24 February 2022

Your ref:
Our ref: J18176A/MC/01

GEA

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Dear Paul

Re: 13 NETHERHALL GARDENS – PLANNING REF 2021/4259/P

Further to your instruction we have now completed our review of the report submitted by the Heath and Hampstead Society (HHS) dated 15th December 2021 in respect of the proposed redevelopment of the site at 13 Netherhall Gardens NW3 5RN.

The report requests that the Council should refuse the planning application on the basis of *inadequate ground testing for a basement digout at this site*. It sets out a case that the redevelopment of the site will pose a high risk of damage to the building on site and those surrounding the site from slope instability and storm surge in groundwater through silty layers within the underlying soil.

This letter provides a considered response to the points made in the report and, through reference to the Camden Council guidance, indicates that the concerns of the Heath and Hampstead Society are unwarranted as the concerns have been dealt with by the GEA Desk Study and Basement Impact Assessment report, (J18176A Rep Issue 3, dated August 2021).

The report does not reference paragraphs or points made such that this letter will refer to Page Number and Paragraph number in responding to particular points.

On Page 1, Paragraph 2 notes that the proposed hit and miss underpinning is a '*good way*' to stabilise the building through the extension of the lower ground floor.

Page 1 Paragraph 3 states that the previous subsidence suffered by 13 Netherhall Gardens is attributable to silt erosion, groundwater softening and landslip and states that *'in view of the amount of groundwater likely to be present, it is unlikely that trees could have had an effect on subsidence; it is much more likely that they were planted to deal with excess water and landslip potential'*. This view is erroneous in three respects. Firstly, the site is directly underlain by the London Clay, silty in places but not layers of silt as may be expected in the Claygate Beds. Secondly, groundwater has not been measured in the borehole standpipes at a depth of 6.0 m, and that encountered within the trial pits is considered to represent a limited volume of perched water at foundation level with no evidence of softening. Thirdly, the BIA has been based on actual water level monitoring not a speculated groundwater regime.

Paragraph 4 on Page 1 refers to an objection based on the risk to a retaining wall at the boundary and the neighbouring property at Imperial Towers. This does not really make sense in that the lowering of the ground level at the site will reduce the earth pressure on the retaining wall such that it would become inherently more stable. The wall was plainly built to allow the construction of Imperial Towers, and ground floor level is roughly at the same level as the lower ground floor level of 13 Netherhall Gardens.

It follows that the construction of the proposed basement is therefore equivalent to a single storey basement. The foundations of Imperial Towers are unknown but given the fact that it is a six-storey framed building, it is likely to be supported on either piles or a raft foundation (BIA Section 2.1.1 refers). If on piles then ground movements, howsoever caused, are of no consequence and if a raft then it will be considerably less sensitive to ground movements than a wall supported on a strip foundation. For your reassurance however, Imperial Towers has been modelled as a masonry wall to provide the most conservative assessment of building damage and the results have indicated Category 0 or 1 levels of damage, which are acceptable to Camden.

Paragraph 6 of Page 1 refers to a paragraph from a previous objection report by the HHS. It refers to silt layers and warned of underground water flow. Since neither were encountered within the ground investigation, the paragraph is deemed to be without merit.

The paragraph following the Hydrogeological Testing header speculates on the detail surrounding potential impacts of rainfall on the groundwater measurements in the standpipes. The simple fact is that groundwater was not encountered whilst drilling the boreholes or three weeks later when monitoring took place. It is also noted, once again, that the site is underlain by London Clay which is essentially impermeable. The author of the report suggests that any water in the standpipes could have easily soaked away. This does not make sense; water cannot enter the standpipe other than through the slotted portion in the response zone beneath the made ground. If water enters the standpipe and remains there to be measured, then clearly there is groundwater present. If groundwater is not measured, then there can be no groundwater body within the response zone of the standpipe. However, if groundwater was present but has drained away then the groundwater level is clearly below the base of the standpipe. In which case, for the purpose of the investigation, which is to consider the impact of the development on the surrounding area, groundwater is not present. On this basis the first three paragraphs on Page 2 are considered to be hypothetical speculation without evidence and are discounted from further consideration.

Paragraph 4 refers to the potential for Quaternary Head Deposits to be present and effectively states that GEA has misnamed (and by inference incorrectly logged) this material. It is respectfully pointed out that material containing brick, concrete, ash, coal, flint, pottery and chalk has correctly been identified as made ground and it is plain that this material, placed against a foundation that is 3.3 m deep is backfill placed after the foundation construction. Please refer to Trial Pit No 5 in the BIA and any sense in this paragraph is discounted.

The discussion around the Air Studios water / sand ingress has been raised on a number of occasions in respect of other sites but to our knowledge no additional evidence has been published to support the theory. Since Air Studios bears within the Claygate Member and the subject site bears within the London Clay it is not considered to be relevant in any case. The short paragraph towards the bottom of Page 3 refers to methods to deal with storm surges during underpinning. During underpinning there may be a small number of pins open at any one time, but these are localised excavations, which will be shored against the central earth mass and, pumping will be available to deal with pockets of perched water as they arise. The occurrence of ‘storm surges’ within the London Clay is considered to be a remote possibility.

In respect of the slope stability considerations raised in Page Nos 4, 5 and the first part of Page No 6, the proposed works will, in actual fact reduce the risk of slope related stability issues. Firstly, the contiguous bored pile retaining walls that will support some of the excavations will add stability by reinforcing the slopes at the same time as retaining the soil behind. The retained soil no longer poses a risk of sliding or slipping because the piles prevent it. Any propensity to slide is therefore locked into the structure; further, the creation of such retaining walls means that the ground ‘downslope’ of the structure is levelled, once again reducing the risk of potential slope instability.

In responding to the Campbell Reith BIA audit, GEA justified the choice of Oasys software and the input parameters adopted as well as explaining the conservative assessment undertaken . It is noted that GEA has used the same methodology successfully on over 30 similar such BIA assessments in

the “NW3 5” postcode alone. There is, therefore, adequate evidence that GEA more than fulfil the requirement quoted in Paragraph 7 of Page 6, in the need for ‘*someone who understands the geology of this area, the ground’s behaviour and local slope stability’* and there is no precedent for not using the software that has been adopted for this site. Further, the audit by Campbell Reith on behalf of the Council, has found the BIA to be largely acceptable with a small number of minor clarifications required.

Page No 7 and Paragraph No 2 considers drainage and states that ‘*groundwater was encountered in the two boreholes’*. For complete clarity, it was not encountered in the boreholes and not encountered during monitoring three weeks later – as the HHS had noted previously on Page No 2.

The comments in respect of the landscaping and Boundary Wall are beyond the scope of the BIA and our expertise but others will, no doubt be able to address those points.

In Summary, the BIA has been undertaken by appropriately qualified and experienced professional engineers and geologists, with a significant amount of experience of similar assessments. The issues raised within the HHS report have, at various points, been addressed by the careful working through of the Camden guidance in the screening, scoping and assessment stages of the impact assessment. The assessment has found that the impacts due to the proposed redevelopment are acceptable. The BIA has subsequently been audited by independent qualified and experienced engineers and been found to satisfy the requirements of the Camden guidance. There is therefore no reason why the objections raised in the HHS report should be upheld.

We trust that the above meets your needs. If you require any clarification or any additional information, please do not hesitate to contact us.

Yours sincerely
GEOTECHNICAL & ENVIRONMENTAL ASSOCIATES

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