Chord Environmental Ltd

Adam Tooze
Form Structural Design Ltd
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London
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Your Ref: 54 Regent's Park Road
Our Ref: 1127/LJE210815

For the attention of: Adam Tooze

21st August 2015

54 Regent's Park Road BIA Review

Dear Adam,

Further to our discussions and the instruction to proceed on behalf your client I have undertaken a review of the Basement Impact Assessment (BIA) prepared by Form Structural Design Ltd (Form SD) for the proposed basement development at 54 Regent's Park Road.

I have reviewed the design of the proposed basement development, together with the information presented within the above documents, against the requirements of the Camden BIA guidance set out within DP27 and CPG4.

Chord Environmental specialise in the provision of hydrogeological services with extensive experience in the UK supporting both private and public sector clients. I am a geologist and hydrogeologist and have a BSc. in geology from the University of Bristol, a MSc. in hydrogeology from the University of East Anglia and am also a Chartered Geologist and fellow of the Geological Society. I am Managing Director at Chord Environmental and was previously a Technical Director with Paulex Environmental Consulting and managed Hyder Consulting (UK) Ltd's groundwater team.

I have been a hydrogeologist for 17 years. During that time I have advised on over 80 basement developments. Much of my career has been spent assessing the impact of development on the quality and quantity of groundwater resources. I have worked for both promoters and regulators of schemes and have acted as an expert witness for the Highways Agency and on BIA schemes.

Development proposal

The site is occupied by a six storey semi-detached town house, constructed circa 1850-1860. The existing lower ground floor extends to a depth of approximately 1.3m below pavement level.

I understand the proposal is to deepen the existing lower ground floor level by about 0.6m and to extend it partially into the rear garden.

Environmental Site Setting

The BIA screening assessment has identified 54 Regent's Park Road to be underlain by the Eocene London Clay as shown on the British Geological Survey 1:50,000 scale map (Sheet 256 – North London) to a depth of c.140m. The London Clay is classified as Unproductive Strata by the Environment Agency, strata with low permeability that have negligible significance for water supply or river base flow. The very low permeability of the London Clay results in very low rates of rainfall infiltration and correspondingly, very high rates of rainfall runoff.

There are no surface water features within 100m of the site. Figure 11 of the "Camden Geological, Hydrogeological and Hydrological Study", shows a headwater tributary of the former river Tyburn to have run just over 1 km to the west of the proposal. The Tyburn is now culverted beneath Regent's Park and discharges to the Thames. 54 Regent's park Road does not lie within an area of flood risk as designated by the Environment Agency nor was it affected by the surface water flooding of the area which occurred during 1975 and 2003.

Surface Flow and Flooding Assessment

The BIA screening, scoping and risk assessments have followed the CPG4 guidance criteria and screening questions. The potential surface flow and flooding issue raised by the screening and scoping exercises have been appropriately addressed by Form SD within the report and no areas of concern relating to the proposed development were identified.

Subterranean (Groundwater) Flow Screening Assessment

The BIA screening, scoping and risk assessments have followed the CPG4 guidance screening questions. I have commented on the answer to each question below.

- **Question 1a: Is the site located directly above an aquifer?**

  As the Site is mapped as being underlain by a significant thickness of London Clay, designated as Unproductive Strata by the Environment Agency, I agree it is not located above an aquifer. The geology of the area is well understood and the published geological map is based on extensive borehole data.

- **Question 1b: Will the proposed basement extend beneath the water table surface?**

  No. In addition to no groundwater being encountered by the ground investigation, the London Clay is not capable of transmitting groundwater and therefore it cannot support a water table.

- **Question 2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?**

  No surface water features are present within 100m of the site although the Grand Union Canal lies 100m south of the Site. The Grand Union Canal is a lined man-made structure and is not dependent on groundwater. The London Clay is not capable of providing groundwater baseflow to watercourses and is classified Unproductive Strata. The proposed deepening of the lower ground floor would therefore not act to prevent groundwater flow to any watercourses, wells or spring lines.

- **Question 3: Is the site within the catchment of the pond chains on Hampstead Heath?**

  No. The Site is located more than 2 km south and down topographic gradient of the Hampstead Heath ponds. Therefore I agree that the Site lies outside the pond's hydrological catchment area.

- **Question 4: Will the proposed development result in a change in the proportion of hard surfaced / paved area?**

  Yes. The proposed lower ground floor would be extended into the rear garden by an area of c.25m^2.

- **Question 5: As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to ground (e.g. via soakaways and/or SUDS)?**

  No. The London Clay is unsuitable for soakaways to ground and the existing drainage arrangements will be maintained.

- **Question 6: Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?**

  The proposed excavation is only 0.6m deep and there are no mapped local groundwater dependent ponds or spring lines present within 100m of the Site. This is consistent with the geology and hydrogeology of the area.

Slope Stability Assessment

The BIA screening, scoping and risk assessments have followed the CPG4 guidance criteria and screening questions. The potential slope stability issues raised by the screening and scoping exercises have been appropriately addressed by Form SD within the BIA report and no areas of concern relating to the proposed development were identified.

Conclusions

The BIA report has appropriately characterised 54 Regent's Park Road with respect to its geological and groundwater site setting. As the site is underlain by low permeability London Clay and the proposal would only reduce the lower ground floor by 0.6m, the geological and hydrogeological setting of 54 Regent's Park Road is not sensitive with respect to groundwater resources or flow.

The purpose of the Basement Impact subterranean or groundwater flow assessment is to identify the potential for the proposed basement development to cause groundwater impacts and subsequently identify areas which require further investigation. The proposed development is relatively shallow, would be sited within a significant thickness of London Clay and no potential adverse impacts have been established by these assessments.

Yours sincerely,

John Evans BSc MSc CGeol.

Director