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239 HAVERSTOCK HILL LONDON NW3 4PR

Basement Impact Assessment

Client
Mr M Spalter

Architect
Davies Architecture Limited

Report No. 3773

22 May 2012

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239 HAVERSTOCK HILL
LONDON NW3 4PR

Basement Impact Assessment

Synopsis

A Basement Impact Assessment has been conducted for 239 Haverstock Hill on the instructions of Davies Architecture Limited, architects to owner Mr M Spalter.

The Assessment is in support of the Planning Application to the London Borough of Camden to construct a basement beneath the house and has been conducted in accordance with the methodology detailed in CPG4[1].

This report summarises the component parts of the Assessment and considers the geo - environmental impact of the proposals with respect to ground water and surface water flow, land stability and neighbouring property.

Recommendations are made to mitigate the effects of any negative impacts.

[1] *Camden Planning Guidance, CPG4 Basements and lightwells*

1

Supporting documentation

The following reports have been issued for this project to provide supporting evidence for the Assessment in accordance with the Camden Planning Guidance and should be referred to as necessary.

Title	Report No.	Date of issue
Screening Document	3690v2	20 March 2012
Hydrological Assessment	3731	12 March 2012
Geotechnical Investigation	3770	15 May 2012

2

Site description

The property lies at the end of a row of established two storey semi - detached houses on the south western side of Haverstock Hill at the National Grid reference $^{5}271\ ^{1}852$ as shown at Figure 1 of Appendix A.

It is set in a plot about 10 m wide by 37 m deep as shown at Figure 2 with the front garden laid to lawn and the rear garden leading to a terrace used for car parking. There is a mature horse chestnut tree in the front garden near the road frontage and other trees in adjoining land as shown at Figure 2.

Haverstock Hill falls gently to the south east. In order to maintain a level roof line for the row of houses, the ground floor of No. 239 is about 1 - 1½ m above road level, the front garden sloping towards the road and retained by a small wall at the back of footway. The rear garden is essentially level.

3

Development proposals

The proposal is to construct a single level of basement some 13 m long and 9 m wide, thus beneath the full width of the property and extending about 3 m beyond the rear elevation as shown at Figures 3 & 4. Light wells will be provided on the front and left flank elevations.

4

Screening Document

The Screening Document produced as the initial stage of this Impact Assessment concluded that the development proposals would have no significant impact on the majority of issues addressed in the CPG4 flowcharts. However, the following aspects require additional consideration as discussed hereafter:

Groundwater flow

Depth to groundwater

Changes in proportion of hard surface

Discharge of additional surface water run off

Slope stability

Extent of tree protection zone

Differential depth of foundation relative to neighbouring house

These aspects were considered in detail in the Hydrological Assessment and Geotechnical Investigation. The salient information is discussed in the following sections and an assessment made of their likely impact and the scope of any necessary reasonable engineering mitigation.

5
Geology

5.1
Soil

Published records of the British Geological Survey indicate the site to lie on London Clay.

The Geotechnical Investigation encountered between 1.07 and 1.9 m depth of Made Ground, primarily clay with pieces of brick and charcoal. Subordinate silt and sand were often present within the clay together with a flint gravel fraction. WS 1 encountered glass, earthenware and concrete fragments within the parent clay below 0.83 m depth whilst the base of the Made Ground in HA 3 was marked by a layer of brick hardcore.

This was underlain by weathered London Clay, a stiff predominantly brown clay with small pockets or lenses of silt.

5.2
Groundwater

No groundwater was encountered during drilling for the Geotechnical Investigation. However, a standpipe was installed to enable a permeability test to be undertaken for the Hydrological Assessment. A standing level of 2.89 m depth was measured in the pipe prior to the test.

The Hydrological Assessment confirmed the London Clay is classed as Unproductive in aquifer terms by the Environment Agency. The soil beneath the site therefore has a low permeability and negligible significance for water supply. A permeability test was carried out in one of the boreholes to confirm but the loss of head was virtually zero on the last ½ hour of the test. Therefore the mass permeability of London Clay could not be specifically calculated but is evidently very low. It is generally quoted in the literature as 10^{-7} to 10^{-10} m/s to confirm the very slow rate of flow through the soil.

The radius of influence of the basement construction in terms of the groundwater table was calculated as less than 1 m.

The site does not lie within a groundwater Source Protection Zone.

6
Potential impacts

6.1
Depth to groundwater

The groundwater was found to stand at 2.89 m depth in the standpipe and thus at approximately the same depth as the basement construction. Inflow rates are expected to be slow given the low permeability established for the London Clay.

The Geotechnical Investigation recommended control, if so required, by conventional pumping from a shallow sump and that the basement should be fully waterproofed and designed to resist hydrostatic uplift.

6.2

Changes in proportion of hard surface

The proposals will increase the footprint of the building from 25 % to 33 % of the area of the site.

6.3

Discharge of additional surface water run off

It is proposed that the additional surface water run off will be discharged through the existing drainage network. The drainage engineer should ensure the downstream system has sufficient additional capacity.

6.4

Extent of tree protection zone

The proposed development lies outside the canopy of the horse chestnut in the front garden of the property. It is considered unlikely that it will significantly effect the root zone but this should be confirmed by an arboriculturalist.

6.5

Differential depth of foundation relative to neighbouring house

The report on the Ground Investigation has recommended the depth of the foundations to the neighbouring property be established and that the Structural Engineer design mitigation measures to minimise the risk of distress due to sudden changes in soil / structure stiffness.

The report also discussed the need to maintain support to neighbouring property and provided design parameters to establish the lateral earth pressures acting on both the temporary and permanent works.

7

Conclusions

It is concluded the basement proposals are not expected to have a significant impact on the hydrogeology, hydrology or overall slope stability.

Mitigation measures are recommended in respect of the differential foundation depths between the subject property and its neighbour, and that an arboriculturalist confirm the development is outwith the tree protection zone of the horse chestnut in the front garden.

A W Parr
AP GEOTECHNICS LTD. 22 May 2012

APPENDIX

A Figures

Figure 1 Site location plan
Figure 2 Tree survey
Figure 3 Existing ground floor plan showing outline of proposed basement
Figure 4 Proposed sections

239 Haverstock Hill,
London NW3

Site location plan

Scale unknown

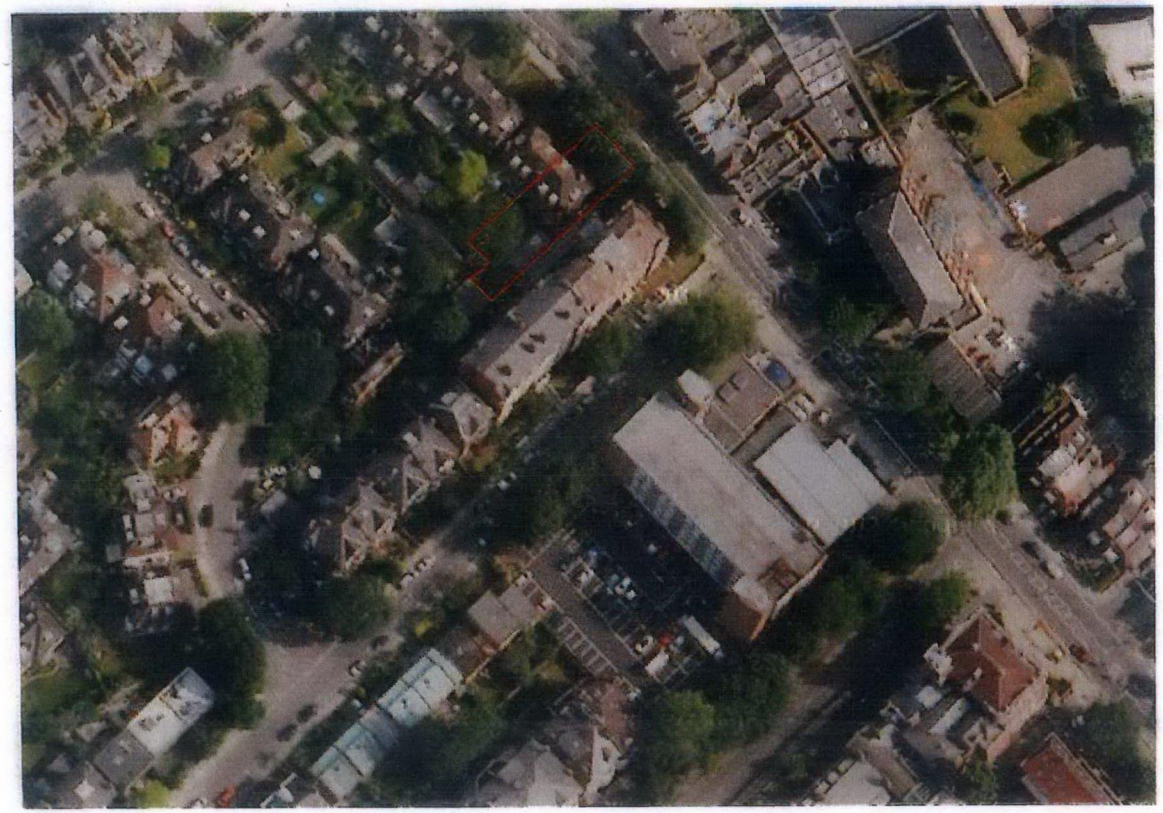

Figure 1

239 Haverstock Hill

Tree survey

Scale 1:100 @ A3

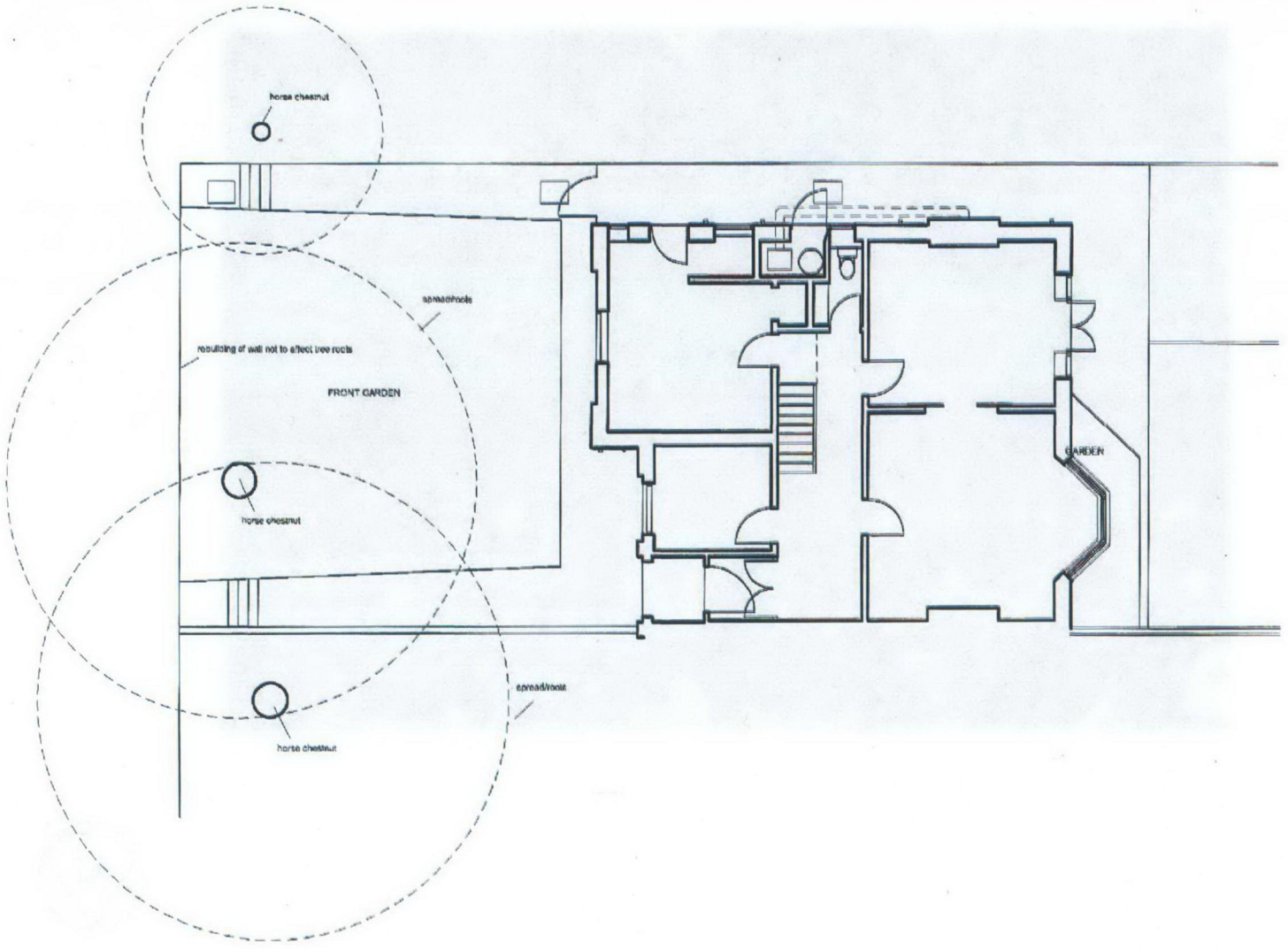

Figure 2

239 Haverstock Hill

Existing ground floor plan showing outline of proposed basement

Scale 1:100 @ A3

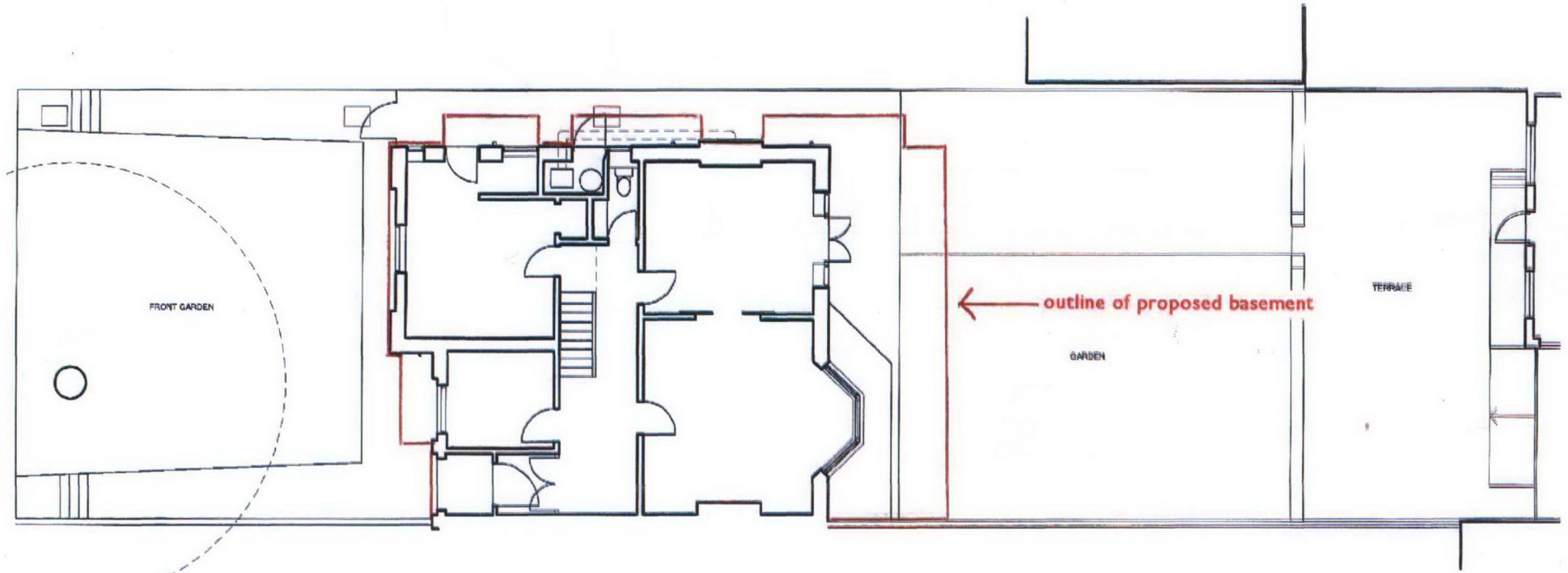

Figure 3

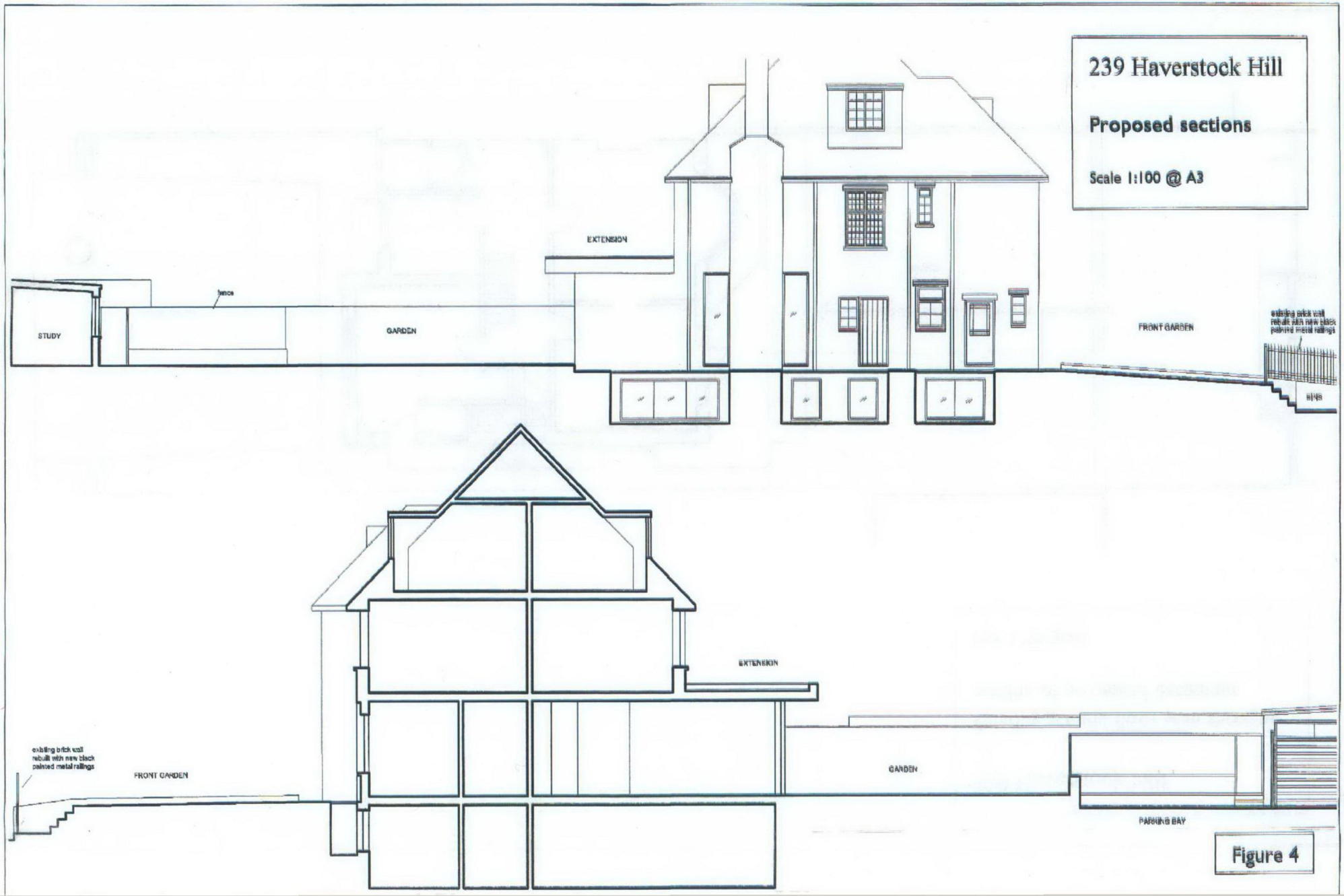
239 Haverstock Hill
Proposed sections
Scale 1:100 @ A3
EXTENSION
fence
STUDY
GARDEN
FRONT GARDEN
existing brick wall rebuilt with new black painted metal railings
BINS
EXTENSION
existing brick wall rebuilt with new black painted metal railings
FRONT GARDEN
GARDEN
PARKING BAY

Figure 4