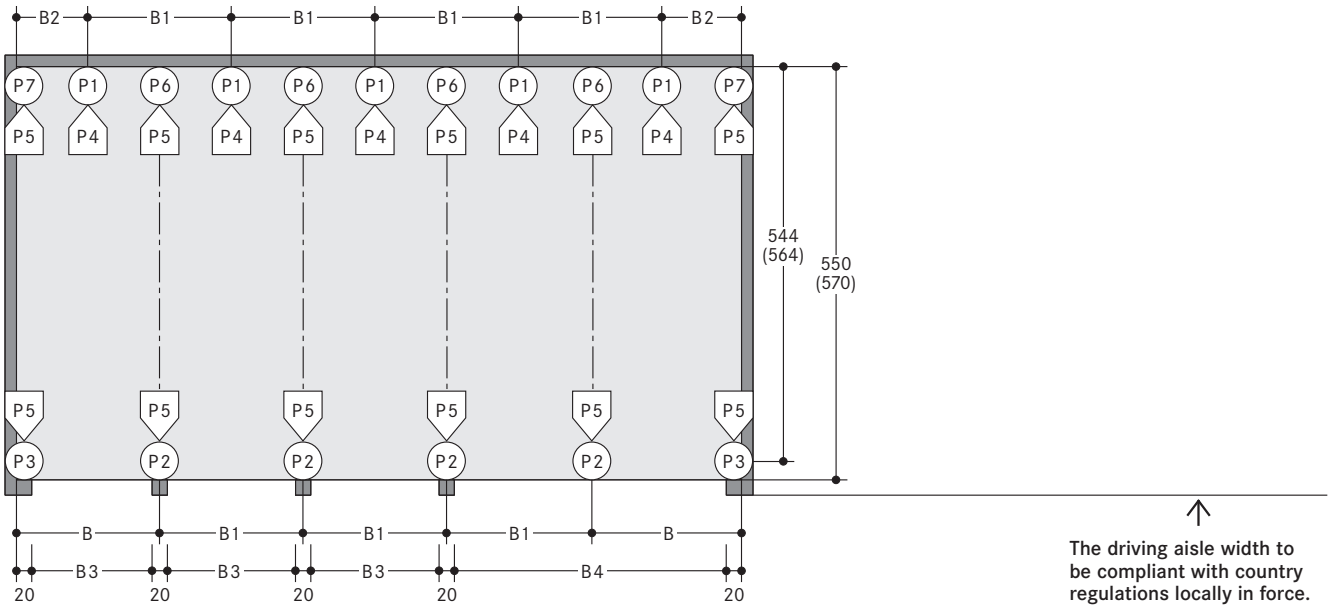
Base plate thickness min. 18 cm. Rear wall and base plate must be formed of concrete and must have a flat surface without protrusions.

Concrete quality according to the static building requirements, however for the dowel fixing concrete quality of min. C20/25 is required.

The specified lengths to the support points are mean values. Please contact Wöhr Agent for exact positions for any variations on the standard units.

Please contact Wöhr Agent for clarify the door widths/widths of columns. Grid width of 250/260/270/280/290 cm must be observed.

Ground plan



The driving aisle width to be compliant with country regulations locally in force.

Space required					gives clear
B	B1	B2	B3	B4	platform width
260	250	135	230	480	230
270	260	140	240	500	240
280	**270**	**145**	**250**	**520**	**250**
290	**280**	**150**	**260**	**540**	**260**
300	**290**	**155**	**270**	**560**	**270**

Notice:

If the width of the pillars is more than 20 cm, than the width of the drive through will be reduced accordingly to the above mentioned width dimensions. In order to avoid this, we recommend to extend the measures between the pillars (B3 and B4) accordingly. Please contact WÖHR.

Hydraulic power packs

For the accommodation of the hydraulic power packs an additional space is required which will be determined during the verifications of the drawings, e.g. in a wall recess.
Dimensions:
length = 100 cm
height = 140 cm
depth = 35 cm

Electrical data

Main electrical supply 230/400V, 50 Hz, 3 phase. Power consumption 1.5/3.0 kW. Fuse or automatic circuitbreaker 3 x 16 A slow blow acc. to DIN VDE 0100 p. 430 and main supply line 5 x 2,5 mm² to the switch cabinet, provided by the customer. In compliance with the DIN EN 60204 standard provisions, all systems must be connected directly on site with an earthed equipotential bonding. The lead-out connection must be at a 10 m distance!

Switch cabinet

1. Main switch is installed well accessible at driveway in a height of 160 cm to 190 cm.
2. The switch cabinet must be installed visible and near by the system. Area for installation has to be provided by the customer. The size of the switch cabinet is 80 x 110 x 21 cm.
3. The wall opening of 15 cm diameter is required between the switch cabinet and the system itself. Please contact Wöhr Agent to clarify.
4. The control is designed to operate between +5° and +40°C. Atmospheric Humidity: 50% at +40°C. If the local circumstances differ from the above please contact Wöhr (if necessary, the switch cabinet has to be provided with a heating).
5. If the system is installed outside the switch cabinet needs to be inside a sun-/water-/wind proof box. In front of the switch cabinet an area of 100 cm is required to work.

General product information

The entrance level parking place row has one place less than the upper and lower level. This empty space always stays on entrance floor level.
The platforms at the entrance floor level are shifted sideways by one space so that the empty space is above the lower level platform to be raised, or below the upper floor platform to be lowered.
This movement is initiated automatically when the desired place is selected via keyboard.

Hotel garage

If used by hotel guests, the installation requires special planning and construction. Please ask for details.

Noise protection

Basis is the German DIN 4109 “Noise protection in buildings”.

With the following conditions required 30 dB (A) in rooms can be provided:

- noise protection package from our accessory
- insulation figure of the construction of min. R'_w = 57 dB
- walls which are bordering the parking systems must be done as single wall and deflection resistant with min. m’= 300 kg/m²
- solid ceiling above the parking systems with min. m’= 400 kg/m²

At differing constructional conditions additional sound absorbing measures are necessary.

The best results are reached by separated sole plates from the construction.

Increased noise protection:

If increased noise protection must be provided planning has to be confirmed on a project basis by Wöhr (further building measures are required).

Temperature

The installation is designed to operate between +5°and +40°C. Atmospheric Humidity: 50% at +40°C. If the local circumstances differ from the above please contact Wöhr.

Conformity test

All our systems are checked according to EC machinery directive 2006/42/EC and EN 14010.

Illumination

Illumination has to be considered acc. to local requirements by the customer.

Numbering of the parking spaces

1. The empty space of the Combilift is always on the left in the entrance level.
2. The numbering is as follows:

UL	1	3	6	9	12
EL		4	7	10	13
LL	2	5	8	11	14

3. The numbering for each system starts with 1 as above.
4. Different numbering of parking spaces is possible at a surcharge (software changes are necessary).

Free spaces

Special drawings for free spaces to accommodate air ducts or other pipes can be requested at Wöhr Agent!

Railings

If walkways are arranged directly to the side or behind the systems, railings have to be provided by the customer acc. to local requirements, height min. 200 cm – this is applicable during the construction phase too.

Drainage

We recommend providing gutter in the pit centre and connecting the gutter either to a gully or a drainage pit 50 x 50 x 20 cm. If the pump sump is not accessible for manual drainage, the client must provide a pump on site to empty the pump sump. Lateral slope only within the gutter.

To prevent hazards for the ground water, we recommend giving the pit floor an oil-resistant coating as a means of protecting the environment.
If this is to be connected to the sewage system, it is advisable to provide oil and/or petrol seperators.

Maintenance

Regular maintenance by qualified personnel can be provided by means of an Annual Service Contract.

Protection against corrosion

Independent of a maintenance workings has to be carried out acc. to Wöhr Cleaning and Maintenance Instruction regularly.

Clean up galvanized parts and platforms of dirt and road salt as well as other pollution (corrosion danger)!

Pit must always be ventilated and dearated well.

Parking place width

We recommend a clear platform width of at least 250 cm.

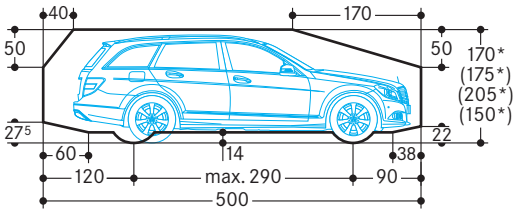
Dimensions

All dimensions shown are minimum. Construction tolerances must be taken into consideration. All dimensions in cm.

Fire safety

Each and every fire safety requirement and all possible mandatory item(s) and equipment(s) (fire extinguishing systems and fire alarm systems, etc.) are to be provided by the customer.

Clearance profile (standard saloon/estate car)



* The total car height includes roof rail and antenna fixture and must not exceed the mentioned max. height dimension.

Notes

We recommend providing wiring conduits leading to operating panels, particularly in above-ground garages.

The wiring conduits should placed 120 cm above entrance level in a support in the middle of the area.

Sam Technology

Sam Technology offers unique engineering solutions. We are a boutique company Established in 1934, having in-house solutions and associations with world expertise able to offer equipment and turn key solutions in the following fields of endeavour:

- Mining and materials handling
- Warehouse distribution
- Car Parking systems
- Rail maintenance equipment and turn key workshops
- Aircraft hangars and internal hangar maintenance systems
- Hangar and specialized door systems.
- Cranes, winches and associated equipment
- Consulting services including plant layouts, design specification and documents

Equipment and turn key installations are supported by service technicians employed at our Sydney and interstate offices.

Wohr Parking

About Wohr Parking Systems in Australia

WÖHR Autoparksysteme GmbH is a 5th generation family owned business, and has been since the opening of the WÖHR Scholesseri Metal Working shop in 1902.

Installation of the first parking system took place in 1959, and the first electromechanical parking system installation was completed in Munich for 162 car spaces in 1962.

The Parklift range was introduced in 1976 with the Parklift 412 system which is the predecessor of today's Parklift 450.

In 1988, both the first fully automatic system (Parksafe 580) and the Combilift range evolved.

Today, WÖHR Autoparksysteme GmbH has the largest range of parking systems available in the market and continue to push the envelope in terms of innovation and quality engineering.

WÖHR can also boast one of the widest distribution networks in the world with distribution in over 50 countries.

For over 20 years, WÖHR parking systems have been installed in Australia via their distributor network, however in September 2016 it was decided that a wholly owned subsidiary - Wohr Parking Systems Australia – was to be founded.

Parking Equipment:

Designed and manufactured in Germany (EN14010:2003,MOD)

Turnkey Installation

Supplied according to AS 5124:2017

Maintenance, Every six months, by Sam Technology.

Options available for out of service calls.