

18 August 2010



Philip Bloom
10 Antrim Grove,
Belsize Park
London
NW3 4XR

**WSP Development and
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Dear Philip,

WSP Group plc
Offices worldwide

**10 Antrim Grove, Belsize Park, London. NW3 4XR
Flood Risk and Drainage Statement**

WSP were commissioned by Beyond Architecture in June 2010 to prepare a Flood Risk and Drainage Statement for the proposed basement extension of the above site. As requested, WSP has prepared this letter to identify any flood risk issues at the above site and propose possible mitigation measures to support development at the site.

This Flood Risk Statement takes account of the PPS25 and the Practice Guide Companion to PPS25 issued in March 2010 and December 2009 respectively.

Site Location

The proposed application site is located in Belsize Park, London. The site is approximately 1.75km north of Regent's Park and 250m south-east of Belsize Park Underground Tube Station. The site is bounded by existing properties fronting Haverstock Hill (A502) to the north, properties fronting Belsize Grove to the west, properties fronting Primrose Gardens to the south and Antrim Grove to the east. The post code for the site is NW3 4XR and the grid reference is (527516, 184891). Refer to Figures 1 and 2 for the site location plans.

The existing site is Brownfield, comprising of an existing semi-detached house with associated garden areas to the front and rear of the property. The site boundary covers an approximate area of 290m².

Indicative Flood Mapping

According to the Environment Agency's Flood Zone Map, the application site is located in Flood Zone 1, where the annual probability of river flooding is less than 1 in 1,000 (< 0.1%). This area is classified as 'Low Probability' for planning purposes, as defined by PPS25 "Development and Flood Risk". Refer to Figure 3 enclosed for the Environment Agency Flood Map.

Proposed Development

It is proposed to redevelop the existing property at 10 Antrim Grove to provide a new below ground basement level underneath the property. This basement level is to comprise of a pool, a gym, a bedroom, a family room, a bathroom and a library. The extent of the proposed basement level is to cover the majority of the extent of the site boundary. Refer to Beyond Architecture Proposed Layout Drawing Nos. 1007/110 – 1007/117 enclosed.

The proposed basement extension provides fitness and sleeping facilities, which are classified as 'Highly Vulnerable' in Table D.2 of PPS25, while residential and health care services are classified as 'More Vulnerable'. The proposed development site is located in Flood Zone 1; therefore the development proposals are appropriate according to Table D.3 of PPS25 (Refer to Appendix D).

Flood Probabilities and Sources of Flooding

No risk of flooding is perceived to the application site as there are no open watercourses within the vicinity of the site.

Any overland flows from areas west of the site will be intercepted by Belsize Grove and conveyed south away from the site. Overland flows from areas north of the site will be intercepted by Haverstock Hill (A502) and conveyed away from the site in a south-east direction. Furthermore, the areas to the south and east of the site are at levels below those found on-site and as such would not contribute to overland flows affecting the site.

According to the Environment Agency's Groundwater Vulnerability Maps available on their website, the proposed development site does not lie within a currently defined Groundwater Source Protection Zone (SPZ) for public supply and there are no active licensed groundwater abstraction points within 500m radius of the site. Refer to Figure 5 for the Groundwater Vulnerability Map.

Thames Water has confirmed that they were aware of 9 properties flooding along Antrim Road in 1991; however, no data is available regarding the type of flooding or flood depths. Refer to the Thames Water correspondence e-mail dated 14 July 2010 enclosed.

Camden Council has confirmed that they do not have any records of any historical highways flooding within the vicinity of the site. Refer to the Camden Council correspondence dated 14 July 2010 enclosed.

Existing Surface Water Regime

The existing 290m² application site comprises of a three storey, 5-bedroomed, semi-detached house and an associated driveway, which represents a total existing impermeable area of approximately 192m². Refer to the Existing Area Assessment (WSP Drawing No. D/01) enclosed.

Thames Water records confirm the existence of a 305mm diameter combined sewer located in Antrim Grove. This combined sewer services the existing development fronting Antrim Grove and conveys flows in a southern direction towards Antrim Road before the 305mm combined sewer increases to 381mm diameter and conveys flows towards the east, away from the site.

Thames Water records also highlight a 1194 x 762mm combined trunk sewer located within Haverstock Hill (A502) conveying surface water and foul flows towards the east and then north along Parkhill Road. Refer to the Thames Water Sewer Records enclosed.

A Site Investigation was not available for the application site during the writing of this report. However, according to the British Geological Survey (BGS) maps, the site is underlain by the London Clay. Refer to Figure 4 enclosed for the BGS Geology Map (Sheet 256).

Based on the Rational Method, the existing 1 in 1 year peak discharge (rainfall intensity = 50mm/hr) from the site is approximately 2.69l/s (2.78 x 50mm/hr x 0.0192ha). The existing 1 in 100 year peak discharge is approximately 7.76l/s (2.78 x 143.9mm/hr x 0.0192ha). The rainfall intensities were obtained from Table 1(a) of the TRRL Report LR 595 enclosed.

Surface Water Drainage Strategy

The proposed surface water drainage strategy should seek to replicate or reduce the site's existing hydrology. Changes in the volume and rate of surface water run-off from the proposed redevelopment could increase the risk of flooding downstream unless sufficient steps are taken within the proposed development to prevent this from happening.

A fundamental principle of sustainable development in terms of flood defence is the reduction of surface water run-off from new or re-developments.

Paragraph F10 of Annex F to the PPS25 states that *"the surface water drainage arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the proposed development"*. Any increase in run-off above the discharge limit must be stored or attenuated on site.

Proposed Drainage Strategy

The proposed development seeks to provide an underground basement extension underneath the existing property, covering an area of approximately 285m². This covers the majority of the site boundary and therefore encroaches underneath the existing garden areas to the front and rear of the existing property.

Excavation of the proposed basement floor would reduce the depth of soil underneath the existing garden areas, hence reducing the existing infiltration potential, which in effect increases the impermeable area of the site when compared to the existing situation. However, it is proposed to replace the existing garden areas with Greenroofs to provide a substrate of approximately 500mm above the proposed basement in order to mimic the existing situation with regards to runoff. Refer to the Drainage Strategy Drawing No. D/03 enclosed.

The proposed basement extension requires waterproofing to prevent any groundwater or infiltrating rainwater from damaging the basement structure or even seeping through the walls and flooding the interior of the basement.

The proposed basement extension will also provide a fire escape route leading up to the ground floor garden area. This part of the extension and the proposed light wells, will increase the impermeable area of the application site to approximately 209m², which is an increase of 18m² compared to the existing situation. Refer to the Proposed Area Assessment (WSP Drawing No. D/02) enclosed.

It has been proposed to implement a sump pump at the bottom of the proposed fire escape route and at the bottom of the light well, situated at the front of the house. This will prevent any groundwater or rainwater collated in these areas to be pumped out. Any water collated at these locations will be conveyed via rising mains into the existing private drainage located underneath the footpath to the side of the house. An overflow control connecting this system to a French Drain would ensure that surface water discharged from the site would not exceed the existing discharge rates generated from the existing property.

As mentioned above, an 8m long French Drain has been proposed adjacent to the new fire escape, which is designed to accommodate any increase in surface water runoff generated by the proposed site and any water collated in the front light well and the proposed fire escape route, to be infiltrated directly into the ground up to and including the 1 in 100 year + 30% climate change storm events. Therefore, the development proposals will prevent any increase in surface water discharged from the site as a result of the proposed underground basement extension.

Therefore the proposed preliminary drainage strategy is robust and does not increase the flood risk of the site or of offsite areas. The exact discharge rates and reduction of the surface water discharge will be defined at the detailed design stage.

Conclusions

The site is located in Flood Zone 1 and therefore is not at risk from flooding during a 1 in 100 year flood event. Due to the site being located in Flood Zone 1 (Low Probability) all development types are appropriate for the site according to PPS25.

The proposed basement extension will result in an increase of impermeable area of approximately 18m². However, as part of the indicative drainage strategy, implementing sump pumps in areas that are vulnerable to collating water and a French Drain to infiltrate any excess water generated by the proposed site will not increase the risks of flooding on site or off the site.

The proposed development is therefore, robust and sustainable in terms of flood risk and surface water drainage and meets the requirements of PPS25.

We trust the above is acceptable however; should you have any questions or wish to discuss the above issues further, please do not hesitate to contact the undersigned.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'BP' followed by a stylized surname.

Brian Cafferkey
Technical Director
DDI: 01256 318631

Risk of Flooding

Enter postcode or place name:

NW3 4XR

Search

Overview map:

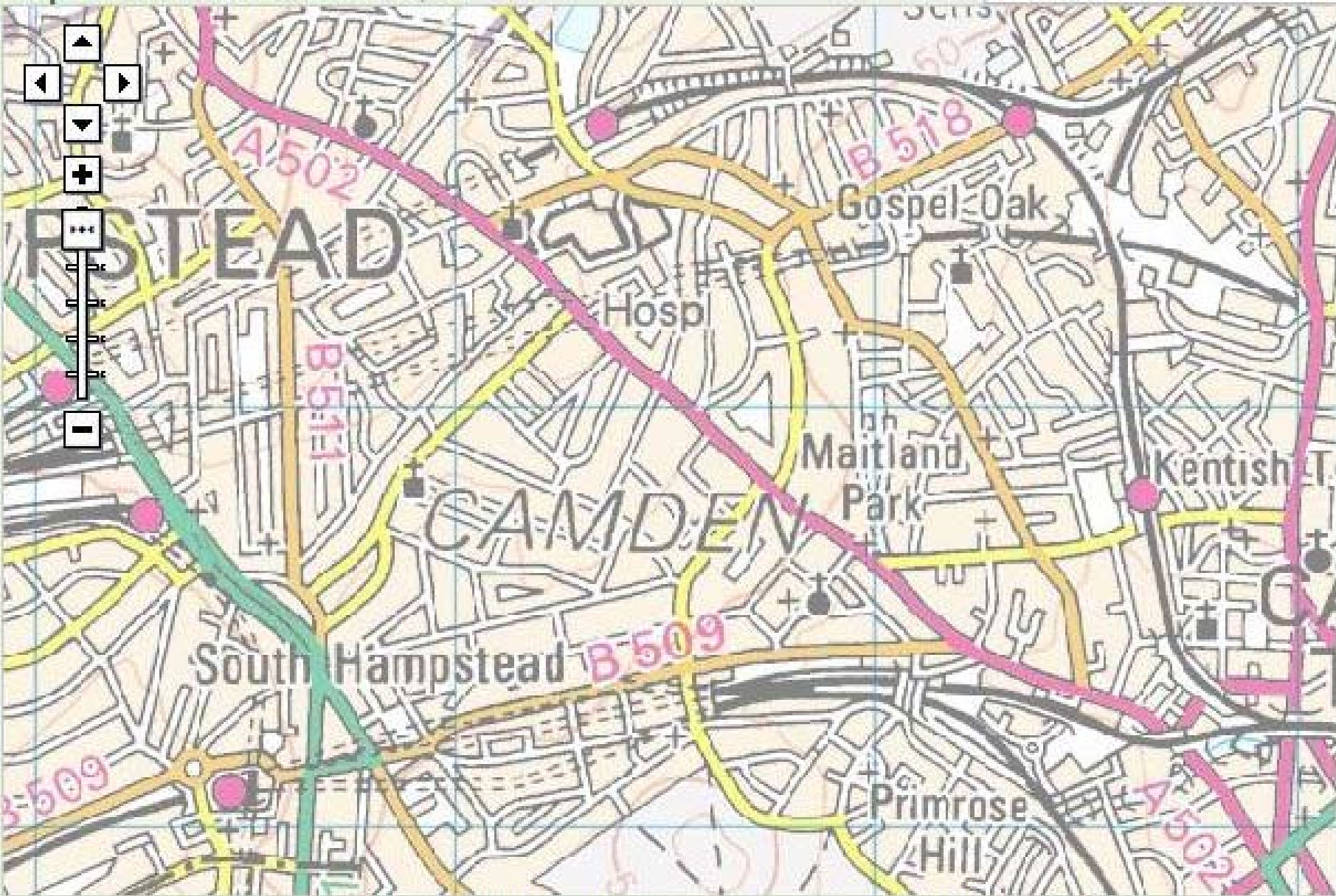


Other topics for this area...

- » Risk of Flooding
- » Flood Warning Areas
- » Landfill

Map of NW3 4XR at scale 1:20,000

Map Legend



Groundwater

Enter postcode or place name:

NW3 4XR

Search

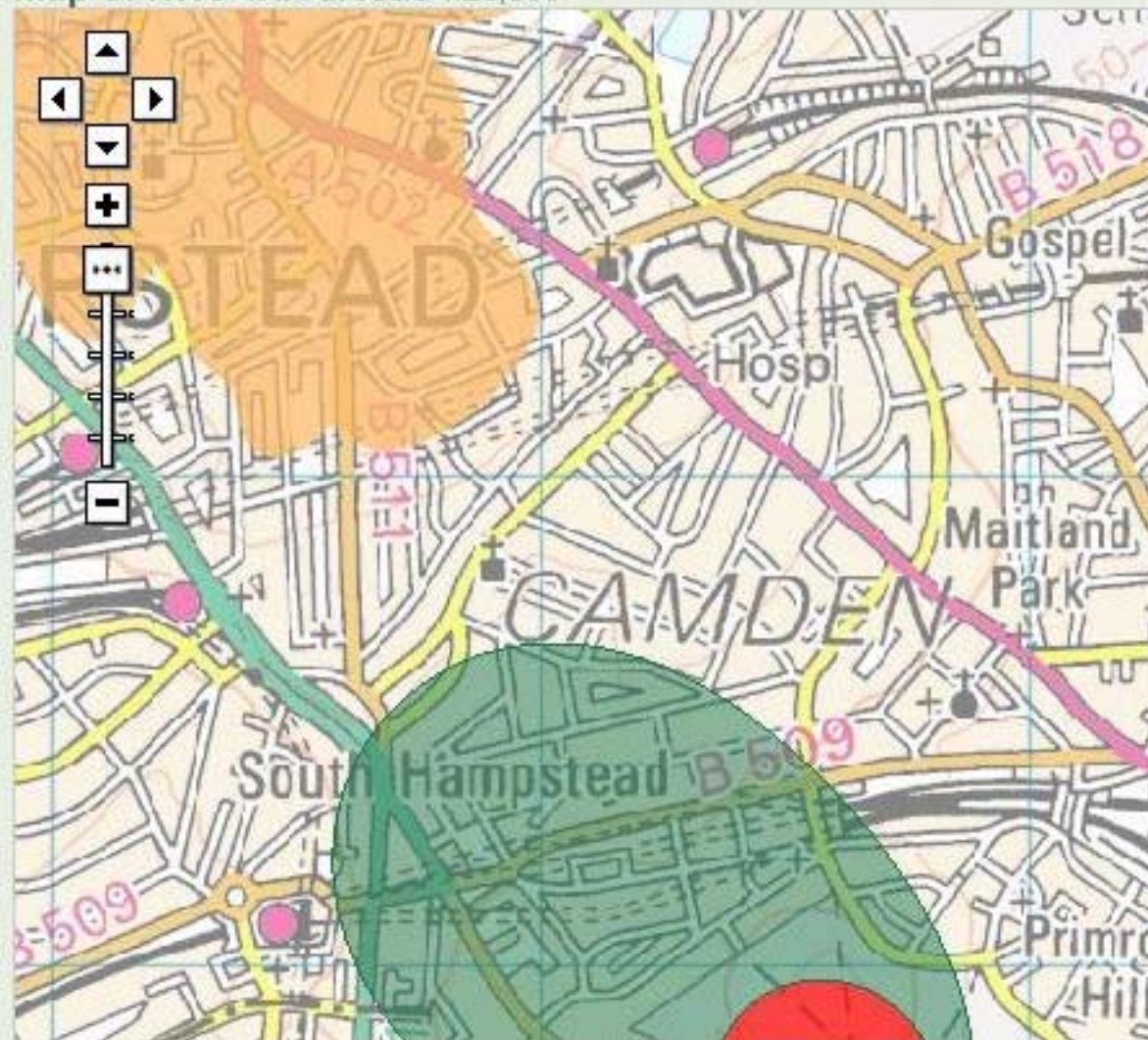
Overview map:



Other topics for this area...

- » Risk of Flooding
- » Flood Warning Areas
- » Landfill
- » Pollution
- » Air Pollution
- » Rivers
- » Bathing Water Quality

Map of NW3 4XR at scale 1:20,000



» view text version of all results

Tell me more about the Groundwater Source Protection Zones

» Groundwater Source Protection Zones

Map Legend

Groundwater

Click on a feature for details of that site

☒ Groundwater source protection zones

- ☐ Inner zone
- ☐ Outer zone
- ☐ Total catchment
- ☐ Special interest

☒ Aquifer Maps - Superficial Deposits Designation

- ☐ Principal
- ☐ Secondary A
- ☐ Secondary B
- ☐ Secondary (undifferentiated)
- ☐ Unknown (lakes and landslip)

☒ Aquifer Maps - Bedrock Designation

- ☐ Principal
- ☐ Secondary A

Tang, Joe

From: Jasper, Graham [Graham.Jasper@camden.gov.uk]

Sent: 14 July 2010 08:00

To: Tang, Joe

Subject: Antrim Grove Flooding

Good morning Joe Tang

I have checked the areas requested by you
and can confirm that they are not on the
flooding danger areas.

Graham Jasper
Highways Drainage Engineer
Public Realm and Sustainability
Culture and Environment
London Borough of Camden

Telephone: 020 7974 2144

Web: camden.gov.uk

4th

Town Hall Extension (Environment)

Argyle Street

London WC1H 8EQ

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18/08/2010

Tang, Joe

From: Jenny.Elliott@thameswater.co.uk
Sent: 14 July 2010 15:57
To: Tang, Joe
Subject: Re: 10 Antrim Grove, Belsize park, Camden, London, NW3 4XR

Hi Joe

I had a lovely weekend thanks, I hope you did too.

There are some historical records for Antrim Close, although no data behind it as it's quite old. 2 properties show as having a flooding history in 1989 but nothing since.

Also 9 properties in Antrim Road show flooding incidences in 1991, but again no data behind them, so I'm unsure if they were related to hydraulic flooding from foul or surface water or if perhaps there was an operational reason i.e. a blockage.

Our flooding database was not in place back then so these were added after the event hence there are no details of cause or actual date as it could have been longer before the dates suggested above.

Sorry I can't be of more help.

Best wishes
Jenny

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WSP Development & Transportation**Thames Water Utilities Ltd**

Joe Tang
Graduate Engineer
Mountbatten House
Basing View
Basingstoke
Hampshire
RG21 4HJ

Your ref
Our ref MW
Name Matthew Wood

Date 15/07/2010

10 Antrim Grove, Belsize Park, London, NW3 4XR

Dear Sir or Madam

I refer to your letter, requesting information in relation to sewer flooding for the above premises. The records held by Thames Water indicate there have been no incidents of flooding as a result of surcharging of public sewers in the vicinity of the above.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

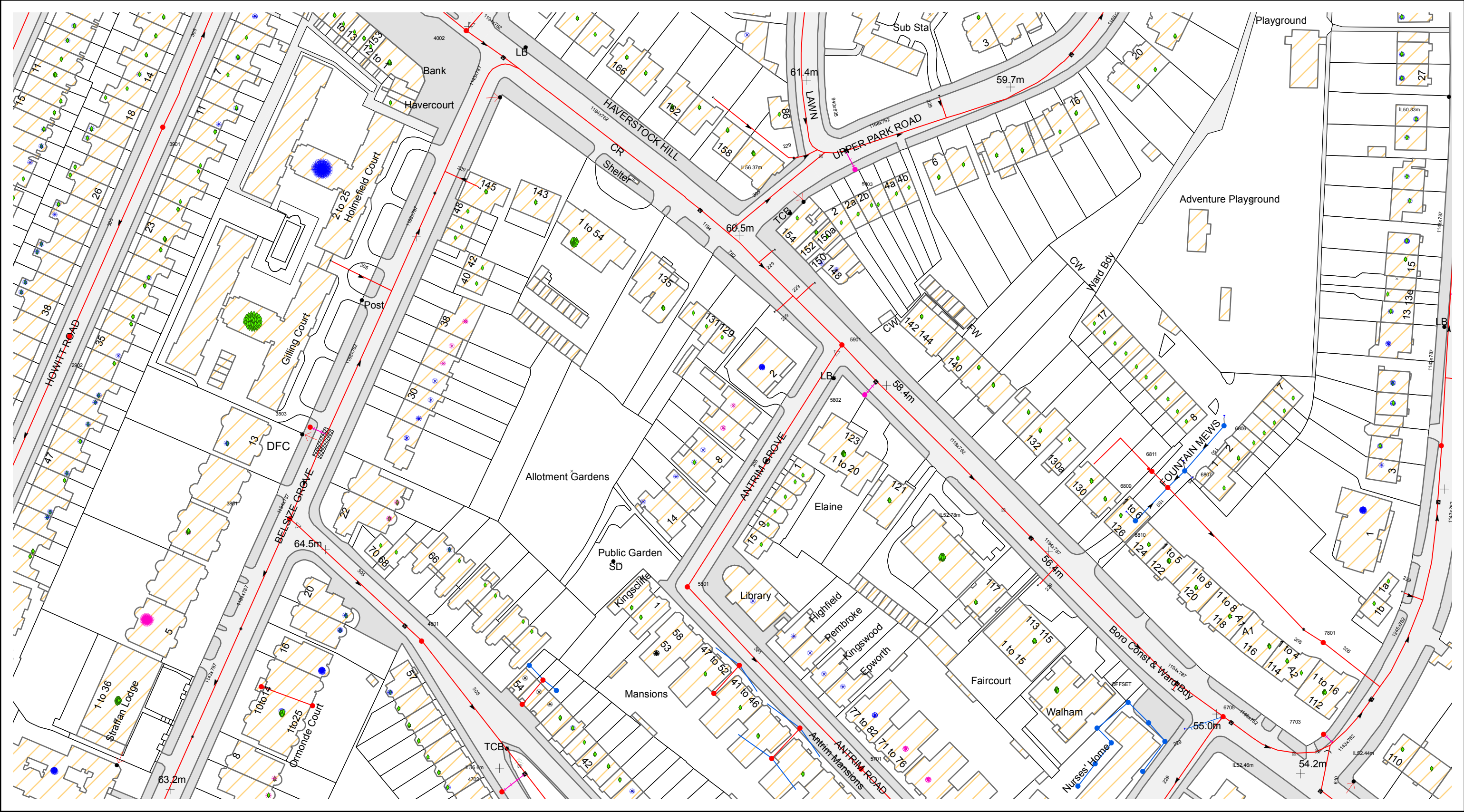
You should also note that sewer surcharging is directly affected by duration and intensity of rainfall. Future changes in rainfall patterns might therefore lead to increased surcharging of sewers, which might not be reflected in our records of previous sewer flooding events.

Yours faithfully

Matthew Wood
Technical Information

Thames Water Utilities Ltd
Reading Mailroom
Reading Bridge House
Reading Bridge
Reading
RG1 8PR

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road,
Reading RG1 8DB



0 20 40 80 120 160 Metres

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified on site before any works are undertaken. Crown copyright Reserved.

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Printed By :J1LI
Print Date :13/07/2010 13:55
Map Centered On :527516,184891
Grid Reference :TQ2784NE



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ANTRIM GROVE

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2 EXISTING FIRST FLOOR PLAN
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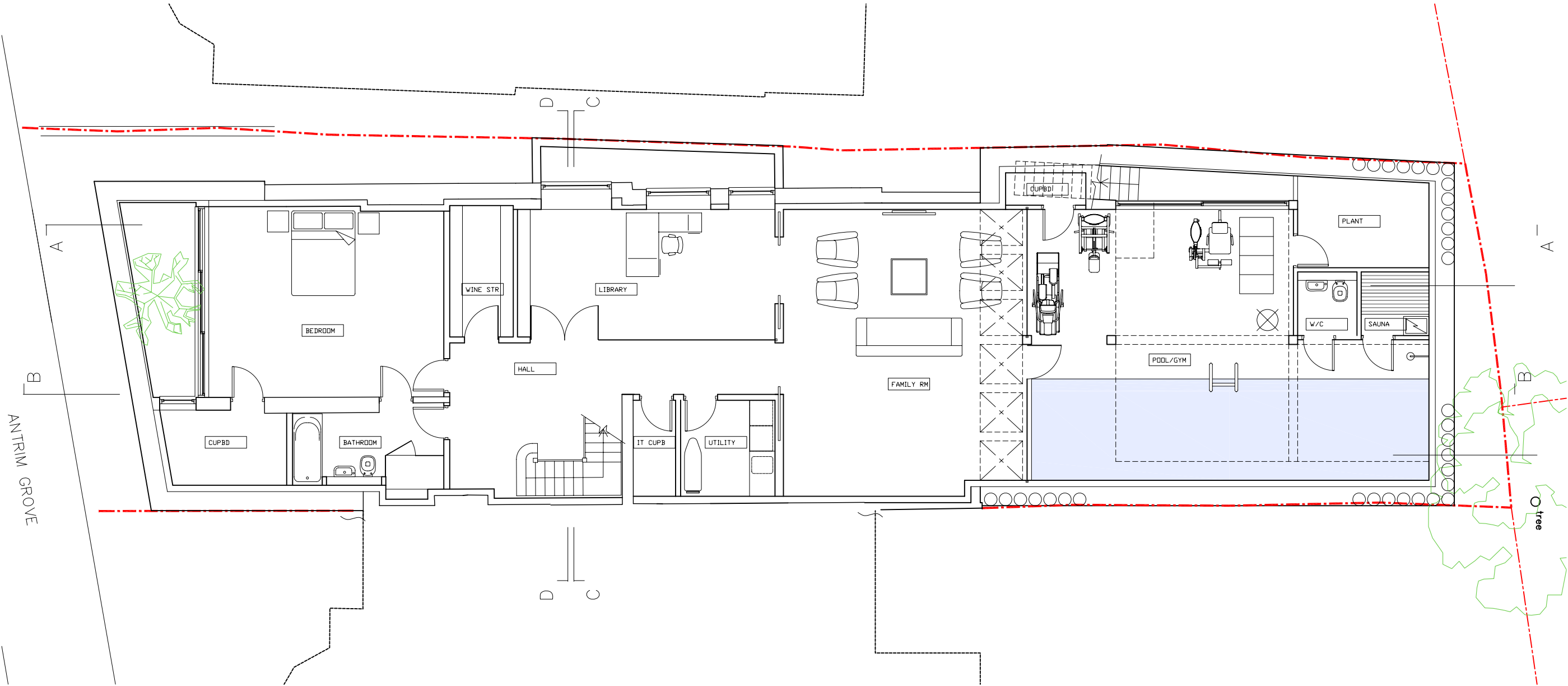
1 EXISTING GROUND LEVEL PLAN
1 : 100

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LOCATION	10 Antrim Grove, Belsize Park London NW3 4XR
DRAWING TITLE	EXISTING PLANS
DATE	APR 2010
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1

PROPOSED BASEMENT LEVEL PLAN

1 : 100

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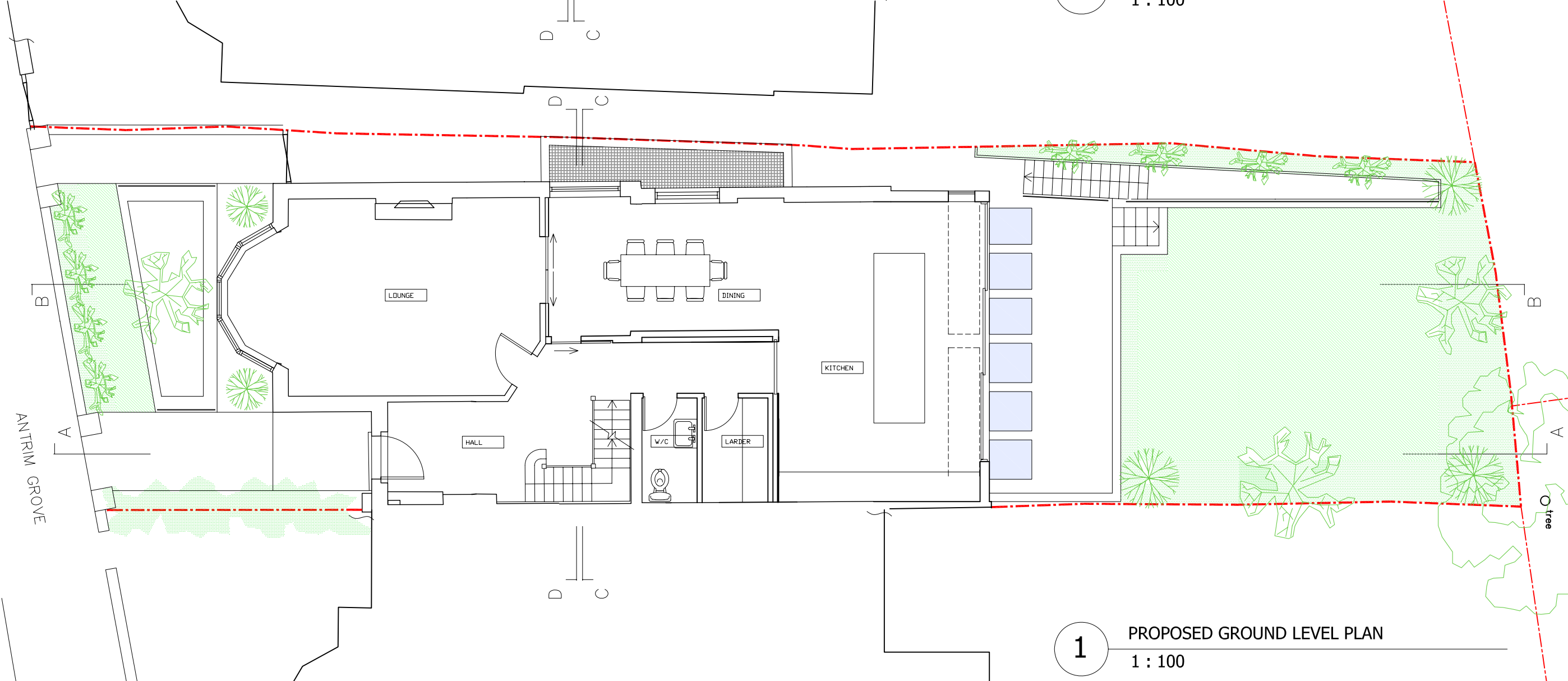
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2 PROPOSED FIRST FLOOR PLAN
1 : 100

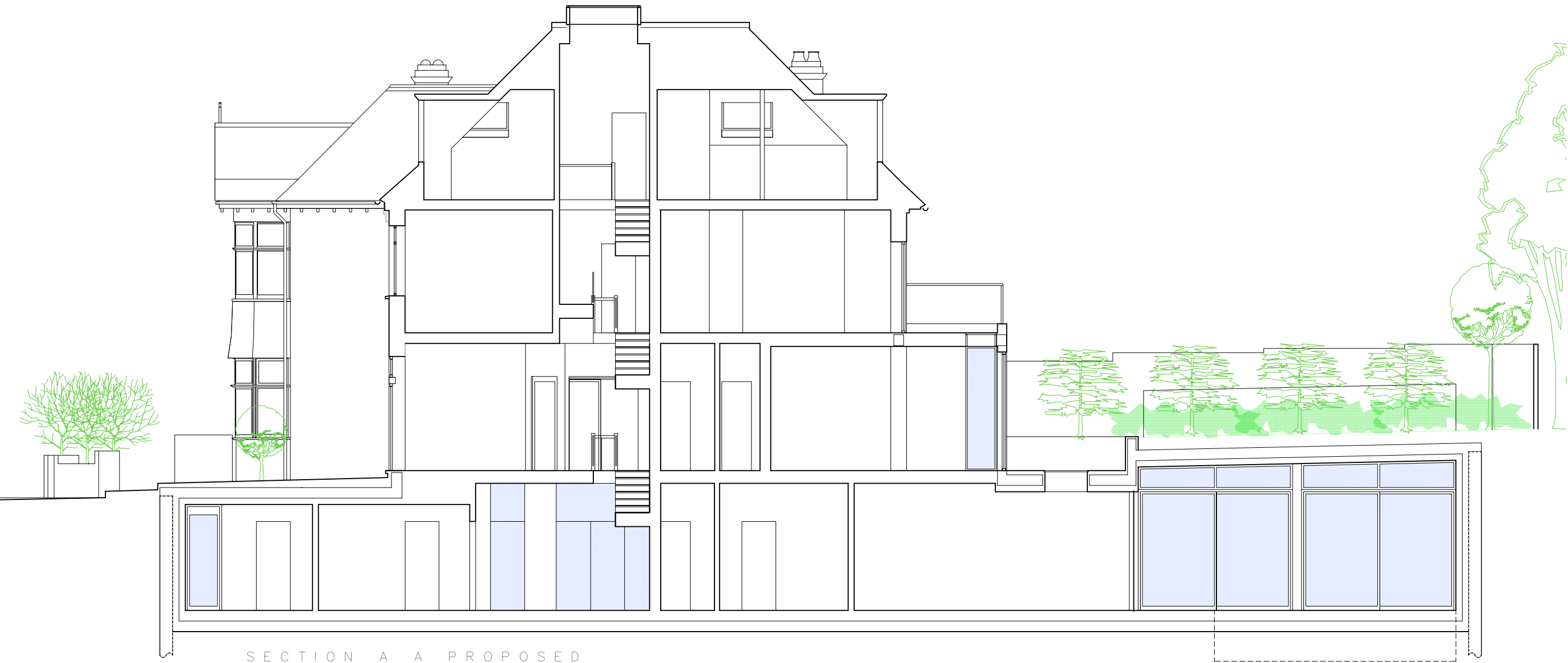
1 PROPOSED GROUND LEVEL PLAN
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SECTION A A PROPOSED

1

PROPOSED SECTION A-A

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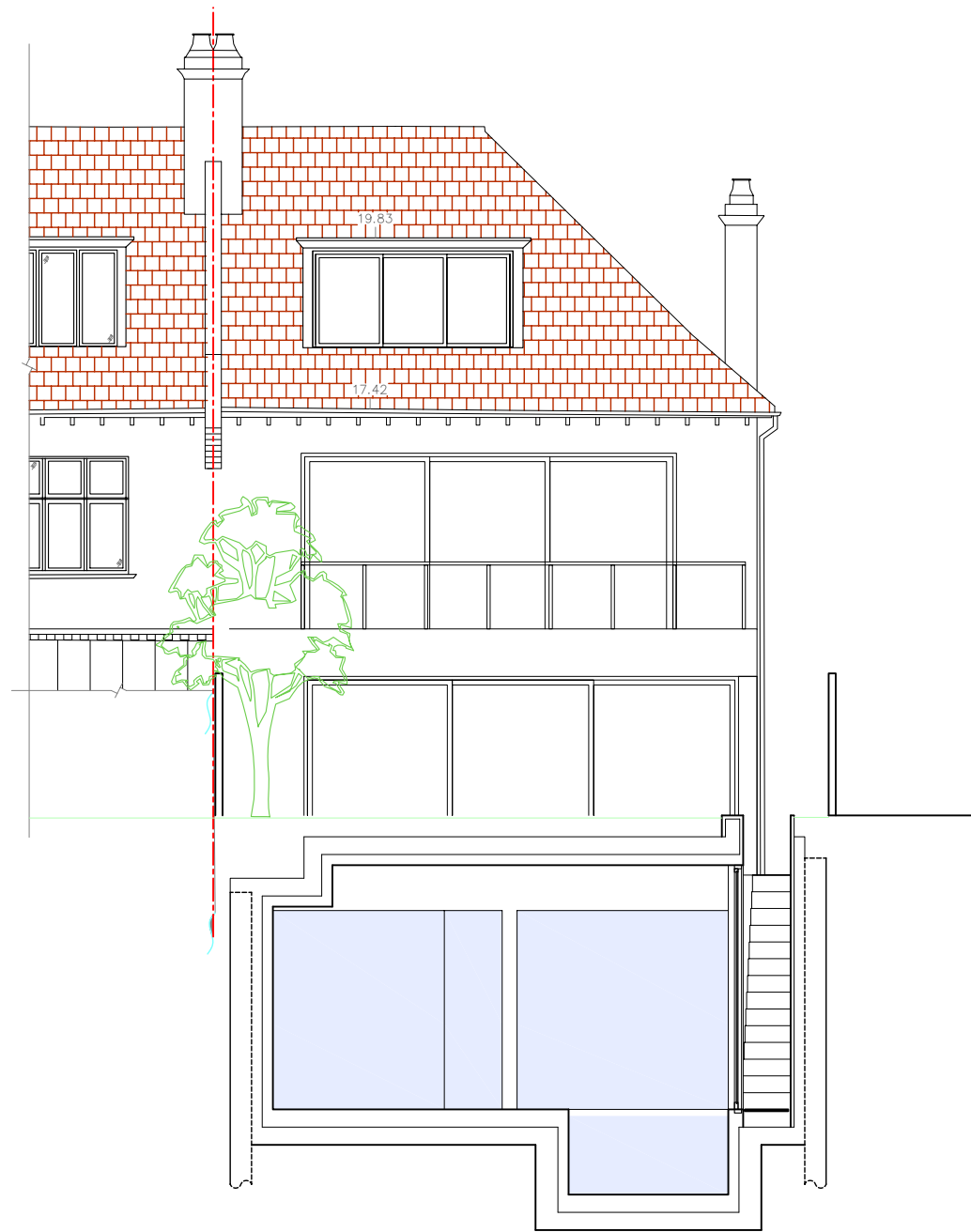


SECTION C C PROPOSED

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PROPOSED SECTION C-C

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PROPOSED SECTION D-D

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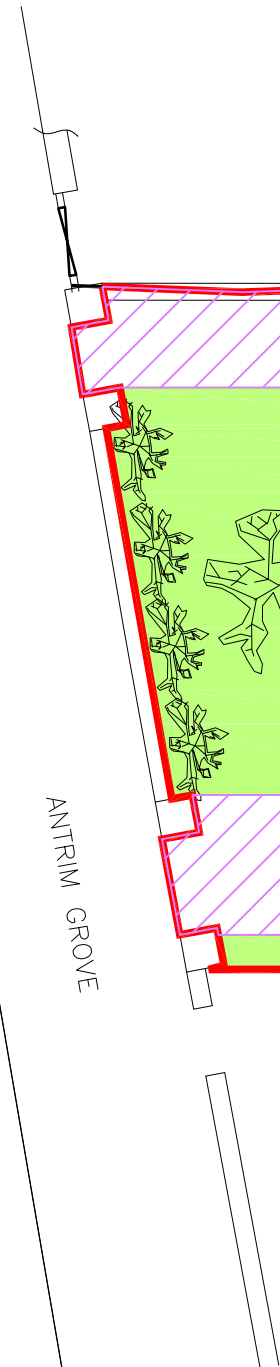
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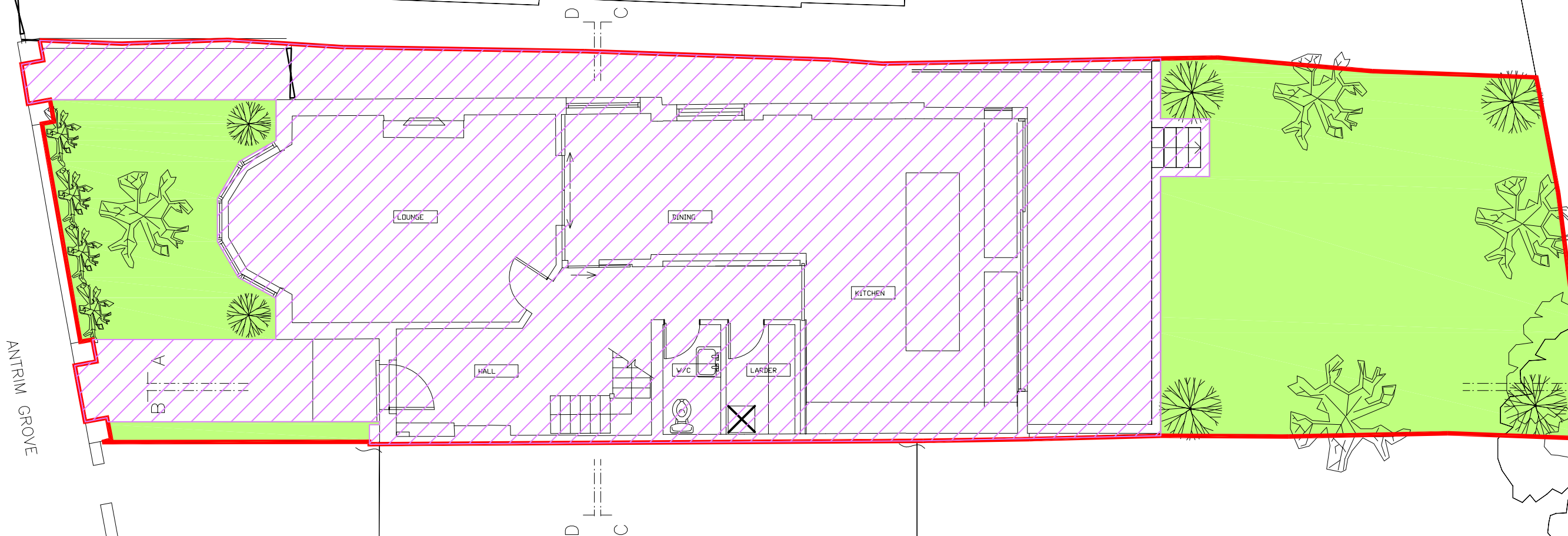
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ANTRIM GROVE

GREEN AREA = 98.9m²



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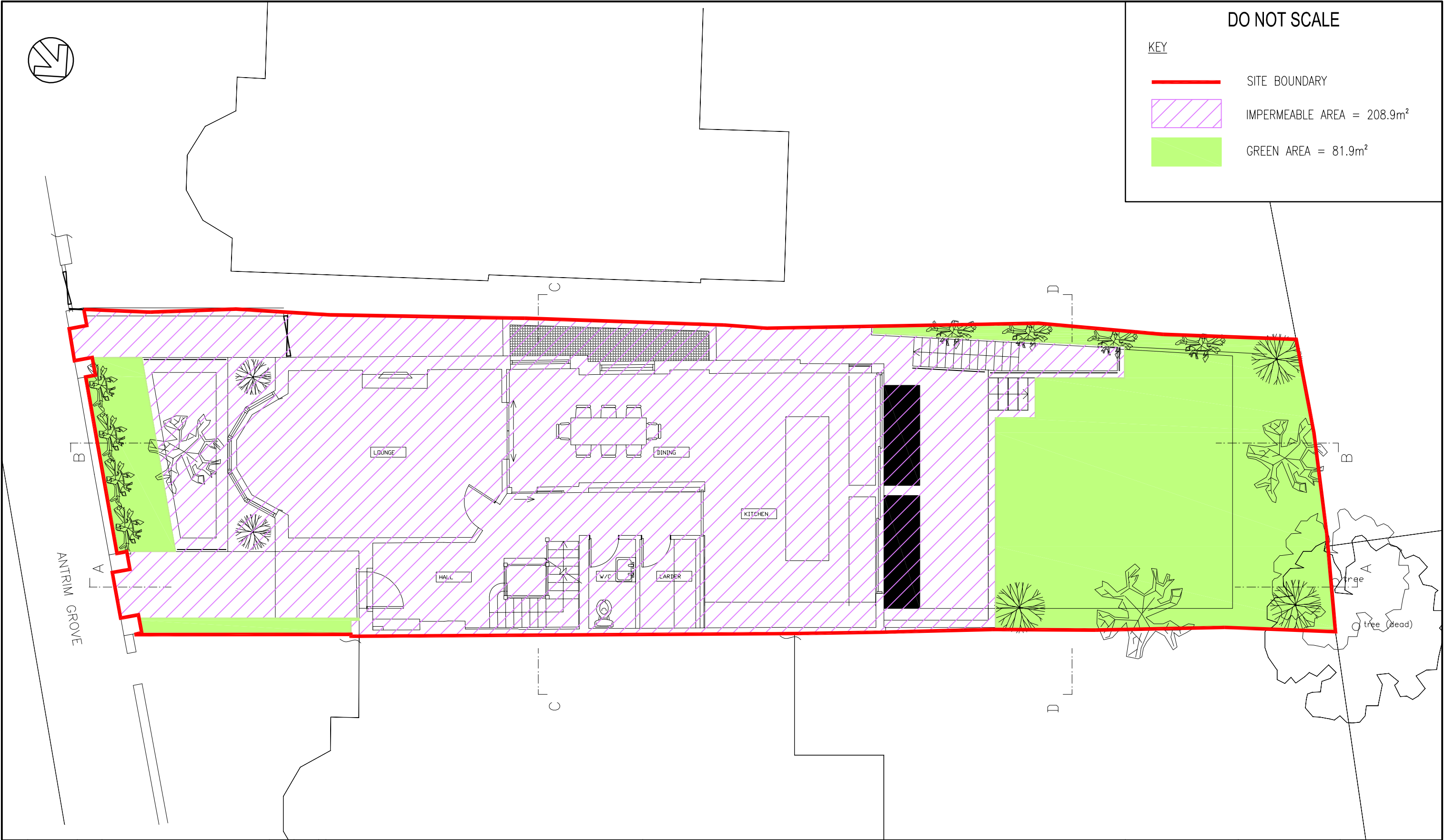
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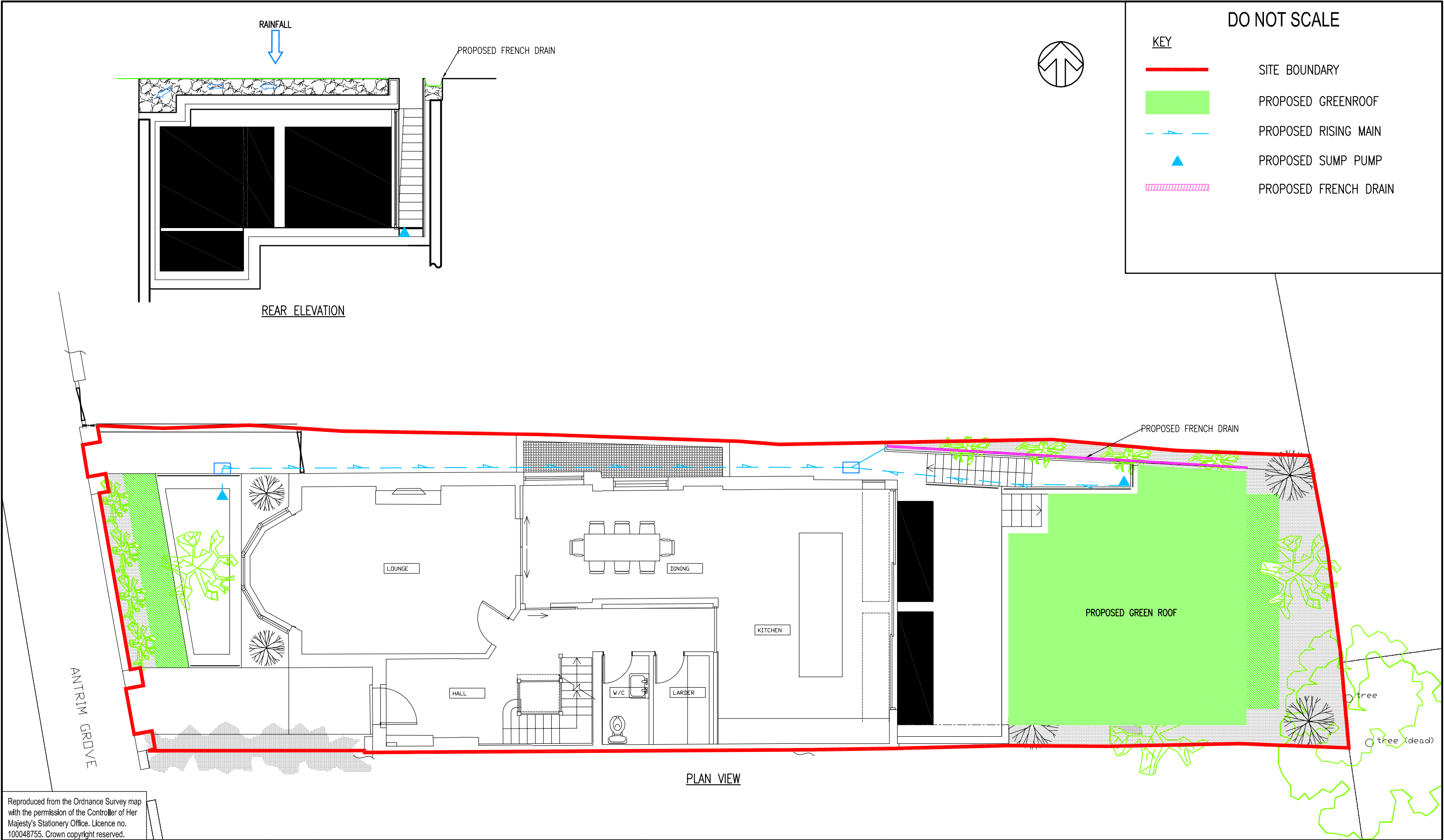


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CLIENT:	PHILLIP BLOOM
ARCHITECT:	BCHITECTURE

PROJECT:	ANTRIM GROVE, BELSIZE PARK, LONDON
TITLE:	PROPOSED IMPERMEABLE AREA ASSESSMENT

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CLIENT:	PHILLIP BLOOM
ARCHITECT:	BEYOND ARCHITECTS

PROJECT:	ANTRIM GROVE, BELSIZE PARK, LONDON
TITLE:	PROPOSED DRAINAGE STRATEGY

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