

29 January 2021

Knowles Group

 Via email: janelle.pirone@knowlesgroup.com.au

Attention: Janelle Pirone

25-27 Warriewood Road, Warriewood

Traffic Engineering Review

Dear Janelle,

onemilegrid has been engaged to provide traffic engineering input and design advice to inform a modified ramp arrangement for the residential development at 25-27 Warriewood Road, Warriewood.

We understand that during the documentation phase of the project, it was determined that the approved ramp design was undertaken using levels at the mid-point of the proposed driveway, rather than considering the change in grade across the property frontage. This has necessitated modifications to the ramp design, to cater for the higher starting RL at the eastern end of the ramp, with a view to minimising impacts to the ground floor and basement design.

The proposed grades are as follows:

Segment	West (Low)	East (High)
Start RL	6.19	6.78
1	1:60 for 4.65 m	1:9 for 4.5 m
2	1:8 for 2 m	1:4.4 for 2 m
3	1:4 for 10.85 m	1:4 for 10.85 m
4	1:8 for 2 m	1:8 for 2 m
End RL	2.90	2.90

The Australian / New Zealand Standard for Off-Street Parking AS/NZS 2890.1:2004 details the requirements for ramp design in car parking facilities. The proposed ramp design accords with the requirements of this standard with respect to maximum grades and grade transitions, and has been designed to mitigate any risk of scraping or bottoming out. Furthermore, height clearances in excess of 2.2 metres are also provided along its length.

It is acknowledged that the ramp grades on the eastern side (exit lane) exceed those permitted in Clause 3.3a of the Australian Standard (that requires 6 metres at 1:20) on approach to the property boundary. However, it is noted that the intent of this Australian Standard design requirement is to ensure that suitable sightlines are provided between drivers exiting the site and pedestrians travelling along the frontage.

In this case, where the footpath is offset from the property boundary, and noting that the grades at a driver's location are effectively flat on approach to the footpath, and modest (1:16) along the centre of the ramp internal to the site, it is our view that the intentions of the standard are effectively satisfied in this design.

As a result, we are comfortable that the minor non-compliance will not contribute to any meaningful impact to pedestrian or driver safety, and that the proposed ramp grades are fit for purpose.

Please do not hesitate to contact me should you wish to discuss the above.

Yours sincerely



James Dear

Associate

onemilegrid

m: 0481 110 642

d: (03) 9982 9717

e: james.dear@onemilegrid.com.au