7 December 2020 CPP Project 13530

Touchstone Partners
Suite 1, Level 8, 92 Pitt Street
NSW 2000
Australia

Attn: Tracy Hoven
Project: 338 Pitt Street

Dear Ms Hoven,

This memo will address City of Sydney's RFI for the above project [1] and specifically items 8 and 9 which relate to pedestrian wind comfort. CPP has previously prepared a preliminary wind comfort study [2] based on a simplified massing model of the proposed development. This study was based on limited wind tunnel testing and intended to provide a broad overview of wind impacts at the site. Generalised in-principle recommendations for mitigation measures were provided based on this study and a number of these have since been incorporated into the design. This memo will provide an update to CPP's advice in light of these changes, noting that further detailed wind tunnel testing will be required to adequately assess pedestrian wind comfort in conjunction with further detailed design.

1. **Item 8 – Wind Conditions on Sky Bridge**

   Preliminary wind tunnel testing on the L36 Sky Bridge indicated conditions were Uncomfortable or suitable for Business Walking under the criteria of Lawson [3]. The Sky Bridge area will be exposed to strong winds from multiple directions. The layout of this area has been revised to include overhead coverage to the terrace area with full-height screening on the southern elevation, Figure 1. Relative to the tested design, this addition will provide significant improvement to wind amenity by discouraging flow from traversing across the accessible space between the two towers and providing a location that is protected from vertical downwash flow from the towers above. On the northern side, vegetation is proposed to form a buffer zone from the towers. For this area, vegetation or landscaping is not considered a sufficient means of mitigating strong winds. Additional treatments such as a full-height perimeter screen and/or overhead canopy structure(s) may be required to allow conditions commensurate with Pedestrian Sitting comfort. The extent of these mitigation options will be determined by further wind tunnel testing. It is noted that a Pedestrian Sitting comfort rating is a reasonably stringent requirement for an outdoor terrace in Sydney. Such a comfort rating is likely to be achievable under the enclosed section of the terrace, however may be difficult to meet across the whole terrace without similar enclosure. Testing will be necessary to confirm.

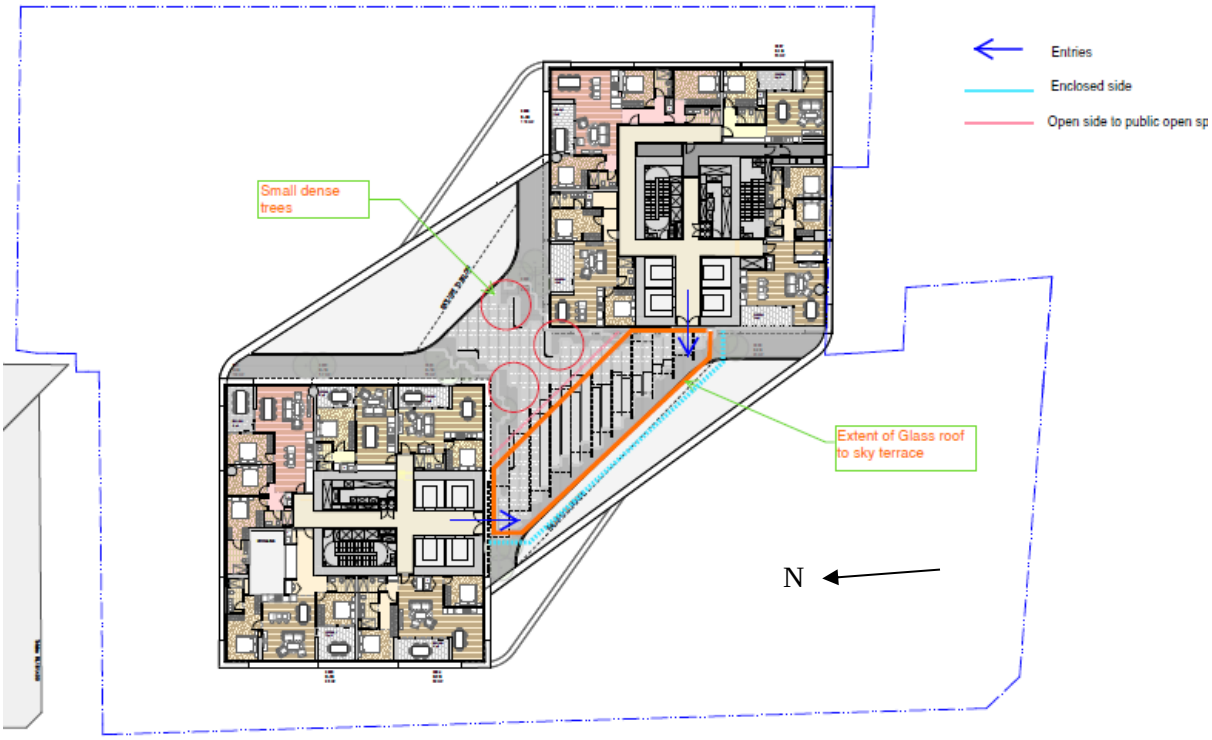

Figure 1: L36 Sky Bridge plan.

2. Item 9 – Wind Conditions on L4 and L8 open spaces

The preliminary report [2] did not include wind tunnel measurements on the podium roof terraces, however made generalised recommendations to guide possible mitigation approaches. These included:

- Horizontal awnings or canopies, particularly near tower bases
- Fence-type structure or high balustrade at podium edges
- Vertical screening elements around dedicated seating areas, using a mix of solid and porous media
- Pavilion-type structures to provide localised calm areas.

These are intended as in-principle guides and are not considered prescriptive. The design has been revised as follows in response:

- Addition of awning to L4 at base of north tower (Figure 2).
- Addition of awning to L8 at base of south tower (Figure 3)
- Extension of façade to form a perimeter screen at all podium roof edges with a nominal height of 3.1 m above finished floor level

- Inclusion of pavilion structures in landscape design for podium levels, with mixture of solid and porous elements (Figure 4).

Given the context in which the general guidance for amelioration was given and noting the requirement for detailed wind tunnel testing to quantitatively assess pedestrian comfort levels, the proposed changes are considered to provide adequate allowance for wind mitigation at this stage.

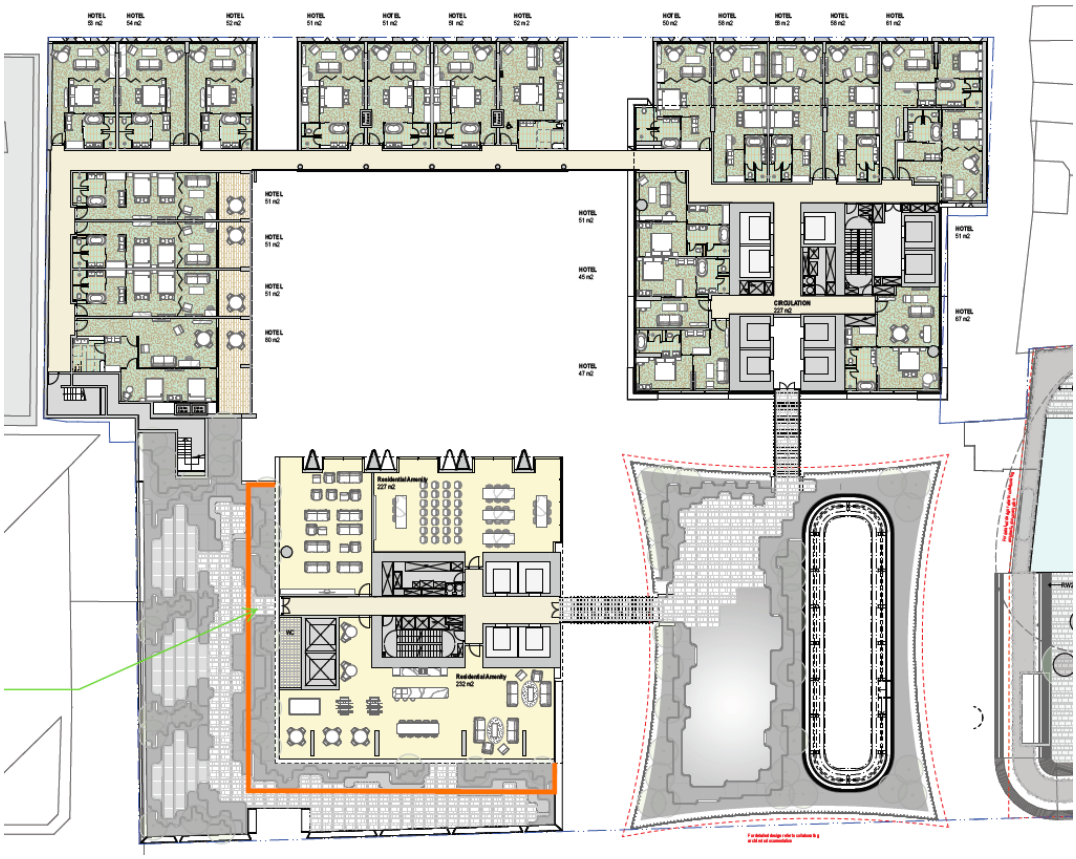

Figure 2: L4 plan indicating proposed awning extent

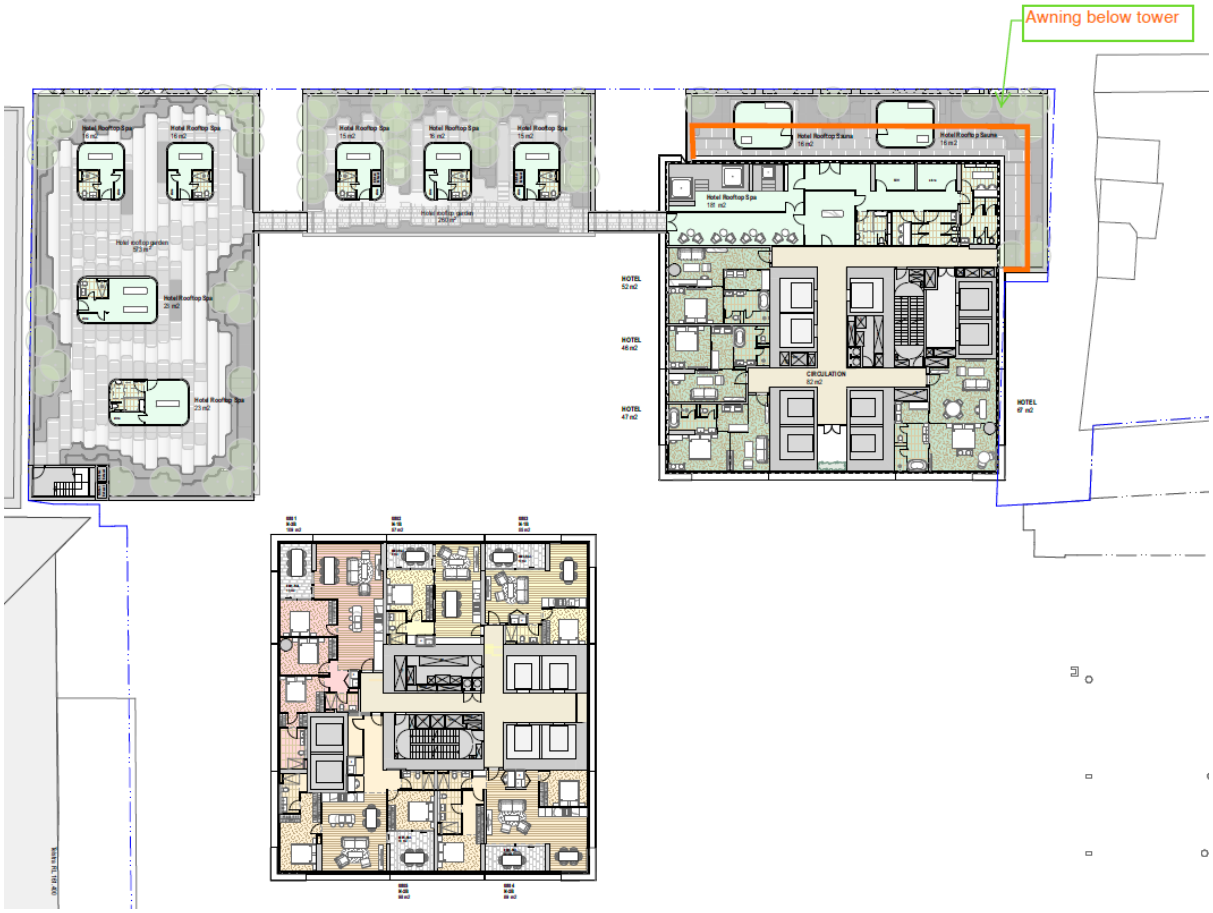

Figure 3: L8 plan indicating proposed awning extent

Figure 4: Extract from landscape design response indicating pavilions structures

The preliminary wind assessment made general comments on the requirement for features such as awnings and vertical screening elements for areas where allowance is made for dedicated outdoor seating and/or dining. Such treatments are not likely to be necessary in areas primarily used for pedestrian thoroughfare, such as the Castlereagh Street frontage. The requirement for specific wind mitigation measures at any location is dependent on the intended use of the space.

Please do not hesitate to contact me if you have any questions regarding any aspect of this letter.

Yours sincerely,

Thomas Evans
Project Engineer

cc: Adam van Duijneveldt, Senior Engineer

REFERENCES

[1] City of Sydney (2020). Request for amended plans and further information – SSD 10362 (D/2020/610) 338 Pitt Street, Sydney

[2] Cermak Peterka Petersen (2020). Pedestrian Wind Tunnel Tests for: 338 Pitt Street. CPP Report 13530, January 2020.

[3] Lawson, T.V. (1990), "The Determination of the Wind Environment of a Building Complex before Construction" Department of Aerospace Engineering, University of Bristol, Report Number TVL 9025.