



**Geotechnical – Geoenvironmental
Structural - Civil**

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9th November 2017

Our ref. G1701/17L09/AK1
Your ref.

Mr Anthony Kay,
The Hall School Opposition Group
26 Crossfield Road
London NW3 4NU

Dear Mr Kay,

Planning Application 2016/1639/P - 23 Crossfield Road NW3 4NU

As you requested I have read the new documents which were posted on the Camden planning portal in September and October this year and which are relevant to my professional field.

My further opinion is provided in two tranches, the first being my letter dated 2nd November, which referred to the Elliot Wood responses to my February and August 2017 reports and the second being this letter commenting upon the revisions to the application.

I have several questions about situations that are not considered by the BIA.

1. Item 6.1.2 and figure 6.2 of the leading BIA report refer to the use of tension piles coupled with the use of a compressible material below the basement slab as the intended means of resisting ground heave caused by the excavations. Figure 6.2 also shows that the foundation of the retaining wall for the deepened existing basement is to be supported by the ground which is expected to heave. As far as can be seen, the short term heave predicted is about 8mm and that in the long term is 14-15mm. If the clay caused the footing to lift by even a fraction of those amounts relative to tension piles set a distance of, say, 1m from the wall, the wall would tend to tilt inward by a larger amount.

Considering that the wall in that area would be intended to span 8m vertically between floor and roof, the additional inward deflection at mid height would tend to be 4 times the relative uplift.

What is the calculated impact of this tendency upon movement of the hybrid wall, ground movement and damage risk category for the adjacent garages?

2. Item 6.41 paragraph 2 refers to piling being carried out from high level and assumes, without further comment that a temporary platform will be provided to allow a piling rig to access the area at the east end of the existing basement.

The provision of such a platform in accordance with the safety requirements of the Construction (Design & Management) Regulations and to satisfy the practical requirement described in my 10th August report (page 3 para 5) is fundamental to the feasibility of the design proposed.

How is it to be achieved?

3. Item 9.1 refers to the use of a secant piled wall 18m deep. The ground movement and damage risk assessment in the revised report by GEA is based upon a contiguous piled wall. According to CIRIA C760, installation of a secant wall causes twice as much lateral ground movement as that associated with contiguous piles. Specifically, it suggests that for 18m long piles the secant wall causes 7mm more lateral movement behind the wall than the contiguous alternative.

What is the impact of this on the damage risk assessment provided by GEA?

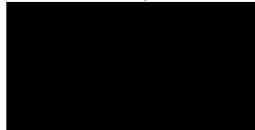
4. GEA have provided an embedded pile wall analysis using the commercial WALLAP software. This allows the complex excavation and both temporary and permanent support process to be modelled. About 100 pages of figured output are provided and I have not examined them all in close detail. It is clear however, that no account has been taken of the shrinkage and creep of the concrete floors that would occur once they have been cast to replace the temporary steel supports used during the excavation. These material properties can result in a significant proportional increase of the movement to be expected in such walls due to elastic deflection.

What is the impact of this on the damage risk assessment provided by GEA?

I consider that taken together as appropriate, these situations have a significant probability of showing that the Category 1 limit of damage risk would be exceeded by the present design. I also consider that unless a suitable form of temporary piling platform can be defined in response to question 2 at this stage, the structural design incorporating piling at the east of the existing basement should be considered impracticable.

In brief conclusion, therefore, the concerns expressed in my February and August 2017 reports have not been adequately addressed, the revised BIA has added further concerns and my opinion continues to be that the application still fails to comply with both Camden's planning policy A5 and CPG4.

Yours sincerely



Michael Eldred
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