

**CARPARK AND DRIVEWAY CERTIFICATION
OF PROPOSED ADDITIONS AND
ALTERATIONS TO AN EXISTING HOSPITAL**
369-381 President Avenue in Kirrawee

Prepared for: Imagescape Design Studios

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1. INTRODUCTION

Motion Traffic Engineering was commissioned by Imagescape Design Studios to prepare a car park certification of proposed additions and alterations to an existing hospital at 369-381 President Avenue in Kirrawee.

Car parking is provided on ground and on 4 basement levels. Two separate parking areas are allocated on the ground floor, the north wing parking area can be accessed/egressed via Hotham Road and the west wing parking area via President Avenue.

There is provision of a patient drop off bay on the ground level with vehicular access via an entry only driveway on Hotham Road and egress via the two-way driveway on the north wing parking area.

Vehicular access and egress to the basement levels is via a ramp on the north wing and west wing parking areas. An additional egress running into the entry only driveway on Hotham Road has been provided.

Reference is made to AS2890.1(2004), AS2890.2(2018), AS2890.6(2009) and Council's Development Control Plan for compliance.

2. DRIVEWAYS

The details of the proposed two-way driveway from Hotham Road into the north wing carpark area on ground level are as follows:

- The proposed driveway is 6.5 metres wide at the property line
- The driveway has a gradient of less than 5 percent

The details of the proposed two-way driveway from President Avenue into the west wing carpark area on ground floor level are as follows:

- The driveway is 6 metres wide at the property line
- The driveway has a gradient of less than 5 percent

The details of the proposed entry only driveway from Hotham Road into the north wing carpark area on ground floor level are as follows:

- The driveway is 3.5 metres wide at the property line
- The driveway has a gradient of less than 5 percent

3. RAMPS

The details of the proposed ramp from the west wing driveway on the ground floor into basement level two are as follows:

- The two-way ramp is 6 metres wide within kerbs
 - 300mm wide kerbs are provided on both sides of the ramp
- the full gradient details are not shown

The details of the proposed ramp from the north wing driveway on the ground floor into basement level two are as follows:

- The two-way ramp is 6.6 metres wide within walls
- the full gradient details are not shown
- maximum gradient 15.4 percent
- This ramp is the only one long enough to have transition gradients suitable for trucks. Trucks require 4 metre long transitions with a change of grade equal or lower than 8.3 percent

The details of the proposed egress only ramp from the basement level two into the entry only driveway on Hotham Road are as follows:

- The two-way ramp is 5.7 metres wide within walls minimum
- the full gradient details are not shown

The details of the proposed one-way ramp from basement level two into basement level one is as follows:

- The ramp is 3 metres wide within kerbs
 - 300mm wide kerbs are provided on both sides of the ramp
- The ramp is on a gradient of 8.5 percent
- An outbound ramp with the same details has been provided from basement level one into basement level two

The details of the proposed one-way ramp from basement level two into basement level three are as follows:

- The ramp is 3 metres wide within kerbs
 - 300mm wide kerbs are provided on both sides of the ramp
- The ramp is on a maximum gradient of 15.5 percent, the full gradient details are not shown
- An outbound ramp with the same details has been provided from basement level three into basement level two.

The details of the proposed one-way ramp from basement level three into basement level four are as follows:

- The ramp is 3 metres wide within kerbs

- 300mm wide kerbs are provided on both sides of the ramp
- The ramp is on a gradient of 8.5 percent
- An outbound ramp with the same details has been provided from basement level three into basement level four

4. CAR SPACES

The details of the car parking areas are as follows:

West wing carpark area

- The car parking aisle is 5.9 metres wide minimum
- The general 90-degree car spaces are 2.5 metres wide minimum with a length of 5.4 metres minimum.
- The disabled car spaces are 2.4 metres wide with a length of 5.5 metres
 - Shared zones with the same dimensions as the disabled car spaces are provided
 - Bollard with compliant setback should be provided in the shared zones.
- Compliant blind aisle extensions have been provided

North wing carpark area

- The car parking aisle is 6.4 metres wide minimum
- The general 90-degree car spaces are 2.5 metres wide with a length of 5.4 metres minimum.
- A 3 metres wide loading bay is provided and suitable for a van up to 5.2 metres long

Basement level one

- The car parking aisle is 6 metres wide
- The general 90-degree car spaces are 2.5 metres wide with a length of 5.5 metres.
- The column setback and length are compliant with the Australian Standards
 - The relatively shorter column setback (700mm in some cases) is compensated by the wider parking aisle

Basement level two

- The car parking aisle is 6 metres wide minimum
- The general 90-degree car spaces are 2.5 metres wide with a length of 5.5 metres.
- The disabled car spaces are 2.4 metres wide and 5.5 metres long
 - Shared zones with the same dimensions as the disabled car spaces are provided
 - Bollard with compliant setback should be provided in the shared zones.
- Compliant blind aisle extensions have been provided
- Bicycle storage and end of journey facilities are provided

- A 5.8 metres wide and 8 metres long ambulance bay is provided
- The column setback and length are compliant with the Australian Standards;
 - The relatively shorter column setback (410mm in some cases) is compensated by the wider parking aisle
 - The relatively longer combination of column setback and column length (1800mm) is compensated by the longer car space. Cars will be able to reverse further into the car space and hence the doors will not be obstructed

Basement level three

- The one-way car parking aisle is 6 metres wide
- The general 90-degree car spaces are 2.5 metres wide with a length of 5.5 metres
- The column setback and length are compliant with the Australian Standards;
 - The relatively longer combination of column setback and column length (1800mm) is compensated by the longer car space. Cars will be able to reverse further into the car space and hence the doors will not be obstructed

Basement level four

- The one-way car parking aisle is 8 metres wide
- The general 90-degree car spaces are 2.5 metres wide with a length of 5.5 metres
- The column setback and length are compliant with the Australian Standards;
 - The relatively longer combination of column setback and column length (1800mm) is compensated by the longer car space. Cars will be able to reverse further into the car space and hence the doors will not be obstructed

5. SWEEP PATHS

A swept turning path analysis is performed using a 4.9 and 5.2 metres long car (B85 and B99 in the AS2890.1 respectively) to confirm that vehicle movements are adequate.

The following swept paths have been performed:

Ground Level North Wing

- 7 metre entering and leaving the loading bay

West wing carpark area

- B85 car forward inbound and reverse outbound for the disabled car space 1
- B85 car passing by a B99 car at the access driveway

North wing carpark area

- B99 car circulating the carparking area
- B99 car circulating on the patient drop off bay and egressing via Hotham Road

Basement level two

- B85 car forward inbound and reverse outbound for the disabled car space 1

All movements show adequate manoeuvrability.

The swept paths are provided in the Appendix A.

6. CAR SIGHT DISTANCE

The car driver's vehicle sight distance requirement to enter the external road is stated in Figure 3.2 of AS2890.1.

The sight distance varies according to the speed of the external road. President Avenue has a sign posted speed limit of 60km/hr. Hotham Street has a speed limit of 50km/hr.

The minimum vehicle sight distance required is 65 metres on President Avenue. Site measurements showed that the minimum sight distance looking left or right is met without permanent obstructions.

The minimum vehicle sight distance required is 45 metres on Hotham Street. Site measurements showed that the minimum sight distance looking left is met without permanent obstructions. A driver looking right towards President Avenue has full sight distance. Moreover, the Hotham Street exit/entry driveway has a higher elevation than President Avenue.

The pedestrian sight distance as set out in Figure 3.3 of AS2890.1 is met as well.

7. TRUCK SIGHT DISTANCE

The truck driver's vehicle sight distance requirement to enter the external road is stated in Figure 3.3 of AS2890.2.

The sight distance varies according to the speed of the external road. President Avenue has a sign posted speed limit of 60km/hr. Hotham Street has a speed limit of 50km/hr.

The minimum vehicle sight distance required is 83 metres on President Avenue. Site measurements showed that the minimum sight distance looking left or right is met without permanent obstructions.

The minimum vehicle sight distance required is 69 metres on Hotham Street. Site measurements showed that the minimum sight distance looking left is met without

permanent obstructions. A driver looking right towards President Avenue has full sight distance. Moreover, the Hotham Street exit/entry driveway has a higher elevation than President Avenue.

The pedestrian sight distance as set out in Figure 3.4 of AS2890.1 is met as well without permanent obstructions.

8. CONCLUSIONS AND RECOMMENDATIONS

The car parking area and driveway is generally compliant with Australian Standards and Council's DCP.

The north ramp into the basement level 2 is the only basement ramp long enough to have maximum gradients and maximum changes of grades suitable for truck use, as per AS2890.2

APPENDIX A

Swept Paths