

Memorandum

To: Bianca Hurrell
Company: RCP
From: Pierre Verhaeghe
Date: 20 May 2026
Subject: Downtown Carpark Site Development | FTAA | Wind Engineering Response to Comments

Project No: 145828.16

Introduction

This memorandum summarizes our response to the comments submitted in response to wind engineering studies, which were completed as part of the FTAA substantive application for the Downtown Carpark Site Development (Development) in Auckland. Key comments were mostly included the technical specialist memo – Pedestrian wind effects, dated 21st April 2026 and in Section C7 of the Planning Memorandum from Auckland Council.

Summary of our Response

The Auckland Unitary Plan (AUP) provides a method for ensuring that adverse wind effects generated by high-rise buildings are mitigated. While conditions would ideally be within the AUP wind standard, exceedance can be acceptable subject to modelling, consideration for the context and location-specific assessment.

The proposed podium arrangement, free roof and landscaping are a result of a significant multidisciplinary wind design process, fully satisfying the AUP requirements for 73 out of 78 assessed locations. Where the target category in the AUP wind standard could not be achieved, the five Category D locations should be assessed in context. There is no cliff-edge wind effect between consecutive categories - the transition is gradual, and Category D simply means wind will be felt more strongly on more days than Category C. As detailed in our FTA report, we consider these Category D conditions to be local, marginal or broadly similar to existing, i.e. therefore they do not represent a significant impact. These are discussed further below.

We also acknowledge the concerns raised regarding the reliance on mitigation provided by the four proposed trees around the M-Social building (three of which are on M-Social land, and one in the road corridor), which the relevant landowners may not agree to. As an alternative to the four trees, we have assessed comparatively, using Computational Fluid Dynamics (CFD) methodology (Appendix A), the wind mitigation effect of a 5m-tall porous screen positioned on the Development site boundary. The results indicate that for the prevailing south-west winds this alternative to the four trees would produce a similar, and even greater mitigation effect (that appropriately mitigates wind conditions) at the north end of Lower Hobson Street as that provided by the proposed four trees as addressed in our 14th April 2026 report, as shown in Figure 1 and detailed in drawings prepared by Warren and Mahoney.

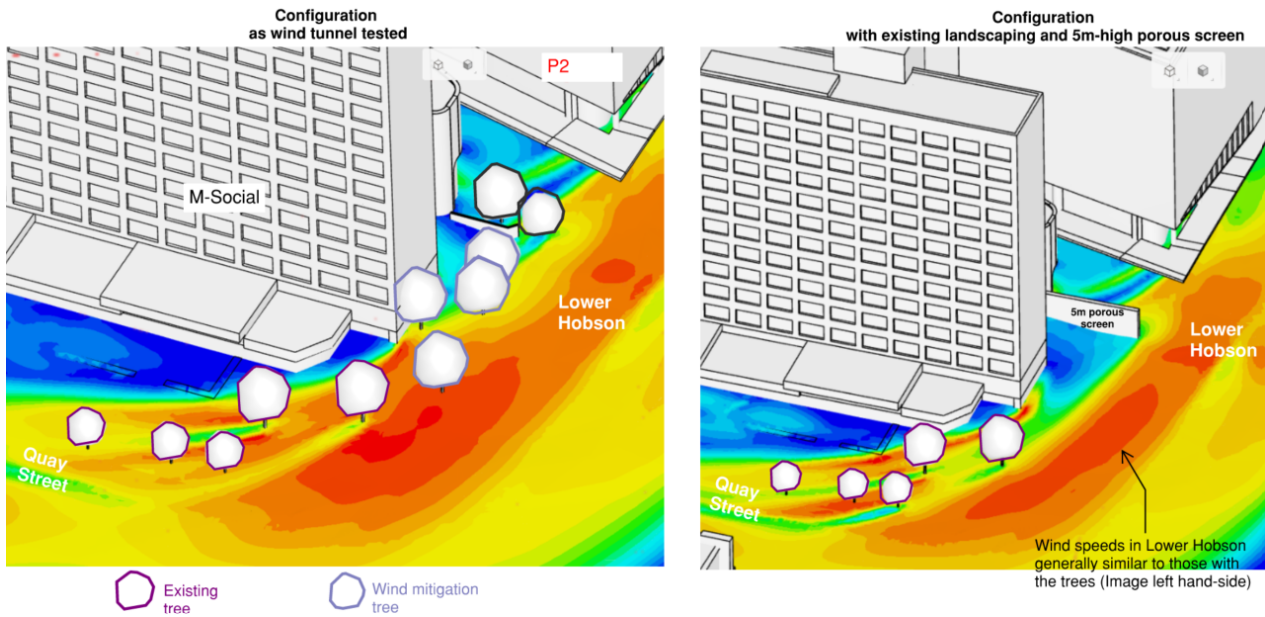


Figure 1: Wind Velocity during the Prevailing 240deg. Winds

Responses to Comments on Specific Locations:

- The Category D wind conditions at the north end of Lower Hobson Street (Location 42), with the mitigation measures, are broadly similar to existing conditions, with the exception of a shift in the location of peak windiness further south (Figure 2). Therefore, we do not consider the Category D conditions a significant impact, given the severity of existing windiness at this location (Location 42). As highlighted in our memorandum¹, existing conditions with the existing landscaping are expected to remain at least in Category D, with an exceedance of the gust criteria.

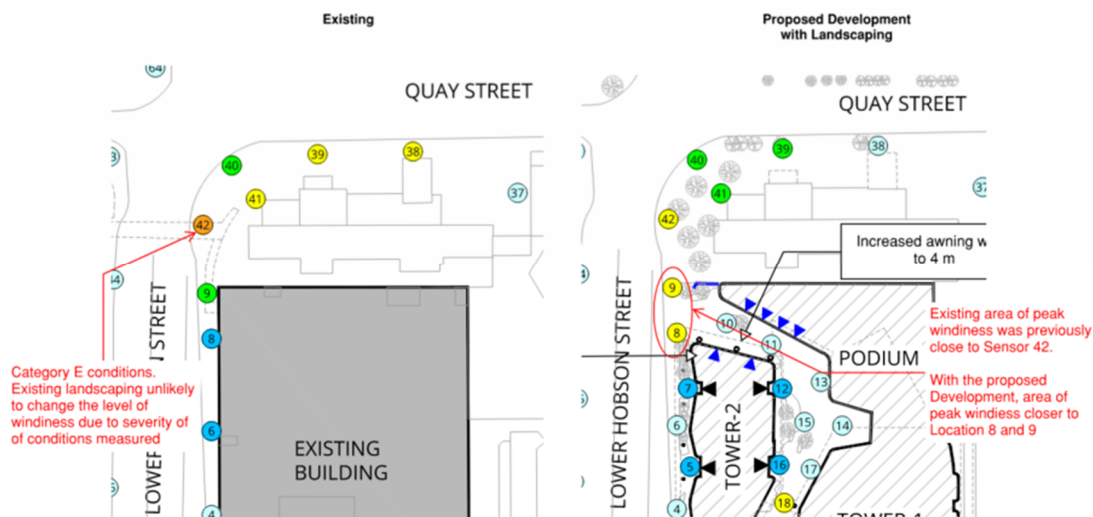


Figure 2: Wind Conditions at North End of Lower Hobson. Existing V. Proposed

¹ Holmes Memorandum, 14th April 2026, Downtown Carpark Site Development Environmental Winds S67 RFI

- In Quay Street (Location 61), the Category D conditions are not a result of the addition of the proposed Development. Existing conditions are already in Category D (Figure 3). Therefore, this does not represent an infringement to the Auckland Unitary Plan.

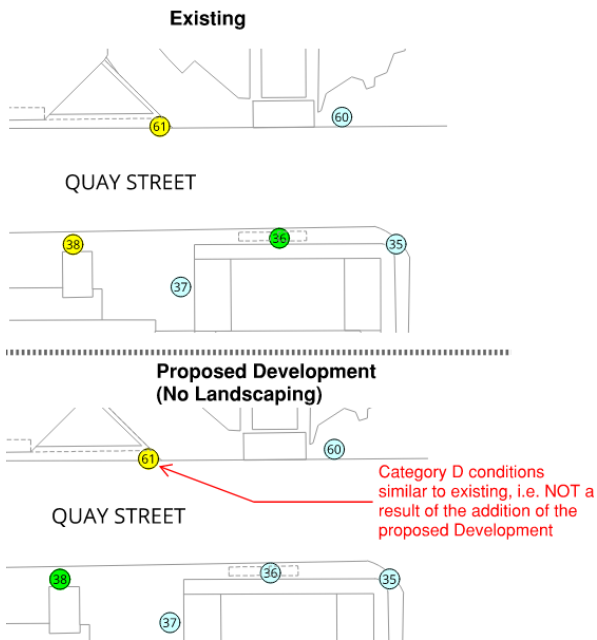


Figure 3: Wind Conditions in Quay Street Existing V. Proposed (without landscaping)

- In Customs Street (Location 26), the Category D conditions improve immediately either side of this location (Figure 4). This exceedance is local, i.e. it applies to a relatively short section of the footpath only and therefore not considered a significant effect.

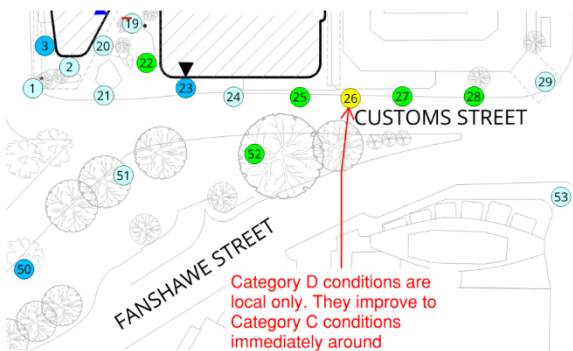


Figure 4: Wind conditions (with Landscaping) in Customs Street

- In Sturdee Park (Location 52), the Category C conditions are measured at the east end of the existing park, which is not used for occasional seating (See Figure 5), but mainly for walking access. Category C conditions are therefore considered acceptable for this area. Conditions further west improve to Category B. We also note conditions in this area could be improved with landscaping when this space is redeveloped in the future.

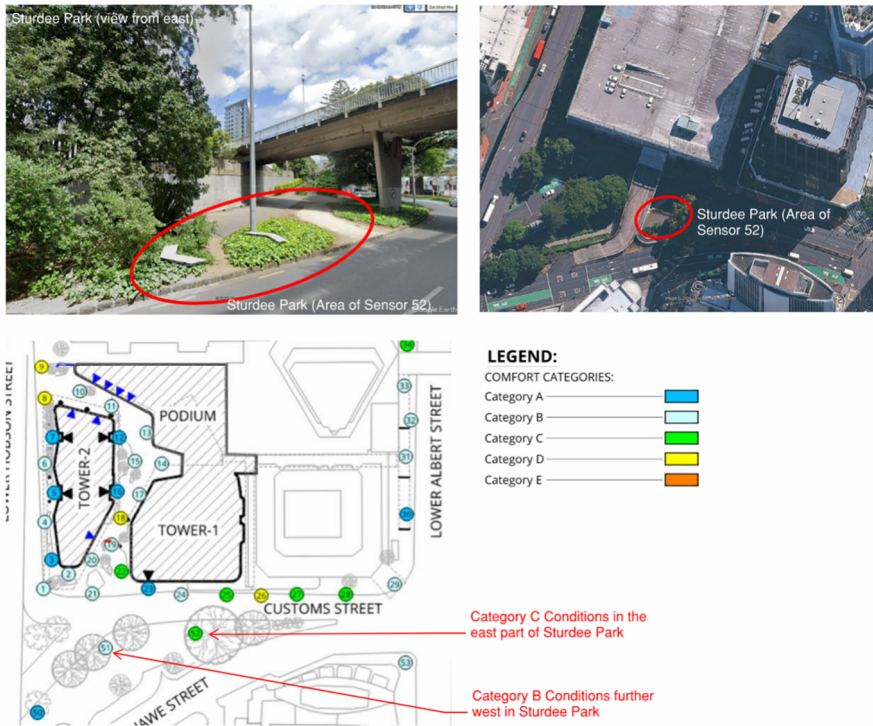


Figure 5: Wind Conditions in the East Area of Sturdee Park

P. Verhaeghe

Pierre Verhaeghe
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Copies to:

Appendix A – Computational Fluid Dynamics

Computation Fluid Dynamics (CFD) generally consists in the numerical modelling of wind flows around buildings, by solving the mathematical equations describing the relationship between air velocity and pressure over the relevant discretised domain. The software used in this assessment is the SimScale ® software, which computing methodology conforms with other international recommendations. While the CFD results are likely to be within the level of accuracy required for such application and massing, the outputs of CFD are reviewed by our wind engineer with significant experience of wind tunnel testing of buildings of similar massing. All buildings within a 300m radius from the site are explicitly modelled in the 3D numerical domain, which is illustrated in Figure 5. The approximate topography is also modelled around the site. The inlet flow conditions are modelled following the wind speed profiles of the New Zealand Standard for Wind Loading AS/NZS1170.2, based on the widely accepted Deaves and Harris wind model. The wind speed-ups at 1.5m above ground level and throughout the site, are calculated based on the CFD analysis and for the 240 deg. wind direction.



Figure 6: 3D models of buildings included in the CFD analysis

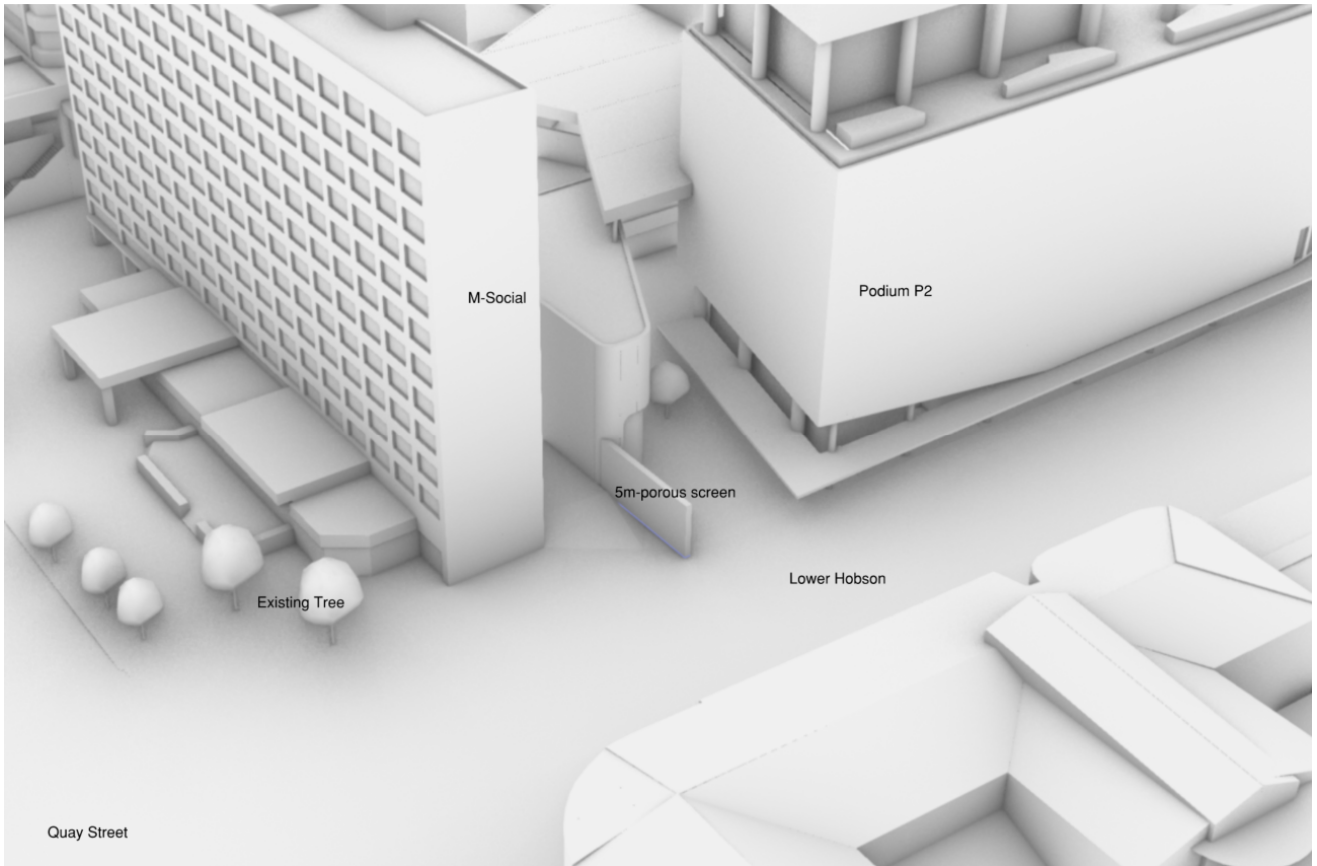


Figure 7: 3D Model Close up to North End of Lower Hobson Street