## 22719/RS

20th August 2010

Anil Varma Harrison Varma Limited Bishop's View House 98 Great North Road East Finchley London N2 ONL



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**ENGINEERS AND TECHNICAL DESIGNERS** 

Dear Anil.

## Ref. 99A Frognal: Geotechnical Conditions

We write to provide our analysis of the geotechnical and hydrological conditions at the above property.

We commissioned a Desk Study for the site as part of the Planning Submission. This was undertaken by Geotechnical and Environmental Associatess (GEA), a highly regarded geotechnical engineering firm with considerable experience of the Hampstead area. The Desk Study states:

The Geological Survey map of the area (BGS sheet 256) indicates that the site is underlain by the Bagshot Formation, overlying the Claygate Member. The anticipated ground conditions have been generally confirmed by a previous investigation carried out by GEA approximately 100 m to the northeast of the site. The investigation encountered made ground to depths of between 0.25 m to 2.40 m, which was underlain by the Bagshot Formation to the full depth of the investigation of 6.0 m.

During the previous investigation of the nearby site, ground water was only encountered in a single location and comprised a groundwater seepage within the Bagshot Formation at a depth of 2.75 m. Subsequent monitoring showed the standpipes, installed as part of the investigation, to be dry after a period of three weeks.

The Desk Study later concludes:

The Bagshot Formation below the site should provide a suitable bearing stratum for spread foundations supporting light to moderate loads, provided that there is not a significant thickness of made ground below the site. Excavations for the proposed basement structure will require temporary support to maintain stability and prevent any excessive ground movements. Groundwater inflows are unlikely to be encountered in the basement excavations; however, shallow inflows of perched water within any made ground present on the site and in the vicinity of existing foundations may be encountered. although such inflows are unlikely to be significant.







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Should some water be encountered during excavation for the basement, it will be possible to use the secant piled construction to form an isolated enclosure which can act as a barrier to water ingress, and any standing water within the enclosure can be pumped out.

In the permanent condition, the basement will be designed to be waterproof and capable of withstanding conservative worst case hydrostatic pressures. Since the basement volume is small (and the volume of the pool within it, even smaller), it will have minimal impact on overall groundwater flow.

In summary, in our view, the proposed development will not have a material impact on the existing water table and the neighbouring properties. Similarly, the water table will have no impact on the proposed basement structure.

We trust the above is of assistance and remain happy to address any further queries that you may have.

Yours sincerely,

Rachel Sandrook Senior Engineer

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Enc. Extract from Desk Study Report: 99A Frognal London NW3; Geotechnical and Environmental Associates