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The Trust Company (Australia) Limited ATF WH Gibbons Trust
c/-Allen Jack + Cottier
79 Myrtle Street
CHIPPENDALE 2008

Attention: Ryan Peeters

Dear Ryan

90-102 Regent Street, Redfern
Wind Impact Assessment
Awning Design and Wind Load Issues

Awning Design Issues

- Reduction of the current awning along Regent Street ~2.8m to 2m is acceptable (2m gives adequate protection to pedestrians below).
- Reduction of the awning along Marian Street from ~2.5m to 1.5m is acceptable for the purpose of calculating the wind velocities around the GF facades.
- Adjustment of the barrel shaped awning portions to a flat rectangular shaped box awning will have minimal impact in the mitigation impact of the awnings.
- Awning height can be varied and still have essentially the same wind mitigation impact in terms of ameliorating downwash winds.
- It is understood that awnings may need to be interrupted in some locations to preserve existing trees or to allow for the expected growth of planned trees. As long as the awning “break” is limited to the immediate area surrounding the relevant trees, the wind mitigation impact of awnings or awnings + trees will be similar.

Wind Loading & Suggested Changes to Façade Design

- There is a suggestion that the façade design should be amended to limit wind effects and downwash to common open spaces. It is noted that the current façades are articulated and incorporate several changes to reduce wind loads:
 - Each level of the tower façade includes 150mm wall and slab edge protrusions
 - Half of the facades, particularly at high level include vertical and horizontal solar fins, further mitigating downdraft winds.

Figure 1: Proposed Façade Articulation



- Additional modifications to façade design can produce changes to windflow patterns around high-rise buildings when going from a flat, curtain wall form to a highly articulated, stepped façade form. In some case, windflow patterns merely shift and the resulting “hot spots” merely move their location (compared to the curtain wall baseline). Moreover, the available literature on such effects are limited and involve significant changes to the façade form.
- Finally, the wind tunnel testing included THREE sets of tests – Baseline, Proposed, Proposed + Mitigation.
- The “Proposed + Mitigation” testing showed that:
 - The common space locations (27-31) experience peak annual wind speeds ranging from 5.5 m/s to 12 m/s.
 - This is due to the already planned canopies and landscaping in these areas.
 - These levels are relatively low, suitable for activities ranging from standing to sitting and dining.
- On the basis of the above, the following is concluded:
 - Any additional design change to the façade of the proposed development will have questionable impact on winds below (and may indeed simply move any wind hot spots elsewhere).

- The common spaces on the development are already served by awnings at the Western Terrace at Level 2 as a primary down draft mitigation element (Refer Figure 2). SLR results showed compliance WITH ONLY AWNINGS – no reliance was placed on elevated terrace landscaping. Refer **Figure 2**
- Accordingly, no additional wind mitigation will be required for the development's common spaces.

Figure 1: Proposed Canopy

