

Alison Amoah
Reading Borough Council
Civic Centre
Bridge Street
Reading RG1 2LU

27th January 2026

75326 Royal Elm Park – Wind Microclimate Peer Review

Dear Alison,

NOVA Fluid Mechanics Ltd (NOVA) has undertaken a detailed peer review of the Wind Microclimate Report “Arc Aero Wind Microclimate Rerport Oct 2025.pdf” (Arc Aero Report 2110293rep1v2, dated 24th October 2025), provided by Reading Borough Council (RBC) on 8th December 2025, which was submitted in support of the Discharge of Condition application PL/25/1652 for Condition 62 in relation to Block 6 (Phase 5) of the Royal Elm Park Masterplan in Reading, UK. A number of initial queries were provided to Arc Aero (the applicant’s wind consultant), and the responses provided (which are appended to this letter) have been taken into consideration in the review.

From a technical perspective, the methodology adopted, being a RANS based CFD assessment, is appropriate and in line with industry practice. A total of 16 wind directions, in 22.5° increments, have been assessed, which is considered to be adequate.

The wind climate has been modelled on historical data from London Heathrow, which is considered to be appropriate for the assessment. The transposition of the wind climate data to reference height at the site of interest appears to be suitable, with reasonable assumptions regarding terrain roughness, and utilises the industry standard ESDU approach. Whilst the match between the simulated atmospheric boundary layer and the profile derived from the wind climate model is not ideal, it is within acceptable limits (when correcting the normalisation of the mean wind speeds to reference height).

The numerical model appears to be of a suitable extent, with sufficient detail to represent the wind conditions at the site. Three configurations are presented, namely the existing site, Block 6 in existing surrounds and Block 6 within the Masterplan in existing surrounds. As it is understood that all relevant cumulative schemes have already commenced construction and thus are included in the existing context, these scenarios are considered appropriate for quantifying the impact of the proposed development.

It is noted that the proposed development has been assessed with both the current soft landscaping proposals, and existing landscaping around the site based on a review of publicly available information. The modelling of the soft landscaping would appear to be in line with industry practice, albeit details of the experimental data used for the porous inertial and viscous terms has not been provided. Whilst references to the relevant drawings for the proposed landscaping are provided in the report, these drawings do not appear to form part of the planning submission and thus it is not clear whether a detailed specification of the trees matching what was modelled has been provided. In addition, there do not appear to be any details of what was modelled for the existing landscaping. As a scenario without landscaping has not been considered, the reported wind conditions will be contingent on the

landscaping being in place. Consequently, it would be pertinent to include a detailed specification of all landscaping included in the CFD model within the report.

The details of the CFD modelling and simulation parameters are generally in line with industry practice & the associated guidelines. However, it is noted that the domain is smaller than would typically be adopted for channel flows, albeit not inconsistent with wind tunnel based studies. Whilst this may contribute to increased blockage, as noted by Arc Aero, given the relatively low rise nature of the surrounding area (helping to minimise the overall blockage) and noting that the blockage associated with the proposed development is expected to be higher than that of the existing site, this should result in a conservative estimate of the impact on the surrounding wind conditions.

The criteria used for the assessment is the LDDC variant of the Lawson criteria, which has become the established standard for wind microclimate assessments within the UK and is therefore appropriate for the study. It is noted that the comfort ratings for the balconies & terraces have been assessed in summer only, which is generally considered appropriate albeit that the assessment of larger recreational spaces would more typically include the transitional seasons. NOVA would suggest that the spring and autumn seasons be considered in the assessment of the podium and north facing terraces.

The existing site is occupied by the Majeski Training Academy and a number of ancillary single storey buildings. Despite the site levels generally being above the surrounding context, the existing landscaping provides some shelter from prevailing winds. The assessment has indicated that the baseline wind conditions are suitable, both in terms of pedestrian comfort and safety, for the existing uses, which is considered to be plausible.

The Proposed Development represents a potential obstruction to prevailing winds, but benefits from the same shelter as the existing site and is relatively low-rise, thus minimising the potential for strong downdraughts. With respect to both pedestrian safety and comfort, the assessment indicates that wind conditions remain suitable at all locations for the intended use by the general public, which is also considered to be plausible.

With the introduction of the Masterplan, Block 6 will primarily benefit from additional sheltering, which has been demonstrated to result in generally calmer conditions that largely remain suitable, both in terms of pedestrian safety and comfort. It should be noted that there appear to be some exceedances of the safety criteria in the wider masterplan (see Figures 4.15 & 4.16), but as it is expected that Block 6 does not directly contribute to these, it is anticipated that they will be addressed in the respective RMA's. Consequently, the assessment of wind conditions in the context of the Masterplan is also considered to be plausible.

With respect to the relevant planning policies, the assessment is considered to be compliant with the requirements of policy 'CC8: Safeguarding Amenity'. Whilst policy 'CR10: Tall buildings' does not apply as the development is below 36 m, the methodology employed is also consistent with these requirements. Furthermore, it is understood that whilst consideration has been given to policy 'CC3: Adaption to Climate Change', Arc Aero have indicated that based on current projections the conclusions of the assessment are not expected to change significantly, which is in line with the general industry consensus.

Notwithstanding the above, whilst the wind microclimate assessment is broadly appropriate, there are a number of aspects of the study that are less than ideal. However, these are not expected to compromise the conclusions of the assessment, which are expected to be conservative and thus would be considered reasonable in the context of the level of development sought and the relevant policies. NOVA would recommend that full details of both the proposed and existing soft landscaping modelled are included in the report, and/or the relevant drawings submitted with the application along with details of how this will be maintained, in order to ensure that the reported wind conditions can be secured.

Alternatively, the applicant should provide evidence that the wind conditions in the absence of the landscaping will remain adequate.

Should you have any questions on any of the above, please do not hesitate to get in touch.

Kind regards,

David Hankin MEng ACGI PhD MRAeS

Technical Director