**Flat A 15 Well Walk 2017/3214/P**

I am commenting on aspects of this application as they relate to trees and to groundwater as Tree Officer of the Heath & Hampstead Society, and a member of its Planning sub-committee.

This application to extend a basement contains no Basement Impact Assessment, no Construction Management Plan and no Detailed Basement Construction Plan which would have been wise considering the potential threats to the house, the semi-detached neighbour, the foundations of Well Walk Passage and a nearby tree from the groundwater conditions and the known unstable underlying geology in the immediate area. In addition

- The Design & Access Statement is identical to 2012/0103/P Revision 1 and is dated March 2013.
- The Arboricultural report is the same as 2012/0103/P, also presented for 2016/6491/P.
- A BIA, though it was not on Camden's website for 2012/0103/P, was presented for 2016/6491/P (withdrawn) yet is dated 2012.
- The report on the single borehole informing the BIA was written soon after 6th February 2013 and contains errors that were common at that time (e.g. it refers to 'Made Ground' rather than the solifluction 'Head'.
- The structural engineering statement is dated March 2013.
- Apart from Drawings JL2011-002 revD05 which were reviewed in 2017, all others are dated 2011 and all do not adequately describe the work being proposed:
    - inadequate existing and current proposed plans, particularly for the dig-out of the current patio area;
    - no sections across the site on the garden side of section B-B to allow an assessment of the impact of digging out on the retaining walls here for the house and for Well Walk Passage.

From this Application it is stated: "Planning officer's requirements from 6th May 2012 were incorporated into the proposals submitted for the original planning application which were approved under planning consent ref; 2013/2030/p dated 17th September 2013. The consent which has now lapsed was re-submitted 21st December 2016 without amendment, then withdrawn and replaced with this new application which retains the raised terrace area in the rear garden."

However, since 2012 Camden has been active in making many changes in the Planning conditions in Camden to 'effectively address residents' concerns over the growth of basement development in the borough':

- There has been an Article 4 direction from Camden (2016) to ensure all Basements require planning permission, removing permitted development rights *"Residents applying to build basements will need to demonstrate that it would not harm neighbouring properties, or cause flooding or ground instability."*
- CPG4 was updated in July 2015.
- Camden's Local Plan came into force on July 3rd 2017 which is pertinent here.

This application does not conform with Local Plan Policy A5 Basements sections a, b, c, o and s.

My original points for the application 2016/6491/P have neither been commented upon by an officer (since this application was withdrawn) and scrutinised by an independent expert, nor considered in the 2017/3214/P application. Also, 2017/3214/P is a Householder Application so I am repeating my 2016/6491/P points since they are still of pertinence to the proposed work, and to ensure they can be considered if this application goes to appeal. My points from 2016/6491/P are in blue below, and my current additional comments are in black.

The BIA is inadequate for demonstrating the safety of extending the basement at 15 Well Walk both for trees and for neighbouring properties. The Groundsure searches and reports are desk-top studies that are poorly informed and inadequate for our area with its complex hydrogeology; this part of Well Walk particularly so.

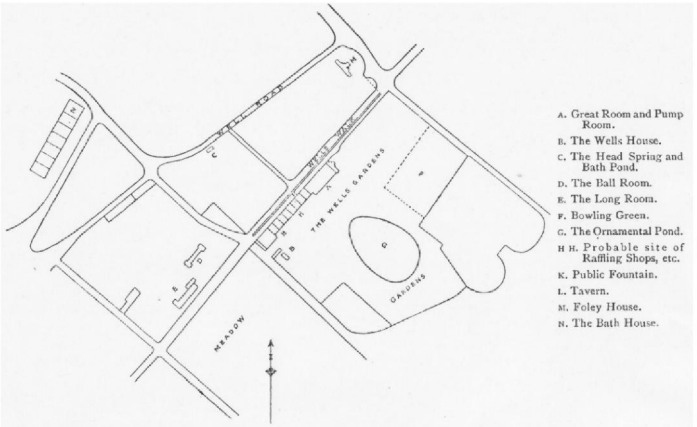
**Groundwater and Local Springs**
From the BIA:

*"2.8 By 1915 Chalybeate Spring is shown as Chalybeate Well indicating that groundwater levels feeding the spring have reduced."*

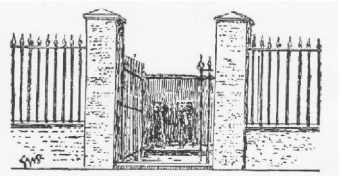
A change of name is hardly evidence that groundwater levels have reduced. This is referred to as a fountain in other historic documents (see below): what do they propose this signifies?

*"2.15 With the exception of the Chalybeate Spring/Well no springs are shown on the historical plans close to the site indicating that shallow groundwater is not present."*

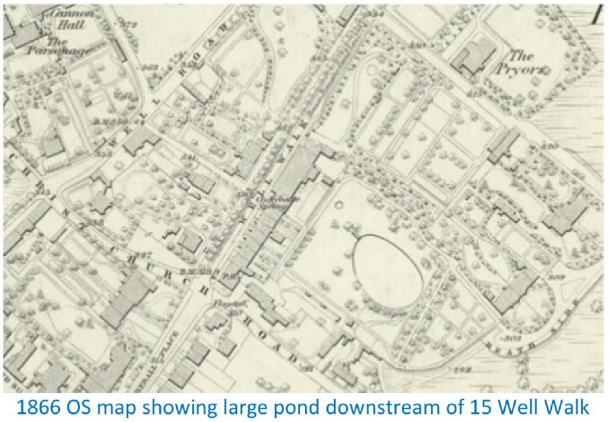
Far from it. This is a known spring line.



ROUGH PLAN OF WELL WALK AND NEIGHBOURHOOD, *circa* 1761.


PUBLIC CHALYBEATE FOUNTAIN IN WELL WALK, *circa* 1845.

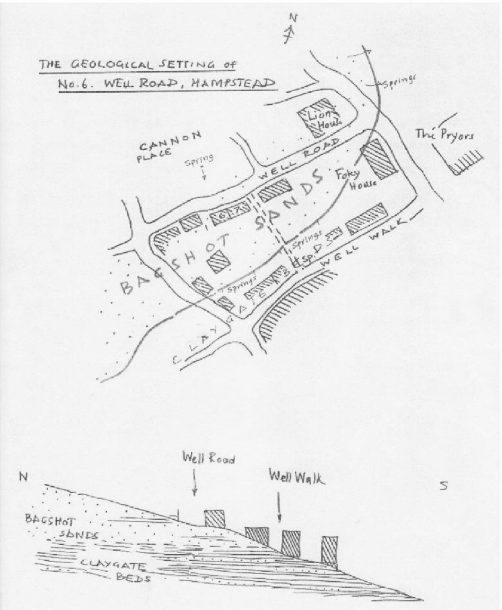
This c1761 map of the immediate area demonstrates the practical use being made of the local springs in the past. While some of this water was piped then and is now, there is still evidence of other groundwater and springs.



1866 OS map showing large pond downstream of 15 Well Walk

The 1761 map and 1866 OS map of the area show the large pond where Gainsborough Gardens now are, originally fed by a spring originating in Well Road, later directed via a conduit running below Wells passage (that also fed the Chaylebeate well, also known as a spring). Well Road and Well Walk in parts are well known to be on a surface spring line along the boundary of the Bagshot Sands and the Claygate Beds (to see the water flow at this boundary look at the video of the well uphill from here on: http://www.heathandhampstead.org.uk/planning ) with some of this groundwater passing on downhill within the silt and sand partings of the overlying Head and the Claygate Beds. The Bagshot-Claygate beds boundary drawn on the British Geological Survey map is dashed, indicating that's its exact position – as drawn on the BGS map - is variable and not confirmed. This is supported by the borehole reported near here which shows Bagshot sand present for 1.5 m.

Dr Eric Robinson of University College London has drawn a geological map of the area (originally for another address in the locality), which indicates the springs and the spring line and should be of concern for 15 Well Walk:




From the BIUA: *"2.13 The available borehole records inspected did not identify groundwater within the shallow sand layer but encountered seepages within the underlying clay. Groundwater within the shallow sand layer is likely to be seasonally dependant."*

This sounds a little understated when compared to the trial pits that the arboriculturalist dug on the 9th August 2012 and reported on in October 2012:

*"The sub-soil in the trial holes from approximately 300mm deep was sandy and saturated at the bottom of the pits. Water was rising to within 50cm of the top of the pit indicating that it was waterlogged. The pits needed to be bailed out to be inspected."*

That the water required bailing out from sand gives some indication of the groundwater flow into this area, and the significant probability that the water table could be encountered while digging out this basement extension.

The rainfall for the whole of August 2012 was 31.7mm (only 60% of average rainfall for the month of August over a 30 year period see: http://nw3weather.co.uk/wxdataday.php?vartype=rain&year=2012 ) with 15.8mm of this rain falling on August 5th, 4 days prior to the arboriculturalist's survey. It is possible that the water encountered was the tail end of surging from the wet day of August 5th. Considering the previous significant wet day was 24 days prior, and there was only a total of 1.2mm of rainfall recorded from August 6th to the 9th it is unlikely the water encountered was at the peak of a surge. Either way, it indicates that continuous testing across periods of both high and low rainfall to investigate the local conditions – surging in particular - is essential, as supported in 'Camden geological, hydrogeological and hydrological study. Guidance for subterranean development':

Para 290: *'There is a more significant water table in the Bagshot Formation and it is possible that this may have a seasonal range of up to 50 centimetres, typically.'*

Para 291: *'Monitoring of groundwater levels over a period of time is therefore necessary.*

A Borehole was dug on 6th February 2013 though the results were not submitted then. They have now been discovered at the back of the Structural Engineer's Assessment in the 2017/3214/P application. While December 2012 had been a wet month, total rainfall for January 2013 was 47.0mm (85% of 30-year average rainfall for

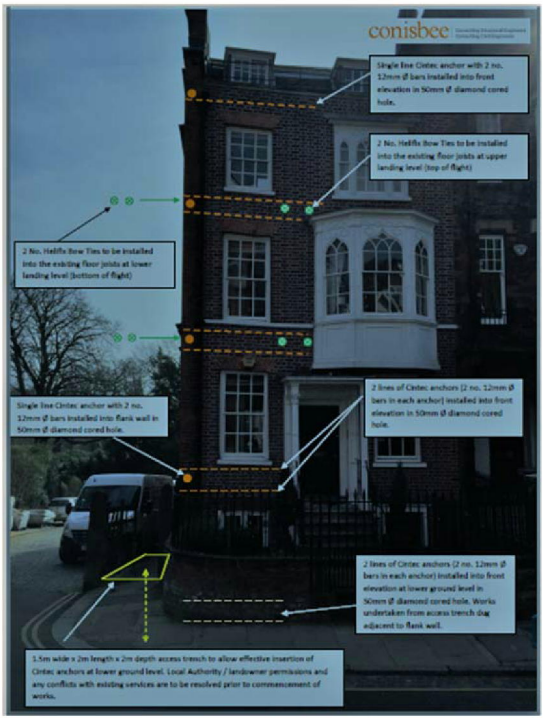
January ) and in February only 9.2mm had fallen up to Feb 6th, 7mm of this on Feb 1st. Hence the borehole was dug at a dry time and no continuous monitoring of groundwater levels across storm surges was performed as now required by the Local Plan Policy A5 Basements commensurate with this hydrogeologically highly sensitive area.

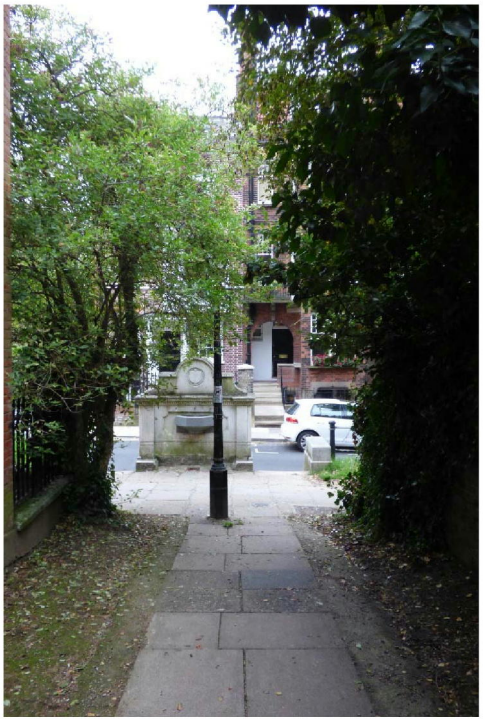
**Silt Erosion by Groundwater Action**

From the BIA *"2.18 The moderate swelling/shrinkage potential is likely to be associated with the London Clay which underlies the Claygate Beds."*

While the [here unmeasured but partial proportion of] clay found 8 meters down is mentioned, no mention is made at all of the very high potential here for the notorious silt erosion that occurs throughout much of the Hampstead area, but particularly along the spring lines and within the Claygate Beds and the solifluction that is 'Head'. The ground water is not far below the surface because this apron of transported material acts as a shallow aquifer. Into and through this shallow aquifer have been dug drains, utility trenches and the culvert containing much of the original stream from the spring on the corner of Well Road and Well Walk Passage that goes to the well in Well Walk and that originally formed the lake that was in Gainsborough Gardens. These pipes have encouraged erosion of silt from around them by the action of groundwater, adding to the ability of this layer to transmit water in directions and at speeds that would not be possible under natural conditions.

Some of the groundwater still running below houses on even moderate slopes can affect them by contributing to ground slip, but its main action is erosion of the significant proportion of silt within the Claygate Beds causing subsidence. Number 46 Well Walk for example – almost directly opposite 15 Well Walk – is having underpinning and now significant tying-in work too to strengthen it and withstand the sub-foundation volume loss from silt erosion by groundwater action. Movement monitoring from 2013 presented in 2016/0242/P showed that ongoing movement *was active*. Looking at 46 Well Walk from the road it can be seen that the main groundwater flow is below the house, west of the front door. This is in line with the eastern side of Wells Passage and thus closely associated with 15 Well Walk.



This part of Well Walk and the road down to Gainsborough Gardens is also notorious for mains water pipe fractures when these pipes have their foundations eroded away by groundwater action on the silt within the Claygate Beds here, resulting in collapse. Escaping mains water itself is very erosive of the silty soil in Hampstead, but it is groundwater action that starts and continues the process.

Trees are another indicator and many areas in Hampstead that would otherwise be saturated with groundwater use water-thirsty trees to alleviate this. Hampstead is known for its particularly abundant leafiness and it is not for nothing that Hampstead even has roads named after this practice: Willow Road, Hampstead Grove, Elm Row etc. Lombardy poplar and lime trees have long been planted along Well Walk to reduce the impact of this water on gardens in the area. Where these trees are taken out, gardens become exceedingly soggy.

This all gives a picture of the challenging local hydrogeology, illustrated in other objections by neighbours who have experienced a significant level of cracking and subsidence associated with building work. This requires more than a desk-top study, even for this relatively small project. It is essential that the geotechnical experts for the project test for and plan for the possibility of the basement dig hitting groundwater at a significant flowrate, so that measures can be taken to protect buildings and trees in the event of this happening. Also, to examine and prepare for the effects of erosion that basement-constrained groundwater can produce. This BIA is not site specific, does not enable Camden to 'assess whether any predicted damage to neighbouring properties and the water environment is acceptable or can be satisfactorily ameliorated by the developer' as stated in DP27.3., and thus is far from satisfying CPG4.

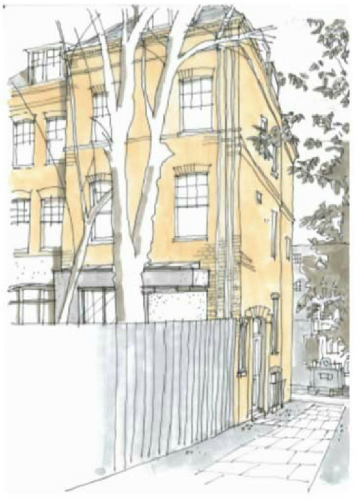
**Trees**

The arboriculturalist's survey was performed on 9th August 2012. This survey report is now 4 years out of date, so considering the extent of encroachment then by the proposed work into the trees' Root Protection Zones, the trees must be re-surveyed to ensure this encroachment is still within the spirit of B.S.5837 (2012). The arboriculturalist states that he has assumed that all construction work will be carried out by hand... within the footprint of the proposed construction. This is not confirmed by a CMP or BCP.

The report also states that no detailed tree examinations were performed. In view of the bats that frequent this area I would expect to see confirmation that there are no bat roosts, particularly in the lime tree.

I am also concerned about access to the site and lack of space for storage of materials. This invariably means that tree root protection zones become utilised for access and for storage without adequate protection for the weights the roots have to sustain. While the arboriculturalist seems to assume that 'Construction access is expected to be through the existing building and not via the alley or rear garden' (though the structural engineer states such spoil will be removed via the side gate to Well Walk Passage, indicating the arboriculturalist of 2011 was not able to consider the implications of this for the lime trees T1, 2 and 3) and that the basement and foundations are being hand dug due to lack of access and space for machinery, this is not confirmed in a Construction Management Plan. There is no CMP and what is presented is inadequate.

View of rear of property as existing from Well Walk Passage



View of rear of property as proposed from Well Walk Passage
Showing new bay window & screen wall

**Previous 2016/6491/P Design & Access Statement showing removal of trees from Well Walk Passage**

While these trees are not grade A trees they nevertheless are an important frame to the views both up and down Well Walk Passage, particularly in summer. The owners of flat A, 15 Well Walk have previously tried to have these and an elder on the corner of the house removed as they hindered their view of teenagers smoking here (fortunately refused by Camden Tree Officers).

The main concern however is for the lime trees T1 and T3. The lack of adequate testing means there is an increased risk of unexpected surging of groundwater, silt erosion and ground rotation or slip. Dealing with this may require large equipment that will harm these trees' canopies. Escaping groundwater may drown the trees.

A green roof is also proposed on the northern new flat roof to mitigate for lost potential garden space. Green roofs however are not welcome in the Hampstead Conservation Area. Hampstead CA is characterised much more by tall trees; green roofs are incompatible with the autumn shedding leaves of deciduous tall trees. It is expected that rather than remove the green roof, the developers will wish to remove the trees. Please refuse this roof.

This application may appear to be straightforward and simple - barely a basement at all. However, other house owners in the immediate area whose property has suffered from subsidence and building work know this not to be the case.

Considering the inadequate level of testing and expert opinion obtained for this application in this very precarious part of Hampstead and the previous withdrawn applications 2016/6492/P and 2012/0103/P, please obtain an independent expert review of the BIA and a BCP, and do not allow consent to be granted for this application until all these points are cleared up sufficiently. Otherwise please refuse.

Dr Vicki Harding
Tree Officer, Heath & Hampstead Society

20th July 2017

Gmail Vicki Harding [redacted]

**Fw: Objection: Flat A, 15 Well Walk. 2016/6491/P**

1 message

**David Castle** [redacted] 17 January 2017 at 11:34

To: Planning <Planning@camden.gov.uk>

[redacted]

## THE HEATH AND HAMPSTEAD SOCIETY

The Society examines all Planning Applications relating to Hampstead, and assesses them for their impact on conservation and on the local environment.

**To London Borough of Camden, Development Control Team**

Planning Ref: 2016/6491/P

Address: Flat A, 15 Well Walk

Description: Rear Extension at basement and ground floor.

Date: 16.1.2017

This proposed extension will be very visible from the unspoilt and historic Well Passage.

The contorted shape of the rendered ground floor extension does not augment or relate to the existing house.

It certainly is not contributing to the Conservation Area.

Please refuse.