Architectural Aerodynamics Ltd.
Kemp House, 160 City Road,
London, EC1V 2NX, UK
Tel: +44 (0)784 1521522
alex@architecturalaero.com

6th July 2023

RG Group,
4 Abbey Wood Road, Kings Hill,
West Malling, Kent, ME19 4AB

Reference: 0100188 – Swan House: Wind Mitigation and Landscaping Review

Dear Gary,

I am writing following a review of the requirement for wind mitigation on the above development. This has been conducted based on the information contained within BMT report 432365rep1v3 dated 19th July 2018, we have not conducted our own analysis. As you know, BMT are no longer operating as a wind engineering consultancy so the raw data is not available, but we have drawn conservative conclusions from the information available to account for this.

Firstly, it is important to note that with only **minimal landscaping** (shown in Figure 3.4 of that report), the following conclusions can be drawn regarding wind conditions at ground level:

- All areas within and around the proposed development satisfy the safety criteria for wind (see Figures D.1b and D.1c).

- Within the site, only locations 18, 23 and 92 could be considered unsuitable for their proposed use as entrances / shop front locations, all other locations meet the comfort criteria for wind (see Figure 6.2 and 6.3).
    - Each of these locations are suitable for use as an entrance in summer (see Figures D.2b and D.2c).
    - Locations 18 and 23 are suitable only for strolling in the worst season, assumed to be winter. It can be inferred from this that at worst, they are also marginally unsuitable for use in spring and autumn.
    - Location 92 is suitable for entrance use in the worst season for the existing surrounds scenario.
    - Location 92 is suitable only for strolling in the worst season in the cumulative surrounds scenario, and it can therefore be assumed that at worst, this location is also marginally unsuitable for use as an entrance in spring and autumn.

- At the roof terrace (locations 103 and 104), conditions are suitable for at least short periods of sitting throughout the year.

- Outside the site, location 71 is reported to have conditions unsuitable for use as an entrance for a development that was understood to have planning consent in 2018 (Figures 6.3, D.3c). Unmitigated, we expect that the departure into ‘strolling’ conditions is only slight during winter,

Architectural Aerodynamics Ltd.
Kemp House, 160 City Road,
London, EC1V 2NX, UK
Tel: +44 (0)784 1521522
alex@architecturalaero.com

and we should be able to expect conditions suitable for an entrance (short-term standing) outside winter, were this development to go ahead. These conditions would most likely be tolerable.

Previously, mitigation measures were proposed to mitigate these effects: wind mitigation measures are shown in Figure 3.5 of the BMT report.

I understand it is not viable to introduce the mitigation as shown within the report and as such the following changes have been made since the completion of the wind tunnel study:

- Removal of 5 trees along Rochdale Road
- Introduction of 7 screens protruding along the façade at Rochdale Road, of 6.6m height and of ~25% porosity, as shown on "Swan House, Manchester, General Arrangement Plan: 32073-Z1-00-PL-A-B5D8-G200-0001, Revision 4". Four of these screens are 900mm wide and the remaining 3 are 1300mm wide. Critically, only the screens closest and either side of the entrances are critical (4 of) and would only need to be 1.6m in height, others are not required for wind mitigation.
- Increased number of trees on the southwest corner of the development (Rochdale Road and Swan Street) from 2- to 6- trees.
- Reduction in the size of canopy along Mason Street, so that 4 canopies 4.5m wide x 1m deep each remain
- Removal of 4 trees along Mason Street
- Removal of the 6 trees along Swan Street at the southeast of the site
- Re-configuration of landscaping and screening (with screens at 3m height x 1.5m wide), including timber Screening Panels, 1800mm tall and 1830mm width x20mm depth at terrace level, as shown within drawing "471401.H Masterplan: 4714.01 Revision H, June 2023"
- Decrease in height of the green wall to 4.5m

Referring back to the locations which required some degree of mitigation:

Locations 18 and 23

The screens situated either side of these entrances, are a suitable substitute for the trees along Rochdale Road and are expected to improve wind conditions throughout winter, spring and autumn and create conditions suitable for entrance use.

Location 92

The increase in number of trees at the southwest corner are considered to be a suitable substitute for the trees along Rochdale Road and are expected to create conditions suitable for entrance use here. In either case, the actual entrances are expected to be less windy than location 92, which is situated further away from the façade and doors.

Architectural Aerodynamics Ltd.
Kemp House, 160 City Road,
London, EC1V 2NX, UK
Tel: +44 (0)784 1521522
alex@architecturalaero.com

Location 71

It is understood that there is a new consent for the neighbouring site which retains the built form of the existing buildings. As such, there would not be an entrance at location 71, and if so, unmitigated conditions would be suitable for comfortable pedestrian passage. As noted, if the prior consent were to come forward, it is likely that conditions at this entrance would be tolerable.

Locations 103 and 104

The slightly revised landscaping and mitigation at the roof terrace is similar in locale and density to the mitigation required to create conditions suitable for long-term sitting in this area. In reality, the proposed landscaping is expected to be more effective than the mitigation proposed in the BMT report. As such, conditions at this terrace are expected to be at least as good as those presented within the BMT report with mitigation introduced, and would still be considered suitable for proposed use.

None of the other changes listed above are expected to materially alter wind conditions, as the report shows suitable conditions in these areas even without landscaping and wind mitigation in place.

In summary, based on the information available, we are happy that the proposed wind mitigation / landscaping strategies shown within the documents mentioned above are sufficient to create an acceptable wind microclimate in and around the proposed development:

Yours Sincerely,



Alex Turpitt
Director
Architectural Aerodynamics