

ALAN BAXTER PARTNERSHIP LLP
CONSULTING STRUCTURAL ENGINEERS



BASEMENT SCREENING ASSESSMENT

59 PETERSHAM ROAD, RICHMOND TW10 6UT

**PROPOSED SINGLE STOREY REAR EXTENSION AT GARDEN LEVEL WITH
TERRACE OVER, AND PROPOSED FRONT LIGHTWELL AND STEPS (PLUS
ASSOCIATED ALTERATIONS)**



Job No: G1100
18th September 2024

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1.0 INTRODUCTION

- 1.1 The building's owner proposes to alter the front lightwell and replace the associated steps. With reference to London Borough of Richmond's Basement Assessment User Guide, a Basement Screening Assessment is required since the site is within an area with $\geq 25\%$ susceptibility to groundwater. This report is to be read in conjunction with the other information submitted with the Planning Application.
- 1.2 This report refers to the following information as part of the assessment:
- British Geological Survey maps and borehole records
 - Environment Agency maps
 - Existing and proposed architectural drawings of the scheme
 - Transport for London (TFL) maps
- 1.3 Site visits were carried out in December 2022 and September 2023 to determine the existing structure, its condition and its relationship with neighbouring properties, site topography and a limited series of trial pits to expose the existing foundations.
- 1.4 The guidance set out in the Assessment User Guide is used as a framework for this report to identify if there are any potential issues which would require a more detailed investigation into the suitability of the proposed development due to ground water influenced flood risk factors.
- 1.5 The following categories of information are included:
- Subterranean Characteristics
 - Land Stability
 - Flood Risk and Drainage

2.0 EXISTING SITE DETAILS

2.1 Site Location

The site is located in a mainly residential area to the south of Richmond town centre with the River Thames to the west. The site slopes from the road down to the towpath of the river with the property built into the natural incline. The general topography of the area slopes towards the river approximately 6m lower.

2.2 Site Geology

Based upon British Geological Survey (BGS) maps [Figure 1] the underlying ground comprises London Clay. This was confirmed in the series of trial pits carried out at the property and recorded in the Structural Impact Statement [ref: ABP Report of 3rd May 2024, Appendix A].

No ground water was encountered – specifically at Trail Pit TP06 at the base of the existing lightwell.

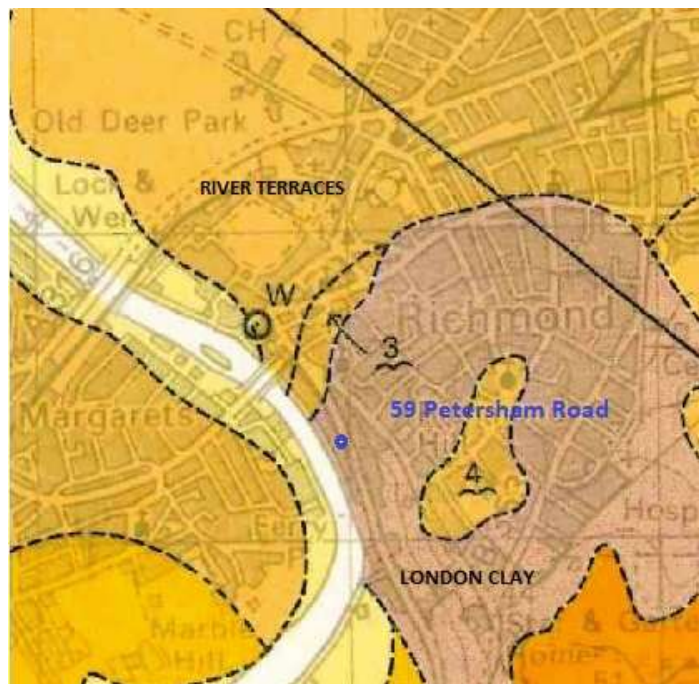


Figure 1

To the east of the site the nearest available borehole data [Figures 2 & 3] confirms approximately 2m of made ground over London Clay.

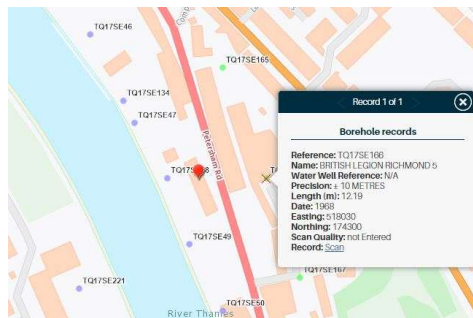


Figure 2

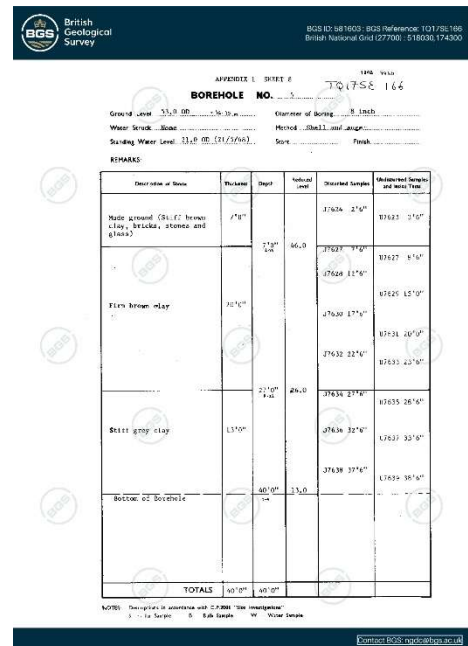


Figure 3

2.3 Site Hydrology

Based on Environment Agency (EA) maps [Figure 4] the site is in Flood Zone 1. This means it has a low probability of flooding from rivers and the sea.

To the rear of the property the rear garden slopes down to the river but the proposed development is elevated at least 6m above river level. As noted trial pit investigations have not encountered ground water and none are expected.

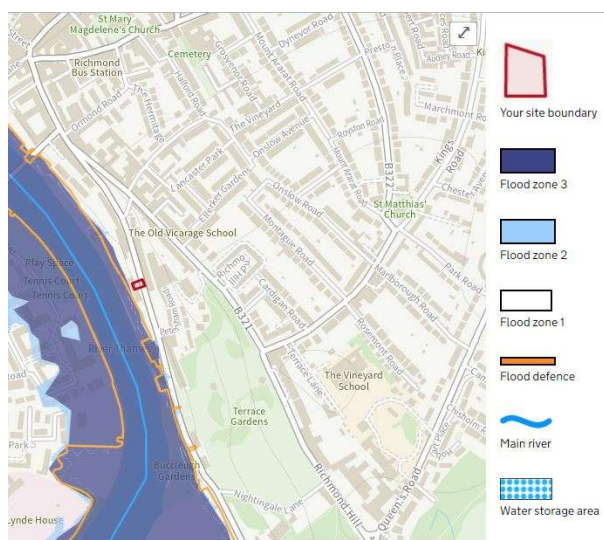




Figure 4

2.4 Land Stability

The development site topography at the front of the property does not include a slope in excess of 7°. The proposal does not increase the slope on the site and therefore will not impact the overall land stability.

2.5 Adjacent Buildings

59 Petersham Road is part of a terrace of properties all built at a similar time and of equivalent construction. Given their type and age they are expected to have relatively shallow (by today's standards) brick foundations as exposed in the trial pits previously completed.

2.6 Drainage

A below ground drainage survey has been carried out and is provided in the Structural Impact Statement [ref: ABP Report of 3rd May 2024, Appendix B].

This shows the existing drainage arrangements and their connection with the Thames Water network is understood to be at the rear of the site where the public sewer runs along the tow path of the river.

No shared drains from neighbouring properties were found and therefore a build-over agreement with Thames Water will not be necessary.

2.7 Site Specific Constraints

No records have been found to indicate the ground at the site has been worked for extraction of gravel or brick earth.

The site is not close to any tunnels or railway lines based on available maps [Figure 5] and will not therefore be affected by the proposed works.

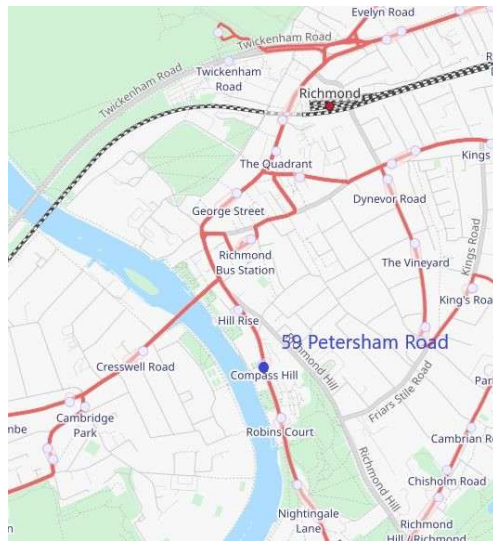


Figure 5

A utilities search for below ground services will be carried out by the Main Contractor before commencing the work.

3.0 EXISTING BUILDING

- 3.1 The property comprises five storeys including rooms within the roof. It dates from the early 18th century and comprises solid masonry walls with timber floor and roof construction typical of its age and type. The existing front light well provides access to the lower Garden Level from the front drive with no access to the intermediate Lower Ground Floor. Steps up from the front drive access the front door at Upper Ground Floor level.
- 3.2 Existing structural floor plans are shown in Figures 6 & 7.
- 3.3 59 Petersham Road shares party walls with 57 and 61 Petersham Road. They both have similar front lightwells. Other neighbouring properties are further away and are not of significance to these proposals.

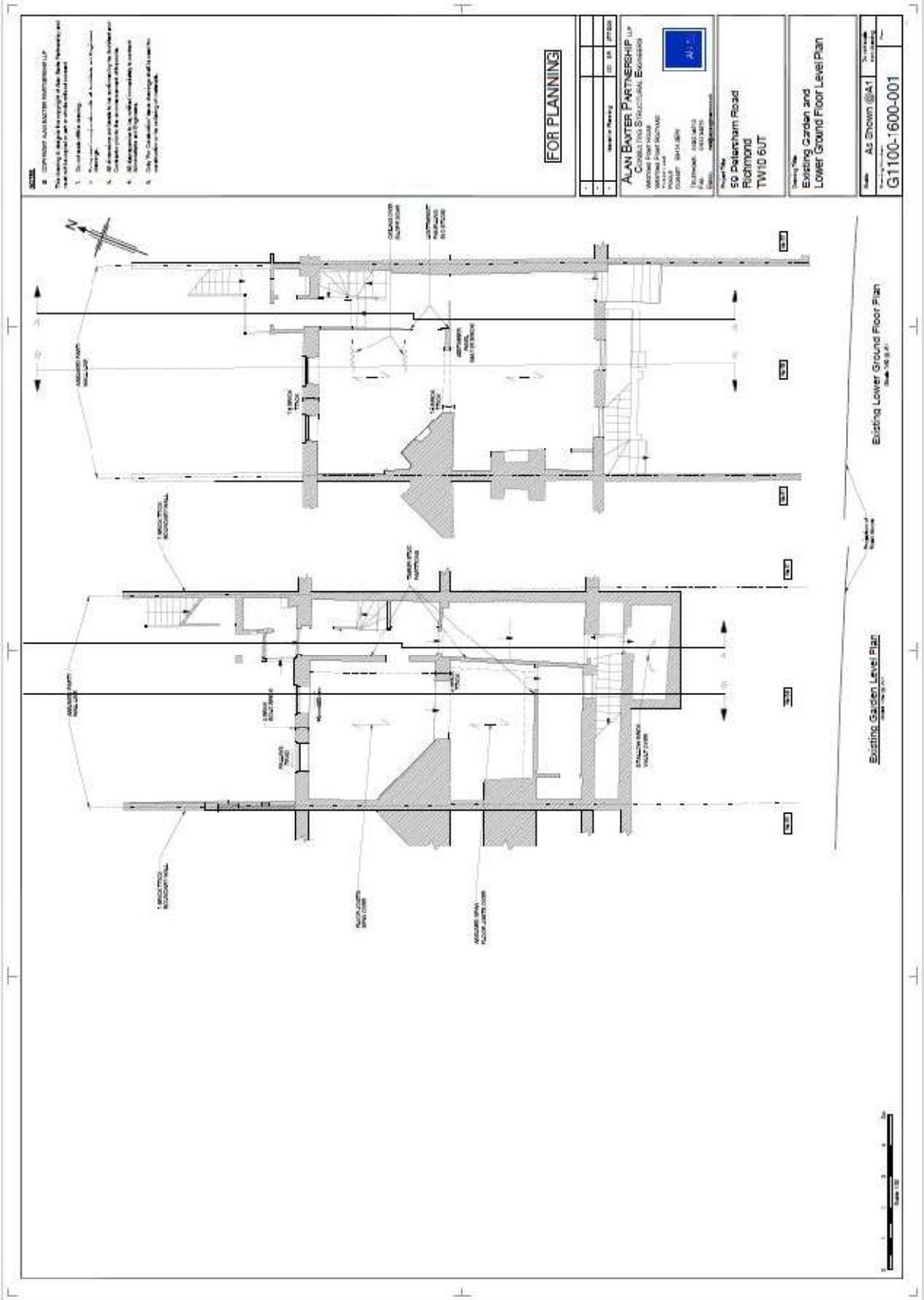


Figure 6

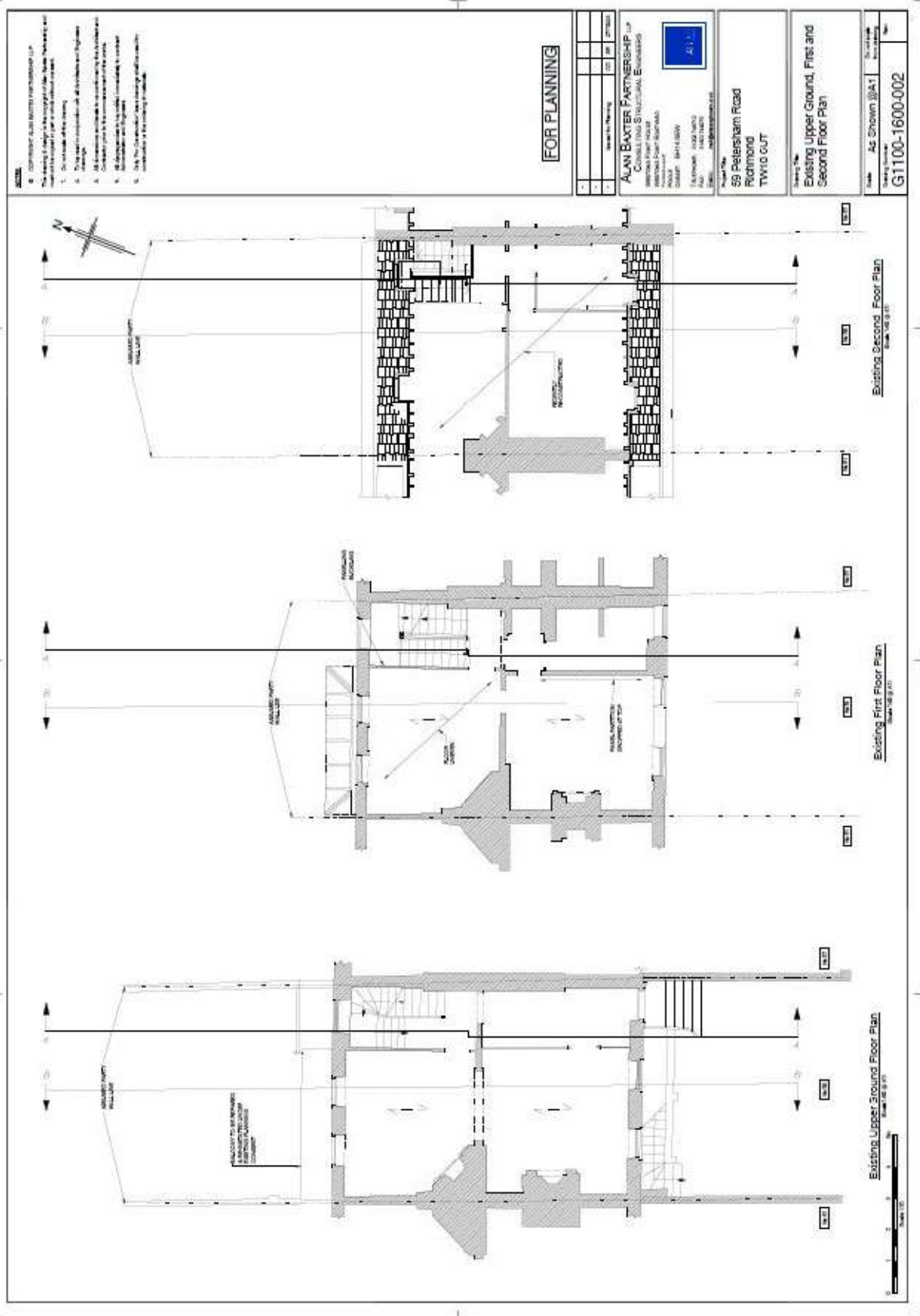


Figure 7



4.0 PROPOSED WORKS

- 4.1 The proposed design replaces the existing steps from the front drive level to the Garden Level with a helical stair in concrete within a new masonry/concrete retaining structure. The ground below the existing steps will be removed exposing the existing front wall to Garden Level within the existing curtilage of the lightwell. The new stair will enlarge the lightwell on the boundary with No 61 by approximately 1m by 2m on plan.
- 4.2 The neighbouring property at No 61 has a similar existing light well and therefore it is expected only limited underpinning of the boundary wall will be required.
- 4.3 This work will also assist in reducing risk of damp and surface water entering the building by removing the soil that currently rests against the front wall at the lower levels.
- 4.4 Refer to the proposed plans in Figure 8 for further details.
- 4.5 The proposed excavation works are within the curtilage of the existing lightwell to bring it to the same level as the Garden Level and the minor extension described above.
- 4.6 The new stair and associated retaining structure will be designed to buttress the surrounding walls to suitably resist the resulting soil pressures and surcharge loads from the driveway where they are retaining walls. The public footpath and road are outside the zone of loading and will therefore not be affected.
- 4.7 The water table is known to be below the existing Garden Level and therefore hydrostatic pressures are unlikely to be of concern. However, as required by current good practice, the retaining walls will be checked for accidental hydrostatic pressure – which may occur due to a burst water main for example.
- 4.8 The use of the light well remains external to the property and therefore the equivalent of Grade 1 (Basic utility) Basement environment will be appropriate with suitable waterproofing and drainage provided to maintain finishes.
- 4.9 Stability – the lightwell wall in conjunction with the stair form a rigid box which balances and transfers lateral forces across the void and abuts the existing mass of the house.



4.10 Hydrology and Hydrogeology- the findings of the desk study indicate the proposed works is unlikely to have an impact on the local hydrogeological setting. The proposals do not lower the ground level any deeper than the existing Garden Level. The water table will be unaffected by the relatively insignificant amount of excavation required. There is no increase in the area of hardstanding run off - any localised ground water, for example after heavy rain, will be able to follow the same pathway as the current condition – to drains – and will be more controlled by the new works which will improve falls and drainage.

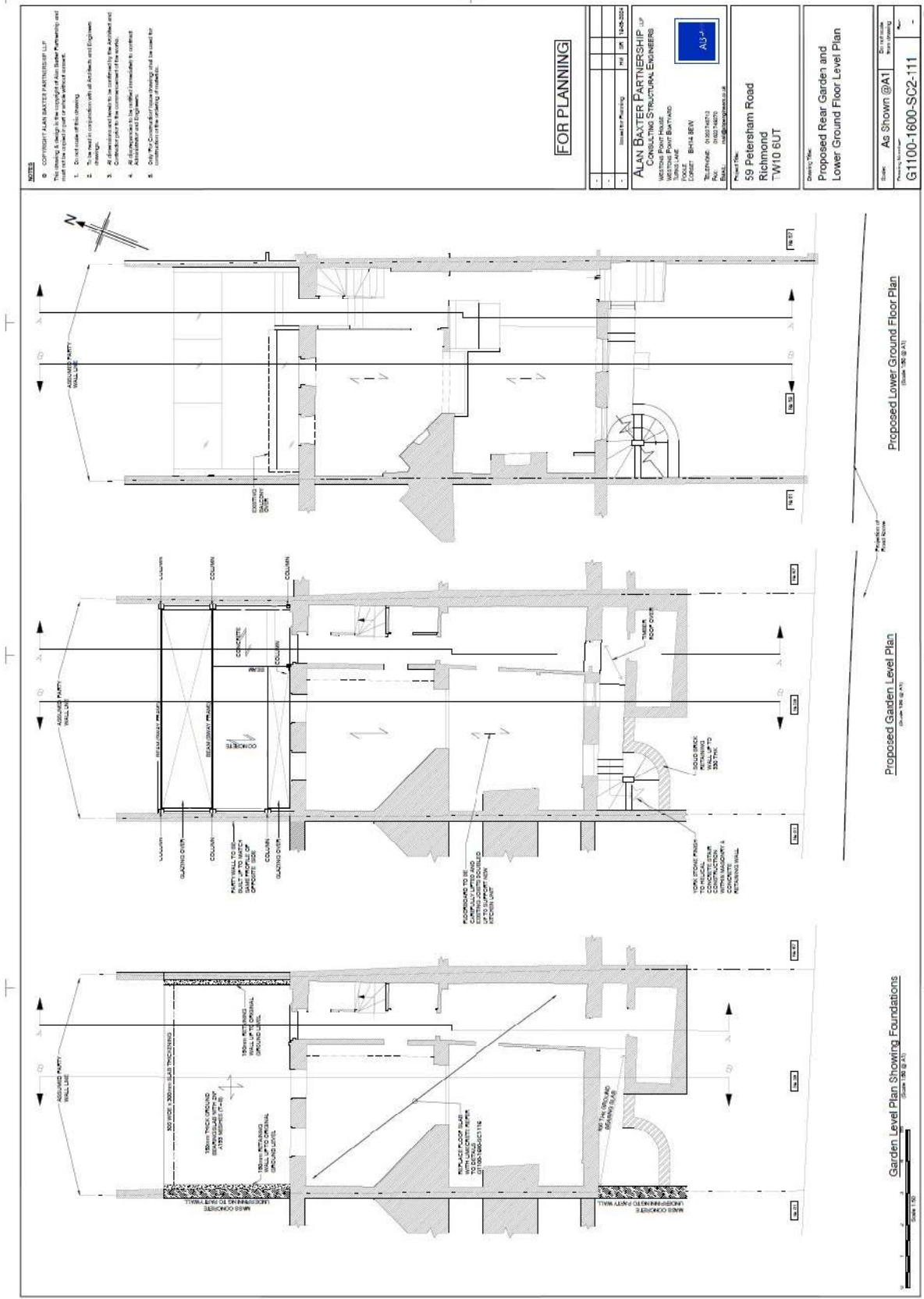


Figure 8



- 4.11 If localised ground water is encountered during the excavation works, there may be a requirement to use sump pumps during construction but we do not expect this to affect the local hydrology.
- 4.12 There is no change to the overall impermeable area coverage on the site as the space to be developed is currently all hard standing.

5.0 IMPACT OF PROPOSALS ON EXISTING & NEIGHBOURING STRUCTURES

- 5.1 The form and method of construction outlined in this report is aimed at minimising potential ground movements and therefore any subsequent damage to the existing property and neighbouring buildings.
- 5.2 These works are to be carried out by a Contractor experienced in constructing retaining walls and substructures on restricted residential sites thus mitigating further the risk of damage to surrounding properties.
- 5.3 The proposed works, carried out in accordance with the structural design will pose no significant threat to the structural stability of the property or nearby properties.
- 5.4 The Contractor will develop a method statement in conjunction with the structural engineer – including temporary works, where necessary, to provide lateral support to the open excavations at all times until the permanent structure is completed. A sequence of construction is to be prepared and followed by the Contractor.
- 5.5 Minor lateral settlements will be limited to a maximum of Category 1 (very slight) as categorised by BRE Digest 251 Assessment of damage in low-rise buildings by following the above items.



6.0 CONCLUSIONS

- 6.1 The ground conditions are suitable for the proposed lightwell alterations. The works will remove ground within the extent – perimeter and depth – of the existing lightwell. The risk of damp affecting the lower sections of the front wall will be reduced by the removal of this material.
- 6.2 The current hydrogeology is unaffected by this proposal
- 6.3 The proposed construction comprises the retention of the existing walls, limited underpinning to the boundary wall and installing steps within new retaining structure to maintain the transfer of lateral loads. If any movements do occur they will be very minor and not impact the existing property or neighbouring properties.
- 6.4 All works should be carried out in accordance with Party Wall Agreements where required and current CDM regulations.
- 6.5 No mitigation measures are deemed necessary
- 6.6 No potential issues have been identified which would require a more detailed investigation into the suitability of the proposed works due to groundwater influenced flood risk factors.



Site Details

Site Details	Applicant Information
Site Name	59 Petersham Road – Front Lightwell Alteration & Steps Replacement
Planning Application ref (if applicable)	
Address & Post code	59 Petersham Road, Richmond TW10 6UT
Brief description of the proposed works	Excavate below existing steps within lightwell to expose front wall and form new access steps
Geology Type	London Clay
Presence of aquifer?	None recorded
Total site area (Ha)	Approx 0.01 Ha [Front drive & house]
Is the site currently known to be at risk of flooding from any sources?	Flood Zone 1 – low risk from flooding

Chartered Professional Verification

Professional Details	Applicant Information
Name	Simon Rayner BSc CEng MIStructE
Profession/area of expertise	Structural engineering
Chartered institution & membership level	Institution of Structural Engineers Chartered member
Brief description of assessment involvement	Structural
Brief summary of the assessment results	The ground conditions are considered suitable for the proposed lightwell alterations with negligible impact on existing hydrology. The design will minimise any potential impact to the adjoining properties.
Declaration of assessment results	I declare that no potential issues have been identified which would require a more detailed investigation into the suitability of the proposed works due to groundwater influenced flood risk factors.
Signature	