Annexure 10

Wind Advisor Assessment

Michael Donn

Matthew Brajkovich

From: Michael Donn <michael.donn@gmail.com>
Sent: Wednesday, 29 June 2022 2:30 pm
To: Matthew Brajkovich
Subject: Re: Resource consent application - 1 Molesworth Street - SR 514663

Follow Up Flag: Follow up
Flag Status: Completed

Kia ora Matthew

Thanks for the reminder. Happy to discuss

Have spent more time than I expected because the wind speeds reported as existing and proposed are so high!

At worst, at the most problematic point, the wind is accelerated to provide a force fgreater than two times what is considered the safety limit for Wellington. (18 of the 27 points measured before and after still experience winds in excess of the WCC Safety limit, even though 3 of these are improved a little by the design)

Looking at the documentation provided for this project, it seems to me that the proposal has taken a very cavalier approach to the wind report.

The arborist, noting the extra wind loads on the oak tree in its proposed new position, does not seem to recognise that the lop-sided shape of the tree is as likely due to blowback of the problem winds off the rear of parliament buildings, which from the wind tunnel test they note will be worse in the new position.

The wind tunnel test only examines screens around the buildings as potential solutions to the identified existing and new safety issues. This then makes it possible in the design statements and drawings to reduce these a problem to

be avoided due to potential conflict with Crime Prevention through Environmental Design restrictions, and provide no information whatsoever on wind mitigation measures.

The Wind Rules specifically ask for an assessment of the building design itself an a determination of whether this is the best aerodynamic solution feasible on the site. The wind tunnel test does state (section 9.5): "*The north-south alignment of the Museum Street Building and the Ministerial Building (both with relatively long slender planforms) are the most beneficial design features for minimising the effect of the development on the surrounding wind conditions. These proposed buildings present a relatively small barrier to the prevailing winds, which help to minimise the downwash wind flows they generate. The Ballantrae Place Building is sufficiently low in height to have a minimal effect on the surrounding wind speeds."*

The building design assessment requirement in the wind rules also asks for an indication of how the building design in its placement and design has ensured that people post-construction have a means of walking through the site in relative security avoiding the worst wind conditions.

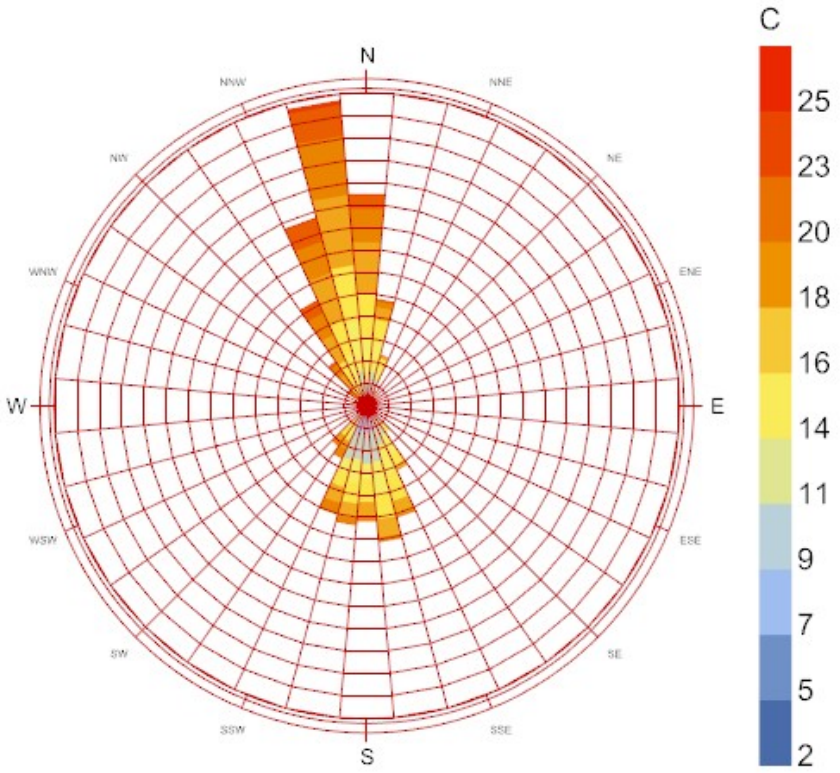
The urban design assessment has nothing helpful to say on the issues of the usability of the external environments created by the buildings' placements: "*Wind effects are beyond the scope of this report. However, elevated wind speeds have been identified in the report by WSP Ltd. Any mitigation of this condition – using trees or constructed shelters and the like - will need to: address CPTED issues, avoid crowding the relocated heritage oak, and avoid splitting the courtyard longitudinally into two discrete spaces"*

This overall assessment comes together in the AEE document: "*Wind speeds in localised areas can be reduced when screens for example are orientated at right angles across the ground level wind flows. However, for other reasons (i.e. CPTED, maintaining pedestrian access, adverse visual effects etc) they may not be practical. The report finds that "taken overall, wind conditions are improved with the proposed development" (p23).*
"For the proposed pedestrian areas, at the detail design stage it is proposed that wind mitigation along with other design factors (such as visual effects, CPTED, security considerations etc) will be further considered and assessed with the objective of making the proposed pedestrian areas as safe and attractive as practicable."

QUESTIONS:
1) I can find no discussion of the performance of the adjacent park area in regards to the City's performance requirements for parks. Is this OK?

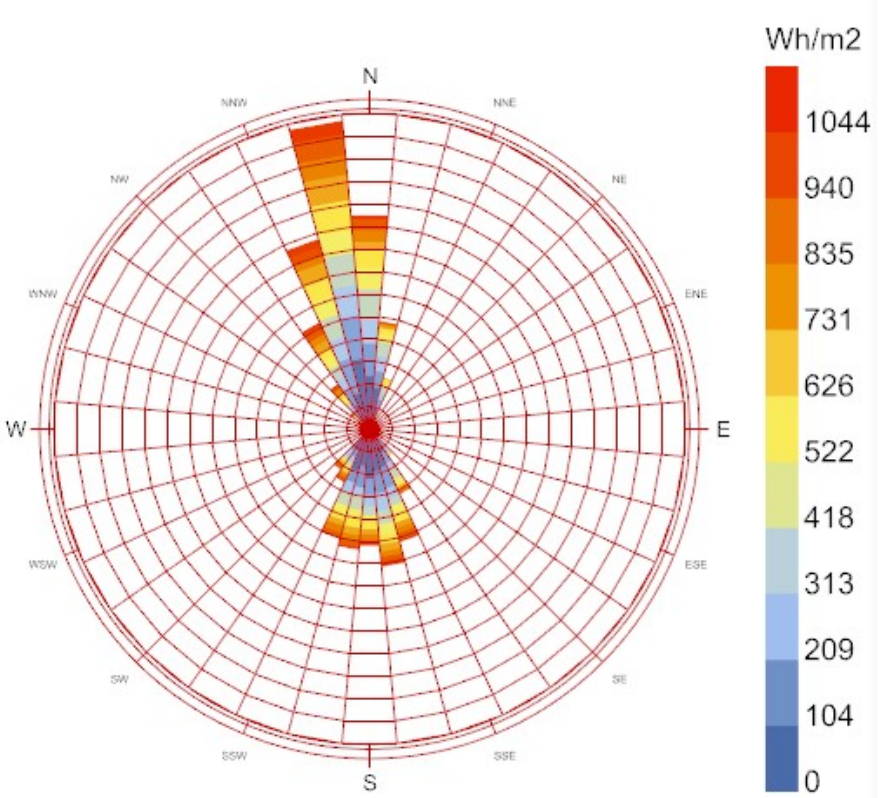
Such a discussion might / should address the following data:

If I look at wind in Wellington in relation to when it is warm, the strong Northerly winds are closely associated with the most warm temperatures (during the day from 7am to 6pm):



Dry Bulb Temperature (C)
city: Wellington
country: New Zealand
time-zone: 12.0
source: TMY2 NIWA 18234 D14482
period: 1/1 to 12/31 between 7 and 18 @1
Each closed polyline shows frequency of 1.1% = 50 hours.

This is also true of the sunny periods of the year.



Global Horizontal Radiation (Wh/m2)
city: Wellington
country: New Zealand
time-zone: 12.0
source: TMY2 NIWA 18234 D14482
period: 1/1 to 12/31 between 7 and 18 @1
Each closed polyline shows frequency of 1.1% = 50 hours.

2) Can we have more information of pedestrian access past the building avoiding the areas identified as unsafe by the wind analysis?

3) There is absolutely no acknowledgement in the design of the building of the spectacularly high predicted wind speeds. Placement of pedestrian access, size of wind lobbies, and effect of the overpass on wind acceleration come to mind as building design features about which there is no integration of the wind information with the building design documentation.

4) No cross-analysis appears to have been performed integrating the wind information with the CPTED analysis or the architectural design. Can this at the very least be assessed in terms of solutions that are likely to work from all points of view, rather than merely testing screens and then suggesting they are unlikely to pass the CPTED test?

M

On Wed, 15 Jun 2022 at 12:07, Matthew Brajkovich <Matthew.Brajkovich@wcc.govt.nz> wrote:

> Hi Michael,
>
> I'm the Council planner processing this application. Thanks for taking on the wind assessment for us.