



# *The Heath & Hampstead Society*

The Society examines all Notices of Intent for tree work relating to Hampstead and Hampstead Heath Fringes, and assesses them for their impact on the Conservation Areas, the local environment and building stability.

**To London Borough of Camden, Tree Preservation Team**

**Planning Ref:** 2020//T

**Address:** 11-13 Maresfield Gardens

**Tree Officer:** Nick Bell

**Date:** 10<sup>th</sup> October 2020

I am writing to oppose the felling of this oak tree which has been implicated in subsidence at 11-13 Maresfield Gardens.

I am doing a study of subsidence in the Hampstead area and have come across around 3 dozen cases in the Netherhall and Maresfield Gardens area. There appear to be several reasons for these, but three key causes appear to be a high tendency for landslip of the superficial geological deposits here (the Head solifluction) which overlie very steep inclines in the clay beneath, basement dig-outs causing ground pressure changes and vibration that set the hillsides moving, and leaking drains and groundwater constraint/damming up which causes loss of fines - silt wash-out.

A case I am particularly interested in is the 5-storey deep basement dug into the hillside immediately below 11-13 Maresfield Gardens at the rear of 120 Finchley Road. This involved sheet piling at the side of the project which would have caused significant vibration of the ground, setting it moving, and dig-out causing ground pressure changes. I believe this is responsible for much of the building movement behind and to the side on ground that runs steeply down to Finchley Road, including 122c Finchley Road and the Rotunda building.

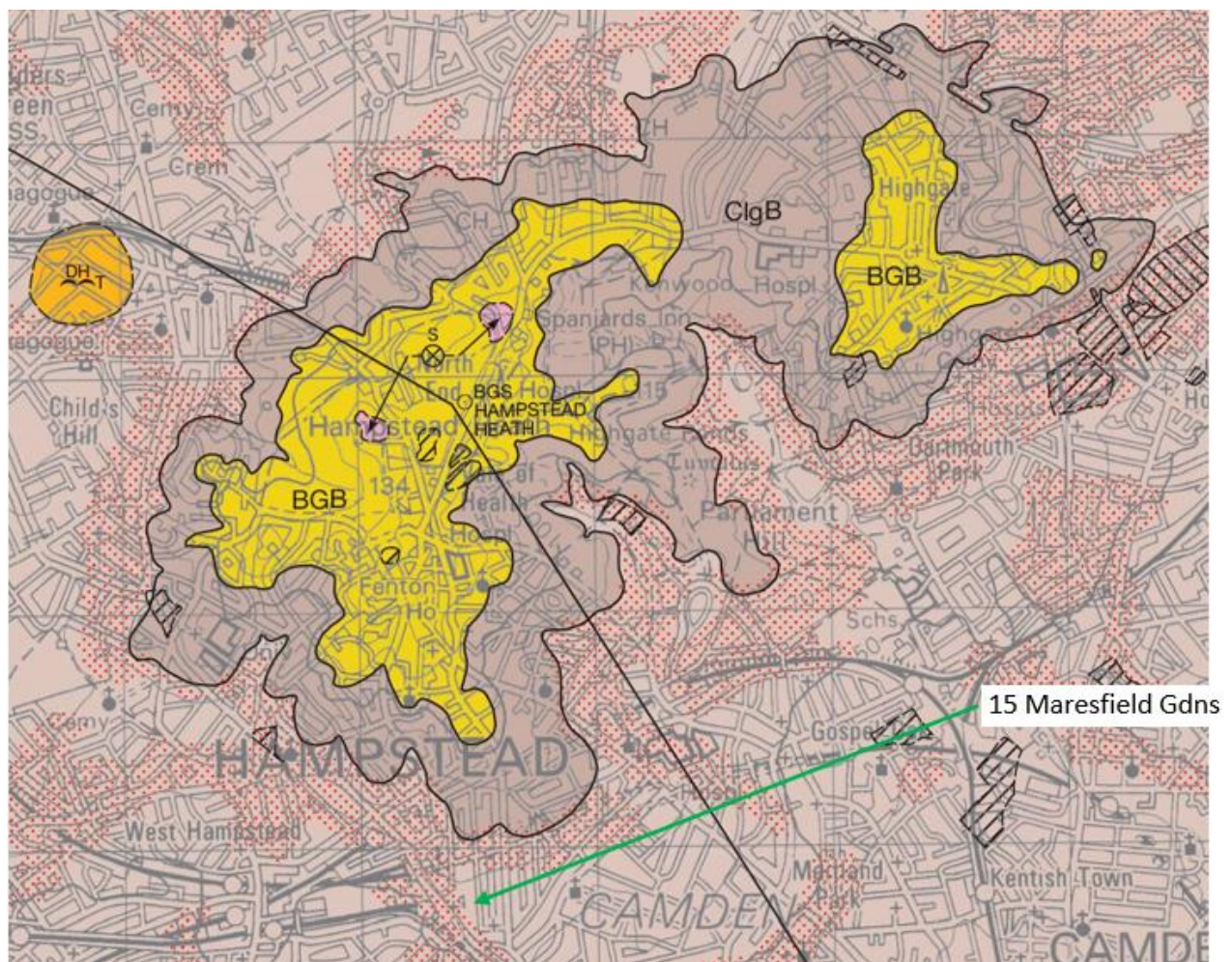
Here in 11-13 Maresfield Gardens I suspect the major problem is damming up of groundwater by this extremely deep basement retaining wall - 5 storeys of a 7-storey building with only 2 storeys above ground. While the wall may be helping stop serious downhill movement of 11-13 Maresfield Gardens - such as has occurred at 268 and 254 Finchley Road for basement dig-outs to the side that caused garden and tree collapse, with some catastrophic landslide and ground drop below the properties, and serious movement of Camden Arts Centre - I think the major problem here is groundwater damming.

The Basement Construction Plan for 120 Finchley Road rear only allowed for surface water and superficial groundwater to be channelled into a superficial drain at the top of the basement retaining wall and carried away, along with the silt it has washed out. 11-13 Maresfield Gardens is just below a spring line between the Claygate Beds and Unit D of the London Clay Formation with several springs intermittently emerging in gardens in Maresfield Gardens, and the groundwater flows in an aquifer below the Head superficial deposits, and in the many sand and silt partings within the clay in this laminated geological transition zone. Its direction here is likely to follow the slope, namely in a west south westerly direction. The very deep 5-storey basement retaining wall provides a complete barrier to this.



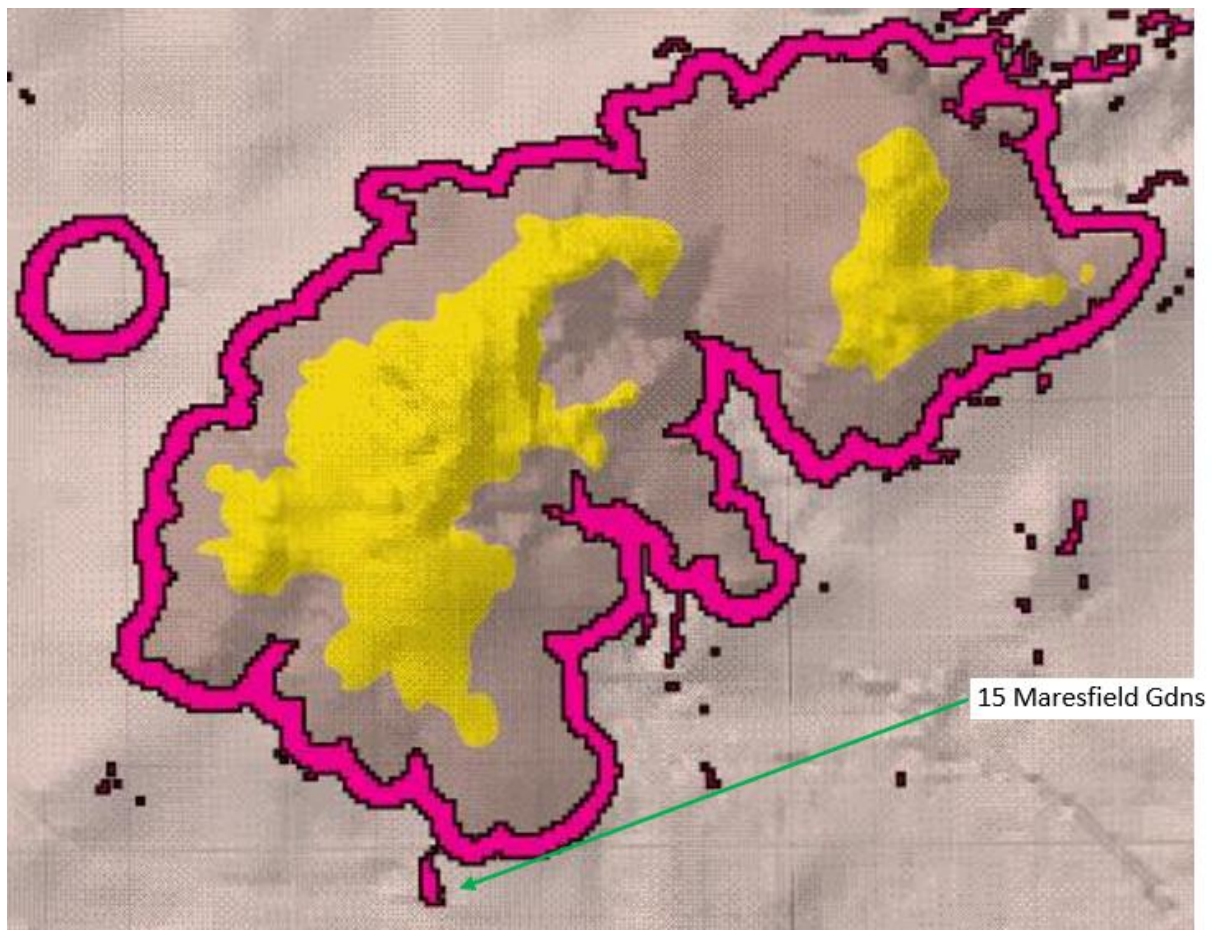


Contour lines and groundwater flow paths in the Netherhall and Maresfield Gardens area; green arrow points to rear of 120 Finchley Road.



British Geological Survey 1:50 000 series North London Sheet 256 Bedrock and Superficial Deposits





The 'crimson line' denotes areas of high and very high risk of landslip  
 British Geological Survey Areas for Greatest Potential for Slope Instability  
<http://www.largeimages.bgs.ac.uk/iip/mapsportal.html?id=1001750>

I suspect that the silt erosion by ground water action and restraint has contributed to dropping of the drains and gulleys to the rear of 11-13 Maresfield Gardens so that some are leaking. This would seem to be the case from photographs of the rear of the stair blocks where the cracking is at its worst. Yes, the excessive dammed up ground water and leaking drains will have enticed unnatural tree root growth from the oak and from the copper beech and others nearby, but this is not a foreseeable event for the tree owners. I believe it is the foreseeable responsibility of 120 Finchley Road primarily, whose deep basement that was dug without adequate geotechnical testing, analysis and construction plan caused groundwater damming, and secondarily the responsibility of 11-13 Maresfield Gardens to pressure test its drains to establish if they are indeed leaking and then repair such leaks. Injection techniques such as those used by Geobear or underpinning can then permanently stabilise the stair blocks from their differential subsidence.

Now that the tree roots have been encouraged to grow to this area, it is more appropriate that tree root barriers be inserted rather than felling the trees, so that the roots are encouraged to grow elsewhere, helping to reduce the ponding and boggy of gardens in this area. No doubt they and the clay itself play a small part in shrink and expansion movement here, but I think the evidence is that this is minor, not foreseeable in that the movement started in relation to the work at 120 Finchley Road – dug out in 2012/2013 and its barrier to groundwater completed in 2016 - and has not caused building movement for the rest of the lifetime of these trees, through many extremely dry years.

These trees are magnificent, have enormous public amenity and deserve to be protected from inadequately investigated subsidence claims.

Dr Vicki Harding, Society Tree Officer, Heath & Hampstead Society