1675/113/JGa/mw March 2016

The Water House

Comments on information provided by the Applicants in February 2016

1.0 Gravel Filled Drain

HRW have submitted a mark-up of drawing No. 633(SK)001 Rev V which appears to be an initial sketch to install a shallow land drain around the front boundary of The Water House. This is only a mark-up of the Existing Site Plan and there is nothing to indicate that the drawing was ever formally issued for construction, or that the drain was ever constructed.

The drawing also refers to "possible carrier drain runway beneath concrete drive to be cleared out if found". However there is no evidence to suggest that this was found.

The proposed drain requires a 450mm deep excavation which would cause problems for trees on the boundary and trees on the other side of Millfield Lane.

The requirement for a land drain has been discussed at length over the last 3 years. It is therefore surprising that this drawing has only now been produced, if the applicants were aware that one already existed.

2.0 Groundwater

HRW note that the drainage strategy has been independently assessed by the "authorities independent assessor CGL and confirmed as satisfactory July 2014". However the strategy reviewed relied on the gravel filled drain across Millfield Lane on to Hampstead Heath. CoL have refused to agree to this. It is worth noting that Thames Water will not accept ground water into the public sewer. The applicants have now proposed that this excess groundwater is direct to a gravel filled drain as noted in Section 1 above, but there is no evidence that this exists. Therefore the only route for the excess ground water to drain is across Millfield Lane onto the Heath. This is not an acceptable solution so the strategy does not work.

3.0 Response to CGL's Review of Groundwater

Camden Planning have issued an extract from CGL setting out their review of the groundwater concerns as noted below:

"Having reviewed the drawings previously provided along with the various emails and letters we note the following:

1. *It is our understanding that the basement areas do not prevent groundwater from passing between them and therefore through the site. The fin drains which form part of the basement wall waterproofing will direct groundwater away from the basement walls and into a trench soakaway. The construction of the basement will not increase the volume of groundwater and we can see no reason why it would result in elevated groundwater which would result in flooding. Therefore it is logical that any groundwater intercepted by the fin drains would disperse via the trench soakaway.*

2. *The choice of a trench soakaway will maximise the permeable surface available for dispersal of the groundwater. If the overflow does operate then the proposed connection to an existing filter drain does seem appropriate if it connects to an existing land drain that passes beneath Millfield Lane. It would be a fairly simple procedure for the developer to expose the pipe and trace it.*
3. *We can see no mechanism that would cause groundwater to flow overland to the Heath and Ponds as suggested by the City Corporation or Alan Baxter. The lowest basement level is set at 78.00, this is 1.2 m lower than the lowest boundary level adjacent to Millfield Lane".*

Our comments on this are as follows:

Point 1

It is agreed that the basements do not prevent groundwater passing between them and therefore through the site. It is also agreed that the construction of the basement will not increase the volume of groundwater. However, it is generally accepted that groundwater flows in the area are complex, even though the material would normally be classified as having very low permeability.

RSK carried out a site investigation for the applicants in February 2011. Borehole no. 2 was located in the north eastern sector of the site. While the initial borehole log did not note the presence of groundwater, the water level rose to approximately 79.4m OD within a two week period. It is therefore reasonable to assume that the groundwater in the fin drains around the new basement will rise to this level or higher.

While the total volume of groundwater will remain the same, it will flow to the soakaway at a much faster rate due to the high permeability of the material used to form the fin drains.

Point 2

The fin drains all direct the groundwater to a soak away near the southern site boundary. The applicants have confirmed that the sub-soil here is impermeable. They also state that any re-infiltration can only be in the made ground.

The perimeter of the soakaway is a very small fraction of the perimeter area of the new basements and it is therefore unlikely that it can accept the potential flow from the fin drains around the basement.

Point 3

The recorded level of the groundwater in borehole no. 2 was 79.4m OD which is approximately the same as the ground level at the location of the soakaway and at least 1m higher than the level of Millfield Lane. Therefore, unless a proper drain route is provided, there is a high risk of groundwater flowing across Millfield Lane. See Section A-A on drawing No. 1675/113/SK10 attached.

4.0 Surface Water Drainage

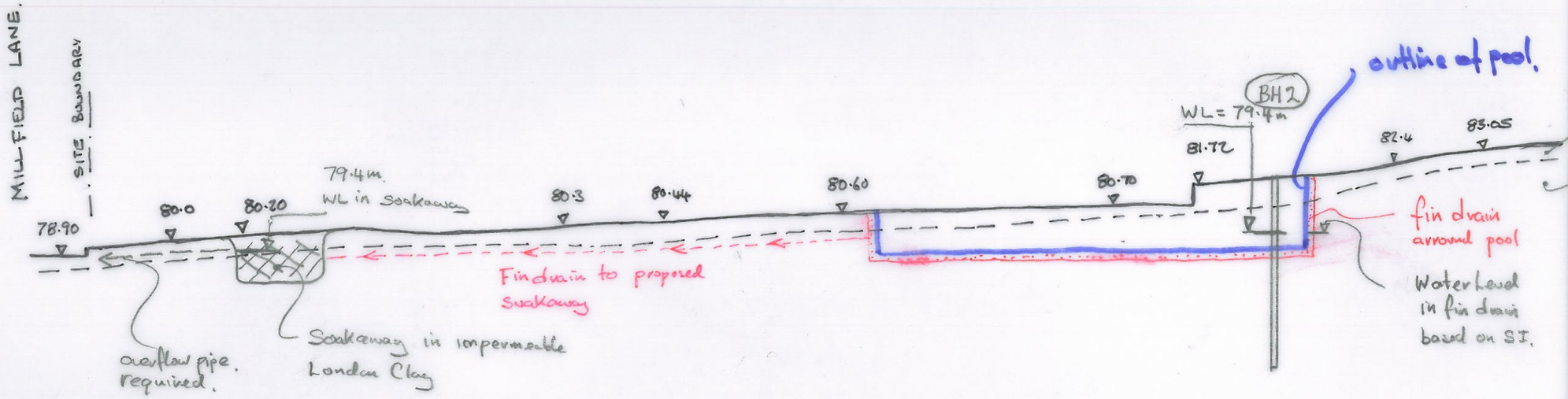
The Applicants have not yet addressed the issue of surface water discharge rates.

The current proposal, which the Applicant had previously noted have been agreed, is to direct all the surface water runs to rainwater harvesters, (and then to attenuation tanks, with controlled outflow devices). The agreed run-off rate was restricted to 6l/sec.

There are two separate surface water systems, each with their own rainwater harvester, attenuation tank and controlled outflow devices. The rainwater harvesters cannot be used as part of the attenuation strategy, so there is a separate attenuation tank for each system.

Controlled outflow devices or “hydrobrakes” are an accepted method of controlling outflow. However, it is generally accepted that, in order to avoid blockages, the minimum flow at which hydrobrakes can operate is 5l/sec. The proposed arrangement is therefore unlikely to achieve the limit of 6l/sec as the minimum combined flow will be 10l/sec.

Calculations are also required to justify the size of the attenuation tanks proposed and the scheme should be revised so that both attenuation tanks drain to a single hydrobrake sized to limit the flow to a maximum of 6l/sec.



Water Level in soakaway is above the Level of Millfield Lane ∴ overflow drain required or excess ground water will flow over the Lane to the Heath.

SECTION A-A

notes

job
THE WATER HOUSE

title
HYDRO GEOLOGICAL SECTION
GROUND WATER DRAINAGE

drawn JCq | checked

date 30.3.16 | scale (original - A3)

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