

By email
10 July 2024

Barack Place, Level 5
151 Clarence Street
Sydney
NSW, 2000
Australia

GTK Consulting
Mr. Tom Kennedy
Director
tom@gtkconsulting.com.au

e sina.hassanli@arup.com
t +61 3 9320 9559
f +61 3 9663 1546

arup.com

Our ref: 287249-00

Powerhouse Ultimo Renewal **Environmental Wind Assessment – Response Letter**

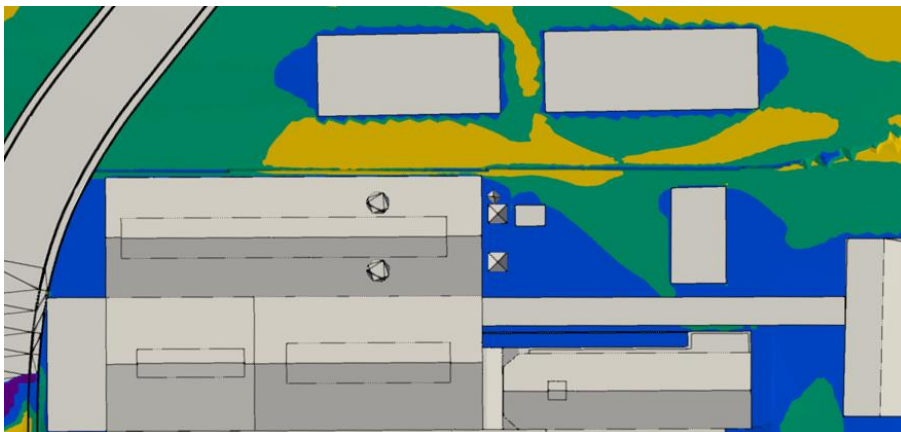
Dear Tom,

Please find below a brief response to the City of Sydney's comment on the environmental wind assessment report dated 31 Jan 2024.

Comment made by City of Sydney:

“More information is required on the wind comfort of the proposed entry forecourt. The wind report accompanying the proposal is a qualitative wind report rather than quantitative report.”

A qualitative study was undertaken to address the SEARs for the project. Whilst this is considered appropriate for the proposed development, the results of CFD modelling from a previous design for the project informed this qualitative study. The results of this modelling remain relevant for the proposed project as the design of the entry forecourt remains the same. In particular, the numerical modelling using CFD modelling was conducted for the existing conditions and initial iteration for 16 wind directions. The topography and urban context, including surrounding buildings within a radius of 500 m around the site, was explicitly modelled. The measured wind speeds over the entire surface for all directions were integrated with the local wind climate data for assessment against City Planning Scheme criteria for pedestrian comfort and safety. The comfort map for the initial design iteration and existing conditions for the forecourt area is shown in Figure 1.



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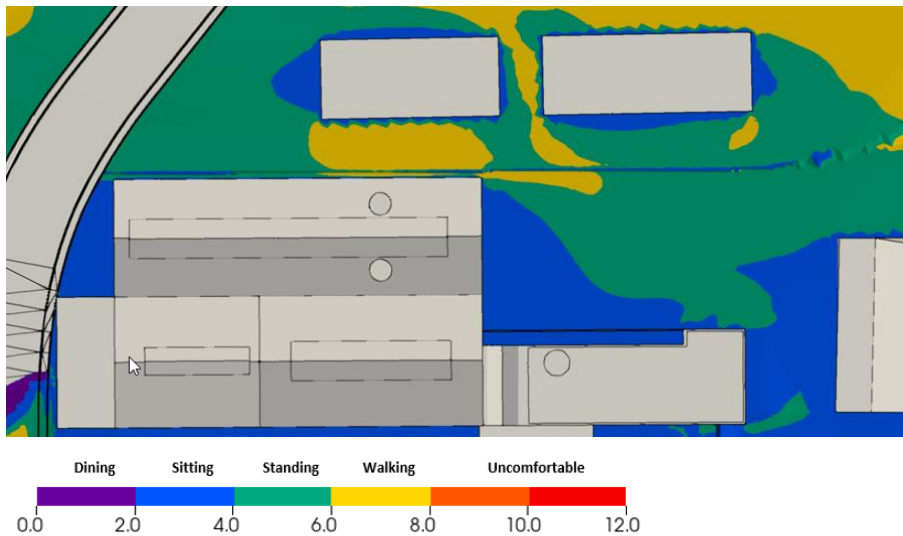


Figure 1. Wind comfort map at pedestrian level for exiting condition (T) and initial iteration (B).

It can be seen that the wind conditions in the forecourt area for both the existing and initial iterations are very similar, driven by the adjacent buildings, especially those to the east and north. The areas closer to the Powerhouse building would be suitable for sitting-type activities, while areas further out would be suitable for standing. The removal of the isolated building to the southeast would slightly increase the area suitable for standing, as it allows some of the winds from the northeast to pass through the space.

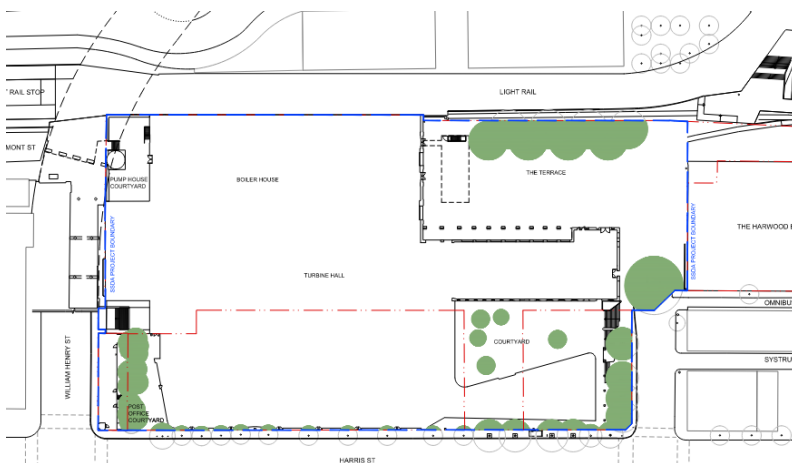


Figure 2. Proposed landscaping for the Powerhouse Ultimo Renewal

The forecourt area in the current proposed design is quite similar to the initial iteration, as shown in Figure 2. As such, the conditions in the space are similar to those predicted using numerical modelling for the previous iteration and are considered suitable for the intended use of the forecourt space. The proposed trees to the east of the forecourt area, once matured, would provide additional protection from northeast winds.

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In summary, the wind conditions in the forecourt area would be suitable for sitting and standing activities depending on their distance from the building, and thus, would be suitable for the proposed intended usage as a gathering and entry space for the museum.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Sina Hassanli', written over a horizontal line.

Sina Hassanli

Senior Wind Engineer

d 02 9320 9559

e sina.hassanli@arup.com