

7-9 NICHOLSON COURT, CLAYTON

DESKTOP ENVIRONMENTAL WIND ASSESSMENT

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Appendix A Drawing Register

1. INTRODUCTION

The proposed development at 7-9 Nicholson Court, Clayton, will be a 5 level apartment building located on a site on the west side of Nicholson Court, at the end of the court, in Clayton. The location is highlighted in Figure 1.



Figure 1: Location of the proposed 7-9 Nicholson Court Development (highlighted by red circle) [Googlemaps]

This assessment was commissioned by Pitard Group and is based on a review of drawings prepared by Pitard Group (dated 21 July 2022) that are listed in Appendix A and only considers current existing surrounds and under construction buildings (i.e. no proposed future buildings). This desktop environmental wind assessment is based on MEL Consultants knowledge of wind flow around buildings and structures from undertaking numerous wind tunnel model studies, no wind tunnel study has been undertaken for this study.

2. THE DEVELOPMENT

The development at 7-9 Nicholson Court will be a 5 level residential apartment building with the main lobby entrance at the centre of the eastern facade as shown in Figure 2.

The floorplan for each level steps back from all faces compared to the floorplan below. There are balconies on all faces for Levels 1 – 3 (Figures 3 – 5) while on Level 4 there is a balcony area on the north face (Figure 6). The extent of the setbacks are shown in the north and west elevations in Figure 7.



Figure 2: Ground level plan of the proposed 7-9 Nicholson Court Development



Figure 3: Level 1 floor plan of the proposed 7-9 Nicholson Court Development

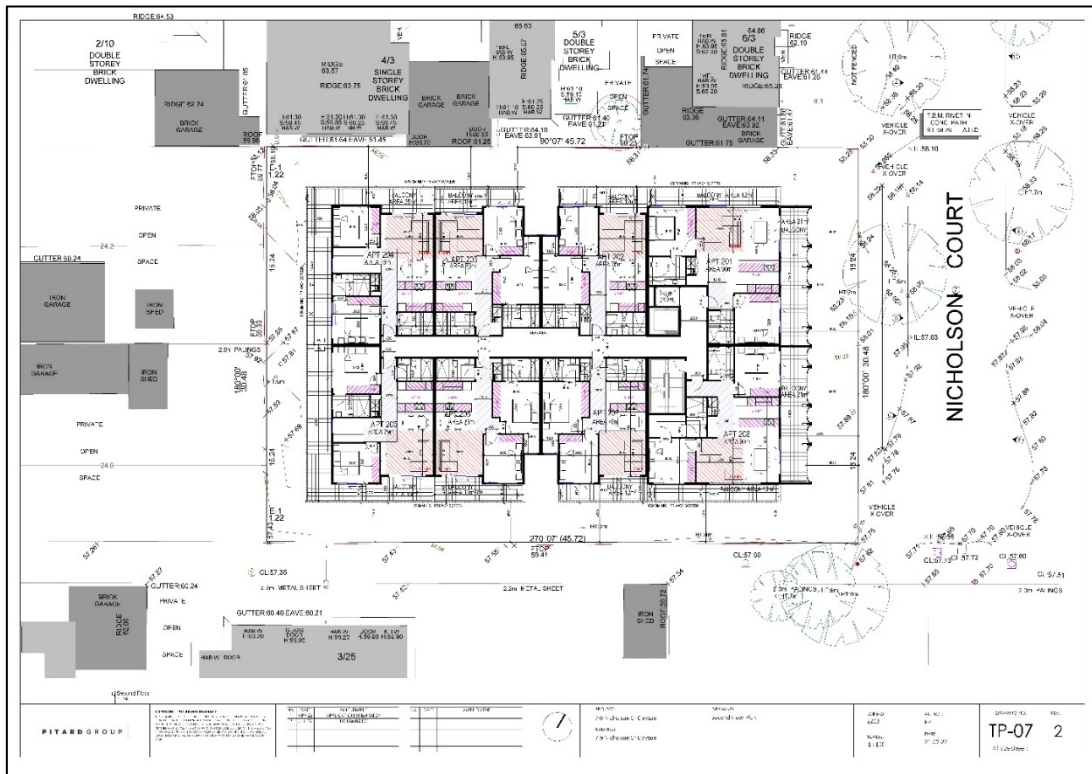


Figure 4: Level 2 floor plan of the proposed 7-9 Nicholson Court Development

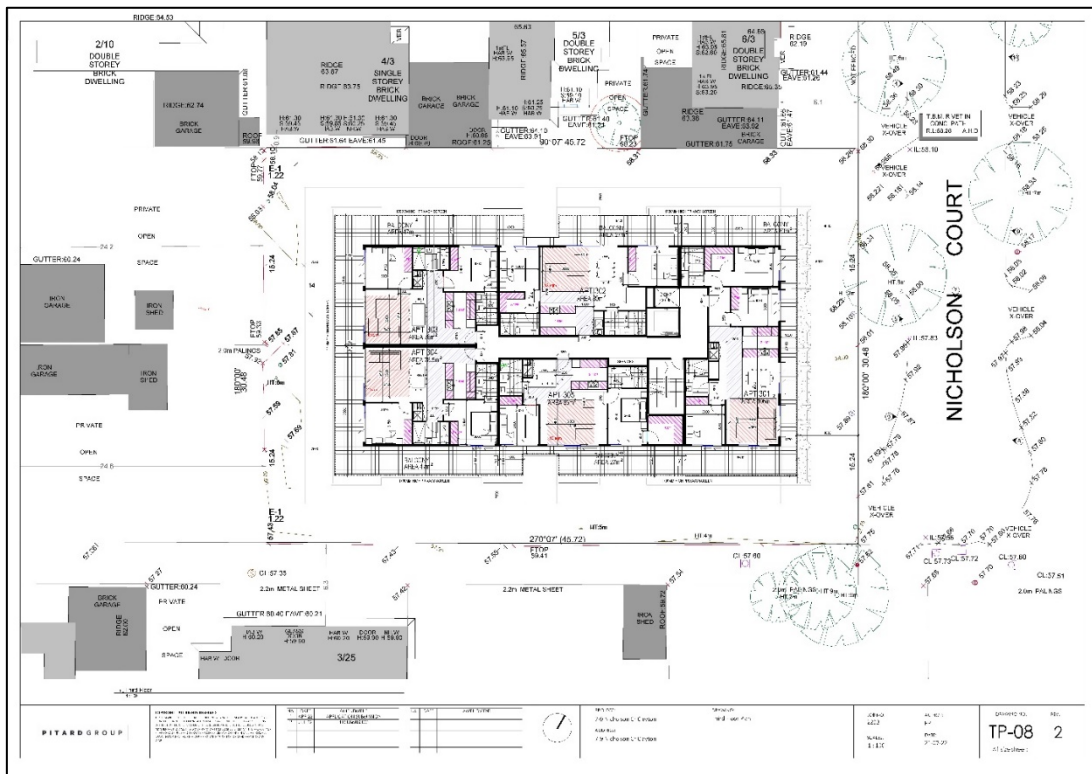


Figure 5: Level 3 floor plan of the proposed 7-9 Nicholson Court Development

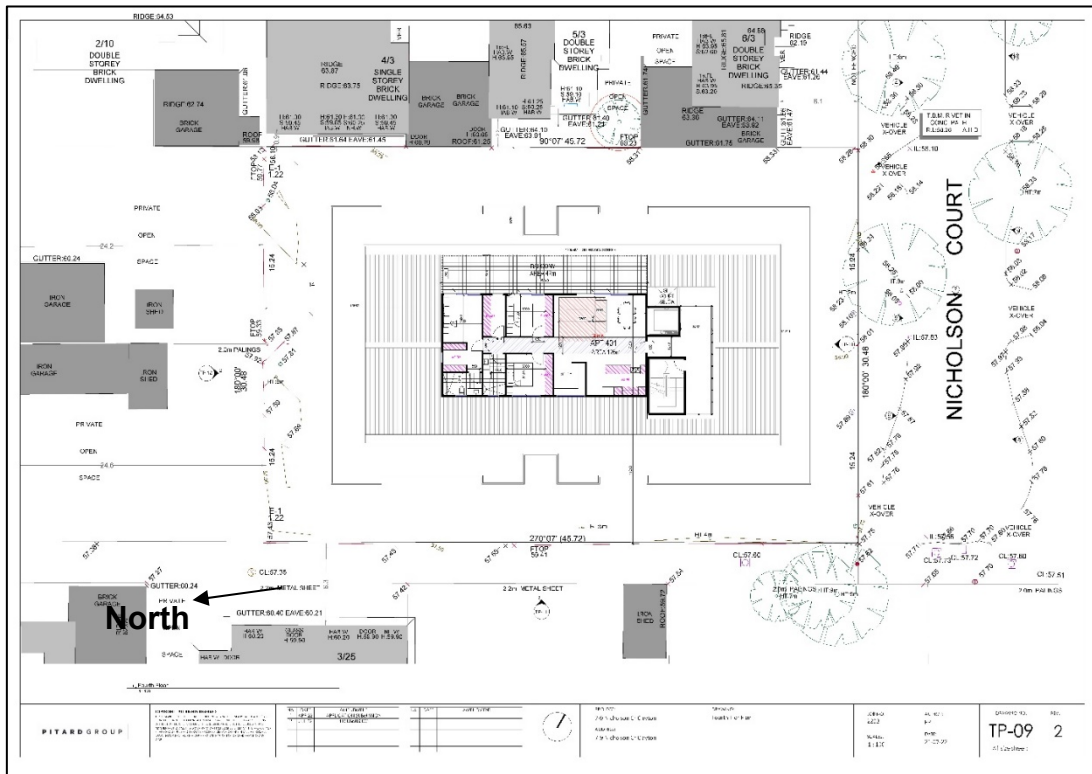


Figure 6: Level 4 floor plan of the proposed 7-9 Nicholson Court Development



Figure 7: North and west elevations of the proposed 7-9 Nicholson Court Development

3. WIND ENVIRONMENT AND EXPOSURE

The strongest and most frequent winds in the Melbourne Region come from the north and west sectors with secondary strong winds coming from the south sector; east sector winds are relatively light and infrequent.

The proposed development will be located amongst mainly residential buildings of 1 to 2 levels high with pitched rooftops (which effectively makes these buildings 2 - 3 levels high) with some taller 2-3 level commercial buildings along Clayton Road to the east.

The topography of the land will also be considered for this assessment as the ground level to the south of the proposed development drops gradually which effectively reduces the relative height of buildings to the south. Conversely, the topography to the north of the proposed development rises by approximately 20-30m within a distance of 1-2 kilometres.

Based on the above, only the highest levels of the proposed development (i.e. Levels 3 and 4) would have exposure to direct wind flow from most wind directions, while the neighbouring 2 level pitched roof townhouses (effectively 3 levels) at 3-5 Nicholson Court would provide shielding up to 4 levels for winds from the east-northeast to north, through northwest.

4. ASSESSMENT CRITERIA

To assess whether the predicted wind conditions are likely to be acceptable or not, some forms of criteria are required. For the purposes of the wind assessment of the development the wind criteria, safety and comfort, from the City of Monash Planning Scheme Clause 58.04-4 (Standard D32) will be used. The definition of the criteria is summarised as follows:

58.04-4 Wind Impacts Objective

To ensure the built form, design and layout of development does not generate unacceptable wind impacts within the site or on surrounding land.

Standard D32

Development of five or more storeys should:

- *not cause unsafe wind conditions specified in Table D6 in public land, publicly accessible areas on private land, private open space and communal open space; and*
- *achieve comfortable wind conditions specified in Table D6 in public land and publicly accessible areas on private land*

within a distance of half the greatest length of the building, or half the total height of the building measured outwards on the horizontal plane from the ground floor building façade, whichever is greater.

Trees and landscaping should not be used to mitigate wind impacts. This does not apply to sitting areas, where trees and landscaping may be used to supplement fixed wind mitigation elements.

Wind mitigation elements, such as awnings and screens should be located within the site boundary, unless consistent with the existing urban context or preferred future development of the area.

Table D6 Wind Conditions

Unsafe	Comfortable
<i>Annual maximum 3 second gust wind speed exceeding 20 metres/second with a probability of exceedance of 0.1% considering at least 16 wind directions.</i>	<i>Hourly mean wind speed or gust equivalent mean speed (3 second gust wind speed divided by 1.85), from all wind directions combined with probability of exceedance less than 20% of the time, equal to or less than:</i> <ul style="list-style-type: none">• 3 metres/second for sitting areas• 4 metres/second for standing areas• 5 metres/second for walking areas

The above criteria are pass/fail criteria as they only assess the summation of probabilities of exceedance across all wind directions to determine whether a location passes or fails the threshold criterion i.e. the criteria assess the average wind conditions.

5. RECOMMENDED WIND COMFORT CRITERIA

The following wind comfort criteria are recommended:

Streetscapes	Walking
Building Entrances	Standing
Outdoor Balconies/Terraces	Walking

The wind conditions on private outdoor balconies/terraces have been recommended to satisfy the walking criterion as these spaces could be considered elective when external conditions would be perceived as acceptable for the desired activity. Users of these terraces will need to be educated on the wind effects and loose objects should not be left on an unattended balcony/terrace.

6. WIND ASSESSMENT

6.1 Nicholson Court

The wind conditions in Nicholson Court would be influenced by additional wind flow induced down the south and east faces of the proposed development towards pedestrian levels for southerly and easterly winds, respectively.

For southerly winds the south face of the proposed development would be expected to induce additional wind flow down towards pedestrian levels, and some of this flow would accelerate around the southern building corners. However, the magnitude of these wind effects would be mitigated by the shielding provided by the surrounding buildings and stepped design of the upper levels from the southern boundary. The shielding and design would be expected to deflect wind flow up and over the building, reducing the ground level wind effects/impacts.

The relatively light and infrequent easterly winds and the shielding provided by the commercial buildings along Clayton Road and the 2 level townhouses on the opposite side of Nicholson Court would be expected to cause little significant wind flow induced down towards lower levels.

The wind impacts for the northerly winds would be mitigated by the 2 level townhouses of 3 – 5 Nicholson Court and the stepped design of the north face would be expected to be deflect these winds above pedestrian level.

Given the above scenarios, the wind conditions in Nicholson Court would be expected to satisfy the walking criterion and safety criterion, with the wind conditions at the main entrance would be expected to satisfy the standing criterion.

6.2 Areas to the north, west and south of the development

The ground level areas to the north, west and south facades of the proposed 7 – 9 Nicholson Court development would be shielded from direct wind flow by the nearby residential buildings. As stated in Section 6.1, winds from the north and south would have

limited wind flow induced down towards lower levels by the upper levels of the proposed development due to upstream buildings and the design of the building. Winds from the west would approach the development over one storey pitched-roof houses that would shield up to 3 levels of the development's west facade. The stepped design of the proposed 7-9 Nicholson Court Development from the boundary at Levels 2 to 4, would be expected to deflect flow above ground level.

Based on above scenarios, the wind conditions at the ground level areas to the north, west and south facade of the development would be expected to satisfy the walking comfort criterion and the safety criterion.

6.3 Balconies

The north, west or south balconies would have a 1700mm high privacy screen which would protect these balconies from direct wind flow. Balconies facing east would be exposed to direct wind flow but only from relatively light and infrequent easterly winds. With the stepping back of the proposed 7-9 Nicholson Court Development at each level from most boundaries flow there would be little significant additional wind flow induced down into balconies from upper levels. Based on these scenarios, the wind conditions on the upper-level balconies would be expected to satisfy the walking comfort criterion and the safety criterion.

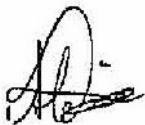
It would be recommended that users be educated on the wind impacts on elevated balconies and that any objects to be left permanently on the balconies would be tethered/ fixed securely to the balcony and the fixing/tethers inspected regularly for damage/ corrosion. Any loose items should not be left on the balcony when unattended.

7. CONCLUSIONS

We have assessed the likely environmental wind conditions in the streetscapes surrounding the proposed development at 7-9 Nicholson Court, Clayton, detailed in drawings by Pitard Group dated 21 July 2022.

The wind conditions have been assessed with consideration of the proposed 7-9 Nicholson Court development. The wind conditions around the proposed development and in Nicholson Court, have been assessed to satisfy the walking criterion and the safety criterion.

The wind flow over the upper-level terraces has been assessed to satisfy the walking comfort criterion and the safety criterion.



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9 August 2022

Appendix A – Drawing Register

TP01	EXISTING CONDITIONS
TP02	URBAN CONTEXT
TP03	DESIGN RESPONSE
TP03A	DESIGN RESPONSE - STREETScape - PERSPECTIVE
TP04	BASEMENT PLAN
TP05	GROUND FLOOR PLAN
TP06	1ST FLOOR PLAN
TP07	2ND FLOOR PLAN
TP08	3RD FLOOR PLAN
TP09	4TH FLOOR PLAN
TP10	ROOF PLAN
TP11	ELEVATIONS MATERIAL SCHEDULE
TP12	ELEVATIONS
TP13	SHADOW STUDY 9AM SEP
TP14	SHADOW STUDY 12PM SEP
TP15	SHADOW STUDY 3PM SEP
TP16	SHADOW STUDY 9AM JUNE
TP17	SHADOW STUDY 10AM JUNE
TP18	SHADOW STUDY 11AM JUNE
TP19	SHADOW STUDY 12PM JUNE
TP20	SHADOW STUDY 1PM JUNE
TP21	SHADOW STUDY 3PM JUNE
TP22	CROSS SECTIONS