

Our Ref: 1675/100/LF/aj

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12 February 2025

Dear Mr Chan

**RE: Proposal for a new basement to be constructed on the site of No.6a Grange Road, Highgate, N6 4AP (Haringey Planning Application Reference Number HG Y/2024/1676)**

We have been instructed by Mr and Mrs Purves of No.8 Grange Road and by Messrs Shultz and Cossio Murillo of No.6 Grange Road, London N6 4AP to carry out a review of the latest revision of the Basement Impact Assessment (BIA) (Rev. J) prepared by Create Consulting Engineers for No.6a Grange Road in relation to the proposed redevelopment of the site.

Our comments are summarised on the enclosed note for your review and considerations. There are still design issues, inaccuracies and omissions in this BIA, which must be resolved. As such, it is our view that this latest revision of the BIA fails to address key requirements of the Haringey Development Management Plan- Policy DM18 and of the Highgate Neighbourhood Plan Policy DH7.

When the points highlighted in our note have been dealt with, on behalf of our clients we would expect to review again the BIA before a decision on this proposed redevelopment is further considered by Haringey Council Planning.

Yours sincerely

Luca Frasca  
for Alan Baxter Ltd

|     |                           |   |                 |   |          |
|-----|---------------------------|---|-----------------|---|----------|
| cc: | Haringey Planning Service | - | Matthew Gunning | - | by email |
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|     | Haringey Building Control | - | Bob Mclver      | - | by email |

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**6a Grange Road, Highgate, N6 4AP**

**Review of BIA (Ref: AW/VL/P22-2546/02 Rev. J Vol 1,2) prepared by Create Consulting in support of a planning application for the construction of a new basement on the site of No.6a Grange Road, Highgate, N6 4AP (Haringey Planning Application Ref. HGY/2024/1676) -**

**1.0 Introduction**

We have been instructed by Mr and Mrs Purves of No.8 Grange Road and by Messrs Schulz and Cossio Murillo of No.6 Grange Road, London N6 4AP to carry out a review of the Basement Impact Assessment (BIA) prepared by Create Consulting Engineers for No.6a Grange Road (Ref; AW/VL/P22-2546/02 Rev. J Vol 1,2) in relation to the proposed redevelopment of the site. This follows our review of earlier versions of this BIA, which were prepared by Create and submitted as part of planning applications for similar schemes in 2015, 2016, 2022 (now withdrawn) and more recently in July 2024.

**2.0 Commentary**

As part of our review, we have downloaded Create's report AW/VL/P22-2546/02 Rev. J Vol 1,2 together with a set of the architect's proposed plans and sections prepared by Cassion Castle Architects.

In formulating our comments, we have also reviewed and considered the findings of the BIA Audit carried out by consulting engineer Campbell Reith for the London Borough of Haringey in January 2025 (ref. 13979-06-Rev.P2).

We comment on these as follows:

- 1) When reviewing the previous revision of the BIA in July 2024, we pointed out that it is common and good practice to refer all levels to Above Ordnance Datum (AOD) rather than an arbitrary datum. A topographical survey that refers to AOD levels has been included in this latest revision of Create's BIA. However, this still seems to contain some inaccuracies and errors that had been noted in previous revisions of the survey.
- 2) The borehole logs presented by Create in Appendix B still refers to an arbitrary 50.00m datum. Clarification should be sought of the correct ground level reference for these boreholes and whether any of the levels stated as BGL (below ground level) refers to the original site's ground level or the site's current (excavated) level (see point 3 below).
- 3) It is important to note that the original ground level of the site was approximately 112.00m AOD but this was reduced across most of the site with an unauthorized excavation in 2019 by the former owner of the site by approximately 1.2m, to the current ground level (approx. 111.10 -110.50m AOD).

- 4) Trial pits were carried out in August 2024 to investigate the foundations to the reinforced concrete retaining walls that were built by the previous owner of the site around the northern, western and southern perimeter of the unauthorized excavation. We have looked at the findings of the trial pits presented in Appendix K (referred to Appendix L in section 2.7 of the BIA) and have the following comments:
- a. Only one trial pit has been excavated along the northern boundary with No.6 Grange Road. Considering the actual length of the retaining wall, it would be advisable to carry out more than one pit to confirm if the depth of the foundation to this part of the retaining wall is consistent along its length.
  - b. No toe has been found under the retaining wall along the southern boundary with No.8 Grange Road. Have Create assessed and are they satisfied with the stability of this wall? Does this arrangement poses a risk of the excavation becoming unstable, which could affect the neighbouring property?
  - c. Section 6.31 of the BIA describes the footing of the retaining wall to the north of the site to be at an elevation of between 109.65 and 109.45m AOD. Using the depth stated in Appendix K, we have derived slightly deeper elevations (109.53 to 109.33m AOD). This should be reviewed and clarified.
- 5) Following the installation of monitoring wells in December 2023, groundwater monitoring is understood to have taken place on site to inform the current version of the BIA. Five monitoring dates are given on table 6.3 of the BIA for WS101, WS102 and WS103:
- 21/12/2023
  - 18/01/2023 (*Note: should this not be 18/01/2024?*)
  - 10/06/2024
  - 04/09/2024
  - 25/09/2024
- Although readings of ground water level are given in table 6.3 for WS101, WS102 and WS103, the logs of these boreholes presented in Appendix J Volume 2 of the BIA state that no groundwater was encountered. This seems to contradict Table 6.3 and should be clarified.
- 6) The depth of the basement formation level + over-dig stated in Table 6.3 appears to differ from what shown on the basement sections A-A and B-B in Appendix F.
- 7) A level of groundwater of up to 2.78m above the basement's formation level is given in Table 6.3. See point 9 below for further comments on this.
- 8) A permeability test to a sample of the Claygate soil was undertaken in August 2024 (section 6.29 of the BIA), characterizing it as a very low permeability soil. Given the variability of permeability of Claygate soils, further tests should be carried out to

provide a more robust characterization of the soil permeability. This is also noted by Campbell Reith in their audit. Also, Claygate soils are anisotropic and details are required of if/how this was considered when carrying out the permeability test.

- 9) There is a potential for up to 2.8m head of groundwater above the level of the proposed excavation, which is significant and could result in significant volumes of water needed to be pumped out and disposed off by the contractor.

In Section 7.3 of the BIA Create have provided a generic statement on the contractor's need for dewatering but have not made any assessment of the complexity of the dewatering operations nor have they indicated how it is intended to dispose of the groundwater, as Thames Water may not accept this water to be discharged into their sewer.

We have previously noted that significant volumes of dewatering during an excavation carry the enhanced risk of fine soil particles from the surrounding ground to be washed out. This could result in ground movements and settlement of existing foundations and damage to neighbouring buildings beyond the theoretical levels estimated by the ground movement analysis. It is therefore important that the permeability of the soils around the proposed excavation is assessed more comprehensively, as noted above.

Furthermore, in Section 7.34, Create states that no local dewatering will be required, which contradicts their statement in Section 7.3 and Section 7.35 of the BIA. This needs clarification.

- 10) Section 7.5 of the BIA states a length of the piles of the secant piled wall of 10.72m below the basement's formation level of 107.02m AOD, taking the toe of the piles to a depth of 96.30m AOD. This contradicts the 102.30m AOD figure given in Figure 3 of the Ground Movement Calculation in Appendix D and needs to be clarified.
- 11) We have previously highlighted that it is important that groundwater flows are maintained as they currently exist when the construction of the basement and other excavation works are undertaken. The most notable example of the potential effects of changes to the groundwater regime in the area is the damage experienced at No.4 Grange Road following the construction of a new basement at No. 8 View Road.
- 12) In section 7.7 of the BIA, Create uses a figure taken from a Residential Basement Study prepared by Arup for Lambeth Council to support their statement that an isolated basement will not affect the groundwater flows in the wider area and that the local effects on water level are likely to be small and less significant than seasonal variations of groundwater table.

We do not agree with such a definitive statement nor with a similar statement made by Create in Section 7.22 of the BIA, where the provision of perimeter drainage channels and granular blankets under the basement slab is presented as a measure to 'further *appease neighbour's concerns*' rather than an actual technical solution needed

to mitigate the impact of the construction of the proposed basement on the local groundwater levels.

- 13) We also note that the Arup's Residential Basement Study quoted by Create is for an area of London with different geological and hydrological properties and may therefore not be directly relevant to the Highgate area. Furthermore, the figure of the Arup's study quoted by Create doesn't imply that a single isolated basement will not have any significant local effects of the groundwater flows – it simply states that the groundwater levels upstream of the basement are likely to increase.
- 14) Section 7.32 of the BIA and the engineering drawings in Appendix F describe the provision of drainage channels within the perimeter of the secant piled wall, forming 'drainage corridors' to facilitate the groundwater flows around the proposed basement. We support this approach in principle; however, we have the following comments:
- a. Could Create confirm that drainage corridors will be provided all around the whole perimeter of the basement (i.e. also along the boundary with No.6 Grange Road)? Section A-A and Section B-B of the Engineering Drawings are only part-sections which do not extend to the boundary with No.6 Grange Road. It would add clarity to the proposals if these sections were extended across the full width of the basement. A long section through the proposed basement would also be useful to add clarity to the proposals.
  - b. The width of the drainage corridors between the secant piled wall and the back face of the reinforced concrete walls of the basement box is generally only 200mm wide and the corridors are proposed to be filled with single size 50mm aggregates. We are unclear on the buildability of these corridors. As designed, the proposals make no provision for the temporary formwork for the construction of the perimeter walls. Should these walls be moved inwards to facilitate their buildability?
  - c. Perforated pipes wrapped in geotextile are proposed within the drainage corridors. Have Create considered how would these pipes be maintained? A drainage corridor that is only 200mm wide will leave no space for the insertion of inspection chambers to maintain the perforated pipes and in fact none has been provided in the current design. Our view is that wider drainage corridors should be provided by further moving inwards the reinforced concrete walls of the basement box and inspection chambers added to allow maintenance of the perforated pipes.
  - d. It would also be advisable to allow for geotextile filters in front of the breakout sections of soft piles to mitigate the risk of soil fines being washed in the drainage corridors.

- e. Create's proposals also allow for a Type-1 sub-base under the basement slab as granular blanket to connect the perimeter drainage corridors and maintain groundwater flows. Whilst the provision of the granular blanket is agreed in principle, our view is that a Type 1 sub-base will not be sufficiently permeable to fulfil this purpose. An alternative and more permeable material should be considered
- 15) Section 7.38 of the BIA describes how the basement slab will be designed at the next stage and the possibility of installing tension piles within the footprint of the basement slab to deal with buoyancy effects. This strategic aspect of the design of the basement structure must be assessed now rather than leaving it undefined and to be resolved at the next stage of the design. The impact of the construction of these additional piles on ground movement will also need to be assessed.
- 16) Section 7.61 of the BIA allows for monitoring of movement to be undertaken weekly during the basement construction, then monthly thereafter. We would expect monitoring of movements to be more frequent, minimum weekly but ideally twice a week. We would also expect the monitoring to remain in place until at least the superstructure is completed.
- 17) Ground Movements calculations have been presented in Appendix D of the BIA and various comments have been raised by Campbell Reith in their audit of the methodology used, which is not considered reasonably conservative and the need for further clarifications to be provided in a revised set of calculations. We concur with Campbell Reith's comments.
- 18) The Green, Amber and Red trigger values set in section 7.64 of the BI have been raised from the values previously stated. Following the preparation of a revised Ground Movement Analysis as noted above, trigger values will need to be reviewed and revised as required to suit the predicted ground movements.
- 19) Create should clarify their statement on sheet 15 of the GMA that the influence of horizontal strain indicates that the basement works will result in Category 1 to 2 damage to No.8 Grange Road. It is a requirement of Policy DH7 that Burland Scale 1 damage is not exceed.
- 20) The relation between the proposed excavation and the adjacent foundations to No.6 Grange Road is only shown indicatively in Figure 3 of the GMA. As noted on point 14a) above, Section A-A and Section B-B of the Engineering Drawings should extend to the boundary with No.8 Grange Road to better describe this interface.
- 21) A Flood Risk Assessment and Drainage Strategy is presented in Appendix H of the BIA. We have reviewed this and have the following comments:
- a. When describing the existing foul water drainage, the Drainage strategy refers to a grey water outlet 'informally' installed by No.8 Grange Road since the

demolition of the building at No.6a Grange Road. This statement is incorrect, as the outlet from No.8 Grange Road pre-exists the demolition of No.6a and was previously connected into a drained shared between the two properties. The outlet was left disconnected by the No.6a demolition contractor, who should have instead installed a temporary connection.

- b. Attenuation crates are proposed at the rear of the site as part of the SuDs strategy. The potential risk of flotation of the crates due to high levels of ground water and impact of root protection zones is acknowledge by Create. However, no solution to these aspects is presented and this is left for a later design stage. Our view is that these aspects must be fully assessed and resolved at this stage, as they may impact on the actual feasibility of the proposals.
- c. An outline surface and foul water drainage scheme is shown on drawing 02/001. A foul water drain run with two manholes is proposed along the boundary with No.8 Grange Road. However, looking at the available space between the piled wall, capping beam and the foundation of the boundary wall shown on Section A-A of the engineering drawings, it seems that there will not be enough space to construct the drain and the manhole, unless the piled wall was moved further away from the boundary wall. This will need to be further assessed by Create to confirm that these proposals are buildable whilst maintaining the kitchen drainage to No.8 Grange Road and without undermining the foundations of No.8 Grange Road.
- d. Similar considerations may be applicable for the surface water drains that are proposed along the boundary with No.6 Grange Road. No detailed section has been drawn along this boundary, as noted in point 14a) above. This will need to be further assessed by Create to confirm that these proposals are buildable without undermining the foundations of No.6 Grange Road.

### **3.0 Conclusions**

The comments described above highlight that there are still design issues, inaccuracies and omissions in this BIA which must be addressed. As such, it is our view that this BIA fails to address key requirements of the Haringey Development Management Plan- Policy DM18 and of the Highgate Neighbourhood Plan Policy DH7. We also concur with Campbell Reith's audit findings and with their request that a suitably qualified hydrogeologist should verify the mitigation measures to groundwater flow obstruction proposed by this BIA.

When these points have been dealt with, on behalf of our clients we would expect to review any revised BIA before a decision on this proposed redevelopment is further considered by Haringey Council Planning.