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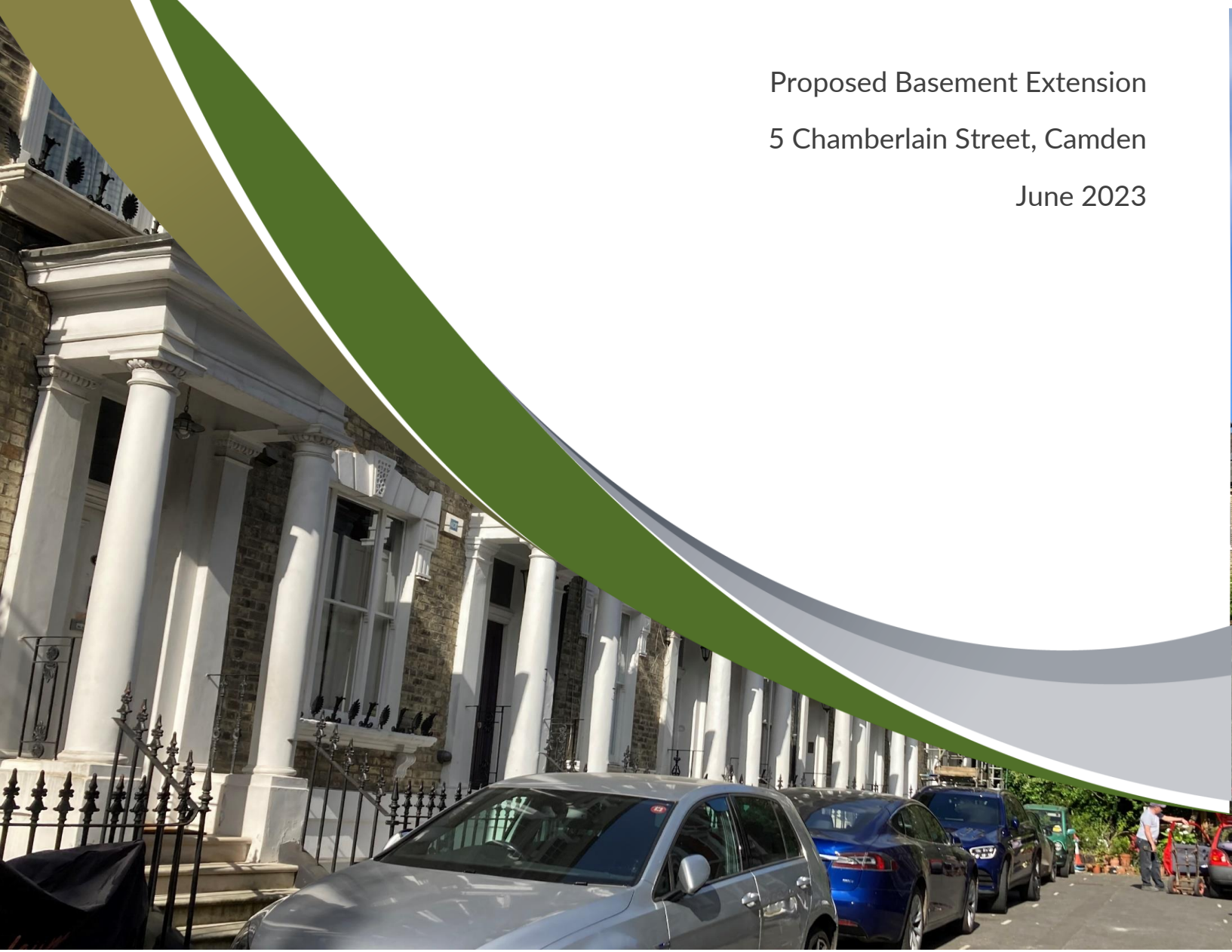
Preliminary Investigation Report

Proposed Basement Extension

5 Chamberlain Street, Camden

June 2023



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Drawing Register

Title	Produced by	Date	Reference
Existing plans	Davies Architecture	July 2022	CHA5-2-EX-100-01
Existing rear elevation D-E	Davies Architecture	July 2022	CHA5-2-EX-100-02
Existing sections B-C	Davies Architecture	July 2022	CHA5-2-EX-100-03
Proposals plans	Davies Architecture	March 2023	CHA5-PL-100-01
Proposals sections rear elevation D-E	Davies Architecture	March 2023	CHA5-PL-100-02
Proposals sections B-C	Davies Architecture	March 2023	CHA5-PL-100-03

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Non-technical Summary

Topic	Commentary
Site description	The site is currently a four-storey terraced residential property including a basement level in Camden, London.
Development proposals	It is understood the scheme will comprise an extension of the existing basement beneath the rear garden.
Site history	The site has comprised the existing terraced house since the earliest available maps in the 1870s. The surrounding land has been predominantly residential although some small scale commercial/industrial premises were recorded within 100m from around the 1950s.
Ground conditions	Based on a review of available records, the site is anticipated to be underlain by London Clay to depth of approximately 40m. The site is located in close proximity to an area of Head propensity coincidental with Primrose Hill. A nominal amount of Made Ground is also expected based on the site history. Groundwater is unlikely to be present in significant quantities within the London Clay.
Chemical contamination and remedial requirements	No potential risks from contamination have been identified and therefore no further investigations or remedial actions are considered necessary.
Radon, gas risk and protection measures	The site is in an area where the above ground radon Affected Area status is classed as a Lower Probability Radon Area. In addition, the site is underlain by the London Clay Formation, which is understood to have a very low potential for producing radon gas. Therefore the proposed basement extension is not considered to be at an appreciably higher risk from radon and specific radon protection is not considered necessary. No potential sources of gaseous contamination have been identified which warrant monitoring or gas protection.
Recommendation for further works	No further works are considered necessary with regard to the contamination assessment. The Principal Contractor should have a discovery strategy in place. Mitigation measures will be required with regard to the risk from UXO. London Clay is likely to be high in sulphates and an appropriate AC class of concrete should be adopted.

1 Introduction

1.1 Scheme Outline

1.1.1 The scheme will comprise extension of the existing basement into the rear garden, at 5 Chamberlain Street, Camden. The new basement will extend some 2.2m into the garden, at the same level as the existing basement. Architects' drawings of the existing structure and proposed extension are presented in Appendix A.

1.1.2 It is understood that the development is controlled under the Camden Council planning regime and is currently in its pre-application phase.

1.1.3 The report is based on the project proposals and information outlined above; should the scheme change then it will be necessary to review the conclusions and recommendations presented in this report.

1.2 Brief

1.2.1 This report has been prepared following instructions received from Davies Architecture on behalf of our mutual Client, Craig Matson. The overall brief of works is to undertake a preliminary desk study of the site to support the planning application by assessing the potential risks from contamination at the site.

1.2.2 The objectives of this report are outlined below:

i) Review and summarise desk study information.
ii) Undertake a land contamination Tier 1 preliminary risk assessment.

1.3 Definition of Scope

1.3.1 The phasing and scope of the ground investigation works is broadly defined by the following documents.

Title	Document Reference	Publisher	Investigation Scope
Code of practice for ground investigations	BS 5930: 2015	British Standards Institution	Phase 1: Desk study
Investigation of potentially contaminated sites – Code of practice	BS 10175: 2011+A2:2017	British Standards Institution	Preliminary Investigation (desk study)
Land contamination risk management	Online resource, updated April 2021	Environment Agency	Stage 1 Risk Assessment: Tier 1: Preliminary risk assessment

Table 1-A: Definition of Investigation Scope

1.4 Limitations

1.4.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the manpower, resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 Desk Study

2.1 Sources of information

2.1.1 Reference has been made to the following sources of information:

- An Envirocheck Report and historical map records, presented as Appendix D.
- British Geological Survey (BGS) GeoIndex – Onshore database.
- BGS Sheet 256 (Scale 1:50 000) – North London (2006).
- Ordnance Survey OpenData
- Coal Authority Development and Specific Risk databases.
- Environment Agency open-source databases
- Google mapping services
- Interrogation of search engines for anecdotal information on the site history and other readily available online resources.

2.2 Site Description

2.2.1 The property lies within a residential area of Camden, North London. The postcode for the site is NW1 8XB.

2.2.2 An aerial image showing the approximate site boundary is presented below, followed by a table summarising the key site features. A site plan is provided within Appendix A.

Figure 2-A: Aerial photograph and approximate site boundary

Theme	Feature
Current site use	The site is currently a four-storey terraced residential property including a basement level.
Local area land use	Adjacent sites on Chamberlain Street are residential, as is the building to the south, Local area is a mixture of residential and retail/commercial.
Topography	The topography of the local area generally falls to the east away from Primrose Hill On site, levels are effectively flat.
Buildings, surfacing and other permanent features	The northern two thirds of the site comprise the existing property, with the southern part of the site comprising a garden, which is predominantly paved.
Boundary features	The northern boundary of the site is defined by the metal fencing that lines the front of the property. The western and eastern boundaries are defined by the limits of the building in the north and brick walls surrounding the garden in the south.
Vegetation	Vegetation in the rear garden comprises climbing plants along the boundary walls and a small tree in the eastern corner.
On-site / adjacent surface water features	None observed.
Environmental Designations	The site is not reported to be within or in close proximity to any areas of designated sensitive land use, such as a Ramsar Site, Site of Special Scientific Interest (SSSI), or Special Area of Conservation.
Injurious and invasive weeds	None observed
Asbestos containing material (ACM) in buildings	The scope of this report excludes identifying asbestos within buildings on site, and an asbestos survey was not made available at the time of writing.
ACMs on site	None observed.
Potential sources of contamination	None observed.
Evidence for ground instability	None observed.

Table 2-A: Site Description

2.2.3 The observations provided above are made by a Geoenvironmental Engineer, who is not a specialist in asbestos surveying or invasive weed identification. Any associated comments are intended for use by this report only, and not for any other purpose.

2.3 Planning Records

2.3.1 A search of online planning records held for the site by Camden Council reveals three applications between 2004 and 2005 for the demolition and reconstruction of a rear extension together with other external alterations, two of which were refused, and the final application approved. There was also a further planning application and listed building consent for the site in 2021 (2021/2003/L and 2021/0292/P) for a single-storey basement level extension. The applications were granted.

2.3.2 In addition, there have been a number of planning applications for basement extensions for other properties along Chamberlain Street. These include applications at 11 Chamberlain Street for the erection of an extension at lower ground floor level and construction of a gym/exercise room beneath the rear garden (both approved) and at 3 Chamberlain Street for erection of part one/part two-storey rear extension to replace existing one-storey rear extension (also approved). An application at 12 Chamberlain Street in 2012 for excavation of a sub-basement was refused.

2.3.3 Within a number of nearby applications, some ground investigation works had been undertaken, generally comprising shallow trial pits and boreholes. These indicate ground conditions comprise shallow Made Ground (0.6-0.7m) over London Clay. No groundwater was recorded in any of the boreholes, which extended to 4-5m. Existing foundations are generally shown to be strips extending into the London Clay.

2.4 Previous Reports

2.4.1 Soiltechnics are not aware of any previous ground investigation reports undertaken at the site.

2.5 Site History

2.5.1 The site has comprised the existing terraced house since the earliest available maps in the 1870s. The surrounding land has been predominantly residential although some small scale commercial/industrial premises were recorded within 100m from around the 1950s. Regent's Park Garages were recorded to the immediate south of the site from the 1940s although from recent planning applications and internet searches the building has been converted into residential premises, likely prior to 2000 as there is no available application for the conversion.

2.5.2 A chronological summary of the site's history is provided below.

Date	On-site	Off-site
1870s to 1880s	Terraced house present on site.	Barnard Street borders the site to the north and the surrounding area is predominantly residential. Railway line located some 200m north.
1890s to 1920s	No significant change.	No significant change
1940s to 1950s	No significant change.	Commercial building recorded as Regent's Park Garages is recorded to the immediate south of the site.
1950s	No significant change.	A plating works and an engineering works are recorded 25m and 70m north respectively. A woodworking factory is recorded 70m south-east.
1960s to 1980s	No significant change.	The plating works to the north is no longer present. Regent's Park Garages expanded to occupy the former garden of 8 Chamberlain Street.
1990s to present	No significant change.	Regent's Park Garages no longer recorded although the building remains.

Table 2-B: Summary of site history

2.6 Regulatory Enquiries

2.6.1 Soiltechnics have contacted Local Authority Building Control, who report having no information related to geotechnical design on site/in the local area.

2.6.2 Soiltechnics have requested the Local Authority Contaminated Land department to conduct a search of their records for any pertinent information they may hold for the site and surrounding area. They report that the site is not designated as contaminated land under Part 2A of the Environmental Protection Act 1990 and is not currently under investigation by the local council.

2.6.3 A copy of all regulatory correspondence is presented in Appendix E.

2.7 Anticipated Geology

2.7.1 Based on a review of available records, the site is anticipated to be underlain by the following geological units, in order of sequence: London Clay, Lambeth Group, Thanet Sand and White Chalk Subgroup.

2.7.2 In addition, the site is located within close proximity to an area with mapped propensity for Head as shown in the figure 2-B.

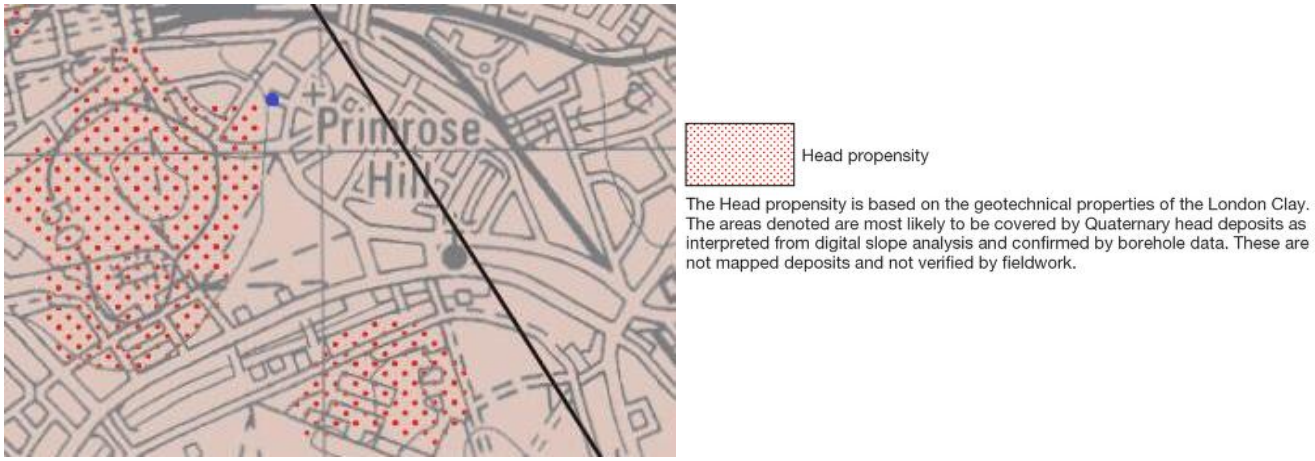

Figure 2-B: Extract from BGS sheet 256 with approximate site location marked in blue.

2.7.3 A summary of the anticipated geology underlying the site is summarised as follows:

Stratum	Bedrock / superficial	Anticipated thickness (m)	Typical description
London Clay Formation	Bedrock	35-45	Stiff grey clay
Lambeth Group	Bedrock	10-15	Multicoloured clays, sands and gravels
Thanet Sand	Bedrock	5-10	Fine grained sand
White Chalk	Bedrock	>100	Chalk

Table 2-C: Summary of anticipated geology at the site

2.7.4 In addition to the above, a limited depth of Made Ground (<1m) should also be anticipated due to the existing development and based on excavation works detailed within planning records for surrounding sites.

2.8 Hydrogeology and Groundwater Sensitivity

2.8.1 The general hydrogeological profile of the site is provided in the table below.

Stratum	Aquifer Designation	Groundwater comments
London Clay	Unproductive	Limited. Localised confined water in discrete sand partings only.
Lambeth Group	Secondary A	Localised and potentially confined groundwater anticipated.
Thanet Formation	Secondary A	
Lewes Nodular Chalk	Principal	Will be saturated at depth. Water level and continuity with above aquifer unknown at this stage.

Table 2-D: Preliminary Hydrogeological Model

2.8.2 The site is not located within a Source Protection Zone, although a Zone II is located 16m to the southwest.

2.8.3 Within 1km of the site, there are eight active abstraction licenses, some of which are associated with the same location. Three of these licenses are associated with a potable abstraction point located 415m to the southwest of the site, which is likely abstracting from the Chalk aquifer at depth. The remainder are located in excess of 600m from the site, with water abstracted for drainage operations, non-evaporative cooling and animal watering/general use.

2.9 Hydrology and Surface Water Sensitivity

2.9.1 The nearest surface water feature is Regent's Canal, located approximately 500m south of the site.

2.9.2 There is one active surface water abstraction license down-gradient of the site, lying 660m east of the site with water abstracted for spray irrigation purposes, likely from Regent's Canal.

2.10 Flood Risk

2.10.1 The site falls within a Flood Zone 1. This designation indicates there is less than a 0.1% chance of flooding from rivers or the sea in any year.

2.10.2 The site is not recorded in an area with the potential for surface water flooding.

2.10.3 The site is not recorded in area shown to have a potential for groundwater flooding.

2.10.4 It should be noted that this information does not constitute a site-specific Flood Risk Assessment and one may be required for the scheme.

2.11 Non-Mining Ground Instability Hazard

2.11.1 The Envirocheck Report includes hazard ratings due to natural ground instability, which have been derived by the BGS. These hazards have been summarised in the table below.

Hazard	Hazard Potential	Discussions
Collapsible ground	Very Low	N/A
Compressible ground	No Hazard	N/A
Ground dissolution	No Hazard	N/A
Landslide	Very Low	N/A
Running sand	Very Low	N/A
Shrinking or swelling clay	Moderate	London Clay Formation has the potential for volume change due to changes in moisture content.

Table 2-E: Non-Mining Ground Stability Hazards

2.12 Quarrying and Mining

2.12.1 The site falls outside of a Coal Mining Reporting Area.

2.12.2 There are no historical quarries or active mineral sites recorded within close proximity of the site.

2.13 Landfill and infilled ground

2.13.1 No records of landfill sites, infilled ground or mineral sites are held within 250m of the site.

2.14 Recent industrial activity

2.14.1 There are no regulated facilities or activities in the vicinity of the site under IPPC or LAPPC control, and no registered radioactive substances.

2.14.2 The site is located within an urbanised area of mixed use and there are many Contemporary Trade Directory entries in close proximity to the site.

2.14.3 There are no Contemporary Trade Directory entries associated with site itself, and 25 are held within 250m. Within 50m of the site, these are largely limited to retailers including an inactive furriers (27m east), a stained glass designer/producer (28m northeast) and cleaning services (37m northeast). Between 50 and 100m, Envirocheck records an inactive car dealer's at 89A Regent's Park Road (82m northeast). However, this building appears to currently be a restaurant with limited external space, with the address currently registered to a taxi service. It is therefore considered unlikely this was a contaminative source. A printer's and dry cleaner's are also recorded 94m and 99m north-east respectively.

2.14.4 As the site is not located in close proximity to a watercourse, records held of discharge consents and pollution incidents to controlled waters are not considered relevant to this desk study.

2.15 Radon

2.15.1 The site is in an area where the above ground radon Affected Area status is classed as a Lower Probability Radon Area.

2.16 Underground Infrastructure

2.16.1 Copies of all utility plans obtained are presented as Appendix C. The plans are provided for information only and should not be relied upon to be accurate. In addition, it is worth noting that the public utility plans provided by the asset owners typically exclude private service runs.

2.16.2 The site an occupied residential building and is therefore serviced by a range of mains utilities. These generally enter the building from Chamberlain Street. However, Thames Water plans do indicate a pipe also runs west-east across part of the existing building footprint.

2.17 Unexploded Ordnance (UXO) Hazard Screen

2.17.1 A preliminary risk review has been undertaken by a UXO specialist to assess the risk of encountering UXO during ground investigation works (if required) undertaken by Soiltechnics only and to identify any precautionary measures required. It should be noted that the risk assessment has not been carried out fully in accordance with CIRIA report C785 'Unexploded Ordnance (UXO) A guide for the construction Industry'.

2.17.2 The risk review concluded that there is a credible risk of encountering UXO.

3 Tier 1 Preliminary Contamination Risk Assessment

3.1 Objectives

3.1.1 The objective of this preliminary risk assessment (PRA) is to determine the suitability of the site for the proposed redevelopment and end users, in terms of the risk from contamination. The assessment comprises the following steps:

- Identify potential contaminant linkages (PCLs) between sources, pathways and receptors.
- To provide data to assist in the design of potential exploratory and detailed intrusive investigations and to give an early indication of possible remedial requirements, if necessary.

3.2 Evaluation Criteria

3.2.1 The following assessment is undertaken within the legislative framework of the planning system. Therefore, the assessment needs to identify if land contamination could pose an unacceptable risk to human health or the environment, within the context of the proposed development site. In the context of the existing site use, as a minimum, land should not be capable of being determined as 'contaminated land' under Part IIA of the Environmental Protection Act 1990.

3.2.2 The risk criteria for the proposed development is based on a 'minimal risk' approach, whereas under the existing land use a designation of 'contaminated land' would only apply if there is a significant possibility of significant harm (SPOSH).

3.3 Methodology

3.3.1 The objectives listed above are achieved by utilising the information presented within the desk study to develop an initial conceptual site model (iCSM) and identification of potential unacceptable risks. Depending upon the outcome of the Tier 1 assessment, it may be necessary to undertake a Tier 2 generic quantitative risk assessment (GQRA).

3.3.2 An iCSM relies upon the identification and assessment of PCLs. A contaminant linkage comprises of three key components:

- Source – a contaminant or pollutant that is in, on or under the land and that has the potential to cause harm or pollution.
- Pathway – Current and post-development routes by which a receptor is, or could be, affected by a contaminant.
- Receptor – Something that could be adversely affected by a contaminant, for example a person (current and proposed end users or neighbours), controlled waters and ecosystems.

3.3.3 The Tier 1 risk assessment has been produced with reference to the following guidance:

- 'Land contamination risk management' (EA, 2021).
- BS 10175:2011+A2:2017 'Investigation of potentially contaminated sites – Code of Practice'.
- CIRIA C552 'Contaminated land risk assessment- a guide to good practice', 2001.
- BS EN ISO 21365:2020 'Soil quality – Conceptual site models for potentially contaminated sites'
- BS 8576:2013 'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOC)'.

3.4 Source Assessment

3.4.1 The table below summarises identified sources based on the findings of the desk study. Where appropriate, further discussion has been provided in the paragraphs which follow.

Potential Sources	Contaminant(s) of concern	Detail	Viable source?
On-site sources			
Made Ground of unknown origin	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	There is a potential for limited Made Ground surrounding the foundations/ basement on site. However, this is likely to be reworked natural soils and therefore unlikely to be a significant source of contamination.	N
	Permanent ground gases (CH4 and CO2)	No evidence that deep/organic Made Ground will be present on site.	N
Radon	Radon	The site is recorded as being in a Lower Probability Radon Area. The risk to the basement is discussed further in the paragraph below this table.	N
Aggressive ground conditions due to potentially pyritic ground	Pyrite and sulphates	London Clay is considered to contain high concentrations of pyrites/sulphates.	Y
Unexploded Ordnance	UXO	The Preliminary Risk Assessment indicates there is a credible risk of encountering UXO during construction works.	Y
Off-site sources			
Regent's Park Garages historically recorded to the south.	Various inorganic and organic compounds possible (hydrocarbons, metals, asbestos)	The use of this building between the 1940s and 1980s is not fully known and it could be parking garages or have included some form of works. Based on limited planning records and internet searches, in 2001, the site was redeveloped into office space and has subsequently into office and residential space. Given the site has been redeveloped and is now in use as residential and commercial space it is considered unlikely that any significant source of contamination remains, although its potential as an historical contamination source cannot be discounted.	Y
Historical industrial activities within 100m of site	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	A plating works and an engineering works are recorded 25m and 70m north respectively. Both could be potential sources of contamination	Y

Table 3-A: Contamination source assessment

3.4.2 The generic assessment radon maps presented within BRE 211 (2015) show the site to be in an area where no protection is required (for above ground buildings), with no areas recommending radon protection in the near vicinity. Radon is a gas which is derived from the natural breakdown of uranium in soil/rocks and consequently the underlying ground conditions are the primary factor in radon generation. A site-specific geological assessment shows the site to be underlain by the London Clay Formation, which is understood to have a very low potential for producing radon gas. For that reason, it can be concluded that the proposed basement extension is not at an appreciably higher risk from radon.

3.5 Receptor Assessment

3.5.1 The following table summarises the identified receptors based on current site conditions and our understanding of the proposed end use:

Receptor Category	Principal Receptor	Receptor present?	Detail
Human health	Users of the current site	**Yes**	Currently a residential property
	End user of the developed site	**Yes**	No change in use
	Construction operatives and other site investigators	**Yes**	Site to be developed
	Adjacent site users and off-site members of the public	**Yes**	Residential properties present adjacent to site.
Controlled waters	Surface waters	No	Surface waters are remote from the site, in excess of 500m distance
	Groundwater	No	London Clay designated as unproductive aquifer
Sensitive ecosystems and species	Current site	No	Site is not currently within, or proposed to form, a designated environmentally sensitive area (e.g. SSSI, RAMSAR, AONB, SPA, SAC)
	Developed site	No	
Property	Soft landscaping (current)	**Yes**	Site has garden with limited vegetation
	Soft landscaping (proposed)	**Yes**	Garden planned to remain
	Building materials	**Yes**	London Clay likely to contain sulphates and be a high DS class.

Table 3-B: Receptor assessment

3.6 Pathway Assessment

3.6.1 The following table summarises the generic human health pathway assessment for the site, assuming a range of contaminant sources within the underlying soils. Source-specific pathways are considered within the iCSM in subsequent report sections.

Human Health Exposure Pathway	Residential land with private garden (current)	Residential land with private garden (proposed)	Construction operatives	Adjacent Site Users
Ingestion, inhalation and dermal contact with soils and dusts	✓	✓	✓	✓ *(inhalation only)*
Ingestion, inhalation and dermal contact with site derived dusts indoors	✓	✓	✓	×
Ingestion of home-grown vegetables	✓	✓	×	×
Inhalation of vapours in outside spaces	✓	✓	✓	✓
Intrusion and inhalation of vapours indoors	✓	✓	✓	×
Accumulation and Inhalation of ground gas in enclosed structures	✓	✓	✓	×
Permeation into below-ground drinking water pipes	✓	✓	×	×

Table 3-C: Generic pathway assessment

3.7 Initial Conceptual Site Model (iCSM)

3.7.1 The table below presents our approach to the assessment of risks associated with PCLs. The categories below are based upon the definitions within CIRIA C552 (2001), with the addition of a 'negligible likelihood' scenario, which is to be used where there is no realistic scenario in which harm could occur.

3.7.2 The initial conceptual site model (iCSM) is presented within the following tables overleaf.

		Consequence of harm			
		Severe	**Medium**	**Mild**	**Minor**
Probability of harm	**High likelihood**	**Risk: Very high** (high – severe)	**Risk: High** (high – medium)	**Risk: Moderate** (high – mild)	**Risk: Moderate/Low** (high – minor)
	Likely	**Risk: High** (likely – severe)	**Risk: Moderate** (likely – medium)	**Risk: Moderate/Low** (likely – mild)	**Risk: Low** (likely - minor)
	Low Likelihood	**Risk: Moderate** (low – severe)	**Risk: Moderate/Low** (low – medium)	**Risk: Low** (low – mild)	**Risk: Very low** (low – minor)
	Unlikely	**Risk: Moderate/Low** (unlikely – severe)	**Risk: Low** (unlikely – medium)	**Risk: Very low** (unlikely – mild)	**Risk: Very low** (unlikely – minor)
	Negligible Likelihood	**Risk: Low** (negligible– severe)	**Risk: Very Low** (negligible– medium)	**Risk: Very Low** (negligible– mild)	**Risk: Negligible** (negligible– minor)

Table 3-D: iCSM Risk Ratings

RECEPTOR: PROPOSED END USERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Regent's Park Garages historically recorded to the south.	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	It is not known if the building adjacent to the south was used as parking garages or include vehicle workshops etc. However, the building is completely bound by adjacent properties and therefore any such activities would have occurred internally. Contamination of near surface soils would have been restricted by the presence of the ground floor slab and migration of contamination would be extremely limited due to impermeable ground conditions and presence of the building preventing infiltration/leaching. On this basis, historical contamination would be localised/restricted. Furthermore, the site appears to have been redeveloped for commercial space and subsequently commercial/residential use and thus any significant contamination issues on the site are likely to have been addressed. The current site has also been used for residential purposes throughout the adjacent sites construction and use and any obvious contamination emanating from it (odours/vapours) are likely to have been noted. Based on all the evidence, it is considered unlikely the adjacent site would be a significant source of contamination which could impact the subject site.
Historical industrial activities within 100m of site	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	A plating works and an engineering works were historically recorded 25m and 70m north respectively and there is a possibility that other, unrecorded small-scale industries are present in the area. However, pathways to the subject site would be restricted to airborne transport or through groundwater. Given the distance to the site and the size of the industries, it is highly unlikely significant concentrations of contaminated dusts could impact the subject site. With regards to migration through groundwater, the London Clay Formation is effectively impermeable and therefore it is unlikely shallow groundwater is present, which could feasibly mobilise contaminants and transport them below the subject site.
Unexploded Ordnance	UXO	Direct contact / explosion	**Risk: Low** (negligible– severe)	Unlikely to come into contact with UXO during use of the site.

Table 3-E: iCSM – Proposed End Users

RECEPTOR: CONSTRUCTION WORKERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Regent's Park Garages historically recorded to the south.	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	No asbestos or gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.
Historical industrial activities within 100m of site	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	
Unexploded Ordnance	UXO	Direct contact / explosion	**Risk: Moderate** (low – severe)	The Preliminary Risk Assessment indicates there is a credible risk of encountering UXO during site redevelopment works.

Table 3-F: iCSM – Acute Exposure to Construction Workers

RECEPTOR: ADJACENT SITE USERS FOLLOWING COMPLETION				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All identified potential contaminant sources	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Based on the exposure pathways that would be present from the developed site, and on the anticipated levels of contamination, it is considered unlikely that a pollutant linkage could pose an unacceptable risk to off-site receptors.

Table 3-G: iCSM – Chronic Exposure to Adjacent Site Users

RECEPTOR: ADJACENT SITE USERS DURING THE CONSTRUCTION PHASE				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All other potential contaminant sources	Various inorganic and organic compounds (hydrocarbons, metals, asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium))	Unlikely significant contamination will be present on site and therefore not considered to pose a viable risk to off-site receptors.

Table 3-H: iCSM – Acute Exposure to Adjacent Site Users

RECEPTOR: PROPOSED PLANTING				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Contaminants within topsoil and the shallow sub-surface	Metals, pH and inorganics	Direct contact and root uptake	**Risk: Very low** (low – minor)	Unlikely significant contamination will be present on site. Garden is predominantly paved and likely existing near surface soils will be reused.

Table 3-I: iCSM – Phytotoxic Risk to Proposed Planting Scheme

RECEPTOR: PROPERTY				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Aggressive ground conditions in London Clay	Pyrite/sulphates	Direct contact	**Risk: Moderate** (likely – medium)	London Clay recorded from crop and is typically high in pyrites/sulphates.

Table 3-J: iCSM – Risk to Property

3.7.3 The risk to identified receptors from the proposed developments under the planning regime are assessed under a 'minimal risk' approach. Whereas, the risk to receptors under the current and continued use of the site is dealt with under the regulatory framework of the Part IIA regime, where Soiltechnics consider if there is a reasonable chance of a 'significant potential of significant harm' (SPOSH) occurring. This is not equivalent to a due diligence assessment for the continued use of the site to aid in determining potential contaminated land liabilities or land valuations.

3.7.4 The following table sets out the risk to current users considering a SPOSH approach:

Receptor	Potential Source	Contaminants of Concern	Pathway	Preliminary Assessment: Is their reasonable evidence of SPOSH?	Discussion
Human Health (Current and adjacent site users)	All potential contaminant sources identified above	Various Contaminants	Inhalation, ingestion and contact with soils, dusts and vapours.	**No**	Soiltechnics have not encountered any evidence which indicates there could be a significant possibility of significant harm to human health occurring from contamination on site.
Controlled Waters (Surface water and groundwater)	All potential contaminant sources identified above	Various Contaminants	Mobilisation and migration	**No**	Soiltechnics have not encountered any evidence which indicates there could be a significant possibility of significant harm to controlled waters occurring from contamination on site.
Ecosystems	All potential contaminant sources identified above	Various Contaminants	Direct contact and root uptake	**No**	The site does not fall within a relevant designation for environmentally sensitive land (e.g. SSSI, NRA, Ramsar).
Property	All potential contaminant sources identified above	Various Contaminants	Various pathways	**No**	Through undertaking the desk study, no evidence of potentially significant harm occurring to property has been identified.

Table 3-K: iCSM – Current Site Risks (Part IIA)

3.8 Preliminary Risk Assessment Conclusions and Recommendations

3.8.1 The initial CSM has identified potential contaminant linkages which exceed the low-risk threshold and require further investigation, mitigation, or remediation. These are discussed in further detail below.

Contaminant Source	Receptor	Recommended Action	Discussion
Preliminary UXO Risk Assessment Study	Construction operatives	Mitigation	The UXO hazard screen identified that bombing may have occurred in the vicinity of the site, therefore a Preliminary Risk Assessment should be undertaken in accordance with CIRIA C785. This must be commissioned directly with a specialist.
Sulphates in London Clay	Property	Mitigation	London Clay is likely to have a high DS class. An appropriate DC class of concrete should be used within the development.

Table 3-L: GQRA Risk Assessment Conclusions

4 Recommendations for further works

4.1.1 No further intrusive works are recommended with regard to this contamination assessment although mitigation measures will need to be adopted with regards to UXO and sulphates in the ground.

4.1.2 The Principal Contractor should also have a discovery strategy in place in the event of exposing unexpected or previously unencountered contamination. Soiltechnics should be informed at the earliest opportunity to undertake an assessment of the material, and to inform the Local Authority as appropriate.

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Appendix A Drawings

NOTES

DO NOT SCALE FROM DRAWING.
DIMENSIONS TO BE CONFIRMED
ON SITE

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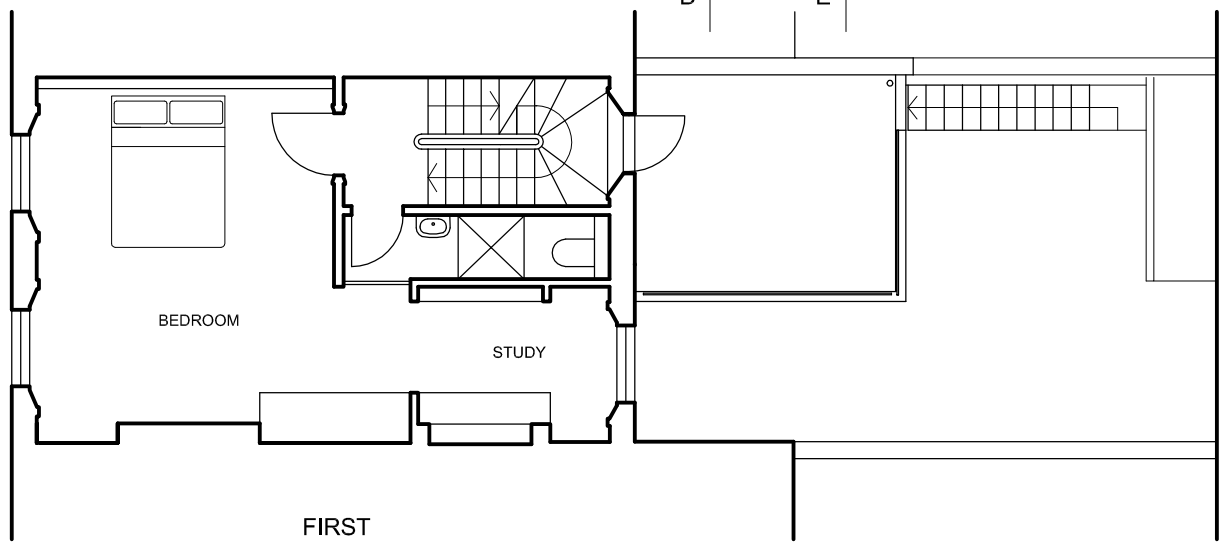

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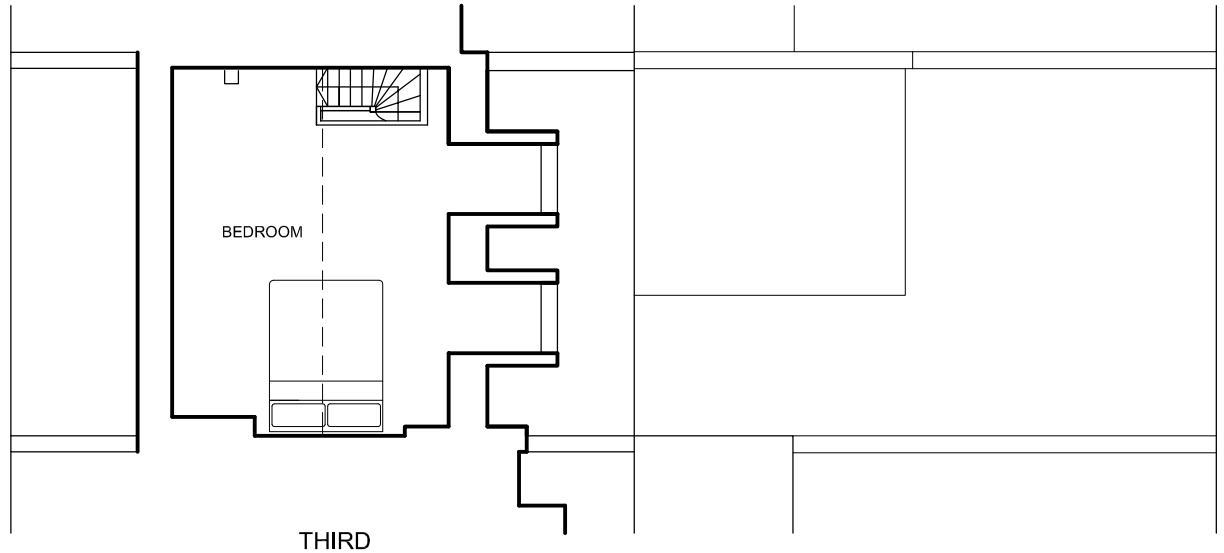

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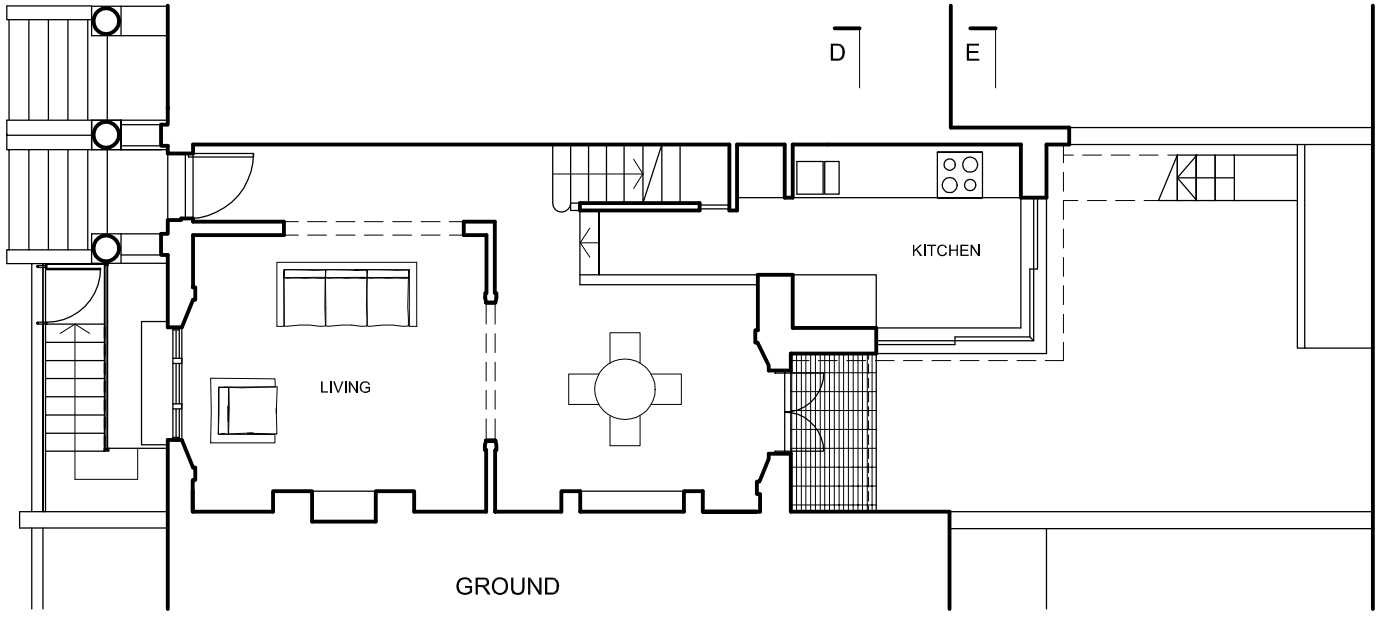

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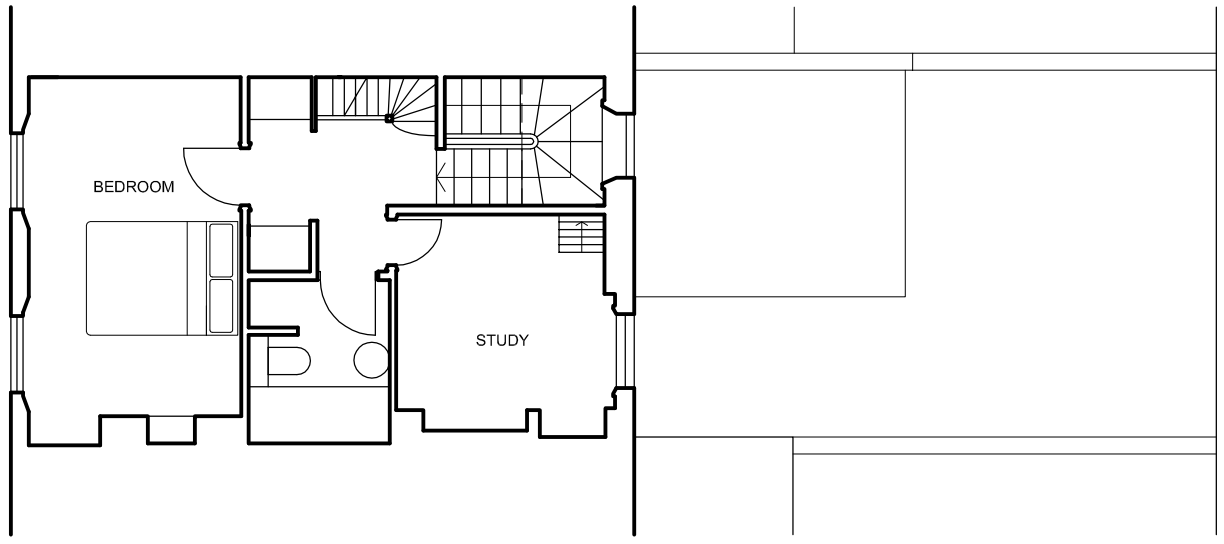

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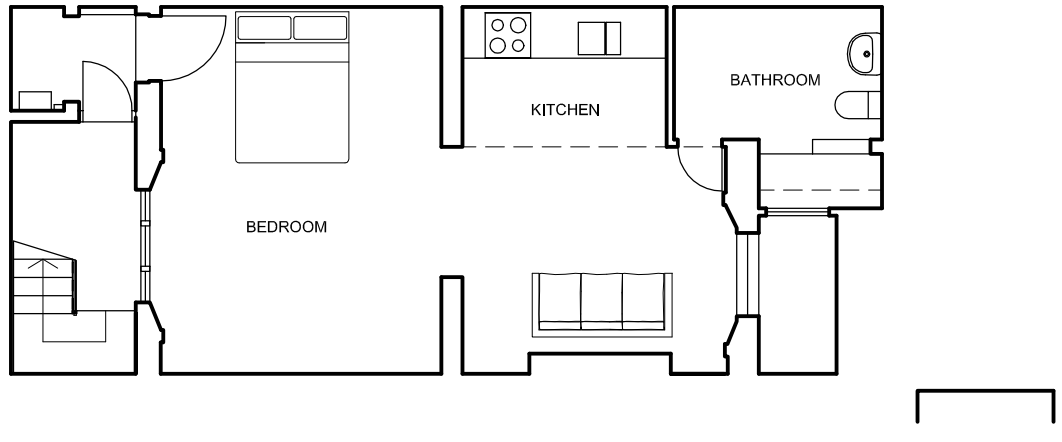

BASEMENT

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1:50 scale

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DATE 13.7.22
SCALE 1:100 @A3

DRAWING CHA5-2-EX-100-01

NOTES

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SECTION D

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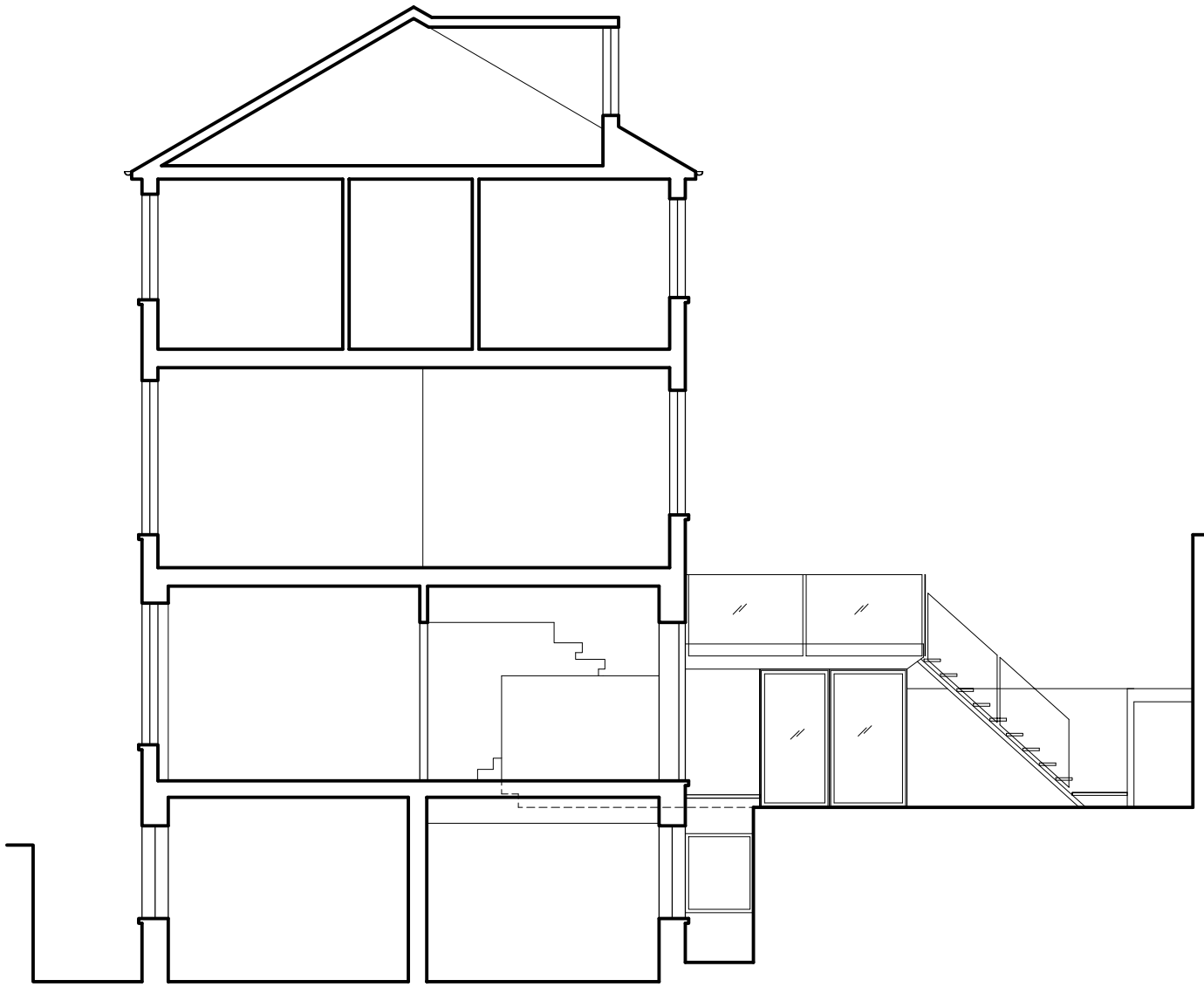

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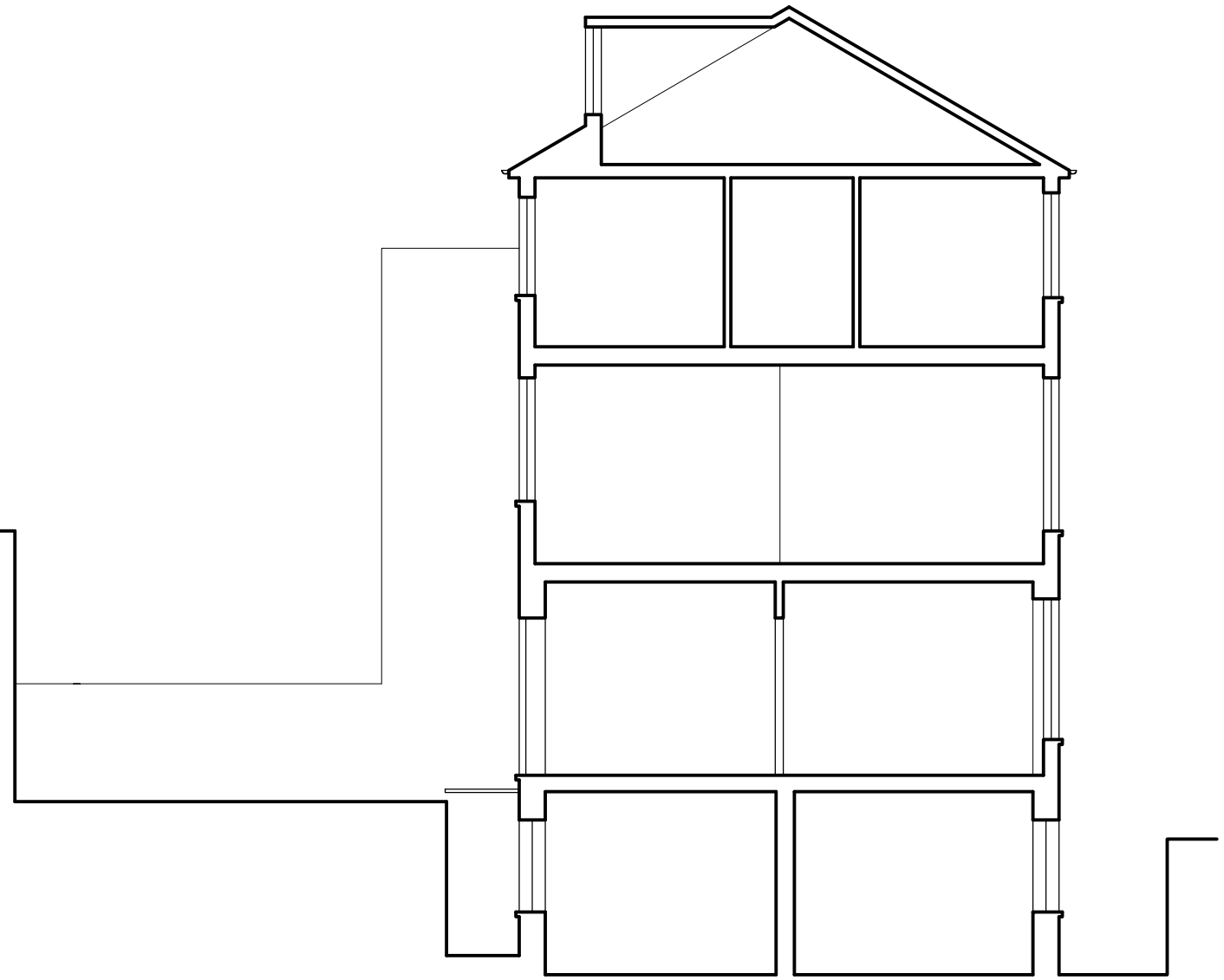

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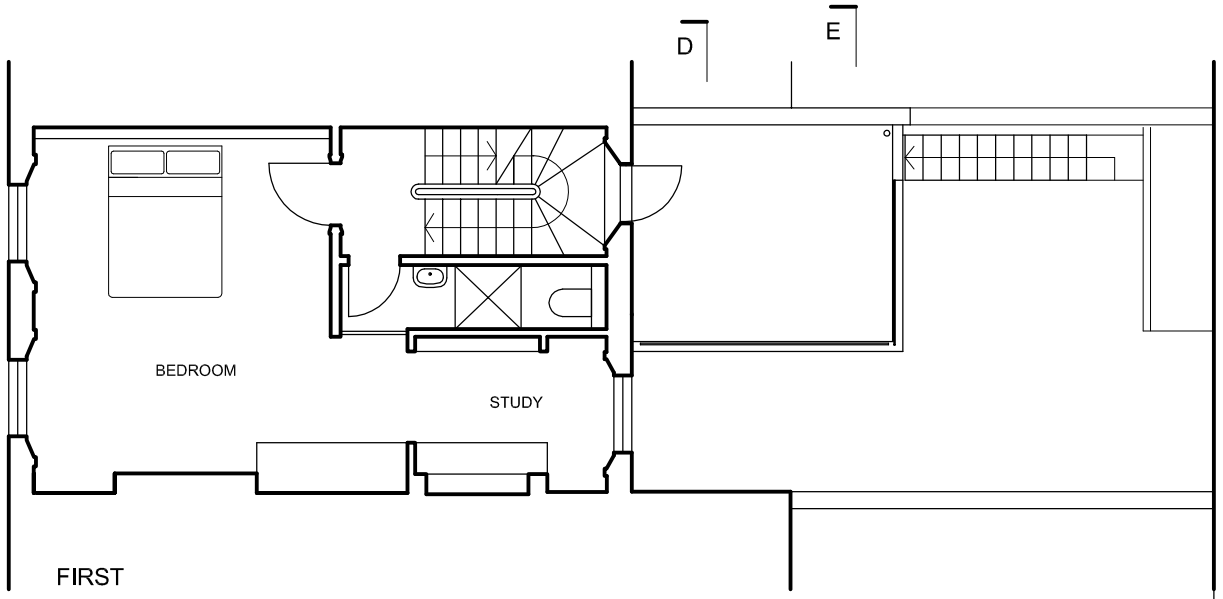

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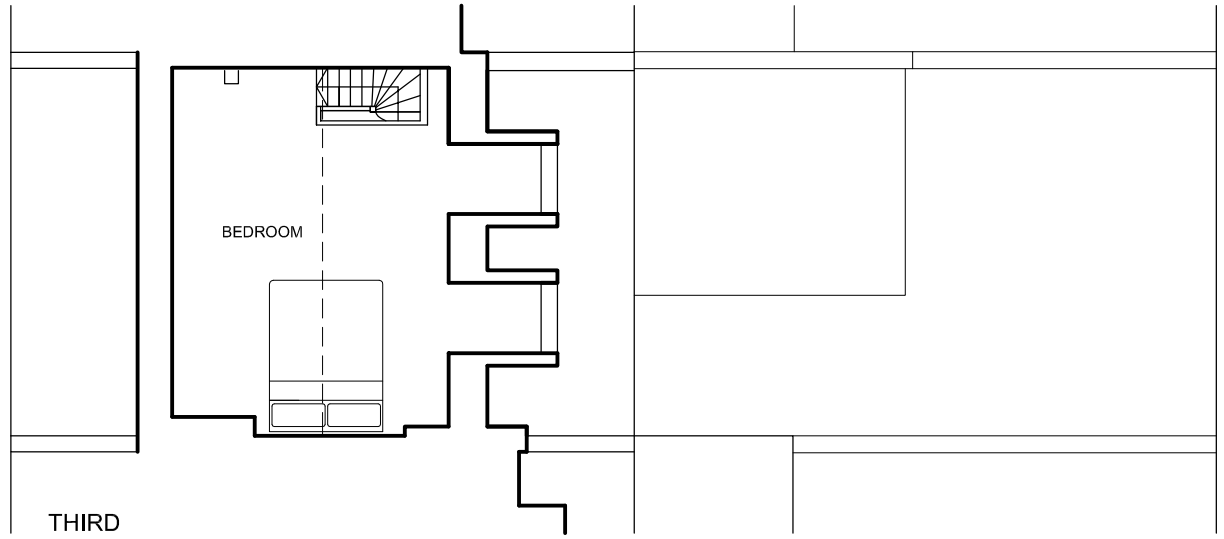

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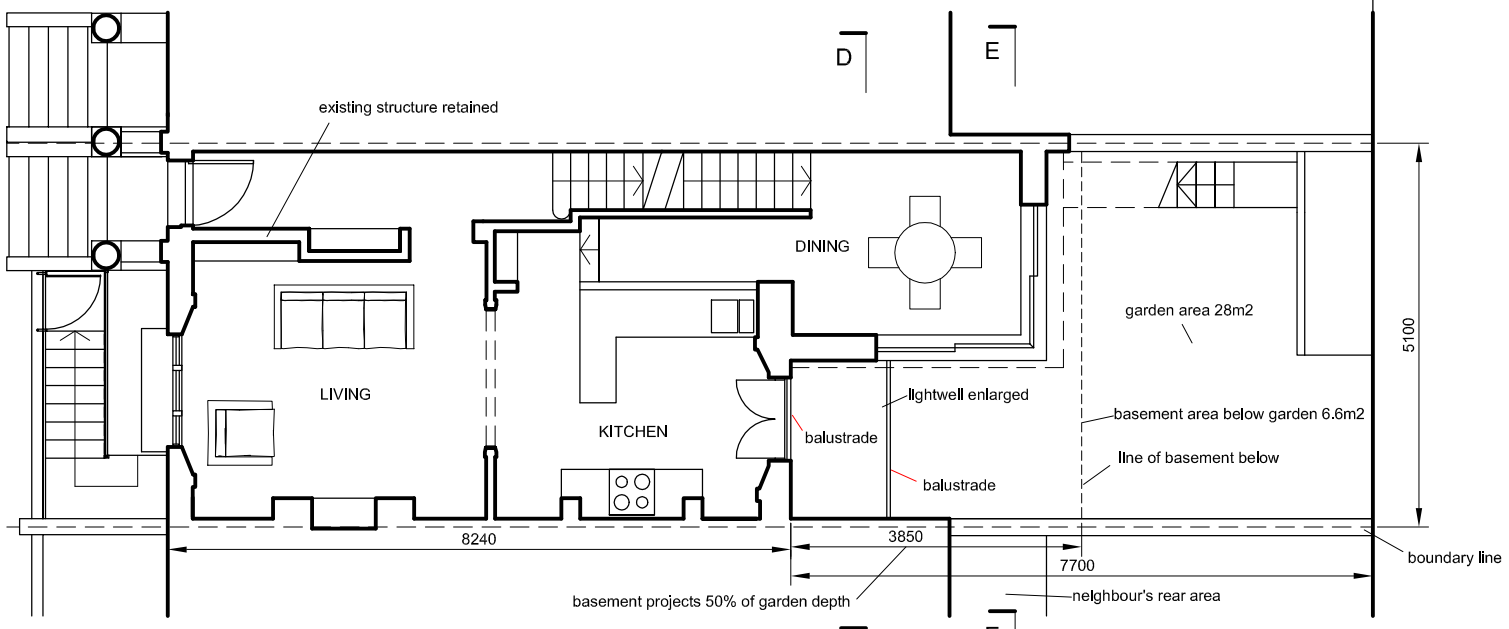

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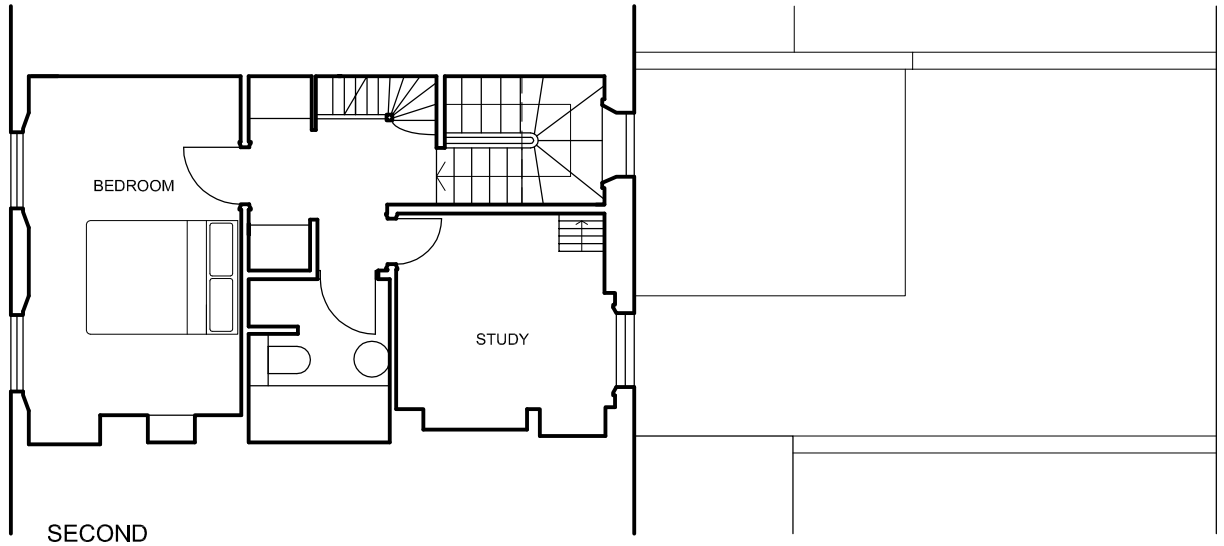

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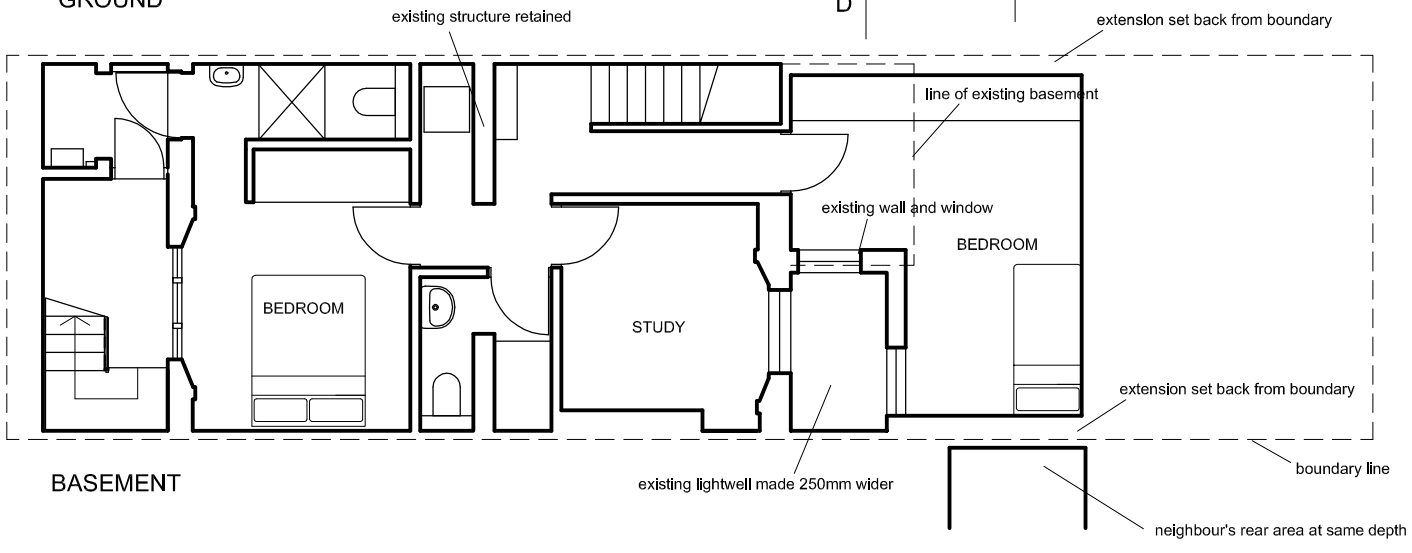

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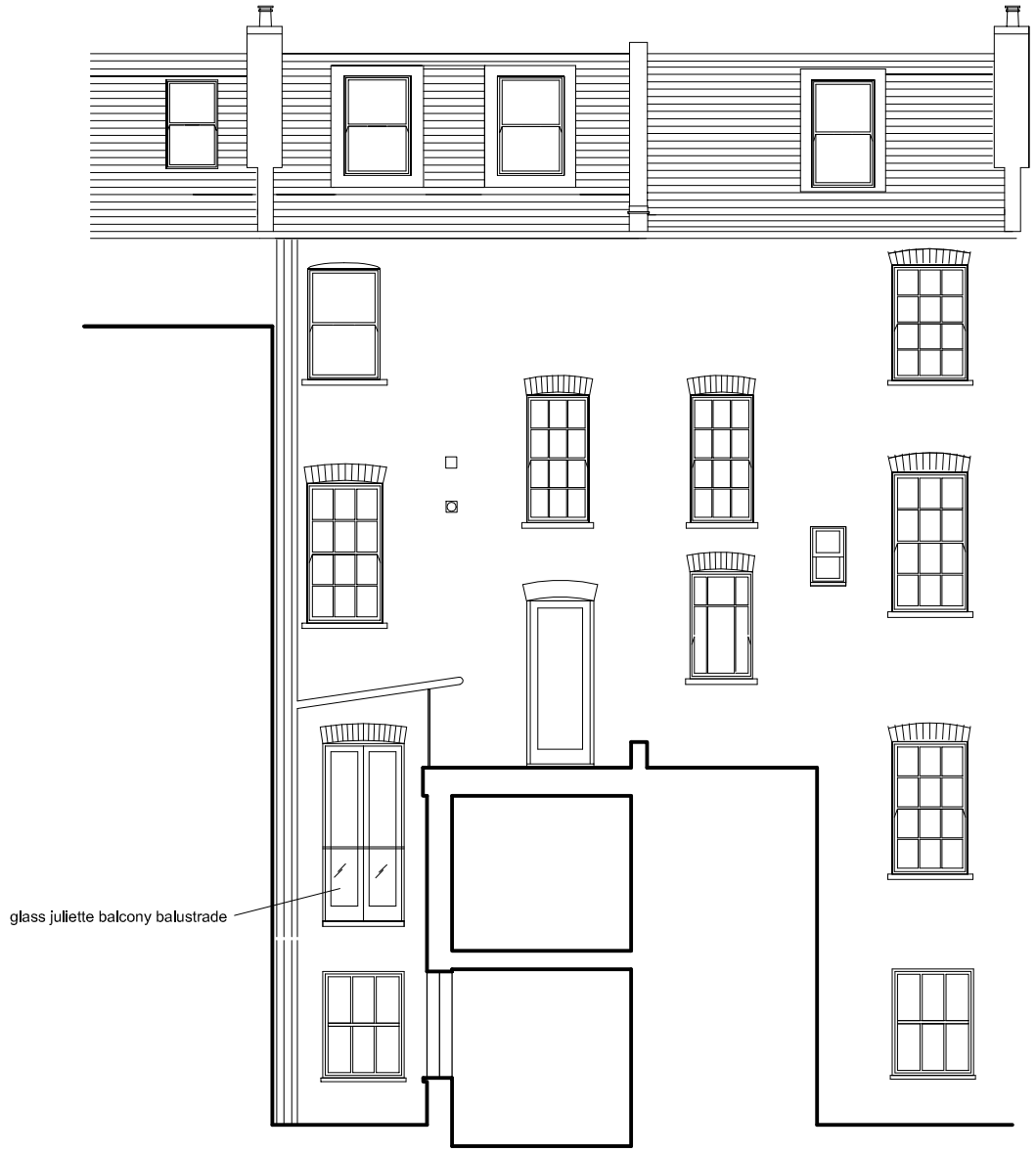

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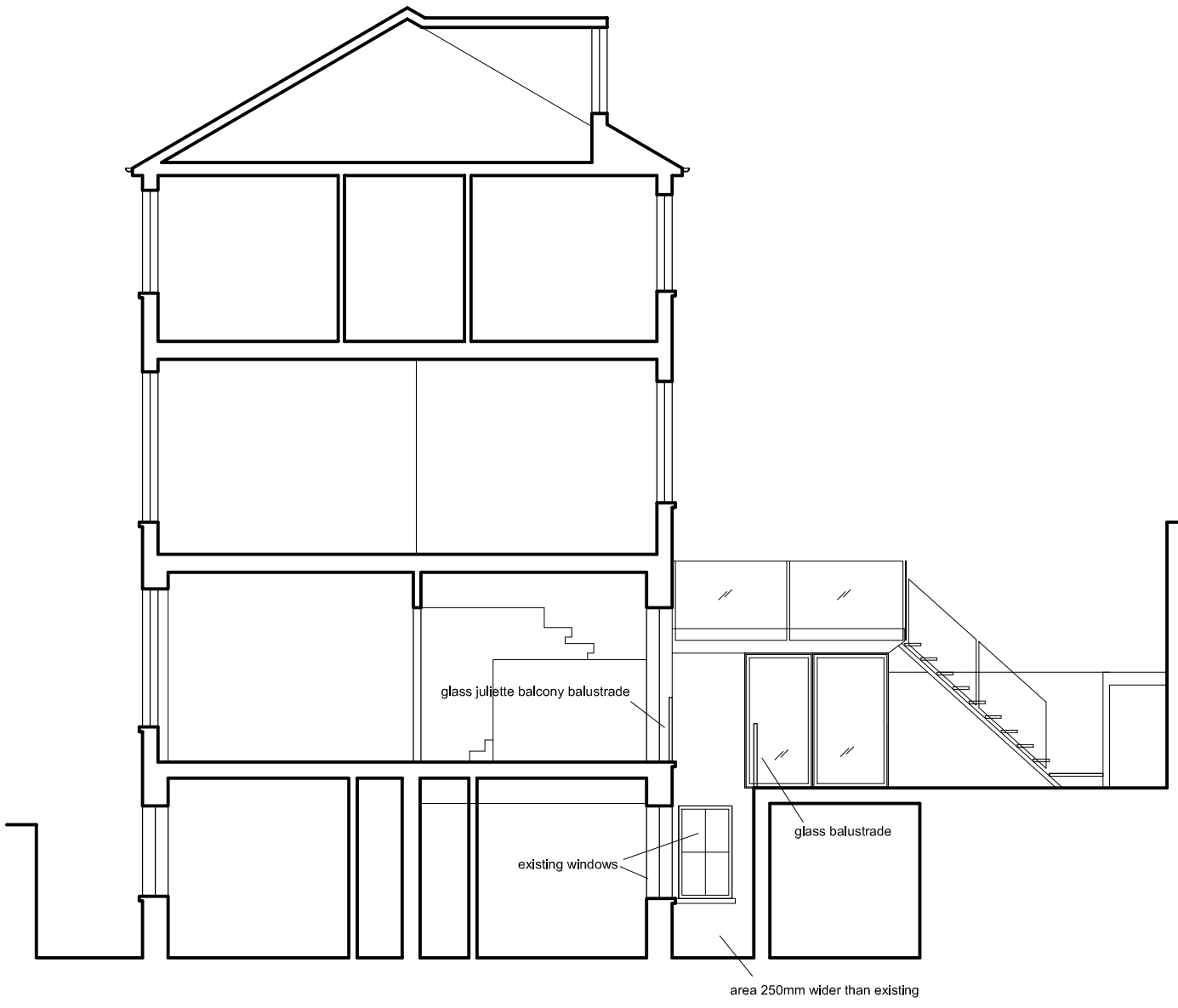

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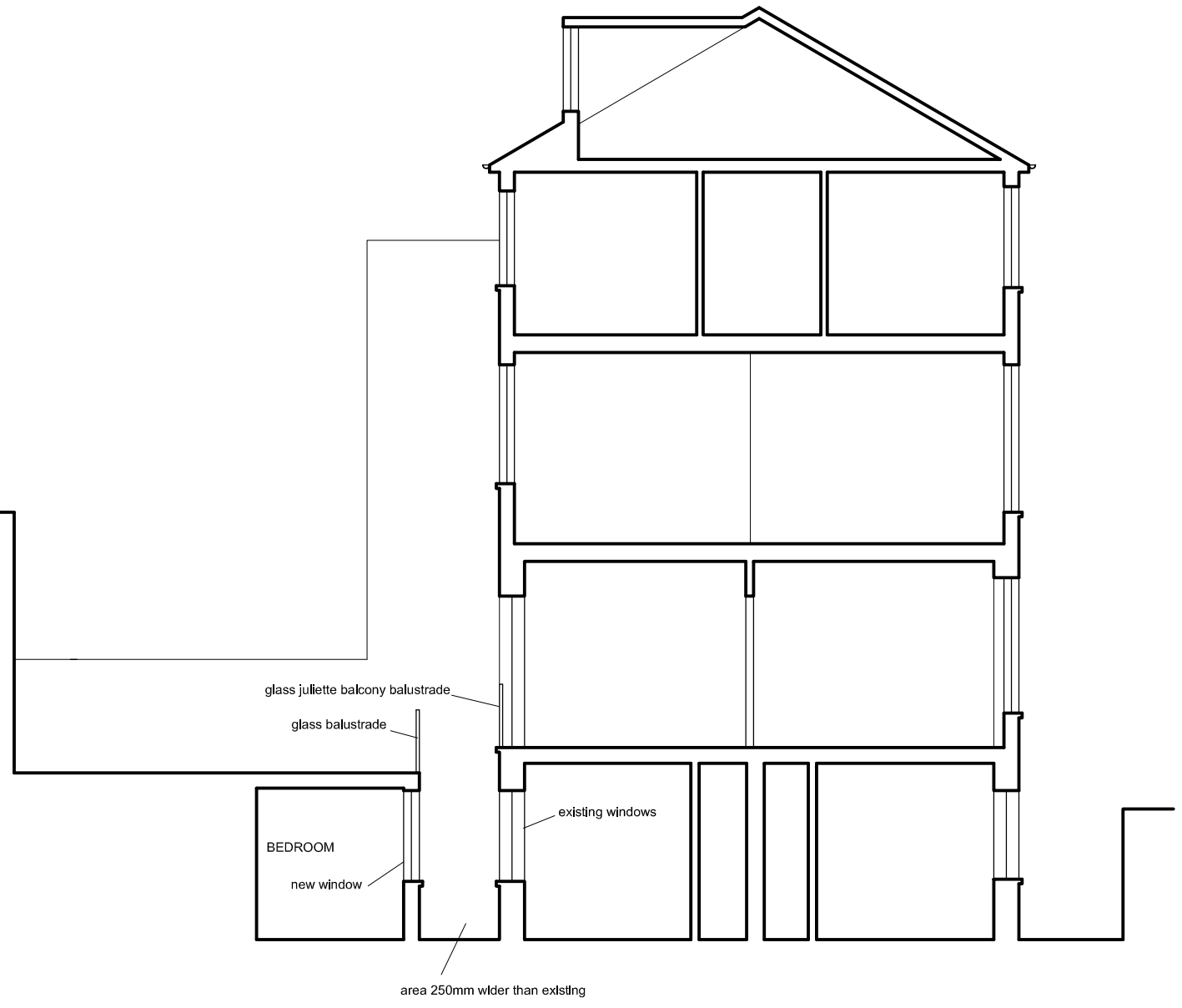

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Appendix B Photographic Records

Title

Photographic records of General Site Photos

The property from Chamberlain Street; looking southwest

View of the rear garden; looking north

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Appendix C Utility Service Plans

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Appendix D Envirocheck Report

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Appendix E Regulatory Correspondence

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