

6 February 2014

Our ref: J13053A/HD/01

Mr Cliff Willis
98 Great North Road
London
N2 0BL

Tythenhanger House
Coursers Road
St Albans
AL4 0PG

tel 01727 824666
fax 01727 824777
email mail@gea-ltd.co.uk
web www.gea-ltd.co.uk

Dear Cliff

Re: 99A FROGNAL, LONDON, NW3 6XR

We have reviewed the letter, written by Neil Millward of Neil Millward Associated Limited, on behalf of the owner of No 4 Oak Hill Park dated 20 January 2014, addressed to Gavin Sexton, the Camden planning officer regarding planning application ref 2013/71955/P at 99A Frogнал, London, NW3 6XR.

As you are aware GEA are an independent specialist providing geotechnical and geoenvironmental advice. We have a lot of experience in this type of work and have carried out over 50 projects alone in the Hampstead and Highgate area, with regard to proposed basements and are fully aware of the ground conditions and have an extensive archive of borehole records in the area. We are also familiar with Camden reviewing planning applications on behalf of the council or working for the developer.

We have been involved in the proposals for 99A Frogнал, since 2010, firstly carrying out a desk study, followed by a Site Investigation in 2013, which comprised three cable percussion boreholes, advanced to depths of 15.0 m and 20.0 m, four drive-in window sampler boreholes advanced to depths of 7.0 m and two dynamic probes advanced to depths of 10.0 m.

The installation of four groundwater monitoring standpipes and six subsequent monitoring visits over a period of roughly ten months to date and will be continued to be monitored up until construction.

The proposals have now progressed to a stage where we have been able to complete further analysis and have recently completed our ground movement analyses, along with a retaining wall design, reported in our BIA report (ref; J13053A, Issue 3, dated 6 February 2014) which provides additional information to supplement our original site investigation and BIA report and this report addresses your concerns and covers the following issues;

- construction sequence;
- retaining wall design;
- ground movement predictions;
- slope stability;
- impact of the ground conditions on the design; and
- effect on groundwater.

The BIA report follows CPG4 requirements and has been prepared by Hannah Dashfield, a BEng in Engineering Geology and Geotechnics and Fellow of the Geological Society (FGS), along with Martin Cooper, a BEng in Civil Engineering, a chartered engineer (CEng), member of the Institution of Civil Engineers (MICE), and Fellow of the Geological Society (FGS) who has over 20 years specialist experience in ground engineering. The subterranean (groundwater) flow assessment has been carried out by John Evans, MSc in Hydrogeology, Chartered Geologist (CGeol) and Fellow of the Geological Society of London (FGS). The assessments have been made in conjunction with Steve Branch, a BSc in Engineering Geology and Geotechnics, MSc in Geotechnical Engineering, a chartered geologist (CGeol) and Fellow of the Geological Society (FGS) with 25 years' experience in geotechnical engineering and engineering geology. Our senior experts involved in this project satisfy the qualification requirements of the Council guidance. We understand that a structural engineer with experience in the area has been appointed.

I can clarify that the property of No 4 Oak Hill Park is located 2 m to the south of the proposed basement excavation. We have recommended in our report that a bored piled wall should be adopted for the construction of the basement and this is what is proposed by the developer. A secant bored piled wall is likely to be installed along the northern and western elevations of the proposed swimming pool and will provide a closed structure to prevent the ingress of soil between the piles and provide watertightness. It is proposed to install a contiguous wall along the remaining walls.

We have also recommended limited excavation below capping beam / each prop level and have recommended monitoring of ground movements. Condition surveys of the above existing structures will be carried out before and after the proposed work.

A ground movement analysis has been undertaken by GEA. We can summarise the predicted damage to the neighbouring properties would be either 'Negligible' or 'Very Slight'. On this basis, the damage that would inevitably occur as a result of such an excavation would fall within the acceptable limits set out by the London Borough of Camden, apart from the northern elevation of No 4 Oak Hill Park Mews and the southern elevation of the swimming pool of 5 Oak Hill Way, where category 2 (slight) damage has been predicted. It is however considered that the damage along the elevation to these neighbouring structures will be brought into the very slight category when the propping arrangements have been finalised. In addition the BIA did not identify any potential adverse impacts on the prevailing groundwater conditions or impact on stability of the slope.

Groundwater monitoring is to be continued at monthly intervals.

With regard to your point raised about lead contamination, discussed in our previous report, lead is of low solubility and does not present a risk to groundwater. The elevated lead concentration was found in a single location and construction workers will be protected from the contamination through adherence to normal high standards of site safety.

We trust that these comments are sufficient to allay the concerns of neighbours but will of course be pleased to provide any additional information that may be required.

Yours sincerely
GEOTECHNICAL & ENVIRONMENTAL ASSOCIATES



Hannah Dashfield