



7th September 2018

Housing, Regeneration and Planning
Haringey Council
River Park House
225 High Road
London, N22 8HQ

Dear James,

Tottenham Hale Centre – Wind Microclimate Review

A detailed review of the wind microclimate assessment forming part of the ES, submitted in support of the planning application for the proposed Tottenham Hale Centre, has been carried out. The review is intended to advise on the suitability of the method of assessment, the criteria used for the study, the results obtained and the conclusions derived.

The review is based on the following reports:

- Chapter 13 of the Environmental Statement Volume 1
Tottenham Hale Centre, July 2018;
- Appendix 13.1: Detailed Policy Review
- Appendix 13.2: Pedestrian Level Wind Assessment, July 2018; and
- Design & Access Statement (DAS), July 2018.

In addition, a desk-based review of the Site and surrounding area has been carried out using internet-based aerial and street level photos.

The review does not extend to a detailed technical analysis, and we have not conducted our own assessments.

Legislation, Planning Policy and Guidance

The ES provides a comprehensive review of national, regional and local policies relevant to wind microclimate. The National Planning Policy Framework was updated in July 2018, but this does not introduce any new guidance with regards to wind effects. The Draft London Plan was also updated in July 2018 and is now stated as a material consideration in planning decisions. However, policies directly relating to wind microclimate are unchanged from the unpublished draft referenced in the ES.

Ensuring that conditions are suitable for pedestrian activities, in accordance with the industry standard Lawson criteria, generally confirms compliance with the policies.

Assessment Methodology

Potential construction effects have been scoped out of the ES. Typically, a qualitative experience-based review is included (due to the ever-changing conditions and less-sensitive activities within the Site), unless a phased construction is proposed where initial plots are occupied in the absence of later plots. However, it is understood that a continuous construction programme is proposed. It is also expected that the completed, operational, development will represent the worst-case in terms of both wind effects and sensitivity of pedestrian activities. The scoping out of construction effects is not therefore considered a significant omission.

The baseline and operational effects assessments comprise a detailed quantitative analysis of wind conditions in and around the Site based on wind tunnel testing of a physical scale model, in conjunction with long-term wind climate statistics corrected to apply at the site and the Lawson Criteria for pedestrian safety and comfort. This represents best industry practice and provides a robust assessment.

For the wind tunnel tests, the model scale and extent are considered appropriate and the level of detail modelled appears adequate. The wind statistics applied, and the factors applied to correct the statistics to apply at the Site are also considered acceptable.

Six configurations have been assessed:

1. Existing Site with existing surrounding buildings (in absence of existing trees);
2. Completed Development with existing surrounding buildings;
3. Completed Development with cumulative surrounding buildings;
4. Completed Development with Mitigation and existing surrounding buildings;
5. Completed Development with Mitigation and One Station Square and existing surrounding buildings;
6. Completed Development with Mitigation and cumulative surrounding buildings.

It is understood that configurations 2 and 3 omit design features which were initially developed as wind mitigation but now form part of the design submitted for approval. This includes closing the passage through Building 1. As designed-in mitigation, it would have been more appropriate to include these features in the

assessment. However, these features are included for configurations 4 to 6 and this is not therefore considered a significant issue.

It is also understood that configurations 2 to 6 include existing mature trees along Monument Way, The Hale, Watermead Way, in Down Lane Park and on the site of the Tottenham Hale train and bus stations, as well as proposed landscaping within the Island Sites and the Ashley Road East Site. As no beneficial effects on surrounding conditions are reported, the omission of existing trees from the baseline scenario is not considered significant.

However, there are some discrepancies between model photos included in Appendix 13.2 and the assessment configurations as described. These include:

- the apparent inclusion of One Station Road for configuration 2;
- an earlier version of Building 3 for configurations 2 and 3,
- omission of the Pavilion and proposed landscaping for configurations 2 and 3.

In addition, the results presentations also suggest inclusion of One Station Road for configurations 2 and 4. **It is therefore recommended that the applicant clarify the configurations assessed.**

The pedestrian comfort criteria, and their seasonal application in generating target conditions, are considered appropriate. Extending suitable conditions for recreational uses from summer into spring and autumn would be considered beneficial, though this would generally represent an enhancement rather than a mitigation requirement.

The significance criteria applied is not uncommon but is considered to have deficiencies, as follows:

- It is agreed that achieving calmer conditions than required could be considered beneficial. However, this would be most keenly felt at a seating area where conditions are well within the target criteria rather than marginally within it. As the Lawson criteria only specifies maximum acceptable conditions for an activity, this occurrence would not be identified by the significance criteria. It is our opinion that claiming a moderate beneficial effect for sitting conditions in the middle of a thoroughfare, where no sitting activities occur, is disproportionate with the wider ES and that a beneficial effect should indicate an improvement in conditions from unsuitable for existing activities to suitable for activities carried out under proposed site conditions.
- It is appropriate for the strong wind (or safety) criteria to be considered separately, in accordance with the Lawson criteria. However, it is recommended that a significance be applied to the effects.

Notwithstanding the above concerns, the significance applied to effects on pedestrian comfort within the surrounding area in the assessment is considered appropriate. However, it is recommended that the reported beneficial effects within the Site are considered to be of negligible significance.

Amendments to the Proposed Development following the wind tunnel tests, as listed under Evidence Assumptions and Limitations, appear insignificant. However, comparison of the ES Figures with the Design and Access Statement suggest potential further amendments to entrance locations, particularly within the Island Sites. **It is therefore recommended that the applicant clarify the full extent of amendments applied subsequent to the tests.** This also leads to further requests for clarifications below.

Baseline Conditions

Existing conditions are assessed as being relatively benign. However, the actual suitability of conditions for existing activities are not clearly identified. As the results appear to suggest generally suitable conditions, and the further discussion of the Future Baseline does state that conditions are expected to be suitable for intended pedestrian uses, this is not considered a significant omission. However, for completeness, it is recommended that **the applicant clarify the suitability of existing conditions for existing activities.** In particular this should reference sensitive surrounding receptors, such as:

- The Volunteer pub spill-out seating;
- play spaces in Down Lane Park;
- further sensitive entrances facing the Site (on Chestnut Road, Fairbanks Road, The Hale, Ferry Lane and at the train station);
- main private gardens (though these appears substantially sheltered by boundary fences);
- the bus stop on Monument Way; and
- the public space on The Hale to the southwest of the Site (though this does not appear a particularly sensitive area, it may represent a meeting point).

Completed Development

Welbourne Site

Thoroughfares, entrances, roof-top terraces and balconies are assessed as suitable for intended uses. Effects are assessed as ranging from moderate beneficial to negligible. It is our opinion that these effects should be considered negligible.

The podium-top courtyard is assessed as a thoroughfare, but the DAS suggests a recreational courtyard with benches and play space. **The applicant should therefore clarify the intended uses and resulting suitability of conditions within the courtyard.**

Ashley Road West

Thoroughfares, entrances, roof-top terraces and balconies are assessed as suitable for intended uses. Effects are assessed as ranging from moderate beneficial to negligible. It is our opinion that these effects should be considered negligible.

Ashley Road East

Thoroughfares, entrances, the podium-top courtyard and balconies are assessed as suitable for intended uses. Effects are assessed as ranging from moderate beneficial to negligible. It is our opinion that these effects should be considered negligible.

The L05 communal terrace is suitable for a mix of sitting and standing conditions. We agree that this is acceptable for a large open space, but the seating should be located in calmer areas. The private terrace at L05 is too windy and requires mitigation. We agree this is a minor adverse effect.

College Square and Watermead Place appear to be assessed as thoroughfares. However, the DAS suggests potential for amenity uses, possibly including outdoor seating, in College Square and a potential meeting point in Watermead Place. **The applicant should therefore clarify the intended uses of these spaces and the resulting suitability of conditions.**

Island Sites

As discussed above, Building 1 has been assessed with an open passage through the building. The design submitted for approval has this passage closed at both ends. However, if the passage were to be re-opened the assessment shows that conditions would be unsuitable in terms of pedestrian safety and comfort. (No significance is assigned to the strong winds, but we would consider the reported extent of exceedance of the safety criteria to represent a major adverse effect).

The south corner of Building 3 is reported as experiencing strong winds for 4.2 hours per year, against a safety criteria threshold of 2.2 hours. No significance is assigned to this effect. These winds have the potential to destabilise the more vulnerable members of the public and, in our opinion, represents a localised major adverse effect.

Otherwise, thoroughfares within the Island Sites are assessed as suitable for strolling. These effects are assessed as ranging from moderate beneficial to negligible. It is our opinion that these effects should be considered negligible.

The remainder of the assessment of the Island Sites focuses on the entrances, roof-terraces and balconies within Buildings 1, 2 and 3. The Pavilion building is not discussed and Ferry Square is not assessed for recreational uses. The DAS suggests potential cafe outdoor seating around the perimeter of the square. Whilst much of the space appears suitable for recreational uses, **the applicant should clarify the intended uses and resulting suitability of conditions.**

Building 1

Three entrances are assessed as too windy for comfortable pedestrian ingress/egress. Two of these are associated with the open passage and the third is a service entrance. On this basis, it could be argued that conditions at all entrances are acceptable. However, the DAS suggests that Building 1 entrances may have been

amended subsequent to the assessment. In particular, an entrance appears to have been introduced at the southeast corner, where conditions are unsuitable. **The applicant should therefore clarify the suitability of conditions for pedestrian ingress / egress at proposed entrances.**

The ES Evidence Assumptions and Limitations states that the Building 1 L07 terrace is assessed as a thoroughfare but that the same target conditions would be applied for a play space. Whilst strolling conditions would be acceptable for active leisure, we would recommend standing conditions as a more appropriate target for a play space (these conditions are achieved in summer). However, the DAS suggests this terrace is a communal amenity space, including outdoor seating. In this case, reported conditions would be unsuitable. **The applicant should therefore clarify the intended uses and resulting suitability of conditions on the L07 terrace.**

The communal roof-top terrace on south tower is assessed as suitable for recreational uses. We agree that this represent a negligible effect.

Numerous balconies are assessed as too windy for intended recreational uses. It is understood that this is in the absence of full-height, solid, side-screens at the corner balconies (effectively creating recessed balconies). However, whilst the DAS does make mention of the requirement for side screens within the section on wind mitigation measures, it is not entirely clear that they have been implemented (see below for requested clarification). In the absence of these screens, we agree that effects range from moderate adverse to negligible.

Building 2

A single entrance at east corner of Building 2 is assessed as uncomfortable for pedestrian ingress / egress. Remaining entrances are assessed as suitable, but the DAS suggests that Building 2 entrances may also have been amended subsequent to the assessment. In particular, there is concern over the suitability of conditions for a possible entrance on the northeast elevation, fronting onto the narrow gap between buildings. **The applicant should therefore clarify the suitability of conditions for pedestrian ingress / egress at proposed entrances.**

The L07 terrace is assessed as having a mix of standing and sitting conditions. Whilst we agree that such a mix is generally acceptable for a large amenity space, in this case there is a concern that the standing conditions may cover too much of the space to make appropriate layout of seating areas viable. On this basis, we would consider the effect to be minor adverse and recommend that mitigation measures are considered.

All balconies are assessed as suitable for intended uses. We agree this represent a negligible effect.

Building 3

A single entrance is assessed as too windy for comfortable pedestrian ingress/egress. However, the DAS again suggests that the entrances may have been amended

subsequent to the assessment, including a slight relocation of the unsuitable entrance. **The applicant should therefore clarify the suitability of conditions for pedestrian ingress / egress at proposed entrances.**

All balconies are assessed as suitable for intended uses. We agree this represent a negligible effect.

Surrounding Area

Conditions at the corner of The Hale and Hale Road are assessed as comfortable only for walking. These conditions are normally associated with fast walking, with purpose (e.g. business uses). It is agreed that this represent a minor adverse effect. However, the corner is also reported as experiencing strong winds for 3.5 hours per year. Again, no significance is assigned to this effect. In our opinion, this represents a localised moderate adverse effect.

Otherwise, surrounding thoroughfares have suitable conditions for at least leisurely strolling, and thus remain suitable for associated uses. We agree that this represent a negligible effect.

Conditions in Down Lane Park vary slightly from baseline conditions but remain suitable for a mix of standing and sitting activities during summer. We agree that this represent a negligible effect.

The assessment of surrounding entrances appears limited to The Volunteer pub and dwellings on Hale Road. One of the dwellings on Hale Road is assessed as suitable only for strolling. This is assessed as a minor adverse effect. In our opinion this would be appropriate if the standing criteria is only marginally exceeded. Otherwise, this could potentially be considered a localised moderate adverse effect, though it should be noted that localised features such as boundary walls are (conservatively) omitted from the model.

The presented results suggest further potential impacts are unlikely. However, there are a number of potential sensitive receptors within the surrounding area not discussed directly (see list under Baseline Conditions). **It is therefore recommended that the likely effects are confirmed by applicant.**

Mitigation and Residual Effects

Proposed mitigation comprises key design features assumed to be implemented within the Island Site proposals submitted for approval and landscaping within the Ashley Road East and Islands Sites.

The enclosing of the internal street of Building 1 is clearly included in the DAS and drawings submitted for approval. However, as discussed above, the full-height, solid, side-screens on Building 1's corner balconies are not entirely clear in the DAS. In addition, we are not clear on the rationale for using enlarged L01 balconies on Building 3 to protect ground level spaces. If the L01 balconies are acting as canopies,

there would appear to be potential for conditions on the balconies themselves to be unsuitable for recreational uses.

It is understood that the landscaping scheme is illustrative only and is not submitted for approval. However, the landscaping illustrated in the DAS for Ashley Road East appears very different, whilst the Island Site is presented with less trees including omitting key wind mitigation measures listed.

On the basis of the above, **it is recommended that the applicant clarify the proposed approach with regards to the wind mitigation measures assumed for the residual effects assessment.**

Notwithstanding the above issues, residual conditions within Welbourne Site, Ashley Road West and Ashley Road East are assessed as suitable for intended uses. Residual effects are assessed as ranging from moderate beneficial to negligible. It is our opinion that these effects should be considered negligible. However, as noted above, the Welbourne podium-top courtyard, College Square and Watermead Place are not assessed for amenity uses.

For the Island Site, residual conditions on thoroughfares, at entrances, terraces and balconies are as assessed as suitable for intended uses. Residual effects are assessed as ranging from moderate beneficial to negligible. Within this, it is agreed that the reported windy conditions at the service entrance to Building 1 is not significant. We also agree that the mix of standing and sitting conditions on the Building 2 L07 terrace, with the majority of the space enjoying sitting conditions, is acceptable. It is our opinion that the reported residual effects should therefore be considered negligible. However, this is subject to the requested clarification on entrance locations and intended uses of open spaces and communal terraces.

Within the surrounding area, the adverse effects are mitigated such that the residual effects are assessed negligible. However, it is not clear how the unsuitable conditions at the residential entrance on Hale Road have been mitigated. It seems likely that this may be just due to very marginal conditions, within the accepted repeatability of the assessment methodology, but **it is recommended that this is clarified by the applicant.**

Cumulative Effects

With the introduction of future surrounding developments, there is no significant changes to the assessments for Welbourne, Ashley Road West and Ashley Road East. However, it is noted that College Square appears windier. This may be significant pending clarification on intended uses of this space.

For the Island Site, mitigation requirements around the south end of Building 1 and the south corner of Building 3 are apparently reduced. However, windier conditions around the northwest corner Building 1 (including strong winds in the absence of mitigation) may be significant pending clarification on entrance locations. In addition, whilst residual conditions are assessed as suitable for intended uses, the results presented in Figure 13.28 suggest that receptor location 66, assessed as an

entrance, would be too windy for comfortable pedestrian ingress / egress when only One Station Square is introduced. **This should be addressed in the requested clarification regarding entrance locations and suitability.**

Within the surrounding area, the entrance on Hale Road improves to be suitable for ingress/egress, without mitigation.

Reported conditions within bus station deteriorate. It is suggested that bus shelters will provide adequate protection. Whilst this is considered plausible, it is not clear if this accounts for the consented changes to the bus station. The proposed siteplan for the bus station appears to suggest very few bus shelters will be included for the consented scheme. There would therefore appear potential for an adverse residual cumulative effect and **the applicant should confirm that the assessment takes account of the changes.**

The suitability of conditions within the future surrounding developments is not discussed, and **potential effects on sensitive uses within these developments should be clarified by the applicant.**

Review Conclusions

The overall approach and conclusions of the wind microclimate assessment is generally considered acceptable, though it is recommended that reported beneficial effects of the Development are considered to be of negligible significance. On this basis the reported effects would range from negligible to moderate adverse, and residual effects would be negligible.

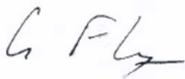
However, these significances appear to assume less sensitive uses of proposed amenity spaces and may not cover all sensitive receptors within the Site and the surrounding area.

It is therefore recommended that clarifications from the applicant are requested as follows:

1. clarify the configurations assessed;
2. clarify existing and proposed conditions at further existing and future sensitive surrounding receptors (as outlined above);
3. clarify the full extent of potentially significant amendments applied to the Proposed Development subsequent to the assessment;
4. clarify proposed entrance locations and the resulting suitability of conditions;
5. clarify intended uses of public open spaces, communal courtyards and communal terraces, and the resulting suitability of conditions;
6. clarify the likely suitability of conditions on the enlarged balconies at L01 of Building 3;
7. clarify the implementation of mitigation measures assumed for the residual effects assessments; and
8. clarify the improvement in residual conditions at the entrance to the existing dwelling on Hale Road.

On the understanding the landscaping is illustrative only, and does not form part of the proposal submitted for approval, it is strongly recommended that any approval be conditioned to require submission of landscaping details with appropriate verification of its effectiveness in mitigating unsuitable wind conditions.

Yours sincerely,



Dr Graeme Flynn
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