



M^CLAREN TRAFFIC ENGINEERING

Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
Postal: P.O Box 66 Sutherland NSW 1499

Telephone: +61 2 8355 2440
Fax: +61 2 9521 7199
Web: www.mclarenttraffic.com.au
Email: admin@mclarenttraffic.com.au

Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

24 August 2022

Reference: 220040.06FA

Momentum Projects
Attention: Andrew Xu

S4.55 TRAFFIC AND PARKING LETTER FOR THE MIXED USE DEVELOPMENT AT 28 LOCKWOOD AVENUE, BELROSE

Dear Andrew,

Reference is made to your request to provide traffic and parking advice for the approved mixed use development at 28 Lockwood Avenue, Belrose. The S4.55 plans are provided in **Annexure A**.

1 Proposed Changes

The Council approved the original development application (DA 2020/0393) which included 228 car parking spaces spread between two (2) basement car parks. The proposed S4.55 plans will maintain the same number of car parking spaces, but it rearranges the basement car parking layout to achieve a more favourable circulation. Specifically, the changes relevant to traffic and parking are listed below:

- Car spaces rearranged to make Basement 4 a commercial car parking level only;
- Car spaces rearranged to keep all residential parking spaces on one level (Basement 3);
- Loading dock entry / exit altered to achieve 4.5m headroom;
- Structural changes within the loading dock limiting the site to two (2) HRVs and one (1) MRV.

2 Road Hierarchy

The road network servicing the site has the following characteristics:

2.1.1 Lockwood Avenue

- Unclassified LOCAL Road;
- Approximately 13m in width facilitating two traffic flow lanes (one in each direction) and kerbside parking;
- No speed limit signposted, default 50km/h applies;
- Unrestricted kerbside parking permitted on both sides of the road with areas of "No-Stopping" along the site frontage.

2.1.2 Glen Street

- Unclassified LOCAL Road;
- Approximately 11m in width facilitating two traffic flow lanes (one in each direction) and kerbside parking;
- Signposted 50km/h speed limit;
- “No-Stopping” restriction throughout the street;
- Unrestricted kerbside parking permitted along both sides of the street to the north of Glenrose Village.

2.1.3 Glenrose Place

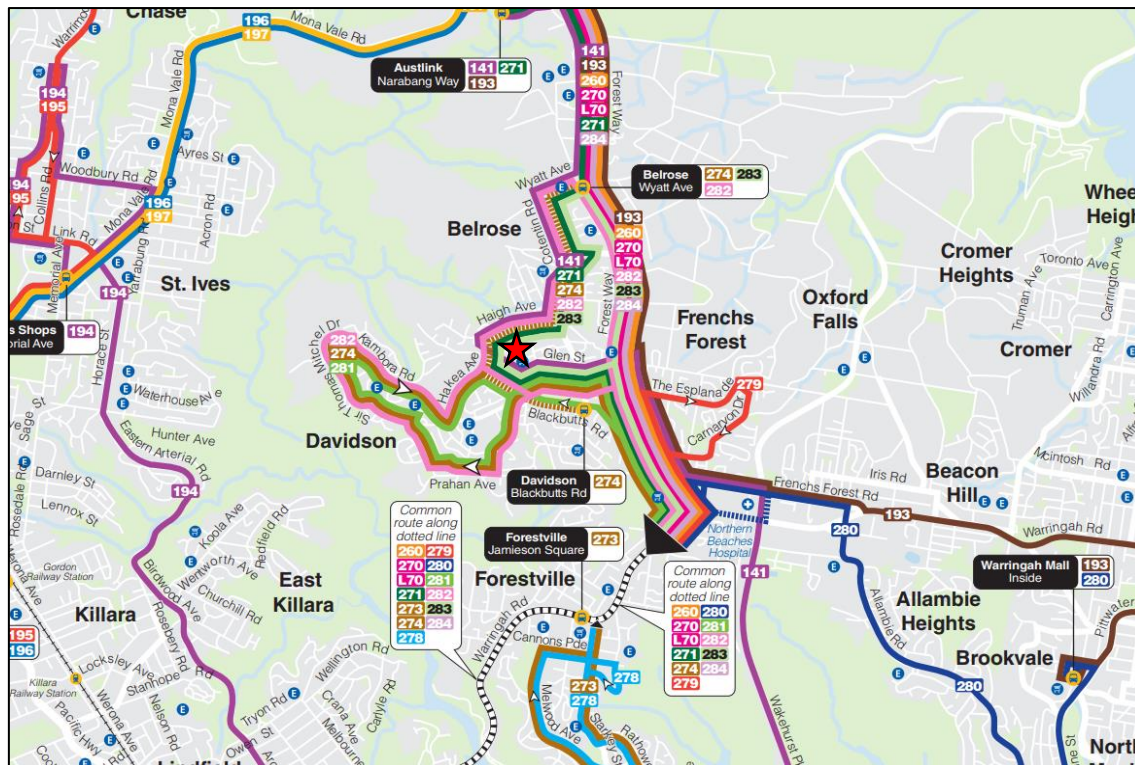
- Unclassified LOCAL Road;
- Approximately 12m in width facilitating three traffic flow lanes (one northbound; 2 southbound);
- No speed limit signposted, default 50km/h applies;
- Two (2) disabled kerbside parking spaces available at the end of the street;
- No other kerbside parking permitted along both sides of the street.

3 Existing Traffic Management

- Priority controlled intersection of Glen Street / Glenrose Place;
- ‘GIVE-WAY’ sign-controlled intersection of Lockwood Avenue / Glen Street;
- Pedestrian crossing across Lockwood Avenue adjacent to the intersection of Lockwood Avenue / Glen Street;
- Pedestrian crossing across Glen Street adjacent to the intersection of Glen Street / Glenrose Place.

4 Public Transport

The subject site is within 200m walking distance of existing bus stops (ID: 208668, ID:2086104, ID:208687, ID:208558, ID 208668, ID: 2086104, ID 208687, ID: 208558) servicing bus routes 141 (Austlink to Manly via Frenchs Forest & Seaforth), 271 (Belrose to City QVB), 274 (City QVB to Davidson via Frenchs Forest), 281 (Davidson to Chatswood), 282 (Davidson & Belrose to Chatswood) and 283 (Belrose to Chatswood) provided by Forest Coach Lines. The location of the site is shown on a local public transport network map in **Figure 1** below, indicating that the site is very well located with respect to public bus services.



★ Site Location

FIGURE 1: PUBLIC TRANSPORT MAP

5 Parking Assessment

5.1 Car Parking Provision

The Council approved the original development application (DA 2020/0393) which included 228 car parking spaces spread between two (2) basement car parks. Of these 228 car parking spaces, 163 are for commercial use, 65 for residents and 10 for residential visitors. The car parking requirements are shown in **Table 1**.

TABLE 1: COUNCIL DCP CAR PARKING REQUIREMENTS

Land Use	Type	Scale ⁽¹⁾	Rate	Spaces Required
Residential	One-bedroom	3	1 per dwelling	3
	Two-bedroom	29	1.2 per dwelling	34.8
	Three-bedroom	17	1.5 per dwelling	25.5
	Visitor	49	1 per 5 dwellings	10
Residential Subtotal				64
Retail	0-10,000m ² GLFA	3,323m ² GLFA	6.1 per 100m ² GLFA	203
(dual use reduction) ⁽¹⁾		-20%		-40
Retail Subtotal				163
Total				227

As shown, the car parking requirement based on the Council DCP is **227** spaces. The proposal provides **228** spaces, which satisfies the Council's car parking requirement.

5.2 Bicycle Storage Requirements

Warringah DCP 2011 outlines the following bicycle parking requirement for the proposed development:

Residential Accommodation containing 3 or more dwellings (excluding group homes; boarding houses; hostels; seniors housing):

Column 1 (High-Medium Security Level)*

1 per dwelling

*Column 2 (High-Low Security Level**)*

Visitor: 1 per 12 dwellings

Business and Retail Premises:

Column 1 (High-Medium Security Level)*

1 per 200m² GFA

*Column 2 (High-Low Security Level**)*

Visitors: 1 per 600m² GFA

Recreation Facility (indoor, outdoor, or major):

Column 1 (High-Medium Security Level)*

1 per 4 employees PLUS

1 per 1500 spectator places

*Column 2 (High-Low Security Level**)*

1 per 200m² GFA

1 per 250 spectator places

**Bicycles are stored in individual or locked to rails within a secure room / enclosure (Refer to Part 7.6 of the NSW Planning Guidelines to Walking and Cycling for more detail.)*

***Bicycle frames and wheel are locked to high quality rails. (Refer to Part 7.6 of the NSW Planning Guidelines to Walking and Cycling for more detail.)*

The resulting bicycle parking requirements for the subject mixed-use development are summarised in **Table 2** below.

TABLE 2: BICYCLE PARKING REQUIREMENTS

Land Use	Type	Scale ⁽¹⁾	Rate	Spaces Required
Residential	Column 1	49	1 per dwelling	49
	Column 2		1 per 12 dwelling	4
Business and Retail	Column 1	3,323m ² GFA	1 per 200m ² GFA	17
	Column 2		1 per 600m ² GFA	6
Total	-	-	-	76 (66 tenant; 10 visitors)

The development therefore requires the provision of **76** bicycle spaces. This includes **66** for tenants and **10** for visitors.

Many of the bicycle parking spaces are provided in lockers, but aren't provided with an adequate aisle width to access the bicycles. The site is not restricted by its ability to provide adequate bicycle parking. Specifically, visitor bicycle storage spaces can be provided at the B2 level within the public foyer. Staff and resident bicycle parking can be provided in areas within Basement 3 and Basement 4. This shall be demonstrated at the CC stage.

6 Car Park Design & Compliance

The proposed car parking layout has been assessed to generally achieve the relevant objectives and requirements of AS2890.1, AS2890.2 and AS2890.6, subject to the required changes in **Section 6.1**. The carpark has the following features relevant to traffic and parking impact:

- 5.8m wide parking aisles;
- 0.3m clearance provided to all high obstruction such as walls and stairwells;
- 1.2m wide x 2.5m length motorcycle spaces;
- 2.5m wide x 5.4m length visitor car parking spaces;
- Two (2) Loading Bays suitable for 12.5m length HRVs, one (1) for MRVs;
- Maximum ramp grade of 20%, with no instantaneous transitions over 12.5%;
- Minimum 5.5m kerb-to-kerb and 6.1 wall-to-wall ramp widths on ramps;

Swept path analysis has been completed showing adequate circulation for the HRVs and B99s. The swept path analysis is provided in **Annexure B**.

6.1 Required Changes

6.1.1 Bicycle Parking

Bicycle parking shall be provided in compliance with AS2890.3:2015 and Council's DCP. The site is not restricted by its ability to provide adequate bicycle parking. Details of bicycle parking can be required as a condition of consent for CC.

6.1.2 Intercom Location

The current location of the residential video intercom blocks vehicular access into multiple car parking spaces. The residential intercom must be shifted to the north and protected by a kerb. This location is shown in **Figure 2**.



FIGURE 2: REQUIRED CHANGES TO VIDEO INTERCOM LOCATION

Residents will be equipped with a remote which can control the security gate, such that the intercom is only required for residential visitors. A visitor can temporarily stop in front of the intercom to phone a resident for access. Egressing vehicles are able to successfully pass around this stopped vehicle in order to egress the site. Architectural details of the intercom location can be provided for CC.

7 Traffic Assessment

The S4.55 proposal does not increase floor area or the quantity of residential units and therefore does not change the traffic generation potential. Therefore, it is reasonably expected that the scale and traffic generation of the proposed development is accounted for within the completed assessment by *McLaren Traffic Engineering*.

8 **Conclusion**

In view of the foregoing, the proposed changes to the development is fully supported in terms of its traffic and parking impacts. The following are relevant to note:

- The proposal will not change the floor area, residential unit quantity or car parking quantities.
- There will be no net change in traffic generation compared to the traffic generation assessed within the approved development application.
- The proposed S4.55 plans are compliant with AS2890.1:2004, AS2890.2:2018 and AS2890.6:2009.

Please contact Mr Daniel Fonken or the undersigned should you require further information or assistance.

Yours faithfully

McLaren Traffic Engineering



Craig McLaren

Director

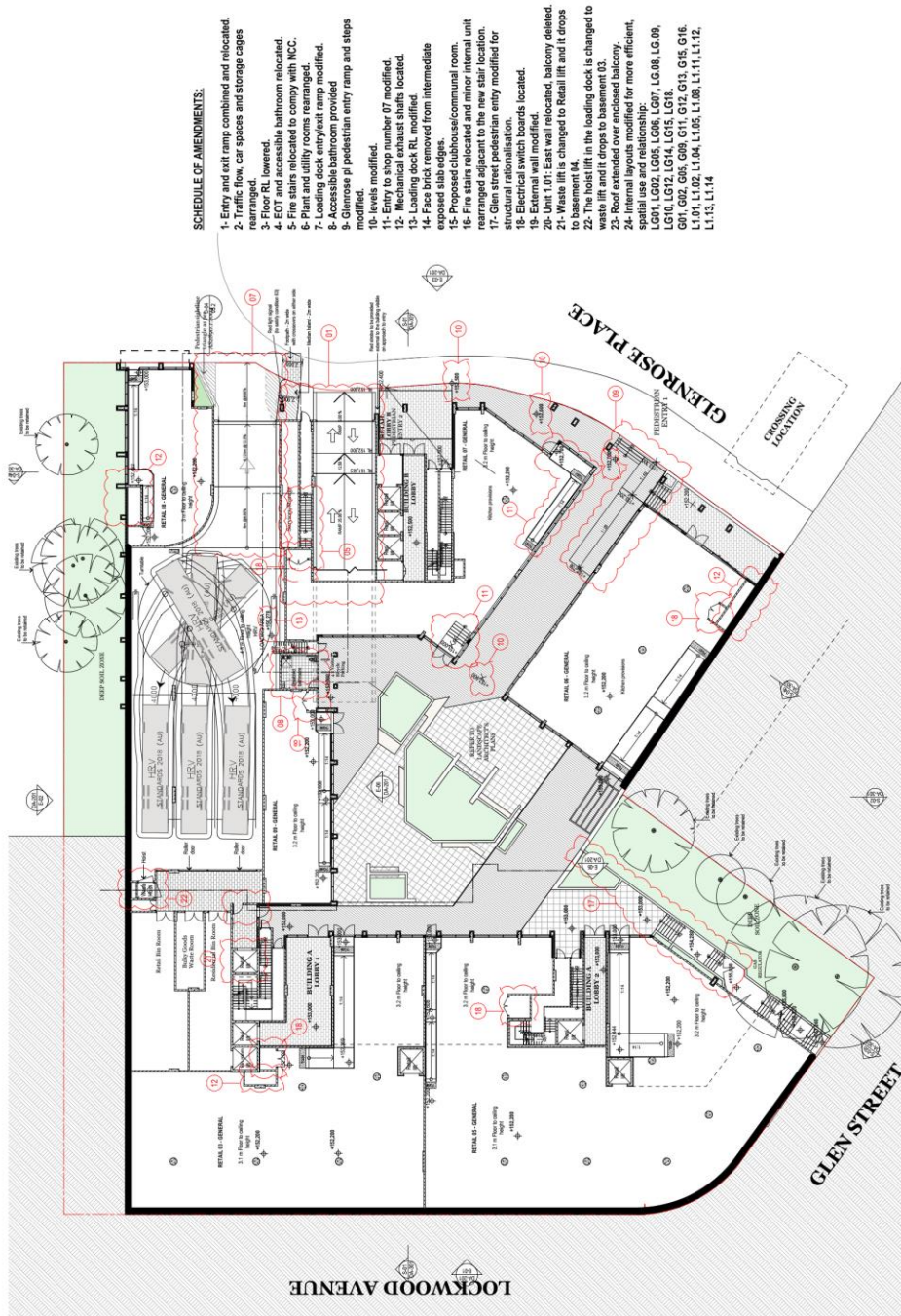
*BE Civil, Grad Dip (Transport Engineering), MAITPM, MITE
RPEQ 19457*

RMS Accredited Level 3 Road Safety Auditor [1998]

SafeWork NSW Traffic Control Work Training card, [Authorisation number TCT0015914 : Prepare Work Zone (PWZ)]

*Expert Traffic Engineering & Road Safety Witness at NSW Land & Environment & NSW Supreme Court
Executive Traffic Engineer, Director*

ANNEXURE A: SITE PLAN (Sheet 1 of 3)



SCHEDULE OF AMENDMENTS:

- 1- Entry and exit ramp combined and relocated.
- 2- Traffic flow, car space and storage cages rearranged.
- 3- Face brick removed from intermediate exposed slab edges.
- 4- EOT RL lowered.
- 5- Fire stairs relocated to comply with MCC.
- 6- Plant and utility rooms rearranged.
- 7- Loading dock entry/exit ramp modified.
- 8- Accessible bathroom provided.
- 9- Glenrose pl pedestrian entry ramp and steps modified.
- 10- Levels modified.
- 11- Fire stairs relocated to comply with MCC.
- 12- Mechanical exhaust shafts located.
- 13- Loading dock RL modified.
- 14- Face brick removed from intermediate exposed slab edges.
- 15- Proposed clubhouse/communal room.
- 16- Fire stairs relocated and minor internal unit rearranged to provide for new bathroom.
- 17- Grounded floor entry modified for structural rationalisation.
- 18- Electrical switch boards located.
- 19- External wall modified.
- 20- Unit 1.01: East wall relocated, balcony deleted.
- 21- Waste lift is changed to Retail lift and it drops to basement 1M.
- 22- Unit 1.01: The loading dock is changed to waste lift and it drops to basement 03.
- 23- Roof extended over enclosed balcony.
- 24- Internal layout modified for more efficient spatial use and relationship.
- LG01, LG02, LG05, LG06, LG07, LG08, LG09, LG10, LG12, LG14, LG15, LG18, LG19, LG20, LG21, LG22, LG23, LG24, LG25, LG26, LG27, LG28, LG29, LG30, LG31, LG32, LG33, LG34, LG35, LG36, LG37, LG38, LG39, LG40, LG41, LG42, LG43, LG44, LG45, LG46, LG47, LG48, LG49, LG50, LG51, LG52, LG53, LG54, LG55, LG56, LG57, LG58, LG59, LG60, LG61, LG62, LG63, LG64, LG65, LG66, LG67, LG68, LG69, LG70, LG71, LG72, LG73, LG74, LG75, LG76, LG77, LG78, LG79, LG80, LG81, LG82, LG83, LG84, LG85, LG86, LG87, LG88, LG89, LG90, LG91, LG92, LG93, LG94, LG95, LG96, LG97, LG98, LG99, LG100, LG101, LG102, LG103, LG104, LG105, LG106, LG107, LG108, LG109, LG110, LG111, LG112, LG113, LG114.

North :

Drawing Title :
Basement 02 plan

Project
28 Lockwood Avenue, Belrose

Scale :
1:200 (as shown)

Date :
04.08.22

Drawn By :
J. S

Checked By :
N. L

Drawing No.
DA-103

Issue Date
A 04.08.22

Event
Issue for Section 4.55

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.

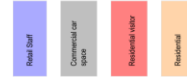
Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

All drawings may not be reproduced or distributed without expressed permission from urbanacorp

ANNEXURE A: SITE PLAN (Sheet 2 of 3)



- SCHEDULE OF AMENDMENTS:**
- 1- Entry and exit ramp combined and relocated.
 - 2- Traffic flow, car spaces and storage cages rearranged.
 - 3- Floor RL lowered.
 - 4- EOT and accessible bathroom relocated.
 - 5- Fire stairs relocated to comply with NCC.
 - 6- Plant and utility rooms rearranged.
 - 7- Loading dock entry/exit ramp modified.
 - 8- Accessible bathroom provided.
 - 9- Concrete p1 pedestrian entry ramp and steps provided.
 - 10- Levels modified.
 - 11- Entry to shop number 07 modified.
 - 12- Mechanical exhaust shafts located.
 - 13- Loading dock RL modified.
 - 14- Face brick removed from intermediate exposed slab edges.
 - 15- Proposed clubhouse/communal room.
 - 16- Fire stairs relocated and minor internal unit reconfigured.
 - 17- Glen street pedestrian entry modified for structural rationalisation.
 - 18- Electrical switch boards located.
 - 19- External wall modified.
 - 20- Unit 1.01: East wall relocated, balcony deleted.
 - 21- Waste lift is changed to Retail lift and it drops to basement 04.
 - 22- The point lift in the loading dock is changed to a point lift in the loading dock.
 - 23- Roof extended over enclosed balcony.
 - 24- Internal layouts modified for more efficient, spatial use and relationship.
 - LG01, LG02, LG05, LG06, LG07, LG 08, LG 09, LG10, LG12, LG14, LG15, LG18, G01, G02, G05, G09, G11, G12, G13, G15, G16, L1.01, L1.02, L1.04, L1.05, L1.08, L1.11, L1.12, L1.13, L1.14



Drawing Title :
Basement 03 plan

Project	28 Lockwood Avenue, Belrose
Scale :	1:200 (A1) (See Rev)
Date :	04.08.22
Drawn By :	J. S
Checked By :	N.L
Drawing No.	DA-102
Issue Date	A 04.08.22
Event	Issue for Section 4.55

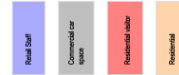
Check all dimensions and site conditions prior to commencement of any work. The purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings under the supervision of any components.
Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.
All drawings may not be reproduced or distributed without expressed permission from urbanacorp

ANNEXURE A: SITE PLAN (Sheet 3 of 3)



SCHEDULE OF AMENDMENTS:

- 1- Entry and exit ramp combined and relocated.
- 2- Traffic flow, car spaces and storage cages rearranged.
- 3- Floor RL lowered.
- 4- EOT and accessible bathroom relocated.
- 5- EOT and accessible bathroom relocated to NCC.
- 6- Plant and utility rooms rearranged.
- 7- Loading dock entry/exit ramp modified.
- 8- Accessible bathroom provided.
- 9- Glenrose pl pedestrian entry ramp and steps modified.
- 10- Levels modified.
- 11- Entry ramp to basement 07 modified.
- 12- Mechanical exhaust shafts located.
- 13- Loading dock RL modified.
- 14- Face brick removed from intermediate exposed slab edges.
- 15- Proposed clubhouse/communal room.
- 16- Fire stairs relocated and minor internal unit changed adjacent to the new stair location.
- 17- Glenrose pl pedestrian entry modified for structural rationalisation.
- 18- Electrical switch boards located.
- 19- External wall modified.
- 20- Unit 1.01: East wall relocated, balcony deleted.
- 21- Waste lift is changed to Retail lift and it drops to basement 04.
- 22- The loading dock is changed to waste lift and it drops to basement 03.
- 23- Roof extended over enclosed balcony.
- 24- Internal layouts modified for more efficient, spatial use and relationship.
- LG01, LG02, LG03, LG04, LG07, LG08, LG09, LG10, LG12, LG14, LG15, LG16, LG17, LG18, LG19, LG20, LG21, LG22, LG23, LG24, LG25, LG26, LG27, LG28, LG29, LG30, LG31, LG32, LG33, LG34, LG35, LG36, LG37, LG38, LG39, LG40, LG41, LG42, LG43, LG44, LG45, LG46, LG47, LG48, LG49, LG50, LG51, LG52, LG53, LG54, LG55, LG56, LG57, LG58, LG59, LG60, LG61, LG62, LG63, LG64, LG65, LG66, LG67, LG68, LG69, LG70, LG71, LG72, LG73, LG74, LG75, LG76, LG77, LG78, LG79, LG80, LG81, LG82, LG83, LG84, LG85, LG86, LG87, LG88, LG89, LG90, LG91, LG92, LG93, LG94, LG95, LG96, LG97, LG98, LG99, LG100, LG101, LG102, LG103, LG104, LG105, LG106, LG107, LG108, LG109, LG110, LG111, LG112, LG113, LG114



North :

Drawing Title :
Basement 04 plan

Project
28 Lockwood Avenue, Belrose

Scale :
Date :
Drawn By :
Checked By :
Drawing No.

Issue Date
Event
Issue for Section 4.55

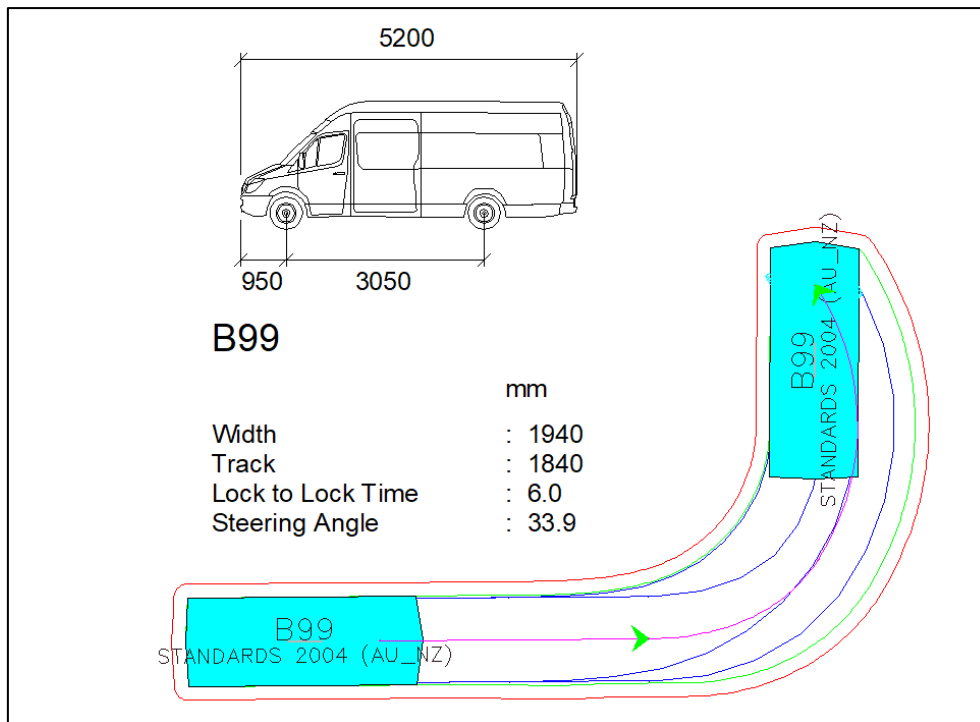
Issue Date
Event
Issue for Section 4.55

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any components.
Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.
All drawings may not be reproduced or distributed without expressed permission from urbanacorp

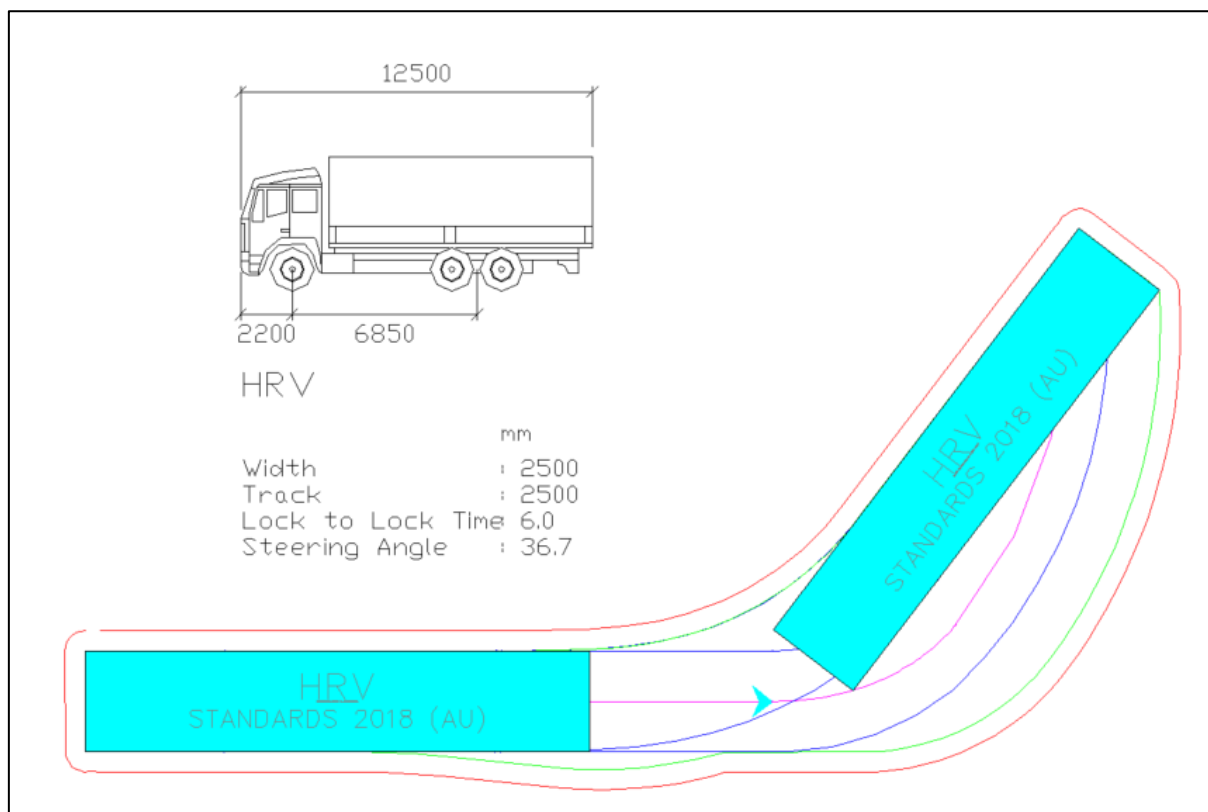
urbanacorp
planning
design
project management
Reg Architect: N.Lyenko Reg. No 3010



ANNEXURE B: SWEEP PATH ANALYSIS



AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)



AUSTRALIAN STANDARD HEAVY RIGID VEHICLE (HRV)

Blue – Tyre Path
Green – Vehicle Body
Red – 300mm Clearance, 500mm for HRVs

