



22 CLEELAND ROAD
SOUTH OAKLEIGH VIC 3167
AUSTRALIA

(ACN 004 230 013)

Ref: 64-18-DE-REV-00

9TH May 2018

City of Yarra
PO Box 168
Richmond VIC 3121

Attn: Amy Hodgen
Coordinator – Statutory Planning

Dear Amy,

**Village Alphington, Alphington
Review of Vipac Pedestrian Wind Tunnel Study
Vipac Document Number: 30N-17-0064-TRP-619568-4**

The review of the Vipac Wind Tunnel Test Report for the Village Alphington Development, Alphington, is based on our experience of wind flow around buildings and structures. This experience has been developed from more than 40 years of desktop, wind tunnel, and full scale studies of environmental wind conditions in urban and sub-urban areas. No wind tunnel studies have been undertaken to support the review. Our comments are as follows:

- MEL Consultants have no issue with the description of the development site, the proposed development, the wind tunnel model and proximity model, the Wind Climate, and assessment criteria. Although, MEL Consultants would query the validity of the 'fast walking criterion' for application in suburban Alphington, as the criterion is defined for wind conditions along waterfront locations or particular walking areas. The Melbourne Planning Scheme (CBD) does not include a fast walking criterion. Therefore, MEL Consultants would recommend that the walking criterion be the minimum acceptable criterion for the wind effects assessment.

- Vipac provide recommended criteria for the intend activation of the streetscapes in Section 3.1 in Table 5 and diagrammatically in Figures 8 to 11 for the lower ground level, ground level, level 1, and level 3. We have no issue with these recommended criteria for the various locations around the development site. We have summarised the criteria recommended by Vipac in Section 3.1 of the report in Table 1 of this document. We note that the information in Appendix A of the Vipac report lists recommended criteria for each Location examined and this has also been summarised in Table 1. If these two recommended criteria are compared, there are differences of the recommended criteria at a number of Locations. The Fast Walking criterion recommended in Appendix A has been proposed instead of the walking criterion that was recommended in Section 3.1. The concern is that the recommended criterion has been made less stringent in Appendix A possibly to allow Locations to appear to have passed assessment of the wind conditions.

Section 3.1.1 of the report discusses the rationale behind the recommendation of using the walking criterion for the apartment balcony/terraces, and we have no issue with the use of the walking criterion as the recommended criterion for these locations.

- We have no issue with the modelling of the approach boundary layer for Terrain Category 3. The density of the Locations examined is sufficient. The measurement technique, which utilises Irwin probes, is an accepted method to determine the wind speeds.
- Section 6.1 describes the two configurations studied for the assessment of the environmental wind conditions. Configuration 1, which we would suggest is the most relevant for assessing the wind impact of the proposed development, has modelled the proposed development with the existing surrounding buildings. Configuration 2 has modelled the proposed development with the possible future buildings expected in the next 5 years and is useful for knowledge of future building interactions. Given some of the future developments will be part of the development precinct, clarification from the City of Yarra would be

necessary to determine which configuration needs to achieve compliance with the proposed wind comfort criteria. Reviewing these data in the report there appears to be reliance at a number of study locations of the Village Alphington Development on the future buildings to provide wind mitigation and compliance with the proposed wind comfort criteria. However, there also appears to be a reliance on the existing buildings (Configuration 1) to show compliance at a number of study locations, but wind conditions at these locations become worse, possibly non-compliant, when the future buildings (Configuration 2) are considered. The report does not provide Existing Configuration data, which would have been useful for assessment of the wind impacts on surrounding streetscapes such as Heidelberg Road.

- The report investigates wind mitigation controls for a number of locations as follows:
 - The Mews
Wind screens have been placed along The Mews and their effectiveness has been demonstrated at Locations 2, 3, 5, and 6. MEL Consultants are surprised at the effectiveness of the screens at Location 2 for the northerly wind directions since the proposed screens would be downstream of this location for these wind directions and expected to have little significant effect. We would query whether other mitigation strategies that have been included, such as landscaping/trees, to achieve these improved results. Additionally, the proposed screens have been placed perpendicular (normal to the wind) in the middle of The Mews. The screens would narrow the ground level cross sectional area, this would cause local increased wind speeds around the ends of the screens. Locations 5 and 6 have been measured directly behind the screens so the significant improved shown would be expected but consideration should be given to the ends of the screens i.e. between the screens and the building faces. MEL Consultants would expect that these exposed 14 level buildings with the shear to ground faces to the north and west to have significant wind issues at ground level, particularly

around corners, that possibly would require built form adjustments to mitigate the wind effects at pedestrian level.

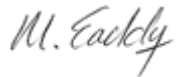
- Study Location 31
The wind conditions at this location do not comply with the walking comfort criterion for either configuration.
 - The study locations have been placed approximately directly out from the building corners, but this may miss the highest wind conditions that often occur downstream around the corner. It would be suggested that additional study locations be considered around the corner, particularly the southwest and northwest corners below the 14 level buildings.
- We agree with the Vipac conclusions that the proposed development would not cause wind conditions to exceed the safety criterion although the wind condition at study locations 2 and 7 have been shown to be approaching this criterion.

In summary, we have no issue with the modelling and methodology of the Vipac wind tunnel study. This work has been carried out as would be expected for an environmental wind assessment of a proposed development's wind impact. However, we do have a number of issues with the data in the report, which have been highlighted, and thus cannot support the recommendation and conclusions by Vipac. We suggest further wind tunnel testing be undertaken to provide the following information to allow further assessment of the development:

- The wind conditions should be assessed against the criteria recommended in Section 3.1 and the Fast Walking criterion should not be accepted.
- The City of Yarra inform the developer as to the Configuration that needs to be shown to comply with the pedestrian comfort criteria. At the moment both configurations studied are being used to show compliance at the study locations.
- Existing Configuration wind conditions should be provided for the footpaths adjacent to the proposed development.
- The mitigation strategies provided for The Mews show significant improvement of the wind conditions at Study Location 2 and these strategies are downstream of the study location. MEL Consultants query the validity of the mitigation

strategies. Additionally, the proposed screens have been placed in The Mews and these would reduce the area for pedestrians and be expected to locally increase wind speeds around the ends of the screens. The study needs to consider the wind conditions at the ends of the screens between the screens and the building faces.

Yours sincerely,

A handwritten signature in cursive script that reads "M. Eaddy".

M. Eaddy
MEL Consultants Pty Ltd

Table 1: Summary of Applicable/Recommended Criteria and Criteria Achieved

Location	Section 3.1 Recommended Criteria	Appendix A Recommended Criteria	Existing Config	Proposed Config 1	Proposed Config 2	WMC
1	Walking	Walking/Fast Walking	Not measured	Above Fast Walking	Walking	
2	Walking	Walking	Not measured	Above Fast Walking	Fast Walking	Walking
3	Walking (Standing near entrances)	Standing	Not measured	Walking	Above Fast Walking	
4	Walking (Standing near entrances)	Standing	Not measured	Standing	Standing	
5	Walking	Standing	Not measured	Walking	Above Walking	Sitting
6	Walking	Standing	Not measured	Above Walking	Walking	Standing
7	Walking	Walking/Fast Walking	Not measured	Above Fast Walking	Walking	
8	Walking	Walking	Not measured	Fast Walking	Walking	
9	Walking	Walking	Not measured	Standing	Sitting	
10	Walking	Walking/Fast Walking	Not measured	Just above walking	Standing	
11	Walking	Walking	Not measured	Just above walking	Standing	
12	Walking	Walking/Fast Walking	Not measured	Walking	Standing	
13	Walking	Standing	Not measured	Sitting	Standing	
14	Walking	Walking/Fast Walking	Not measured	Walking	Standing	
15	Walking	Walking	Not measured	Sitting	Walking	
16	Not Defined (walking)	Walking/Fast Walking	Not measured	Walking	Walking	
17	Walking	Walking	Not measured	Walking	Walking	
18	Standing	Standing	Not measured	Sitting	Sitting	
19	Sitting	Sitting	Not measured	Walking	Standing	Sitting
20	Walking	Standing	Not measured	Sitting	Sitting	
21	Sitting	Sitting	Not measured	Sitting	Sitting	
22	Standing	Standing	Not measured	Standing	Standing	
23	Walking	Walking	Not measured	Walking	Walking	
24	Not Defined (walking)	Walking/Fast Walking	Not measured	Standing	Standing	
25	Walking	Walking	Not measured	Walking	Walking	
26	Sitting	Sitting	Not measured	Just above walking	Walking	Sitting
27	Not Defined (walking)	Walking/Fast Walking	Not measured	Walking	Walking	

Location	Section 3.1 Recommended Criteria	Appendix A Recommended Criteria	Existing Config	Proposed Config 1	Proposed Config 2	WMC
28	Walking	Walking	Not measured	Walking	Walking	
29	Walking	Standing	Not measured	Sitting	Sitting	
30	Walking	Walking	Not measured	Walking	Walking	
31	Not Defined (walking)	Walking/Fast Walking	Not measured	Just above Fast Walking	Just above Fast Walking	
32	Not Defined (walking)	Walking/Fast Walking	Not measured	Walking	Walking	
33	Walking	Standing	N/A	Sitting	Sitting	
34	Sitting	Standing	N/A	Standing	Standing	
35	Sitting	Sitting	N/A	Standing	Sitting	
36	Standing	Standing	N/A	Sitting	Standing	
37	Standing	Standing	N/A	Standing	Standing	
38	Standing	Standing	N/A	Walking	Standing	
39	Standing	Standing	N/A	Sitting	Standing	
40	Walking	Walking	N/A	Standing	Walking	
41	Standing	Standing	N/A	Standing	Walking	Standing
42	Walking	Walking	N/A	Above Walking	Walking	
43	Walking	Walking	N/A	Above walking	Walking	
44	Standing	Standing	N/A	Walking	Standing	
45	Standing	Standing	N/A	Standing	Standing	
46	Walking	Walking/Standing	N/A	Walking	Standing	
47	Walking	Walking/Standing	N/A	Walking	Standing	
48	Walking	Walking/Standing	N/A	Walking	Walking	Sitting
49	Walking	Walking/Standing	N/A	Walking	Walking	
50	Walking	Walking	N/A	Walking	Standing	
51	Not Defined (walking)	Walking	N/A	Walking	Walking	
52	Not Defined (walking)	Walking	N/A	Standing	Walking	
53	Standing	Sitting	N/A	Standing	Sitting	
54	Not Defined (walking)	Walking	N/A	Walking	Walking	
55	Standing	Walking	N/A	Standing	Sitting	