FINAL REPORT



14 BLACKBURN ROAD

PEDESTRIAN LEVEL WIND MICROCLIMATE ASSESSMENT RWDI #2403441 9TH APRIL 2025

SUBMITTED TO

SUBMITTED BY

Hampstead Asset Management Ltd RWDI Anemos Ltd

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VERSION HISTORY

RWDI Project #2403441	14 Blackburn Road			
Report	Releases	Dated		
Reports	Rev A	April 7 th , 2025		
	Rev B	April 9 th , 2025		
Project Team	SE			
	JM			
	KJ			
	RS			



1 EXECUTIVE SUMMARY

RWDI was appointed by Hampstead Asset Management Ltd ('the Applicant') and their delivery partner Fifth State to conduct a pedestrian level wind assessment of the proposed 14 Blackburn Road development (referred to as the "proposed development" hereafter in this report). This report presents a description of the methodology used and the results of five configurations tested using Computational Fluid Dynamics (CFD) simulations, namely:

- Configuration 1: Existing Site with Existing Surrounding Buildings;
- Configuration 2: Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings;
- Configuration 3: Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings;
- Configuration 4: Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings; and
- Configuration 5: Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings.

The meteorological data for the Site indicates prevailing winds blowing from the south-west throughout the year. There is a secondary wind from the north-east most common during the late spring season.

Wind conditions discussed within this report have been assessed using the more stringent City of London wind microclimate criteria to enable direct comparison with the consented O2 Masterplan.

In the baseline scenario (Configuration 1), wind conditions at the Site and surrounding area are suitable for the current uses.

Introduction of the proposed development massing (Configuration 2) would marginally increase the windiness along Blackburn Road. However, wind conditions would remain suitable for the current intended uses. With the introduction of the proposed landscaping at the terrace levels, which the Applicant has introduced following the wind microclimate assessment discussed within this report, the proposed seating spaces would be expected to have wind conditions suitable for the intended use during the summer season.

Comparison of the wind conditions at and around the consented scheme (Plot S8) (Configuration 3) and the proposed development (Configuration 4) in the context of O2 masterplan and existing surrounding buildings indicate that there would be no significant difference in wind conditions.

Inclusion of the cumulative schemes (Configuration 5) would not materially impact the wind conditions at and around the proposed development. As such, with the proposed terrace landscaping, wind conditions in the context of cumulative schemes would be suitable for the intended uses and the off-site areas would have wind conditions similar to the existing scenario (Configuration 1).



2 INTRODUCTION

This report is prepared on behalf of Hampstead Asset Management Ltd ('the Applicant') and their delivery partner Fifth State, who will be delivering the regeneration sought by the London Borough of Camdem and proposed in the application.

This report is prepared by RWDI and presents the background, objectives, methodology, results and discussion from RWDI's assessment. A summary of the overall recommendations from the investigation are presented in Section 7 "Concluding Remarks".

3 BACKGROUND AND APPROACH

Computational Fluid Dynamics (CFD) simulations were conducted on the proposed development for the configurations assessed below. The assessment quantifies the wind conditions within and around the Site by comparing the measured wind speed and frequency of occurrence with the City of London Lawson Comfort Criteria. Meteorological data from London Heathrow Airport was analysed and adjusted to the Site conditions by modelling the effect of the surrounding terrain roughness in the computational domain.

Wind conditions discussed within this report have been assessed using the more stringent City of London wind microclimate criteria to enable direct comparison with the consented O2 Masterplan. This report presents a description of the methodology used and the results of the five configurations tested using Computational Fluid Dynamics (CFD) simulations, namely:

- Configuration 1: Existing Site with Existing Surrounding Buildings;
- Configuration 2: Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings;
- Configuration 3: Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings;
- Configuration 4: Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings; and
- Configuration 5: Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings.

3.1 Site Description and Surroundings

The Site is located in West Hampstead within the London Borough of Camden, to the northeast of West Hampstead station and is occupied by a builders' merchants (Builders Dept Limited 'BDL'). The Site is located to the rear of properties fronting onto West End Lane in the heart of West Hampstead and extends east/west along Blackburn Road. The Site abuts the railway to the south and is to the west of the allocated redevelopment site of the O2 Centre and car park.

The Site is surrounded by low to mid-rise buildings. This results in the wind environment being relatively windy compared to a site surrounded by more high-rise buildings. An aerial view of the approximate Site location is highlighted in yellow with its surroundings in Figure 1.





Figure 1: Aerial view of the Existing Site (Approximate extent of the Site highlighted in yellow)

3.2 The Proposed Development

Demolition and redevelopment of the Site for a mixed-use development comprising purpose-built student accommodation (Sui Generis), affordable housing (Use Class C3), lower ground and ground floor flexible commercial/business space comprising of showrooms, retail and ancillary offices (Use Class E/Sui Generis) and a café/PBSA amenity space (Use Class E/Sui Generis) and associated works including service yard, cycle parking, hard and soft landscaping, amenity spaces and plant ('the proposed development').

The proposed development comprises of two distinct buildings that are linked at ground level. The C3 building will be 5-7 storeys including taller ground floor and PBSA building will be 10 storeys including a ground floor and amenity mezzanine level. There is a double height space spanning these lower two floors in the café at the base of the PBSA.

The proposed development would deliver:

- ×192 purpose-built student accommodation rooms ?(Sui Generis);
- ×35 affordable homes (C3); and.
- ×1,619sqm of lower ground and ground floor commercial floorspaces to include:
 - A new and enhanced flexible commercial/business space (Use Class E/Sui Generis), comprising of show rooms, retail space and ancillary offices and an internal service yard accessed from Blackburn Road. This space is capable of being subdivided to allow for future flexibility.
 - \circ $\;$ A publicly accessible ground floor café at the base of the PBSA (Use Class E/Sui Generis).

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A 3D model of the proposed development used in the assessment is shown in Figure 2 below.

Figure 2: 3D model of the proposed development in the context of the existing surrounding buildings, used for CFD simulations (view from the south)



4 METHODOLOGY AND ASSESSMENT CRITERIA

The 3D model of the proposed development in the context of the existing surrounding buildings used for CFD simulations of Configuration 2 is shown in Figure 2. Additional images of the 3D model for all configurations are presented in Appendix A. In each of the assessed scenarios surrounding buildings within a 400m radius of the centre of the Site were included to accurately capture the influence of surrounding buildings on wind flow patterns. This approach is also consistent with the City of London Wind Microclimate Guideleines.

The 'Results' section, shows the windiest season (typically winter) and the summer season (June to August) comfort plots. The comfort results are assessed at a height of 1.5m above the ground or building surface to represent conditions around people. The colours correspond to the City of London Lawson Criteria described below in Section 4.2 'Pedestrian Comfort'. Wind conditions for this assessment has been assessed using the more stringent City of London wind microclimate criteria to enable direct comparison with the consented O2 Masterplan.

CFD is a computer modelling technique for numerically simulating wind flow in complex environments. For this study, computational modelling was undertaken using OpenFOAM version 4.1 with 18 wind angles tested for each scenario, equally spaced out around the compass (using 20-degree intervals). This quantity of wind angles will provide sufficient aerodynamic interactions from all wind directions to achieve convergence.

The individual cases of the proposed development were solved using a RANS approach with an RNG k- ϵ turbulence model. The steady state RANS type model with the RNG k- ϵ turbulence model is chosen over other turbulence models or transient type schemes for wind microclimate studies by RWDI for its ability to approximate highly complex flows within urban environments to a high level of accuracy against a practical computational time. The statistically steady solution obtained by RANS simulations does not have the ability to predict the fluctuating or gusty nature of wind. As comfort is a function of average conditions, this model is more suited to analyse this.

The potential for strong winds leading to safety issues is assessed using informed engineering judgement.

4.1 Meteorological Data

Figure 3 shows the seasonal wind roses (meteorological data) for London, which are based on data obtained from the meteorological station at London Heathrow airport. 0 Degrees represents wind blowing from the north and 90 degrees represents wind blowing from the east.

Approximately 30 years of meteorological data for London Heathrow Airport was used in this report, presented in the seasonal wind roses with the wind speed divided into wind speed thresholds (Figure 3). The radial axis indicates the cumulative number of hours per season that the wind speed exceeds the wind speed threshold as a percentage. The seasons are defined as spring (March, April and May), summer (June, July and August), autumn (September, October and November) and winter (December, January and February).

The meteorological data indicate that the prevailing wind direction throughout the year is from the south-west. This is typical for many areas of southern England. There is a secondary peak from the north-easterly winds, especially during the spring; however, these tend to be colder winds.

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The combination of meteorological data and velocity ratios permits the percentage of time that wind speeds are exceeded on the site to be evaluated. The locations can then be assessed using 'comfort criteria', as described below.



Figure 3: Seasonal Wind Roses for London Heathrow Airport (Radial axis indicates the percentage of time for which the stated wind speed threshold is exceeded)



4.2 Pedestrian Comfort

The assessment of the wind conditions requires a standard against which the measurements can be compared. This report uses the City of London criteria for wind safety and comfort¹. The Criteria, which seek to define the reaction of an average pedestrian to the wind, are described in Table 1. If the measured wind conditions exceed the threshold wind speed for more than 5% of the time, then they are unacceptable for the stated pedestrian activity and the expectation is that there may be complaints of nuisance or people will not use the area for its intended purpose.

The Criteria sets out four pedestrian activities and reflect the fact that less active pursuits require more benign wind conditions. The four categories are frequent sitting, occasional sitting, standing and walking, in ascending order of activity level, with a fifth category for conditions that are uncomfortable and/or unsafe for all uses. In other words, the wind conditions in an area for frequent or occasional sitting need to be calmer than a location that people merely walk past.

The Criteria are derived for open air conditions and assume that pedestrians will be suitably dressed for the season. Thermal comfort is discussed with reference to acceptable wind environments but not evaluated as part of the assessment.

The coloured key in Table 1 corresponds to the presentation of simulation results described later in this report.

Кеу	Comfort Category	Threshol d	Description
\bigcirc	Frequent Sitting	<2.5 m/s	Acceptable for frequent outdoor sitting use, e.g. restaurant, café.
	Occasional Sitting	2.5-4 m/s	Acceptable for occasional outdoor seating, e.g. general public outdoor spaces, balconies and terraces intended for occasional use, etc.
	Standing	4-6 m/s	Acceptable for entrances, bus stops, covered walkways or passageways beneath buildings.
	Walking	6-8 m/s	Acceptable for external pavements, walkways.
	Uncomfortable/unsafe	>8 m/s	Not comfortable for regular pedestrian access.

Table 1: City of London Lawson Comfort Criteria

4.3 Strong Winds

The City of London criteria for wind safety and comfort also specifies a lower limit strong wind threshold when winds exceed 15m/s for more than 0.022% of the time (approximately 1.9 hours per year). These winds would present a safety risk for cyclists and pedestrians, particularly the elderly or very young and as such remedial measures would be required to reduce the occurrence of these winds or to reduce the likelihood that someone will be exposed to such conditions.

¹ https://www.cityoflondon.gov.uk/assets/Services-Environment/wind-microclimate-guidelines.pdf

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Strong winds are generally associated with areas which would be classified as uncomfortable in the Criteria. In a mixed-use urban development scheme, uncomfortable conditions would not form part of the 'target' wind environment and would require mitigation due to pedestrian comfort considerations. This mitigation would also be expected to reduce the frequency of, or even eliminate, any strong winds.

It should be noted that the CFD simulations provide an average expected wind speed for the windiest season (typically the winter months – December to February) and summer season in regard to pedestrian comfort. Areas which would have uncomfortable wind conditions would be likely to have instances of strong winds. As such, professional judgement incorporating RWDI's experience of a large number of similar projects both within the UK and internationally has been applied, informed by the CFD results to identify areas of the proposed development likely to have instances of strong winds.



5 RESULTS

5.1 Details of Analysis

To account for the difference in ground height and terrain roughness between the meteorological station and the Site and the effect this will have on meteorological conditions, a terrain roughness assessment was undertaken to adjust the meteorological data from the relatively opens surrounds of the airport to the suburban surroundings of the Site. Adjustment (mean) factors were computed and applied to all assessed wind directions using the methodology set out in ESDU 01008² and applied to the CFD data.

5.2 Desired Pedestrian Activity around the Proposed Development

Generally, for a residential development such as the proposed development, the target conditions are:

- Strolling during the windiest season on pedestrian thoroughfares;
- Standing conditions at main entrances, drop off areas, and bus stops throughout the year;
- Sitting conditions at outdoor seating during the summer season when these areas are more likely to be frequently used by pedestrians; and
- Sitting or standing use conditions during the summer season on private amenity spaces.

The uncomfortable classifications are usually avoided because of their association with occasional strong winds, unless they are on a minor pedestrian route or a route where pedestrian access could be controlled in the event of strong winds.

Achieving a sitting classification in the summer usually means that the same measurement location would be suitable for standing in the windiest season because winds are stronger during this period. This is considered an acceptable occurrence for the majority of external amenity spaces because other factors such as air temperature and precipitation influence people's perceptions about the 'need' to use seating in the middle of winter.

5.3 Performance against the City of London Lawson Comfort Criteria

The wind microclimate within and around the Site has been assessed and classified using the more stringent City of London Lawson Comfort Criteria (defined in Table 1) to enable direct comparison with the consented O2 Masterplan. The results of the assessment for each configuration are described below and presented graphically in Figures 4–19. Results of the assessment are discussed in Section 6.

² ESDU International, Computer program for wind speeds and turbulence properties: flat or hilly sites in terrain with roughness changes, ESDU 01008, 2001 01008



5.3.1 Configuration 1 – Existing Site with Existing Surrounding Buildings

The wind microclimate results for Configuration 1 are shown in the following figures:

- Figure 4: Windiest Season: Ground Level; and
- Figure 5: Summer Season: Ground Level.

5.3.2 Configuration 2 – Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings

The wind microclimate results for Configuration 2 are shown in the following figures:

- Figure 6: Windiest Season: Ground Level;
- Figure 7: Summer Season: Ground Level;
- Figure 8: Windiest Season: Terrace Levels; and
- Figure 9: Summer Season: Terrace Levels .

5.3.3 Configuration 3 – Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings

The wind microclimate results for Configuration 3 are shown in the following figures:

- Figure 10: Windiest Season: Ground Level; and
- Figure 11: Summer Season: Ground Level.

5.3.4 Configuration 4 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings

The wind microclimate results for Configuration 4 are shown in the following figures:

- Figure 12: Windiest Season: Ground Level;
- Figure 13: Summer Season: Ground Level;
- Figure 14: Windiest Season: Terrace Levels; and
- Figure 15: Summer Season: Terrace Levels.



5.3.5 Configuration 5 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings

The wind microclimate results for Configuration 5 are shown in the following figures:

- Figure 16: Windiest Season: Ground Level;
- Figure 17: Summer Season: Ground Level;
- Figure 18: Windiest Season: Terrace Levels; and
- Figure 19: Summer Season: Terrace Levels.

The following consented cumulative schemes which are within 400m radius of the site were included:

- 11 Blackburn Road (Planning Ref: 20153148P/20205941P); and
- 13 Blackburn Road (Planning Ref: 20202940P).



6 DISCUSSION

This discussion compares the measured wind conditions (shown in the contour plots) to the anticipated use of the Site, to provide an assessment of whether the conditions would be suitable or too windy for the intended use.

Any areas not specifically mentioned would be suitable, or calmer than required, for the desired pedestrian use. Mitigation has been identified for areas where windier than suitable conditions for the intended pedestrian use, save for pre-existing wind conditions which are also identified in Configuration 1.

The proposed landscaping scheme at the accessible terraces were modelled in Configurations 2, 4 and 5.

6.1 Configuration 1: Existing Site with Existing Surrounding Buildings

Results for Configuration 1 are presented in Figure 4 and Figure 5 for ground level during the windiest and summer seasons respectively.

6.1.1 Pedestrian Comfort

Wind conditions around the Site are suitable for frequent sitting to walking use during the windiest season. Conditions are generally one category calmer during the summer season due to the low frequency/speed expected; wind conditions are suitable for frequent sitting to standing use during the summer season with one isolated instance of walking conditions along West End Lane.

6.1.1.1 Thoroughfares (Figure 4)

Pedestrian thoroughfares around the Site and in the surrounding area are suitable for frequent sitting to walking use during the windiest season.

6.1.1.2 Entrances (Figure 4)

Entrances to the nearby surrounding buildings have wind conditions suitable for frequent sitting to standing use during the windiest season.

6.1.1.3 Bus Stops (Figure 4)

Bus stops along West End Lane are suitable for standing use during the windiest season.



6.1.2 Strong Winds

Strong winds with the potential to be a safety concern for cyclists and more vulnerable pedestrians would be anticipated to occur when wind conditions are suitable for uncomfortable for all intended uses during the windiest season. Professional judgement has been applied, informed by the CFD results, to identify areas likely to have instances of strong winds.

As uncomfortable conditions are not expected at and around the Site, strong winds which would pose a safety concern for the pedestrians are not anticipated around the existing Site.



Figure 4: Configuration 1 – Existing Site with Existing Surrounding Buildings – Ground Level, Windiest Season





Figure 5: Configuration 1 – Existing Site with Existing Surrounding Buildings – Ground Level, Summer Season



6.2 Configuration 2: Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings

Results for Configuration 2 are presented in Figure 6 and Figure 7 for ground level during the windiest and summer seasons respectively. Figures 8 and 9 present the results at elevated levels during the windiest and summer seasons respectively.

6.2.1 Pedestrian Comfort

The introduction of the proposed development would slightly increase the windiness along Blackburn Road, and locally around the north-western corner. This is due to localised building corner accelerations; however, wind conditions remain largely within the same range of conditions as the baseline scenario.

6.2.1.1 Thoroughfares (Figure 6)

Pedestrian thoroughfares around the proposed development and surrounding area would range from suitable for frequent sitting to walking use during the windiest season. These conditions would be suitable for the intended pedestrian use.

6.2.1.2 Entrances (Figure 6)

Entrances to the proposed development would be suitable for frequent sitting and occasional sitting use during the windiest season, acceptable conditions for the intended use.

Entrances to surrounding buildings would be materially the same as those reported in Configuration 1.

6.2.1.3 Bus Stops (Figure 6)

Bus stops along West End Lane would have materially the same conditions to those reported in Configuration 1, suitable for standing use during the windiest season. And therefore acceptable for the intended use.



6.2.1.4 Terraces (Figure 9)

With the terrace landscaping scheme assessed for this assessment, the level 1 terrace of the PBSA building would have a mixture of occasional sitting and standing use during the summer season and the level 6 terrace of Building C3 would have wind conditions suitable for standing use with isolated areas of occasional sitting use during the summer season. It is expected that the proposed landscaping at these terraces, which the Applicant has introduced following the wind microclimate assessment would provide beneficial shelter to the areas with standing conditions. The proposed landscaping scheme include increase the number of trees (of 3-4m in height) and placing the benches within pergolas with green screens and green roofs (indicated in Figure 25 in Appendix B). Effects of this proposed landscaping scheme have been qualitatively assessed. As such, with these measures in place the seating spaces within these terraces would be expected to have suitable occasional sitting use conditions during the summer season.

6.2.2 Strong Winds (Figures 6, 8)

Strong winds with the potential to be a safety concern for cyclists and more vulnerable pedestrians would be anticipated to occur when wind conditions are suitable for uncomfortable for all intended uses during the windiest season. Professional judgement has been applied, informed by the CFD results, to identify areas likely to have instances of strong winds.

As uncomfortable conditions would not be expected at and around the proposed development, strong winds which would pose a safety concern for the pedestrians would not be expected at and around the proposed development.





Figure 6: Configuration 2 – Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings – Ground Level, Windiest Season





Figure 7: Configuration 2 – Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings – Ground Level, Summer Season



Figure 8: Configuration 2 – Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings – Terrace Levels, Windiest Season





Figure 9: Configuration 2 – Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings – Terrace Levels, Summer Season

6.3 Configuration 3: Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings

Results for Configuration 3 are presented in Figure 10 and Figure 11 for ground level during the windiest and summer seasons respectively.

6.3.1 Pedestrian Comfort

When the consented scheme (Plot S8) is in situ with the rest of the O2 masterplan and existing surrounding buildings, wind conditions at and around the Site would be suitable for frequent sitting to walking use during the windiest season and would be generally one category calmer during the summer season, being suitable for frequent sitting to standing use.

Wind conditions within the off-site thoroughfares, entrance and the bus stops would remain suitable for their intended uses during the windiest season.



6.3.2 Strong Winds

Strong winds which would pose a safety concern for the pedestrians would not be expected at and around the consented scheme (Plot S8).



Figure 10: Configuration 3 – Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings – Ground Level, Windiest Season





Figure 11: Configuration 3 – Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings – Ground Level, Summer Season



6.4 Configuration 4: Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings

Results for Configuration 4 are presented in Figure 12 and Figure 13 for ground level during the windiest and summer seasons respectively. Figures 14 and 15 present the results at terrace levels during the windiest and summer seasons respectively.

6.4.1 Pedestrian Comfort

Inclusion of the proposed development would marginally increase the extent of walking conditions along Blackburn Road compared to the consented scheme (Plot S8) (Configuration 3). However, the walking conditions would remain suitable for the intended pedestrian use.

As such, wind conditions at ground within the proposed development would be suitable for the intended use and the off-site entrances, and the bus stops would have wind conditions materially the same to those in Configuration 1.

With the updated proposed landscaping on the terrace spaces of the proposed development (as shown in Figure 25 in Appendix B) wind conditions at the terrace seating areas would be expected to be suitable for the intended use during the summer season.

6.4.2 Strong Winds

Strong winds with the potential to be a safety concern for cyclists and more vulnerable pedestrians would be anticipated to occur when wind conditions are suitable for walking or uncomfortable for all intended uses during the windiest season. Professional judgement has been applied, informed by the CFD results, to identify areas likely to have instances of strong winds.

As such, no instances of strong winds are anticipated in pedestrian accessible areas at and around the proposed development.





Figure 12: Configuration 4 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings – Ground Level, Windiest Season



Figure 13: Configuration 4 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings – Ground Level, Summer Season



Figure 14: Configuration 4 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings – Terrace Levels, Windiest Season



Figure 15: Configuration 4 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings – Terrace Levels, Summer Season

6.5 Configuration 5: Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings

Results for Configuration 4 are presented in Figure 16 and Figure 17 for ground level during the windiest and summer seasons respectively. Figures 18 and 19 present the results at terrace levels during the windiest and summer seasons respectively.

6.5.1 Pedestrian Comfort

The cumulative schemes which are located to the north of the proposed development, a non-prevailing wind direction, and would not adversely affect the wind conditions at the proposed development. As such, wind conditions at and around the proposed development would be materially the same to those in Configuration 4 and remain suitable for the intended uses during the windiest and summer seasons.



6.5.2 Strong Winds

No instances of strong winds are anticipated in pedestrian accessible areas at and around the proposed development.



Figure 16: Configuration 5 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings – Ground Level, Windiest Season



Figure 17: Configuration 5 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings – Ground Level, Summer Season



Figure 18: Configuration 5 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings – Terrace Levels, Windiest Season



Figure 19: Configuration 4 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings – Terrace Levels, Summer Season



7 CONCLUDING REMARKS

This report has identified the wind microclimate effects on the proposed development and surrounding area, based on an assessment conducted using Computational Fluid Dynamics (CFD) simulations. The following is a summary of the key points described in the report:

- The meteorological data for the Site indicates prevailing winds blowing from the south-west throughout the year. There is a secondary wind from the north-east most common during the late spring season.
- Wind conditions discussed within this report have been assessed using the more stringent City of London wind microclimate criteria to enable direct comparison with the consented O2 Masterplan.
- Wind conditions for the baseline scenario (Configuration 1) show wind conditions at and around the existing Site would be in keeping with other areas of London with a similar density and height of buildings.
- With the introduction of the proposed development (Configuration 2), wind conditions along Blackburn Road would marginally get windier but conditions would remain suitable for the intended uses at ground level. Standing conditions at the level 6 terrace of Building C3 would be one category windier than suitable for intended sitting use. However, the proposed landscaping scheme, which the applicant has updated following this wind microclimate assessment would be expected to increase the shelter to the terrace spaces and the proposed seating spaces would be expected to have wind conditions suitable for the intended use during the summer season.
- There would be no significant difference in wind conditions at and around the proposed development (Configuration 4) and the consented scheme (Plot S8) (Configuration 3) in the context of O2 masterplan and existing surrounding buildings.
- Inclusion of the cumulative schemes would not materially impact the wind conditions at and around the proposed development. As such, with the proposed landscaping which the Applicant has updated following the wind microclimate assessment wind conditions at and around the proposed development would be suitable for the intended uses and the off-site areas would have wind conditions materially the same as those in the existing scenario (Configuration 1).



8 STATEMENT OF LIMITATIONS

This report entitled Pedestrian Level Wind Microclimate Assessment dated April 9th, 2025, was prepared by RWDI for Hampstead Asset Management Ltd ("the Applicant") and their delivery partner Fifth State. The findings and conclusions presented in this report have been prepared for the Client and are specific to the development described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final design stage to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilise the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.



9 ASSUMPTIONS AND LIMITATIONS

The findings included in this report are based on the following information ("Project Data") disclosed to RWDI:

- Design freeze information received 27th February 2025;
- cumulative info received 24th February 2025;
- Landscape information received 4th March 2025/4th April 2025; and
- Crib sheet received 28th March 2025.

The recommendations and conclusions are based on the following assumptions:

- The Project Data is accurate and complete;
- The Proposed Development, when built, does not deviate substantially from the information listed above. "Substantially" in this case means any change to the exterior form of the buildings that would change the wind flow around it, in a way that would impact pedestrian comfort or safety.
- Sensitive areas of the Site (such as amenity spaces) are expected to be used in line with the temporal specifications set out in the report body.

Any change in the Project Data or Project Specific Conditions not reflected in this report can impact and/or alter the recommendations and conclusions in this report. Therefore, it is incumbent for the Client and/or any other third party relying on the recommendations and conclusions in this report to contact RWDI in the event of any change in the Project Data and Project Specific Conditions in order to determine whether any such change(s) may impact the assumptions upon which the recommendations and conclusions were made.

Finally, the recommendations and conclusions in this report are partially based on historical data and can be affected by a number of external factors, including but not limited to Project design, quality of materials and construction, site conditions, meteorological events, and climate change. As such, the conclusions and recommendations contained in this report do not list every possible outcome.



10 REFERENCES

- 1. Lawson T.V. (April 2001), Building Aerodynamics, Imperial College Press
- 2. ESDU International, Computer program for wind speeds and turbulence properties: flat or hilly sites in terrain with roughness changes, ESDU 01008, 2001 01008



APPENDIX A





APPENDIX A: COMPUTATIONAL MODEL



Figure 20 – Existing Site with Existing Surrounding Buildings 3D model used for Computational Fluid Dynamic simulations (view from the south)



Figure 21 – Proposed Development with Proposed On-Site Landscaping and Existing Surrounding Buildings 3D model used for Computational Fluid Dynamic simulations (view from the south)





Figure 22 – Consented Scheme (Plot S8) with O2 Masterplan and Existing Surrounding Buildings 3D model used for Computational Fluid Dynamic simulations (view from the south)



Figure 23 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Existing Surrounding Buildings 3D model used for Computational Fluid Dynamic simulations (view from the south)

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Figure 24 – Proposed Development with Proposed On-Site Landscaping, O2 Masterplan and Cumulative Surrounding Buildings 3D model used for Computational Fluid Dynamic simulations (view from the south)



APPENDIX B





APPENDIX B: PROPOSED TERRACE LANDSACAPING

BMD 24 0137 DR P101 GROUND FLOOR GENERAL ARRANGEMENT PLAN 1/2 BMD 24 0137 DR P103 ROOFTOP LANDSCAPE GENERAL ARRANGEMENT PLAN 1/2	EMD 24.0137 DR P102 GROUND FLOOR GENERAL ARRANGEMENT FLAN 2/2 BMD 24.0137 DR P104 ROOFTOP LANDSCAPE GENERAL ARRANGEMENT FLAN 2/2

Figure 25 – Proposed Landscaping at Terrace Levels