RWDI Australia Pty Ltd
ABN 86 641 303 871

DATE:	August 5, 2021	**RWDI REFERENCE #:** 2100277
TO:	Joseph Ravi	**Atlassian Central**
CC:	Amy Kiely	**Central Place Sydney**
FROM:	Kevin Peddie	**Email:** kevin.peddie@rwdi.com
	Michael Pieterse	michael.pieterse@rwdi.com
RE:	**Atlassian – Office and Hotel Development (SSD-10405)** **Request for Additional Information**	

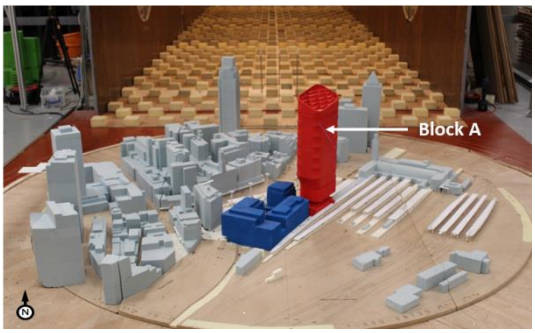
It is understood that the Response to Submission (RtS) for the Atlassian – Office and Hotel Development was notified between 1 July to 15 July 2021 and that the Department received sevens submissions for various government agencies. From this, the Department of Planning, Industry & Environment seek clarification and additional information on a number of items, one of which is wind, with the key items discussed in Section 1. Further to this, the City of Sydney have also raised 3 main items with regards to wind which have been discussed in Section 2.

Since the original RtS submission it should be noted that RWDI have been working with the Central Place Sydney team with regards to the wind environment conditions. The design of the Central Place Sydney design scheme has subsequently been further refined to enhance the precinct wind environment conditions, which has been included in this response. RWDI are also working with the Toga Central design team which will help to ensure a holistic wind approach and outcome for the Western Gateway Sub-Precinct.

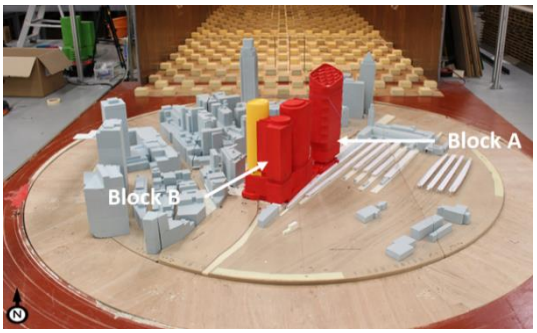
Wind tunnel modelling has been undertaken as part of the current design work being undertaken by the Central Place design team. This modelling includes the most recent design iterations to the Central Place design scheme with the following scenarios tested in the wind tunnel, with photos provided in Image 1 for ease of reference.

- **Day 1** Atlassian Central only
- **Day 2** Atlassian Central with Central Place Sydney (Stage 2)
- **Day 3** Atlassian Central with Central Place Sydney (Stage 2) and Toga Central

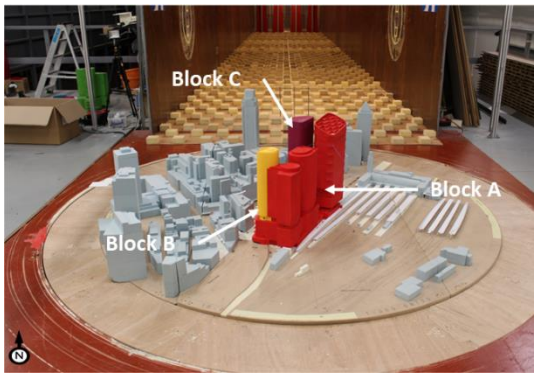
All scenarios were modelled in the existing surrounding context, including any nearby buildings which are already under-construction, but does not include any future proposed nearby developments other than the new Central Square.



Atlassian Central only (Day 1)



Atlassian Central and Central Place Sydney (Day 2)



Atlassian Central, Central Place Sydney and Toga Central (Day 3)

Image 1: Wind Tunnel Model Photos

1 Department of Planning, Industry & Environment

The following comments were received from DPIE on the RtS with regards to wind impact and have been noted in Section 1.1 for reference. Response to these comments is provided in Section 1.2.

1.1 Wind Impact Comments

- *Provide an options analysis of any additional mitigation measures which could be implemented within the proposal (rather than Blocks B and C) to*
  - *Meet comfort levels for sitting in the future 'Central Square' and a minimum of 200m^2 area within Railway Square as required by the Western Gateway Sub-precinct Design Guide.*
  - *Address areas which do not meet the safety criteria established by the Western Gateway Sub-precinct Design Guide in Day 1, 2 and 3 Scenarios*
- *In addition to the built form/heritage concerns raised by Heritage NSW and Council about the bleachers on the Inwards Parcel Shed roof, further consideration should be given to:*
  - *the appropriateness of the wind mitigation measures from a design and visual impact perspective*
  - *the ability to provide wind comfort appropriate for the intended use of the bleachers.*

  If an appropriate heritage, design and wind comfort/safety level cannot be achieved consideration should be given to removing the bleachers from the proposal

1.2 RWDI Clarifications

Since the RtS submission for the Atlassian Central development, further modelling has been undertaken by Central Place Sydney which includes a revised design form of the Central Place Sydney scheme to respond to the wind environment conditions. This further refines the Day 2 and Day 3 scenario. Images of these wind tunnel model configurations are presented in Image 1.

Modelling for all four scenarios was undertaken *without* any mitigation measures (such as landscaping or screening) on any of the blocks of the sub-precinct.

Wind Comfort Conditions

The results for wind comfort and safety conditions for the ground level areas for these tested configurations are presented in Image 2a to 2d, with the outline of the Railway Square and Central Square precincts as outlined in the Western Gateway Sub-precinct Design Guide overlays for reference. The wind conditions for the three scenarios modelled have been discussed in the following sections.

The wind results presented in the memo for Central Square was based on an open flat area, without any landscaping elements. It is noted that the current concept plan for the Central Square includes extensive landscaping in the form of trees (Image 4) which will further improve wind conditions in this area. Modelling of the effect of these trees on the wind comfort conditions has been previous modelled with results presented in the RtS submission for Atlassian. This modelling was based on a worse case scenario of deciduous trees in winter with sizings based on that expected at time of planting. The use of tree planting as a wind break has historical context, with the layout and density of tree planting noted for Central Square similar to Haig Park in Canberra which was historically planted as a wind break to the city's northerly winds.

1.2.1 Day 1 - Atlassian Central only

Railway Square

- Sitting wind conditions are provided for at least 200m^2 in the designated Railway Square precinct.

Central Square

- Wind conditions satisfy the sitting and standing conditions within the designated area of Central Square.

Safety Criteria

- 4 locations are noted to marginally exceed the safety criteria by up to 1m/s. Each of these locations would be best addressed via localised screening elements.

Mitigation Measures:

- **Railway Square:** One location was found to marginally exceed the safety criteria during the Day 1 scenario due to the southerly winds. This could be easily addressed via localized screening near this area to help break the gust effect, noting that this location satisfies the standing comfort criteria.

- **Central Square:** Location 42 was found to marginally exceed the safety limit criteria, noting that the area has been modelled as a flat open area, while dense landscaping is noted in this area as part of the concept plan. Hardscaping solutions could be included in this area in the form of artwork, similar to the timber screening adjacent to Banksia, Sky Park on Melbourne Quarter and the proposed 2021 Mpavilion design, which are shown in Image 5 as examples
- **Central Station Platforms:** Location 75 is noted to be influenced by the westerly winds. This could be easily addressed through screening along the station platform, similar to what has been included on other station platforms (Chatswood, Glenfield, Wolli Creek etc).

Examples of the temporary mitigation elements required for Railway Square and Central Square are noted in Image 6 for consideration. These will need to be developed with the design team and are indicative at this stage.

1.2.2 Day 2 - Atlassian Central with Central Place Sydney (Stage 2)

Railway Square

- Sitting wind conditions are provided for at least 200m^2 in the designated Railway Square precinct.

Central Square

- Wind conditions satisfy the sitting and standing conditions within the designated area of Central Square.

Safety Criteria

- The evolved design of Central Place has resulted in conditions within Henry Deane Plaza and Railway Square to satisfy the safety criteria.
- Appropriate mitigation measures for the remaining areas noted to marginally exceed the safety criteria are discussed below.

Mitigation Measures:

- **Central Square:** Location 42 and 44 were found to marginally exceed the safety limit criteria, noting that the area has been modelled as a flat open area, while dense landscaping is noted in this area as part of the concept plan. Hardscaping solutions could be included in this area in the form of artwork, similar to the timber screening adjacent to Banksia, Sky Park on Melbourne Quarter and the proposed 2021 Mpavilion design, which are shown in Image 5 as examples
- **Central Station Platforms:** Location 76 is noted to be influenced by the westerly winds. This could be easily address through screening along the station platform, similar to what has been included on other station platforms (Chatswood, Glenfield, Wolli Creek etc). Location 72 is noted to be a safety exceedance from westerly winds due to the cluster impact and tower separation between Atlassian and Central Place Sydney developments. Further review of the proposed Pavilion design by the Central Place Sydney team is under review to resolve this safety exceedance at this location which is marginally over 24 m/s. Alternatively localised screening along the station platform could be installed here to mitigate any safety issues.

- **Lee Street:** The locations in this area are due to the southerly and north-easterly wind effects during different scenarios. Improvements to this area is currently still being investigated by the Central Place Sydney design team with design solutions available.
- **Central Place Sydney Driveway:** The southern locations which exceed the safety criteria are the driveway entrance to Central Place Sydney. These conditions are being addressed as part of the Central Place Sydney design through screening along the driveway.

Examples of the temporary mitigation elements required for Central Square are noted in Image 6 for consideration. These will need to be developed with the design team and are indicative at this stage.

1.2.3 Day 3 - Atlassian Central with Central Place Sydney (Stage 2) and Toga Central

Railway Square

- Sitting wind conditions are provided for at least 200m^2 in the designated Railway Square precinct.

Central Square

- The area which satisfies sitting conditions is further increased during the Day 3 scenario.

Safety Criteria

- The inclusion of Toga Central further enhances safety conditions with all areas within Henry Deane Plaza, Railway Square and Central Square satisfy the criteria.

Mitigation Measures:

- **Central Station Platforms:** Location 72 is noted to be a safety exceedance from westerly winds due to the cluster impact and tower separation between Atlassian and Central Place Sydney developments. Further review of the proposed Pavilion design by the Central Place Sydney team is under review to resolve this safety exceedance at this location which is marginally over 24 m/s. Alternatively localised screening along the station platform could be installed here to mitigate any safety issues.
- **Lee Street:** Only one location marginally exceeds the safety criteria in this area due to the southerly wind effect. Improvements to this area is currently still being investigated by the Central Place Sydney design team with design solutions available.
- **Central Place Sydney Driveway:** The southern locations which exceed the safety criteria are the driveway entrance to Central Place Sydney . These conditions are being addressed as part of the Central Place design through screening along the driveway.

1.2.4 Inwards Parcel Shed Roof Bleachers

The Parcel Shed Roof area is exposed to the prevailing southerly, westerly and north-easterly winds due to the elevated nature and interaction with the surrounding built form. The wind conditions based on the evolved design of Central Place are presented in Image 3 and should be noted ***does not include any mitigation measures***.

The north-western and south-western corners of the bleachers are noted to exceed the safety criteria during the Day 1 scenario and hence required localized mitigation

presented in the RtS. The inclusion of the evolved Central Place Sydney design during the Day 2 scenario improves the wind conditions at the south-western corner of the bleachers such that this area satisfies the safety limit criteria. This is also the case during the Day 3 scenario.

The wind comfort conditions in this area is also noted to generally satisfy the standing criteria without any mitigation measures.

It is noted that the retention of the bleachers as part of the current SSDA is currently being reviewed by the design team.

2 City of Sydney

The following comments were received from the City of Sydney on the RtS with regards to wind impact and have been noted in Section 2.1 for reference. Response to these comments is provided in Section 2.2.

2.1 Wind Impact Comments

- *The maintains its concerns regarding wind impacts from the proposed development and the cumulative impacts from all towers within the Western Gateway.*
- *City staff note that the proposed wind mitigation measures in the 'Day 1' scenario will create unsafe wind conditions in Railway Square. The Day 2 and 3 scenarios create additional unsafe wind conditions within Henry Deane Plaza and the public domain. The design must be amended such that wind speeds do not exceed the safety criteria and endanger the public.*
- *The proposed wind mitigation measures on the bleachers and to the pavilion over the OSD connection (see page 18 of the wind report) are excessive, do not achieve design excellence and are contrary to the draft Western Gateway Design Guide. The applicant's wind report burdens Blocks B and C with resolving uncomfortable and unsafe wind conditions, rather than addressing these issues holistically. The applicant must resolve these issues with their neighbours prior to determination.*

2.2 RWDI Clarifications

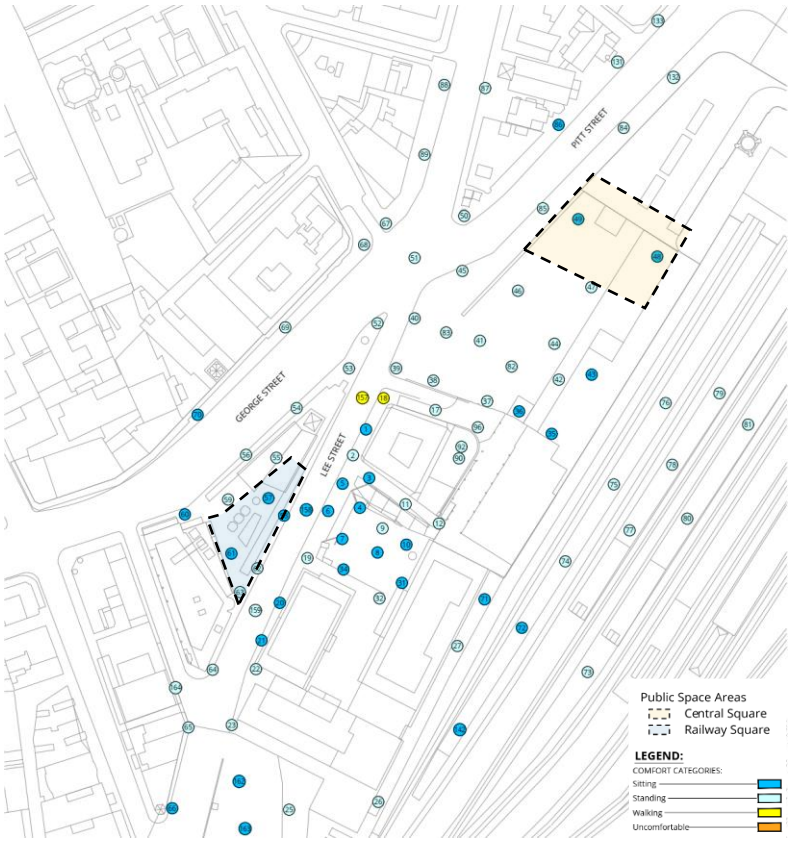
Wind Comfort Conditions

The wind impact concerns raised by the City of Sydney have been addressed in Section 1.2 of this report. With the following key items noted:

- The current modelling does not include any mitigation measures on any of the sites within the sub-precinct. Mitigation measures have been presented above to address these areas.
- The evolved design of Central Place has resulted in significant improvement to the wind environment conditions (Day 2). The inclusion of the Toga Central Site (Day 3) will result in further improvements to the sub-precinct wind conditions, noting the collective benefit of the designs which have now responded to the local wind environment.
- Conditions within Henry Deane Plaza will satisfy the safety criteria during Day 2 and 3 scenarios.

Inwards Parcel Shed Roof Bleachers

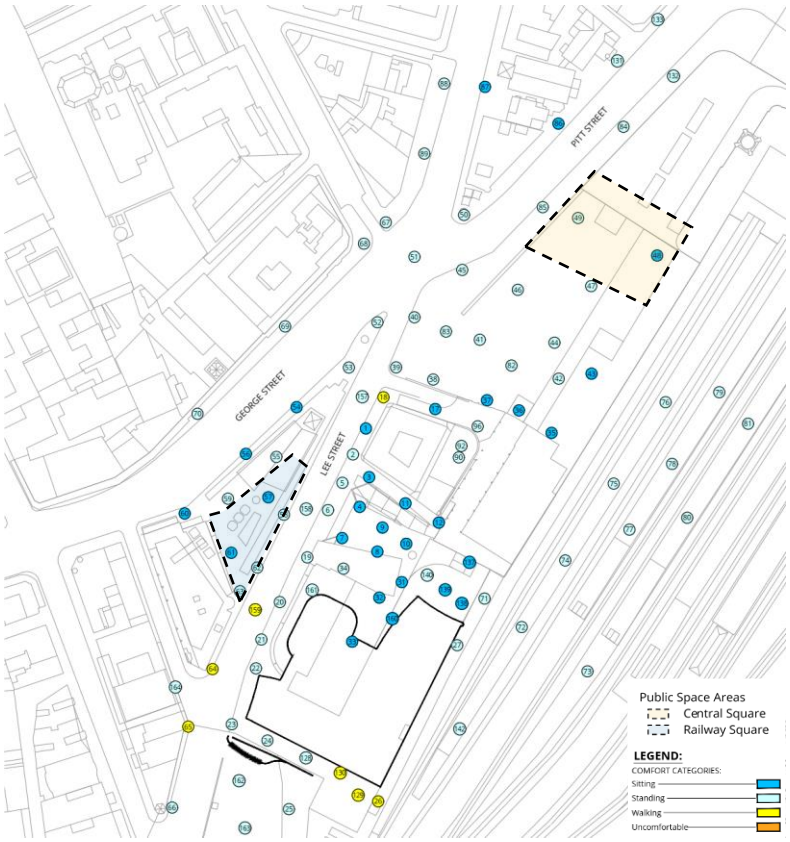
The wind conditions associated with the bleachers has been discussed in further detail in Section 1.2 above. As noted, the evolved design of the Central Place site, particular the north-eastern corner of the design has improved the wind conditions at the south-western corner of the bleachers such that they will satisfy the safety criteria during the Day 2 and 3 scenarios.



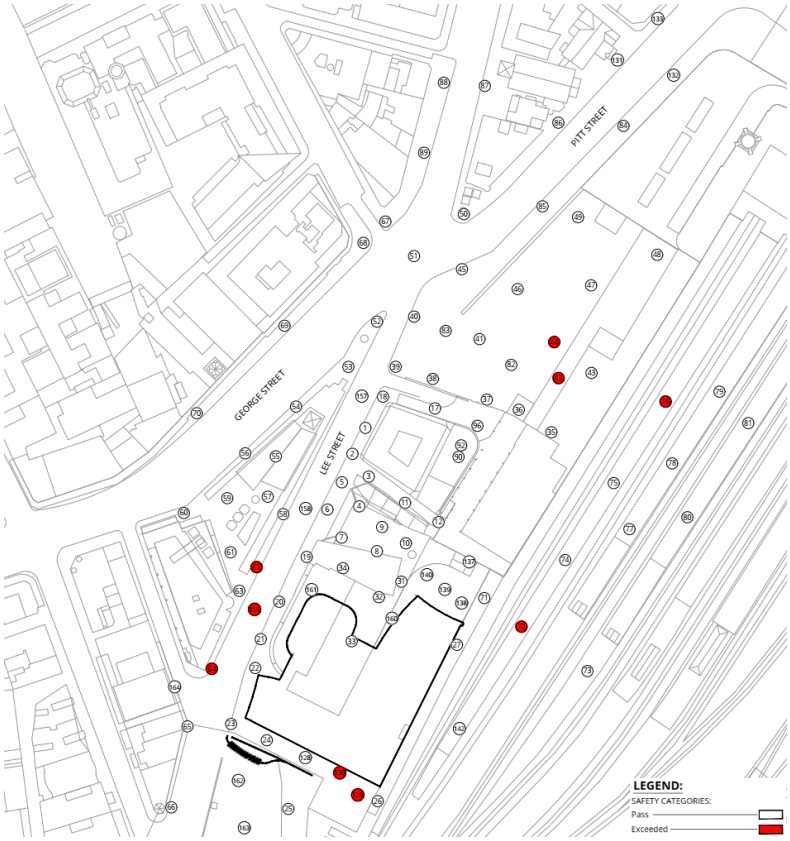
Wind Comfort Criteria

Wind Safety Criteria

Image 2a: Atlassian Central only (Day 1)

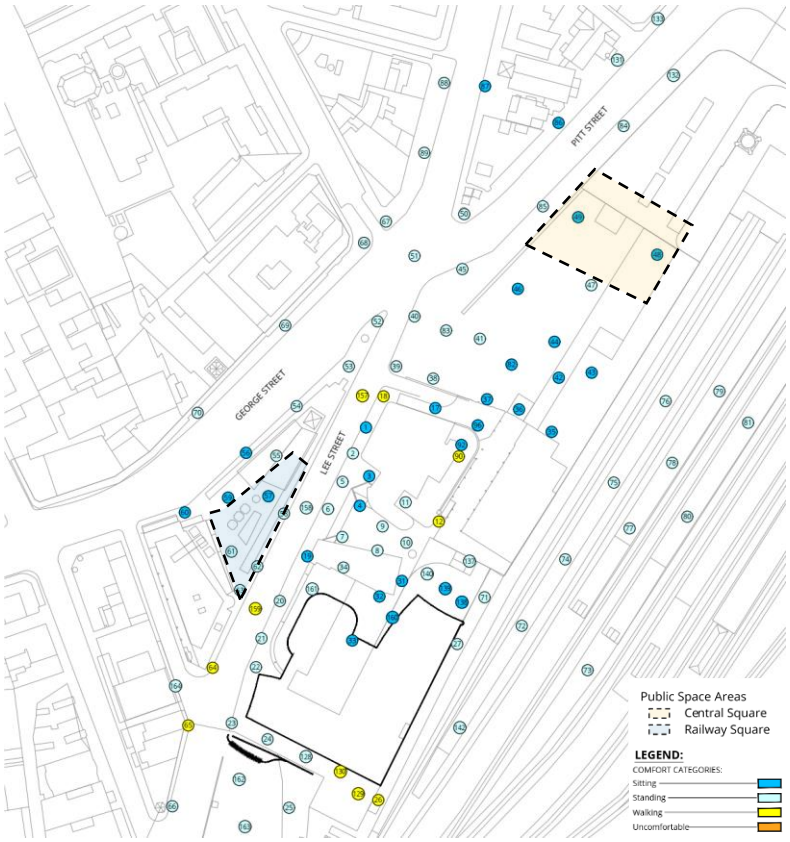


Wind Comfort Criteria

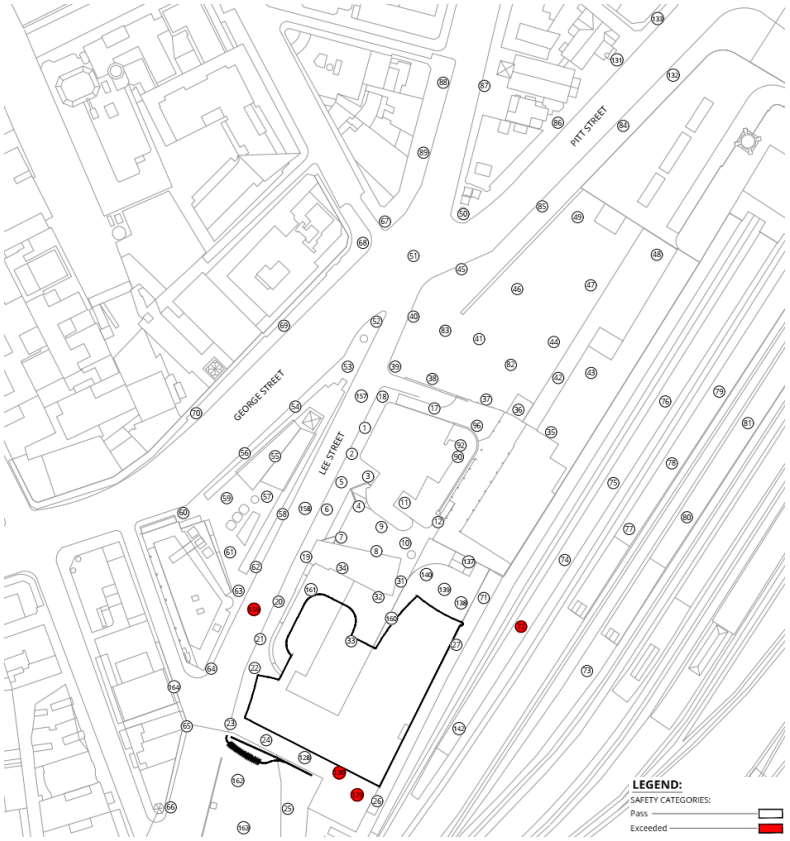


Wind Safety Criteria

Image 2b: Atlassian Central and Central Place Sydney (Day 2)

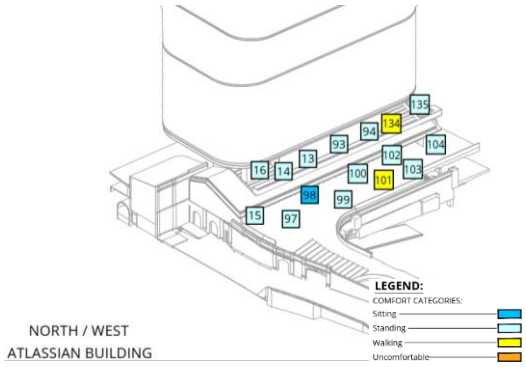


Wind Comfort Criteria

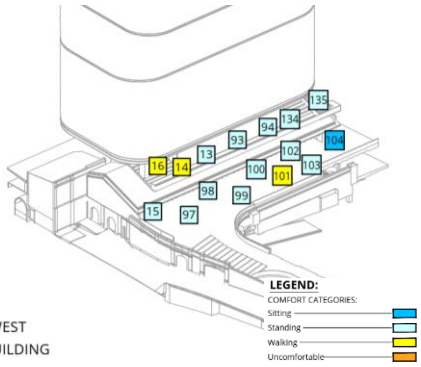


Wind Safety Criteria

Image 2c: Atlassian Central, Central Place Sydney and Toga Central (Day 3)



Wind Comfort Criteria



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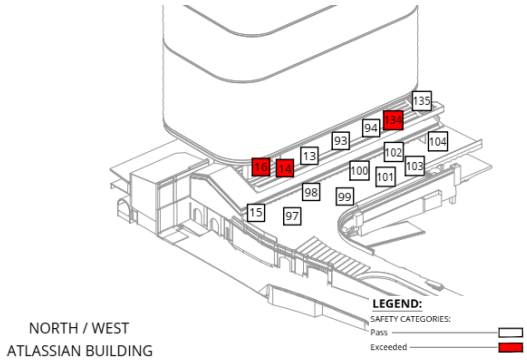
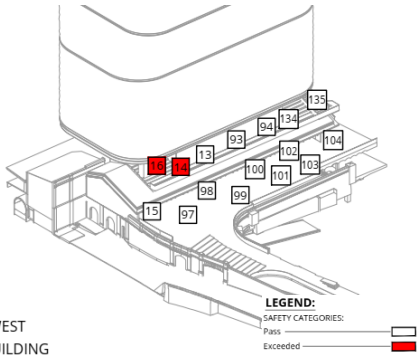


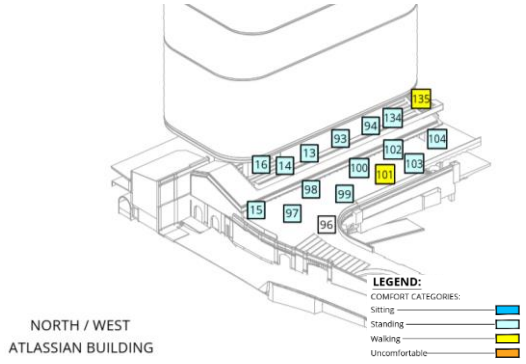
Wind Safety Criteria

Atlassian Central only (Day 1)

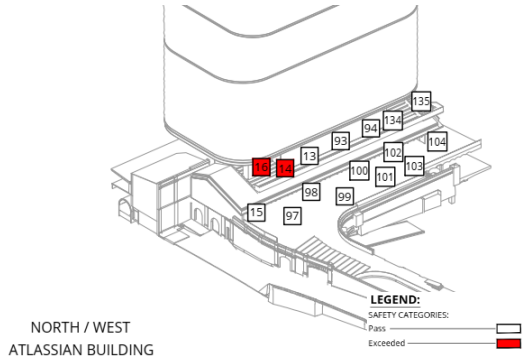


Wind Safety Criteria

Atlassian Central and Central Place Sydney (Day 2)



Wind Comfort Criteria



Wind Safety Criteria

Atlassian Central, Central Place Sydney and Toga Central (Day 3)

Image 3: Wind Conditions on the Inwards Parcel Shed roof

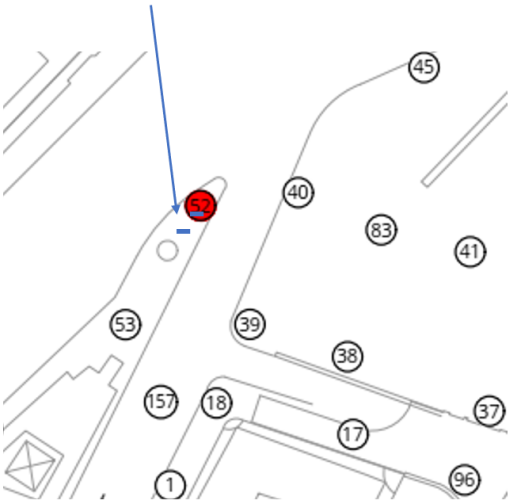
Image 4: Central Square Concept Render (Image Courtesy of City of Sydney)

Banksia, Docklands	
Melbourne Quarter Sky Park **(Image Courtesy of Nearmap)**	

2021 Mpavilion by Map Studio	

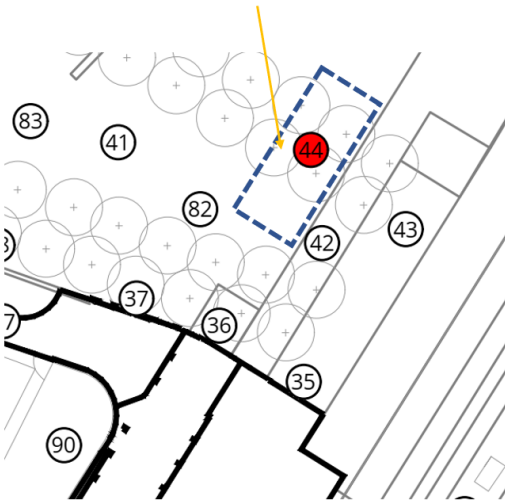
Image 5: Examples of Wind Mitigation Measures for Central Square and Railway Square during Day 1 and Day 2

Localised Elements to create a porous screen effect.
Examples include series of post (Banksia example) or glass blades (Crown Sydney Hotel Resort)



Location 52 Safety Temporary Mitigation (Day 1)

Temporary structure in this areas (location to be confirmed).
Example is an arbour structure (Melbourne Quarter) or alternatively an array of elements to breakup localised effects.
Previous modelling indicates proposed trees will resolve location 42.



Central Square Safety Temporary Mitigation (Day 1 and 2)

Image 6: Examples of Wind Mitigation Measures for Central Square and Railway Square during Day 1 and Day 2