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July 12, 2011

Mr. Jonathan Taylor
Maddox Associates

Re: Comments on Wind Microclimate Issues – Twickenham Station
RWDI Reference Number: 1010935-PLW(A)

Dear Jonathan,

As requested, RWDI has extended the coverage of the study area around the Twickenham Station development to include an assessment of the wind microclimate along Mary's Terrace and in the vicinity of the River Crane, the details of which are provided below. In addition, a clarification of the wind conditions at balconies during the winter months is also provided.

Methodology

The same methodology as used previously was applied to this extension work, a full explanation of which is provided within the Technical Chapter. However to summarise, RWDI has used the following information for this assessment:

- A 3D model of the proposed Twickenham Station development and nearby surrounds;
- A site specific BREve wind exposure profile, combined with Meteorological data for London;
- Our prior experience on similar types of projects;
- The Lawson Comfort Criteria, to benchmark the wind conditions

Mary's Terrace

Marys Terrace lies along the southern edge of the railway line with the proposed Twickenham Station development located to the north and west. Low-rise houses exist on the southern side of the road towards the eastern end of the site, while a high-rise office block exists on the southern side of the road towards the western end of the site.

Wind microclimate conditions during the windiest season along Mary's terrace are expected to vary from leisure walking, between the existing high-rise office block and the Development, to standing/entrance conditions along the majority of the road, to the east of the office block. During the summer months, conditions are expected to improve by one category at all locations.

Assuming there are no primary entrances along the northern façade of the office block, this represents a **negligible** to **minor beneficial** impact along Mary's Terrace where the wind microclimate would be either suitable for the intended pedestrian use or one category calmer than required.

River Crane

The River Crane runs along the northern boundary of the site and the river is bounded by a line of trees on its south bank and sporadic, detached and semi-detached houses along the northern bank.

The wind microclimate during the worst-case season along the River Crane is expected to be suitable for standing along the entire length and on either river bank. During the summer months conditions are expected to improve by one category and become suitable for sitting because of the lighter winds that occur in the summer. This represents a **minor beneficial** to **moderate beneficial** impact, assuming that the river banks are classified as public thoroughfares.

Balconies

For amenity space, such as balconies, summertime conditions are the major concern because this is the season when there is the greater expectation that balconies would be more frequently used by residents. In the UK, achieving a sitting classification in the summer would usually mean that the wind microclimate would be suitable for standing in the windiest season simply because there are stronger winds during the winter. Consequently, the assessment of balcony locations is based on conditions during the summer.

In this assessment the balconies are grouped and labeled for ease of reference and Figures 1, 2 and 3, provided at the end of this document, show those balcony groups.

The group B balconies are recessed and therefore sheltered from the wind, which leads to relatively calm conditions on the balconies. Corner balconies, such as those at locations D and H would usually be relatively windy due to the acceleration of wind around the building corners. However for the Proposed Development, one side of these balconies is fully screened, which prevents cross-flow and creates a calm zone on the balconies. Therefore, the conditions at balconies B, D and H are expected to be suitable for sitting during the summer.

Balcony groups A, C, G and J all protrude from the building façade, which exposes them to cross flows. In previous iterations of the development, full height partition/privacy screens and end screens were included in the 3D model. With such screens in place, the wind would be directed away from the occupied space thereby creating a sheltered zone on the balconies, where sitting conditions would be expected during the summer.

The terraces at location K are expected to be suitable for sitting throughout the summer.

Due to the size, height and building geometry, the remaining balconies are expected to be suitable for a mixture of sitting and standing conditions during the summer i.e. each individual balcony would have areas for sitting and standing. This mixed microclimate is considered acceptable, because it provides residents with useful amenity space that would be suitable for sitting. It should be noted that a standing/entrance assessment does not mean that the area would never be suitable for sitting; it would simply be suitable for sitting less often than a zone classified as suitable for sitting, and perhaps limited to days when winds are generally light or the balcony is located on the downwind side of the building.

Overall, the impact at balconies and terraces around the site would be considered **negligible**.

Should you have any comment or questions, please contact us.

Yours sincerely,

Stuart Carmichael

Wayne Pearce

Figure 1 – Balconies

Figure 2 – Balconies

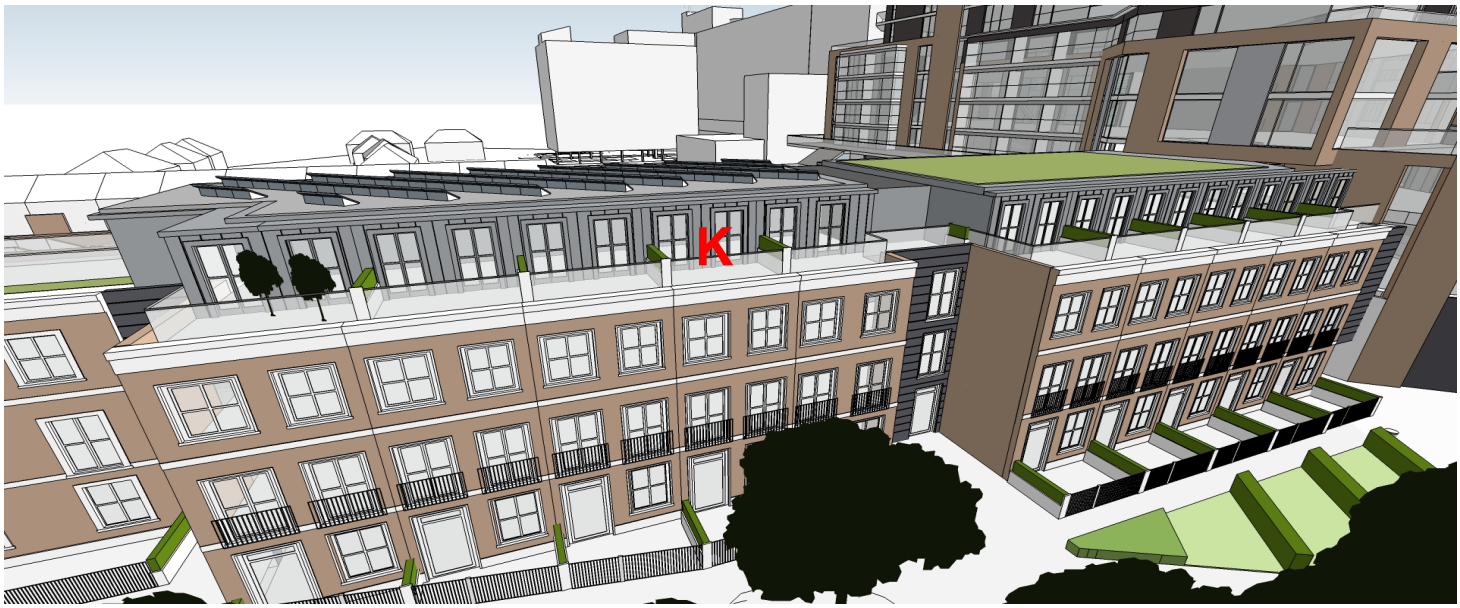

Figure 3 - Balconies