Our ref: CB/AR/P12-395

12 August 2016

BY EMAIL ONLY

Simon Firth
29 Earlham Street
London
WC2H 9LS

Dear Simon

51 CALTHORPE STREET
BASEMENT IMPACT ASSESSMENT – REVISION B

Further to the receipt of further comments from Campbell Reith (Revision D2) dated July 2016, we have provided further hydrogeological and engineering design analysis to address the comments raised at the planning stage.

Please find enclosed our revised final Basement Impact Assessment report with appendices for submission to the planning authority. The further comments raised have been addressed within our updated report and the status on each of the queries in the 'Audit Query Tracker' is outlined overleaf.

We trust this meets with your approval.

Please do not hesitate to contact me should you have any queries or require anything further.

Yours sincerely

Colin Buchanan
Technical Director

Audit Query Tracker

Query No.	Subject	Query	Comment	Date closed out
1	Hydrogeology	*Confirm direction of groundwater flow and how the basement will effect this considering that the neighbouring property also has a deep basement*	In order to address the request for further comment to be made in relation to possible wider ground water flows and how they may be affected by cumulative effects of the proposal and the neighbouring basement, an additional analysis has been carried out. The assessment has incorporated a degree of qualitative assessment, based on the data from the site investigations that were previously carried out on the site. This is quite usual and standard in these circumstances, as it is not practical to install the number and quality of instruments that would be needed to produce a quantitative groundwater model for the area. The analysis has enabled the hydrogeology to be assessed by using the site as a small window on a larger backdrop and the following conclusions to be drawn. In addition, research has been carried out regarding the piling technique used to construct the adjacent Holiday Inn. The Party Walls Act Award relating to this construction has been obtained, which confirms that the foundations of this building consists of isolated (i.e. non-contiguous) piles. As a general point, we would agree with the review comment that the 'groundwater is not static', in that the flow quantity and flow rate within a dynamic flow system are materially affected by permeability as well as the necessary head difference between any two points.	12/08/16

			Groundwater has components of horizontal and vertical flow, although a realistic modelling of these to the point that design standard parameters could be derived is not practical, as noted above. We therefore accept that there is some flow, although it is controlled by the local geological variation, which creates preferential flow paths of differing scale and relevance. However, we know from the data obtained from the footprint of the site that there is little significant difference in elevation head. At the scale of the site, this implies an inconsequential hydraulic head and therefore allows the inference of only negligible flow, i.e. some flow but still negligible. The alternative of very high flows but with little hydraulic gradient seems untenable in the soil sequence present and the setting of the site. On this basis, the cumulative effects of the proposal on the ground water have been considered (specifically, the potential for a 'damming effect' to be caused by the basement pile system). Given the low flow inferred for the site and the locally granular soils (as has been proven across the limits of the site and discussed in reported reference texts), the local influence that the basement would have on established ground water flow paths would be low, as the ground water would flow around the structure within the soils in which it would otherwise have flowed through. The structures and foundations (as established) of the adjacent structures (No. 49 Calthorpe Street and the Victorian terrace of which it forms part and the Holiday Inn) immediately adjacent to the site will not provide any	

			material negative cumulative damming effects. The foundations of the Victorian terrace and the basement of the Holiday Inn are above the water table and the piles of the Holiday Inn are not contiguous, so that water is able to flow around them.	
7	Stability	Carry out assessment of movement analysis for various sections through the basement walls. Confirm anticipated movement in relation to Burland Category Scale.	An additional ground movement assessment has been undertaken on the basement proposals on neighbouring properties and infrastructure (see paragraphs 8.199 to 8.213 and Appendix P). This has confirmed that the predicted ground movement is expected to have a negligible to very slight effect (according to Burland Scale Category).	12/08/16