

November 2020

Ground Conditions Assessment



The Applicant

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The project site

Cambridge Road Estate Project hub

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Application forms

Covering letter

Application Form and Notices

CIL Additional Information Form

Design proposals

Planning Statement

Design and Access Statement

- Vol.1 - The Masterplan
- Vol.2 - The Detailed Component

The Masterplan

- Parameter Plans
- Illustrative Plans
- Design Guidelines

Phase 1 Architecture and Landscape

- GA Plans, Sections and Elevations

Supporting information

Statement of Community Involvement

Rehousing Strategy

Financial Viability Appraisal

Draft Estate Management Strategy

Transport Assessment

Phase 1 Travel Plan

Car Parking Management Plan

Servicing and Delivery Management Plan

Construction Logistics Plan

Construction Method Statement and Construction
Management Plan

Sustainable Design and Construction Statement
(Including Circular Economy Statement)

Environmental Statement

- Non Technical Summary
- Vol.1 – Technical Reports
- Vol.2 – Technical Appendices
- Vol.3 - Townscape and Visual Impact
Assessment

Energy Statement (Including Overheating

Assessment and Whole Life Cycle Assessment)

Daylight and Sunlight

Internal Assessment of the Detailed Component

External Assessment of the Illustrative Masterplan

Extraction and Ventilation Strategy

Noise Impact Assessment

Arboricultural Report and Tree Conditions Survey

Arboricultural Impact Assessment & Method
Statement

Preliminary Ecological and Bat Survey Report

Biodiversity Net Gain Assessment

Archaeology and Heritage Assessment

Ground Conditions Assessment

Utilities Report

Flood Risk Assessment

Phase 1 Drainage Statement

Fire Strategy Report

Accessibility Audit

Health Impact Assessment

Equalities Impact Assessment



Geo-Environmental

DESK STUDY REPORT

for the land at

CAMBRIDGE ROAD,

KINGSTON UPON THAMES,

KT1 3LA

on behalf of

CAMBRIDGE ROAD (RBK) LLP



Report:	DESK STUDY REPORT	
Site:	CAMBRIDGE ROAD, KINGSTON UPON THAMES, KT1 3LA	
Client:	CAMBRIDGE ROAD (RBK) LLP	
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AMENDMENT RECORD

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1.0	30/09/2020	First issue	TM/LH	KB	JT
2.0	29/10/2020	Second Issue – client name change - Cambridge Road (RBK) LLP and updated Phasing drawing.	TM/LH	KB	JT

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1.0 INTRODUCTION

1.1 General

Geo-Environmental Services Limited (Geo-Environmental) was instructed by CTP Consulting Engineers on behalf of Cambridge Road (RBK) LLP to undertake a Phase I Desk Study pertaining to proposed development at land at Cambridge Road, Kingston Upon Thames, KT1 3LA (herein referred to as 'the site'). The site's location is presented in Figure 1.

1.2 Form of Development

It is proposed to regenerate the site by replacing the current housing stock with new purpose built reinforced concrete framed buildings, which range in height up to thirteen storeys. It is understood it will be delivered in five phases.

1.3 Objectives

The investigation was to comprise a desk study of geotechnical and geo-environmental factors pertaining to the site, including a review of available historic maps and an examination of other available sources of geo-environmental information.

A preliminary Risk Assessment (PRA) was to be undertaken as part of the desk study in accordance with CLR11. The objective of the risk assessment was to evaluate plausible pollutant linkages with respect to the proposed development, adjacent land uses, and the wider environment, in the context of planning, immediate liabilities under the Environment Act 1990, and risks posed to Controlled Waters under the Water Resources Act.

1.4 Standards

Where practicable, the desk study was undertaken in accordance with the following documents and guidance:

- British Standards Institute - Investigation of Potentially Contaminated Sites - Code of Practice (BS10175:2011+A2:2017).
- Department of Environment - Industry Profiles (1995 - 1996).
- Environment Agency - Guidance on Requirements for Land Contamination Reports (2005).
- Environment Agency - Land Contamination: Risk Management (LCRM) (2019).
- Ministry of Housing, Communities and Local Government - National Planning Policy Framework (2019).
- National House Building Council, Environment Agency & Chartered Institute of Environmental Health - Guidance for the Safe Development of Housing on Land Affected by Contamination (R&D Publication 66) (2008).
- National House Building Council - Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present (10627-R01[04]) (2007).

1.5 Conditions

The information collected from the desk study has been used to provide an interpretation of the geotechnical and environmental conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. Geo-Environmental takes no responsibility for conditions that have either not been revealed in the available records or that occur between or under points of any physical investigation. Whilst every effort has been made to interpret the conditions, such information is only indicative, and liability cannot be accepted for its accuracy.

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2.0 DESK STUDY

The findings of the Phase I desk study are presented in the following section. Site photographs taken as part of the site walkover are presented in Appendix A and a copy of the information obtained as part of the desk study is presented in Appendix B.

Comments made in the following sections regarding possible ground conditions on the site are based purely on the desk study assessment undertaken.

2.1 Site Description

The site was located at National Grid Reference 519170, 169040 and extended to approximately 8.86ha in area. The topography of the site slopes gently down from the south east boundary towards the north west with an overall fall in level of c.7.5m across the whole site.

The northern half of the site was mostly occupied by tower blocks and 4-5 storey blocks of apartments whereas the southern half was mostly occupied by terraced housing. For ease of reference, the site has been split into the northern and southern halves for the description.

Northern Portion

At the time of the site walkover in September 2020, the northern part of the site was occupied by four 16 storey tower blocks interspersed with numerous five storey blocks of apartments. The style of the buildings indicated they were most likely constructed in the 1960s.

Between the apartment buildings there was a mix of soft and hard landscaping with several play areas noted. The limited soft landscaping comprised open lawned amenity space which included several mature trees between many of the lower level apartment blocks. Some of the apartment blocks were noted to have garages on the ground floor running along the length of the building. Most of the lower rise apartment blocks were joined by pedestrian bridges.

A large Hotel (Bull and Bush) with a hotel garden and parcel locker facility was noted within the north west of the site.

Further east the buildings were arranged in rows trending north-south with the first row being an apartment block and the next few rows were terraced houses with several small blocks of six apartments.

Southern Portion

The southernmost portion of the site entirely comprised terrace properties with areas of both soft and hard landscaping. Many mature and semi mature trees were noted in the landscaped areas. The western portion of the site was occupied by relatively new terraced houses as well as a new apartment block known as Ely Court. West of Ely Court was a community centre (Piper Community Hall) and carpark. The western portion of site comprised an additional apartment block with a series of shops at ground level. the shops appeared predominantly disused with the exception of the housing office.

The site was bounded to the south by the Kingston-upon-Thames cemetery, to the east and west by a continuation of residential properties, to the north by Cambridge Road and then beyond a line of shops with residential properties.

2.2 Geology

British Geological Survey geological mapping indicated the geology of the site to comprise Langley Silt Member overlying London Clay Formation in the extreme western portion of the site. The Langley Silt could potentially be underlain by River Terrace Deposits. There is also likely to be a mantle of Made Ground across the natural strata at the site from previous development phases.

BS5930:2015 defines **Made Ground** as anthropogenic ground in which the material has been placed without engineering control and/or manufactured by man in some way, such as through crushing or washing, or arising from an industrial process. Great variations in material type, thickness and degree of compaction invariably occur and there can be deleterious or harmful matter, as well as potentially methanogenic organic material. In addition, on sites which have undergone several phases of historic development it is not uncommon for asbestos to be present within Made Ground soils.

Langley Silt Member varies from silt to clay, commonly yellow-brown and massively bedded. It rests on sand and gravel River Terrace Deposits, with sharp base.

London Clay comprises a stiff grey fissured clay, weathering to brown near surface. Concretions of argillaceous limestone in nodular form (Claystones) occur throughout the formation. Crystals of gypsum (Selenite) are often found within the weathered part of the London Clay, and precautions against sulphate attack to concrete are sometimes required.

The lowest part of the formation is a sandy bed with black rounded gravel and occasional layers of sandstone and is known as the Basement Beds.

In the north London area, the upper part of the London Clay has been disturbed by glacial action and may contain pockets of sand and gravel.

There are multiple British Geological Survey (BGS) borehole records identified in the vicinity of and on the site. The deepest borehole log was for a 187.45m deep borehole located just to the north of the site which identified drift deposits to 6.70mbgl overlying London Clay followed by West Walton Formation at 81.68mbgl, Thanet Formation at 107.59mbgl and finally Upper Chalk at 107.59mbgl.

2.3 Hydrogeology

With reference to Envirocheck data, the superficial deposits (Langley Silt Member) and the bedrock geology (London Clay Formation) were both classified as unproductive strata.

Unproductive Strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

According to information provided from the Environment Agency the site not indicated to be located within a Source Protection Zone.

The environmental dataset did not identify any groundwater abstraction points within 1km of the site.

The environmental dataset did not identify any pollution incidents to groundwater within 500m of the site.



No discharge consents to controlled waters were identified within a radius of 500m of the site boundary.

The site was identified as being located within an area with no potential for groundwater flooding to occur at surface level.

2.4 Hydrology

With reference to the Envirocheck dataset, the closest surface water feature was located approximately 253m to the south of the site and appeared to comprise a stream/river not effected by tidal influence. The Envirocheck data indicated the subject site to be located outside the extent of flooding to extreme flooding from rivers.

Fourteen discharge consents (multiply entries) to controlled waters were identified within a radius of 500m of the site boundary, details of which are shown in the table below:

Distance (m) Direction	Details	Issued Date	Revocation Date
293 South	Operator: Thames Water Utilities Ltd Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Receiving Water: Hogsmill River (Freshwater Stream/River)	Multiply entries between 1983-2019	Multiple entries between 1983-2019
315 South	Operator: Thames Water Utilities Ltd Discharge Type: Sewage Discharges – Stw Storm Overflow/Storm Tank - Water Company Receiving Water: Hogsmill River (Freshwater Stream/River)	21/09/2018	Not Supplied
333 South East	Operator: Thames Water Utilities Ltd Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Receiving Water: Hogsmill River (Freshwater Stream/River)	27/04/1982	29/03/2000
409 South West	Operator: Vine Products Ltd Discharge Type: Unknown Receiving Water: Hogsmill (Freshwater Stream/River)	13/04/1966	16/01/1990

Table 2.1 A summary of discharge consents to controlled waters

The environmental dataset did not identify any surface water abstraction points within 500m of the site.

Eight pollution incidents to controlled waters were identified within 500m of the site boundary details of which are in the table below:

Distance (m) Direction	Details	Incident Date	Severity
275	Location: Hogsmill stw Authority: Environment Agency, Thames Region	25/01/1990	Category 3



Distance (m) Direction	Details	Incident Date	Severity
South	Pollutant: Unknown Sewage Receiving Water: Not Given		Minor Incident
327 South	Location: Hogsmill stw Authority: Environment Agency, Thames Region Pollutant: Unknown Sewage Receiving Water: Not Given	26/04/1991	Category 3 Minor Incident
420 South East	Location: Valley Street, Hogsmill Authority: Environment Agency, Thames Region Pollutant: Unknown Sewage Receiving Water: Not Given	31/10/1989	Category 2 Significant Incident
430 South West	Location: Villiers Road Bridge Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Receiving Water: Not Given	19/06/1992	Category 3 Minor Incident
472 South East	Location: Hogsmill Sewage Treatment Works, Kingston Upon Thames Authority: Environment Agency, Thames Region Pollutant: General Receiving Water: Not Given	05/02/1998	Category 3 Minor Incident
478 South West	Location: Villiers Road Authority: Environment Agency, Thames Region Pollutant: Miscellaneous - Unknown Receiving Water: Not Given	17/01/1994	Category 3 Minor Incident
481 South West	Location: Villiers Road Authority: Environment Agency, Thames Region Pollutant: Unknown Receiving Water: Not Given	Not Supplied	Category 3 Minor Incident
491 South West	Location: Kingston Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Receiving Water: Not Given	23/05/1995	Category 2 Significant Incident

Table 2.2 A summary of pollution incidents to controlled waters

2.5 Radon

The Envirocheck report states that the site lies in an area where less than 1% of homes are estimated to be at or above the Action Level as defined by Public Health England. The BGS record states that no radon protective measures are necessary in the construction of the new dwellings or extensions within the site boundary.

2.6 Environmental Data

Searches of other various environmental databases were made as part of the desk study, including air pollution control sites, Part IIA contaminated land, Integrated Pollution Control (IPC) and Integrated Pollution Prevention and Control (IPPC) sites, registered radioactive substances, COMAH sites, explosives sites,

Notification of Installations Handling Hazardous Substances (NIHHS) sites, planning permissions for sites involving hazardous substances and fuel station registers. Additional detail is referenced in Appendix B.

No Integrated Pollution Control sites or Integrated Pollution Prevention and Control sites were identified within 500m of the site boundary.

The desk study identified 136 Contemporary Trade Directory entries within 500m of the site two of which were on the site and details are below:

- On-Site Fabritec; Carpet, Curtain & Upholstery Cleaners; Inactive
- On-Site Homecare; Cleaning Services – Domestic; Inactive

A particularly high proportion of the rest of the businesses within 100m of the site are automotive related including garages services, tyre dealers, scrap yards and car dealers. Other trades include domestic cleaners, builders' merchants, brewers.

The environmental dataset identified two tanks one 7m to the east of the site (associated with the obsolete Wheels Van Centre) and one 371m to the south of the site both of which classified as industrial features in postal code KT1.

Four fuel stations were recorded within 500m of the site details are recorded below:

- 7m East; Wheels Van Centre; 519365,169073; Obsolete
- 239m North; Washington Self-Serve; 519022, 169456; Obsolete
- 331m North; Terminus Motoring Centre; 519044, 169556; Obsolete
- 443m North; Shell Kingston Hill; 519142, 169672; Open

2.7 Soil Chemistry

Data obtained as part of the desk study provides details on the estimated soil chemistry for the natural soils in the vicinity of the site. The estimated soil quality on the subject site is presented Table 2.3.

Contaminant	Estimated Concentration
Arsenic	15-25 mg/kg
Cadmium	<1.8 mg/kg
Chromium	60-90 mg/kg
Lead	<150-300mg/kg
Nickel	15-30 mg/kg (southern boarder 30-45mg/kg)

Table 2.3 Estimated soil chemical concentrations on site

The natural background concentrations were below respective published Suitable for Use Levels, Generic Assessment Criteria and Category 4 Screening Levels for the protection of human health under a residential land use (without home grown produce).

However, these values are not necessarily representative of the site's soil chemistry and take no account of a site's land use history, nor the presence or condition of any Made Ground soils. Furthermore, some screening criteria are dependent on pH and soil organic matter content. Therefore, concentrations of specific

determinants and the utilised S4UL/GAC/C4SL cannot be determined without site specific investigation and analysis.

2.8 Sensitive Land Uses

A search was made of environmentally sensitive areas including local and national nature reserves, areas of outstanding natural beauty (AONBs), Ramsar sites, sites of special scientific interest (SSSIs), conservation areas, special protection areas and biosphere reserves.

According to the Envirocheck data set, the site lies within a eutrophic water Nitrate Vulnerable Zone as defined by the Department for Environment, Food and Rural Affairs (DEFRA). Nitrate Vulnerable Zones are designated areas of land draining into waters polluted by nitrates from agriculture.

2.9 Geotechnical Data

The site was located within an area considered by the Coal Authority as an area that might not be affected by coal mining activity.

National databases for a number of different geological hazards have been compiled by the BGS, and a summary of the hazard data pertaining to the site itself is presented in Table 2.4.

Hazard	Designation
Non-coal mining	No Hazard
Collapsible ground	Very Low
Compressible ground	No Hazard
Ground dissolution	No Hazard
Landslide	Very Low
Running sand	No Hazard
Shrinking and Swelling clay	Moderate
BGS Mineral Sites (within 500m)	373m East; Norbiton Brick Field; Opencast; London Clay Formation, Common Clay and Shale; Ceased

Table 2.4 Summary of BGS geological hazards

2.10 Landfill and Waste Management Facilities

A search of BGS recorded landfill sites, IPC registered waste sites, licensed waste management facilities, local authority recorded landfill sites, other registered landfill sites, waste transfer stations and other waste treatment or disposal sites was undertaken as part of the desk study. Such sites may form an artificial source of ground gases, such as carbon dioxide and methane, where wastes are buried or disposed of to landfill.

The Envirocheck data did not identify any registered landfill sites within 1km of the site.

The Envirocheck data identified the presence of one area of potentially infilled land (non-water) on the historic mapping and within 500m of the site, details of which are provided below:

- 191m East; Unknown Filled Ground (Pit, quarry etc); 519595, 168950; 1976.



2.11 Historic Mapping

Historic maps dating back to between 1868-1879 were obtained as part of the desk study. A summary of the apparent key features observed on the map extracts both on the site and within the local area is presented within Table 2.6.

Date	On-site	Off-site
1868 to 1879	Site appeared to comprise of a mixture of fields and a residential housing area with connecting roads and associated infrastructure.	<p>To the north of the site, across Cambridge Road, the Cambridge Asylum and an associated chapel were shown. In the east, the site was bounded by Hampden Road, beyond which were agricultural fields. A railway line runs c. 400m east of the site and then turns to run parallel to the north border again at c. 400m from the site. Beyond this railway line were fields. Approximately 700m north east there was a union workhouse labelled.</p> <p>To the south of the site, across Hampden Road and stretching c.250m south was Kingston Cemetery. Beyond the cemetery comprised mostly of open fields then beyond c1000m south there was a railway line. The site was bounded by open fields to the west.c.500m away from the site was the centre of Kingston upon Thames. Housing estates stretched from the north boundary and west. c.750m west a barracks was shown.</p>
1971 to 1974	No significant changes noted.	Oil Mills were mapped c. 200m to the south west of the site.
1896 to 1898	Within the western area of the site, more residential houses and adjoining roads have been built.	Beyond Hampden Road to the east an Infant school was shown.
1898 to 1899	No significant changes noted.	Significant residential development has occurred to the north of the site, particularly, beyond the northern trainline c. 500m from the site. To the south east c. 500m a sewage works was mapped. Additionally, the Kingston Laundry was labelled c. 200m to the west of the site.
1913 to 1919	No significant changes noted.	There were two schools 250m to the west of the site. New residential properties were shown immediately west and c.100m from the northern boundary stretching c.250m from the site. Approximately 50m beyond Vincent Road to the south of the site a Laundry was shown. The cemetery had also been extended west to almost double its original size. Approximately 500m south of the site there was a sewage disposal



Date	On-site	Off-site
		facility just before the London & South Western Railway.
1919	No significant changes noted.	The Oil Mills had been relabelled as a refuse destructor and a soap and candle works was also shown c.200m south west of the site. Additionally, c.400m to the south west of the site a nursery was mapped.
1920	No significant changes noted.	No significant changes noted.
1933 to 1935	A few small changes to the layout of the residential buildings, including the removal of several small buildings, which appear to be out buildings, as well as additional new buildings which could be garages or outbuildings.	To the east of the site c.50m a Foundry was shown. Additionally, significant residential development to the north east, expansion of the sewage works to the south and a new school c.500m to the south west. South of the site c.600m was a new cemetery, located near the sewage disposal works.
1938	No significant changes noted.	No significant changes noted.
1940 to 1950	No significant changes noted.	No significant changes noted.
1955 to 1957	Small changes to the buildings on the site to the north east as redevelopment made way for a cul-de-sac. There are also some additional properties on the north west of the site and the south east.	Immediately north of the site, the hospital had been redeveloped into residential property blocks. In the east c. 50m from the site a timber yard was labelled, beyond this a garage was shown. To the north across Cambridge Road c.50m from the site was a small engineering works.
1962 to 1967	No significant changes noted.	No significant changes noted. Other than cuttings c.250m south just beyond the cemetery for a road.
1967	A large proportion in the north of the site appears to be vacant. South of Washington Road and east of Eureka Road appear unchanged. Occurred post 1968.	The sewage works to the south of the site had expanded, including 12 new circular structures as well as sludge beds approx. 500m the site. c.1000m to the north west of the site a power station was constructed.
1972 to 1987	Significant residential redevelopment has occurred across the site. The present day road layout is commensurate with the site walkover.	No significant changes noted.
1991	No significant changes noted.	Insufficient mapping coverage.
1992 to 1995	No significant changes noted.	Insufficient mapping coverage.
1996	No significant changes noted.	Insufficient mapping coverage.
1999	No significant changes noted.	To the south east of the site there was a sports facility c. 250m from the site boundary. c.500m further south east several filter beds associated with the sewage works appear to have been decommissioned. Approx. 250m to 500m to the



Date	On-site	Off-site
		west a large industrial area was redeveloped into residential properties. The power station to the north west of the site was no longer shown.
2006	A building block known as Ely Court has been demolished on the southern portion of the site.	The sewage works to the south east was expanded southwards, to include 16 new large circular structures as well as numerous square plots.
2020	A new terrace of houses was located in the place of the original Ely Court along with additional 3 storey block of flats.	No significant changes noted.

Table 2.6 Summary of historic map extracts

Historic mapping from 1868-1879 showed the site to have comprised open fields and residential properties over time the site becoming more developed along with the surrounding area. The current road layout was first shown in the 1970s.

The surrounding land comprised fields and the village of Kingston-Upon-Thames, which expanded with residential housing through the mapping period. Several unspecified works, foundries and laundries are shown in the surrounding area. In addition a large-scale sewage works was noted c.500m to the south of the site.

2.12 Asbestos

Whilst no clear evidence of asbestos containing materials was observed during the site walkover visit, given the age and nature of the building it is best to keep in line with current best practice, asbestos and ACM should be assumed to be present until proven otherwise, this includes the consideration of the potential for asbestos to be present within the shallow soils on the site.

2.13 Previous Ground Investigations

Geo-Environmental was not made aware of any previous investigations.

2.14 Potential Contamination

The site’s previous and current use was shown to have comprised residential use throughout.

Surrounding land uses have been noted to include residential, laundries, unspecified works, foundries, garages, cemetery, oilmills and railways.

There is a possibility that Made Ground may have been deposited in some areas of the site. Made Ground or shallow soils may contain contaminants of concern, including metals, non-metal, inorganic pollutants, organic pollutants (including PAH/TPH), pesticides and asbestos.

In addition, it is possible that the surrounding land uses may have resulted in the deposition of airborne contaminants on the surface and shallow soils on site including heavy metals, organic pollutants such as polyromantic hydrocarbons (PAH), petroleum hydrocarbons/oils, inorganic compounds.

2.15 Ground Gas and Vapour Summary

The desk study has not identified any potential sources of ground gas on the site but has identified a large cemetery located to the south of the site. Examination of the cemetery indicated that periodic burials were likely (based on dates on headstones) but if any gas/vapours were generated from such burials they would be of very limited volume, over a short period of time and any migration would be most likely to occur through the grave backfill not surrounding intact soil mass (London Clay). As such, the cemetery was not considered a plausible source for the generation of significant volumes or concentrations of hazardous gases.

Whilst potential Made Ground was identified from desk study sources associated with the previous residential development a potential gas source is only considered to be present if highly organic deposits were present.

3.0 PRELIMINARY ASSESSMENT

Based on the findings of the desk study, the following sections summarise the anticipated geotechnical and environmental factors likely to impact the site.

3.1 Geotechnical Risk Assessment

3.1.1 Potential Geotechnical Issues

The following factors that might impact the geotechnical condition of the site were identified as part of the desk study:

- The possible presence of Made Ground (e.g. varying depth and/or composition) on site, which if encountered may affect the foundation design and construction.
- The presence of laterally and vertically variable strata and the impact these could have on further construction.
- Consideration of the volume change potential change of any cohesive soils and the affect this could have on foundations.
- The suitability of shallow soils as a bearing stratum for conventional foundations.
- The possible presence of aggressive ground conditions (sulphates) which may affect the foundation design and construction.
- The presence of trees and/or vegetation on the site and the associated foundation design if/where shrinkable soils are encountered.
- The possible presence of perched and/or shallow groundwater beneath the site which may affect foundation design and construction.
- The suitability of the shallow soils for the use of soakaways on the site as part of the proposed development.

3.2 Preliminary Environmental Conceptual Site Model & Risk Assessment

3.2.1 Methodology

A Preliminary Risk Assessment ('PRA') and Conceptual Site Model ('CSM'), see Figure 4, have been prepared in accordance with CLR11 based on information obtained as part of the desk study. Possible risks associated with potential sources of contamination and sensitive receptors identified have been qualitatively assessed following a source-pathway-receptor ('Pollutant Linkage') approach in accordance with current UK protocols.

A risk of harm may only exist where a plausible pollutant linkage is present, and where the quantity or concentration of a contaminant is sufficient so as to pose harm. Under the statutory definition, "Contamination" may only strictly exist where contaminants pose a risk of harm to a receptor. The risk classification has been assessed in accordance with CIRIA C552 (Rudland et al., 2001). A summary of how the risks are derived and their definitions are presented in Tables 3.1 and 3.2.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low Likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

Table 3.1 Risk Ratings Matrix

Risk Rating	Definitions
Very high risk	<p>There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening.</p> <p>This risk, if realised, is likely to result in a substantial liability.</p> <p>Urgent investigation (if not already undertaken) and remediation are likely to be required.</p>
High risk	<p>Harm is likely to arise to a designated receptor from an identified hazard</p> <p>Realisation of the risk is likely to present a substantial liability.</p> <p>Urgent investigation (if not already undertaken) is required and remediation works may be necessary in the short term and are likely over the longer term.</p>
Moderate risk	<p>It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.</p>
Moderate to low risk	<p>It is possible that harm could arise to a designated receptor from an identified hazard. However, it is unlikely that any such harm would be severe, or if any harm were to occur it is probable that the harm would be relatively mild.</p>
Low risk	<p>It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.</p>
Very low risk	<p>There is low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.</p>

Table 3.2 Risk Rating Definitions

3.2.2 Summary of Plausible Sources

Possible sources of contamination identified from the desk study are summarised in Table 3.3.



Source	Description	Contaminants
Made Ground and shallow natural soils	The general quality of the shallow soils (and Made Ground if encountered) could be impacted by the presence of contamination as a result of aerial deposition on site.	Possible elevated concentrations of metals, metalloids, organic contaminants to include TPH and PAH compounds, and inorganic compounds such as sulphate, pesticides and asbestos.
Ground gases/vapours	Potential source if organic rich deposits are encountered on site.	Possible presence of ground gases such as methane and carbon dioxide together with depleted oxygen.
Naturally occurring aggressive ground conditions	Naturally occurring compounds in the ground which could damage buried concrete.	Possible elevated sulphate concentrations.

Table 3.3 Possible Sources of Contamination

3.2.3 Summary of Plausible Pathways

The plausible pathways are summarised in Table 3.4. These pathways are based on the proposed end use, including communal gardens and soft landscaping.

Pathway	Description
Direct Contact	Ingestion of soil particles, inhalation of soil derived dust (including tracked back dust), dermal contact. Bioaccumulation within home grown vegetation.
Inhalation	Inhalation of soil dust both inside and outside of buildings.
	Inhalation of ground gas/vapours within buildings.
Vertical & Lateral Migration	Contaminant movement both vertically through leaching/gravity and horizontally along preferential pathways, e.g. services trenches, more permeable bedded strata or with groundwater.
Shallow Groundwater	Shallow groundwater or perched water may be present within the River Terrace Deposits which could result in the vertical and lateral migration of contaminants.
Deeper Groundwater	Deeper groundwater may be present at depth within the Portslade Chalk Formation. Any mobile contaminants could result in vertical and lateral migration of contaminants
Chemical Attack	Attack of buried plastics and concrete by aggressive ground conditions.

Table 3.4 Possible Contamination Pathways

3.2.4 Summary of Plausible Receptors

Potential receptors associated with the site and its development are summarised in Table 3.5.

Receptor	Description	Comments
End Users	Occupants/ users of the proposed development.	The proposed development comprises the construction of residential properties with associated private gardens and development infrastructure.



Receptor	Description	Comments
Soft Landscaping	Possible areas of planting include private gardens, communal gardens, shrubs, trees, etc.	Areas of soft landscaping and private garden gardens are proposed.
Built Environment	Buried concrete for foundations and plastics for potable water supply pipes may be laid in contact with contaminated soils.	Aggressive ground conditions may be present beneath the site.
Adjacent Land Users	Sensitive land uses identified within the immediate vicinity.	Adjacent land uses comprise residential developments, commercial premises and Kingston Cemetery and Crematorium.
Groundwater	Controlled waters contained within the aquifer(s) beneath the site.	The site overlies both unproductive Strata for Superficial and Bedrock Deposits.
Surface Water	Controlled Waters within lakes, rivers, and ponds, etc., or coastal waters.	No surface water was identified on site. The closest surface water feature was identified as an unnamed stream 253m south of the site. Due to the distance this has not been considered further as part of the assessment at this stage.
Ecological Receptors	Sensitive areas of ecological significance.	No ecological areas have been identified and it has not been considered further as part of this assessment at this stage.

Table 3.5 Possible receptors of contamination

Site workers involved in the preparation and construction of the development have not been considered further in this assessment as the Principal Contractor is duty bound under the current CDM Regulations to undertake their own risk assessments with respect to their employees.

Whilst the above sources and receptors have been identified, Table 3.6 summarises the identified plausible pollution linkages and a qualitative assessment of the risks based on the desk study research.

Ground Appraisal Report

Potential Source/Media	Potential Receptors	Potential Pathways	Probability	Consequence	Risk and Justification
Shallow soils and shallow Made Ground (on and off site)	End users	Direct contact and inhalation of soil derived dust	Likely	Mild	Moderate to Low End users likely to come into contact with soils via direct contact in areas of soft landscaping/gardens on the proposed residential development, albeit that gross contamination is not anticipated based on desk study information. Soft landscaping would be completed with uncontaminated soils in the near surface root zone.
	Soft Landscaping	Root Uptake	Likely	Mild	Moderate to Low The proposed development is likely to include areas of soft landscaping including private gardens. However, landscaping would be completed with uncontaminated soils in the near surface root zone and no evidence of harm to the existing vegetation was observed.
	Adjacent land users	Direct contact	Unlikely	Minor	Very Low Adjacent site users are unlikely to come into contact with soils within areas of proposed soft landscaping.
	Water supply pipes	Direct contact	Likely	Mild	Moderate to Low Water supply pipes could come into contact with impacted soils depending upon depth of installation and extent of soil impact.
	Buildings and infrastructure	Direct contact	Likely	Minor	Low Foundations and utilities will be placed within potentially aggressive soils (e.g. sulphate). However, the consequence is anticipated to be minor.
	Groundwater	Vertical migration	Low	Mild	Very Low Shallow groundwater (<5m bgl) or perched groundwater may be present within more granular parts of the Head Deposits. The strata beneath the site are classified as an Unproductive Aquifer and is outside any Source Protection Zones.



Ground Appraisal Report

Potential Source/Media	Potential Receptors	Potential Pathways	Probability	Consequence	Risk and Justification
Ground Gases and Vapours	End users	Inhalation	Low	Medium	Moderate to Low Ingress of hazardous ground gas into buildings could occur where ground gases are identified on site. This is only considered to present a risk from on-site sources should a plausible source be identified. However, the possible presence of deep made ground on-site could also be another source of ground gas.
	Adjacent land users	Inhalation	Unlikely	Mild	Low It is considered to be unlikely that adjacent land users will come into contact with ground gases and vapours originating on site. Should ground gases and vapours be identified, on-site service routes should be constructed in line with best practice to prevent the creation of preferential pathways off site. In addition, if gross contamination is identified that could represent a source of gas/vapour which could impact adjacent land users then remedial action would be required to reduce, remove or otherwise mitigate the source or break the exposure pathway(s).
	Buildings and infrastructure	Gas accumulation and potential explosion of flammable gases	Unlikely	Minor	Very Low Foundations and utilities will be constructed in/through Made Ground soils (if present). Protection measures, if required, to protect end users would also serve to reduce risks to buildings.
Naturally occurring aggressive ground conditions	End users	Direct contact and inhalation of soil derived dust	Unlikely	Minor	Very Low No naturally occurring potential sources which could harm human health have been identified.
	Soft Landscaping	Root Uptake	Unlikely	Minor	Very Low Gardens and soft landscaping areas are proposed but are unlikely to be affected by naturally occurring aggressive ground conditions. Current vegetation around the site appeared in good condition.

Ground Appraisal Report

Potential Source/Media	Potential Receptors	Potential Pathways	Probability	Consequence	Risk and Justification
	Adjacent land users	Direct contact	Unlikely	Minor	Very Low No potential sources which could harm human health have been identified.
	Water supply pipes	Direct contact	Unlikely	Minor	Very Low No potential sources which could harm human health have been identified.
	Buildings and infrastructure	Direct contact	Likely	Minor	Low Foundations will be placed within soils which may be an aggressive environment for concrete.

Table 3.6 Plausible Pollutant Linkages & Qualitative Risk Assessment

3.3 Preliminary Risk Assessment Summary

The PRA and CSM developed from the information gathered as part of the desk study process have identified plausible potential pollutant linkages that exist in relation to the proposed redevelopment of the site.

The potential pollutant linkages established within this desk study are not considered to prevent development on the subject site, but could require investigation and assessment to support further characterisation, calibration of the CSM and where/if necessary determine a remedial strategy to reduce, remove or otherwise control any risk within the site to key receptors.

Potential pollutant linkages have been assigned moderate to low, low and very low risk ratings within the site. However, the vast majority of the site has been assigned low and very low risk. Further assessment would be necessary to satisfy planning conditions or to provide clarification of the risk assessment.

In order to progress this assessment in line with the National Planning Policy Framework, to provide further characterisation of the site and refinement of the PRA and CSM, it is recommended that intrusive investigation and associated testing is undertaken to confirm the findings of the desk study report and to provide a robust risk assessment for the site and proposed redevelopment. As such it is recommended that geochemical and geotechnical investigation be carried out on the site to include analysis of soil and groundwater (if encountered) samples for the range of potential contaminants identified within the Desk Study, together with ground gas monitoring and an assessment of the site's ground gas climate.

3.4 Preliminary Geotechnical Assessment Summary

The site is anticipated to be mostly underlain by the London Clay Formation with isolated Langley Silt Member anticipated in the west of the site overlying the London Clay.

It is possible that conventional strip or pad foundations could be suitable for the proposed development. Where high column loads for multi storey buildings are anticipated a piled solution would be more suitable. Soils containing a higher proportion of cohesive materials may be subject to a higher volume change potential in accordance with NHBC Standards. The foundation design would also need to account for the presence of trees/hedges on the site and around the site and these could require the localised deepening of foundations where shrinkable soils are present.

If tree influence dictates that foundations greater than 2.50m bgl are required, or poor construction conditions are identified by the intrusive investigation combined with required high column loads, then a piled foundation solution may be required in some areas.

Furthermore, the potential presence of shallow groundwater and perched water in isolated areas of the site may affect excavation stability and foundation design, and localised pumping from sumps may be required.

It is unlikely that soakaways will function satisfactorily across much of the site. However, some infiltration may be realised within isolated geologies such as any more granular Langley Silt Member. It may also be necessary to utilise on-site storage and attenuation of peak storm flow, through systems such as porous paving and cellular storage crates.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The desk study has shown the site has been largely residential since 1868 which was redeveloped in 1960/70s to the present layout. The surrounding area has had a mix of residential and industrial uses including several unspecified works, foundries and laundries, and a large sewage works to the south.

It is concluded that the overall risk of harm to potential end users ranges from low to moderate across the site. However, further assessment will be required to better characterise contamination on site as a result of current and historical land uses and the associated risk to human health and the environment.

Whilst further environmental and geotechnical assessment will be required from the results of intrusive investigations, it is considered that based on the desk study it is highly unlikely that the assessment will find any circumstances that would have a significant detrimental impact on the proposed development.

In respect of construction, it is possible that conventional foundations would be suitable for some areas of the proposed development and a piled solution for other areas where high column loads are anticipated. Any design should account for the potential presence of shrinkable soils and trees in proximity to proposed foundations.

Any natural soils removed for earthworks and landscaping maybe suitable for re-use on site as engineered fill, negating the requirement to remove off site and therefore supporting sustainable construction criteria.

Therefore, the overall conclusion is that based on the subject matter within the desk study, the site is well suited for the intended use.

4.2 Recommendations

At this stage and based on the findings of the desk study and preliminary risk assessment, the following scope of works is recommended for the intrusive investigation on the site.

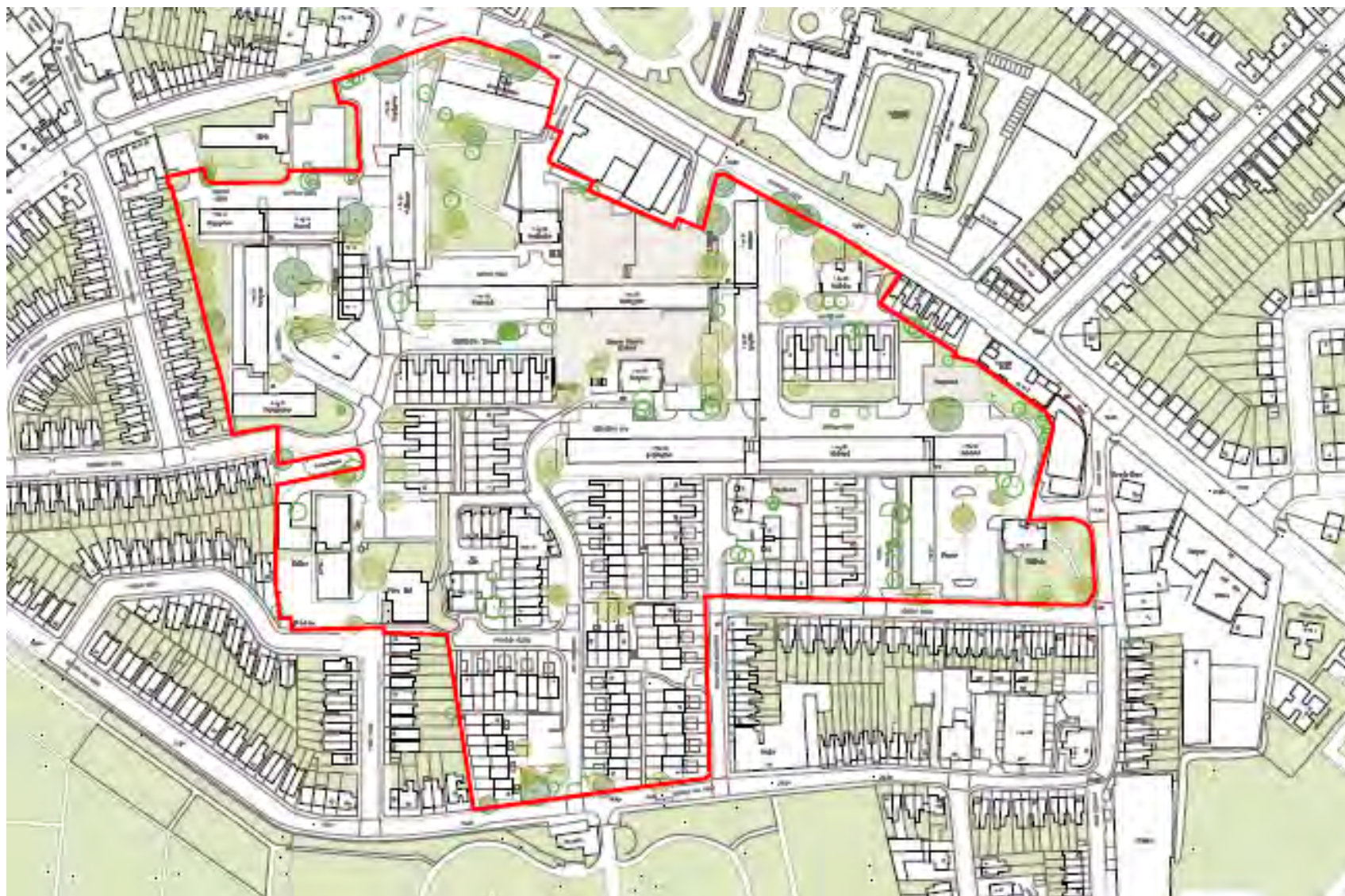
- Intrusive investigation works should be carried out to clarify the geotechnical and geo-environmental issues pertaining to redevelopment of the site.
- Ground gas monitoring and assessment should be undertaken to characterise the site's ground gas regime.
- Groundwater monitoring should also be undertaken to determine the site's groundwater regime.
- Laboratory analysis, on soil samples recovered from the exploratory holes for a range of geotechnical parameters to support foundation design and the like.
- Laboratory analysis, on shallow soil samples and groundwater samples recovered from the exploratory holes, for an analytical suite to include the potential contaminants identified within the desk study and encountered during any intrusive investigation. The suite should include commonly occurring metals, non-metals, asbestos, TPH, PAH and pesticides.
- Waste Acceptance Categorisation testing may be required if surplus spoil is to be disposed of from the development.

It may be necessary to undertake remediation/risk mitigation measures on this site to break pollutant linkages and thus protect key receptors such as human health, controlled waters, built environment, soft landscaping and the like. The requirement and extent of any such remediation cannot be determined until such time as an intrusive investigation and associated testing has been completed.

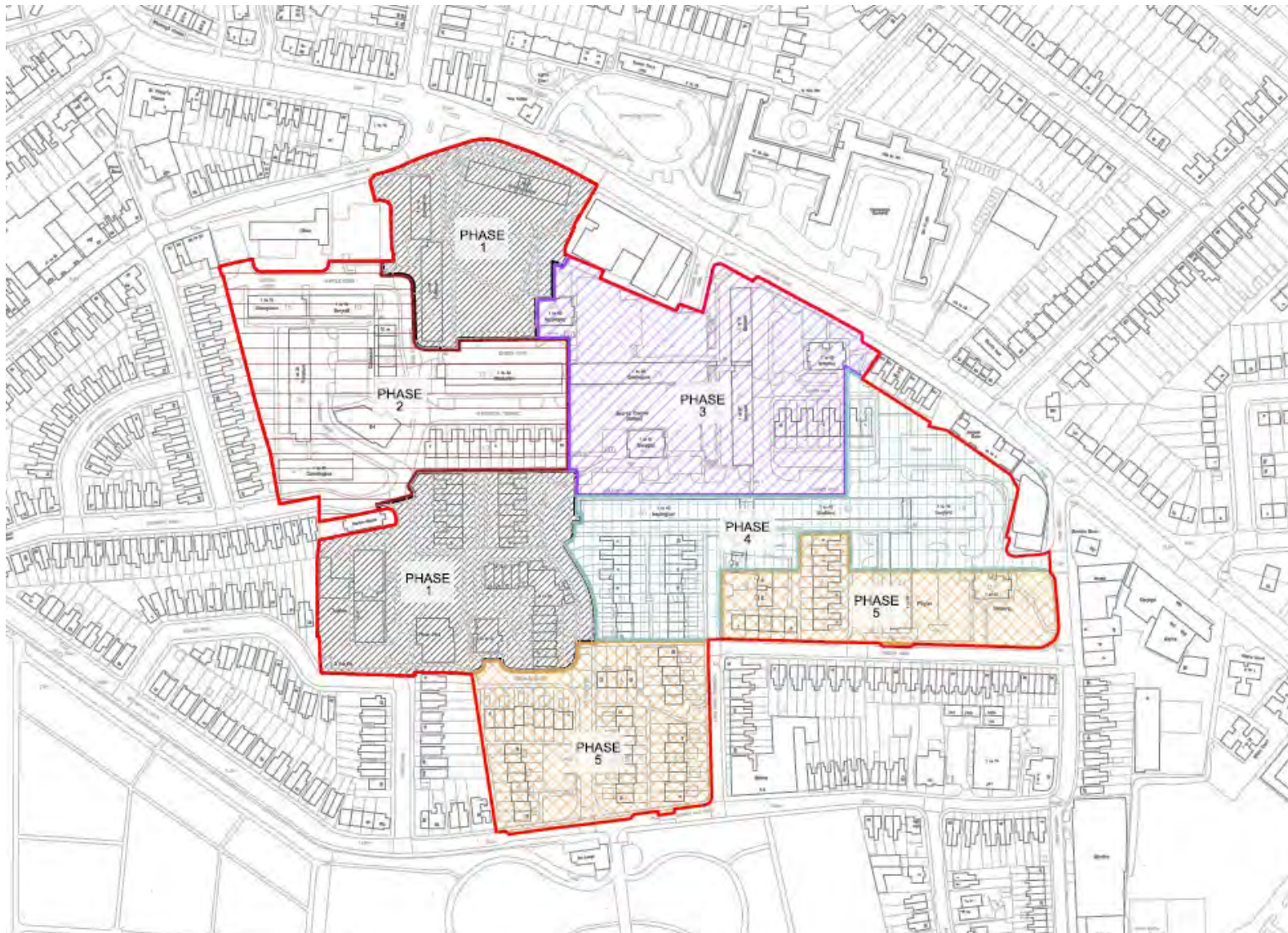


FIGURES





Project:	Cambridge Road, Kingston Upon Thames			Title	Site Location
Client:	Cambridge Road (RBK) LLP			<p style="text-align: center;"> Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net </p>	
Ref No:	GE18350	Revision:	v1		
Drawn:	KB	Date:	06/10/2020		
Figure:	1	Scale:	Not To Scale		
				 Geo-Environmental	



Disclaimer: This plan is based on available information and is not intended to be used for any purpose other than that for which it was prepared. The information is provided for your information only and does not constitute an offer of any service. The information is provided on an 'as is' basis and the user assumes all responsibility for its use.

Caution: Please ensure that any relevant drawings and specifications are read in conjunction with this plan to ensure that the latest information is used.

Key Plan

Client: Cambridge Road (RBK) Road, London, W5 5RH

Architect: Paul Taylor, 40 Rowlands Close, London, SE17 7ND

Key:

- Site boundary
- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5

Scale: 1:1000 @ A1

Issue Record:

Issue No.	Description	By	CHK Date
001	Initial Issue	PTA	01/10/2020
002	Revised	PTA	01/10/2020
003	Final	PTA	01/10/2020

Title: Existing Masterplan Indicative phasing plan

Project: Cambridge Road

Scale: 1:1000 @ A1, 1:2000 @ A3

Status: For Information

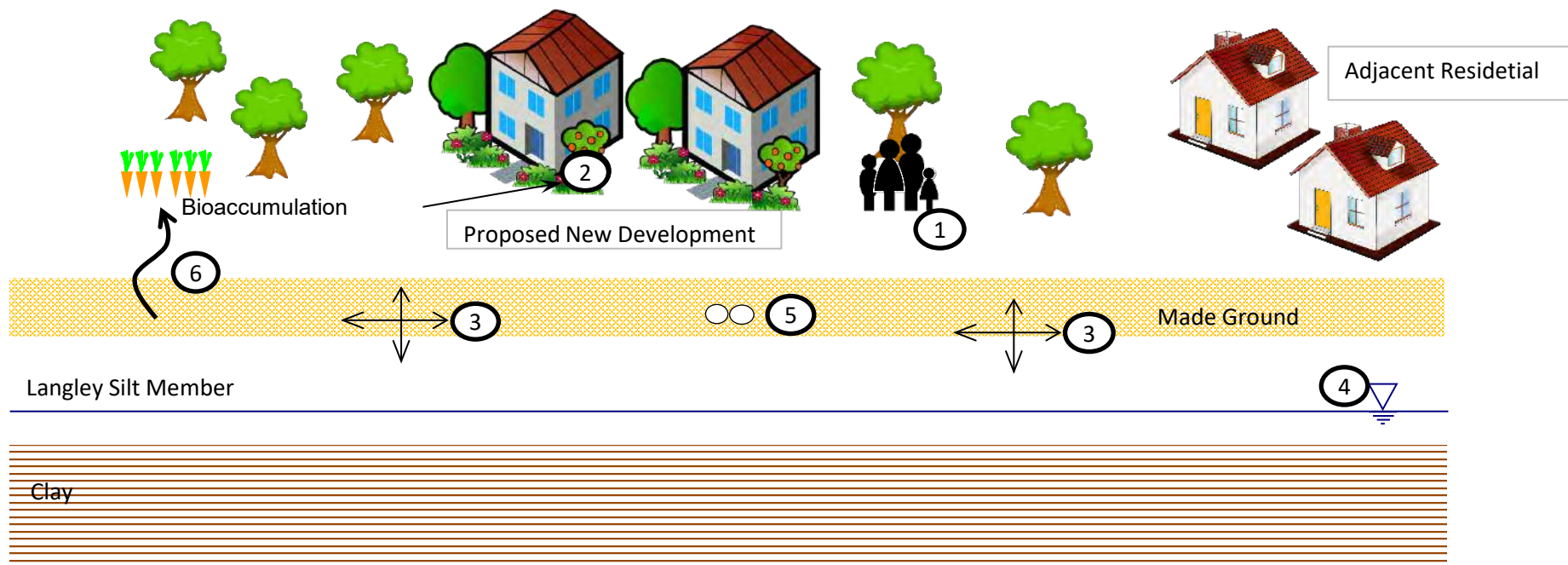
Drawing Number: 503-PTA-MP-RF-DR-A-5120 P03

Project:	Cambridge Road, Kingston Upon Thames	Title:	Masterplan v2		
Client:	Cambridge Road (RBK) LLP	<p align="center"> Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net </p>			
Ref No:	GE18350			Revision:	v1
Drawn:	KB			Date:	28/10/2020
Figure:	2			Scale:	Not To Scale



Possible Pollutant Linkages:

1. Direct contact with contaminated soils, ingestion of contaminated soils
2. Inhalation of soil dusts indoor and outdoor, and inhalation of gases/vapours within buildings
3. Vertical and lateral migration through permeable strata and with groundwater
4. Shallow groundwater vertical and lateral migration
5. Chemical attack of buried plastics and concrete
6. Root uptake through Bioaccumulation





Project:	Cambridge Road, Kingston Upon Thames			Title	Masterplan
Client:	Cambridge Road (RBK) LLP			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	
Ref No:	GE18350	Revision:	v1		
Drawn:	KB	Date:	06/10/2020		
Figure:	3	Scale:	Not To Scale		

APPENDIX A

Site Walkover Report















Project Details

Project No.	GE18530
Name	Land off Cambridge Road (North)
Client	Countywide Property UK Ltd
Location	Kingston upon Thames
Engineer	 Thomas Morgan thomas.morgan@gesl.net
Date	08/09/2020, 09:26
Coordinates of Site	51° 24' 28.705" N 0° 17' 17.875" W
Version	1
Project Manager	 Katie Brayne katie@gesl.net
Walkover or Inspection	<input checked="" type="checkbox"/> Site Walkover <input type="checkbox"/> Site Inspection/Meeting


General Site Description

Features Noted	<input type="checkbox"/> Signs of Landslide <input type="checkbox"/> Signs of Subsidence <input type="checkbox"/> ASTs <input type="checkbox"/> USTs <input type="checkbox"/> Retaining walls <input checked="" type="checkbox"/> Trees <input checked="" type="checkbox"/> Hard/soft landscaping <input checked="" type="checkbox"/> Hard Landscaping <input checked="" type="checkbox"/> Soft Landscaping <input type="checkbox"/> Evidence of Surface Staining <input checked="" type="checkbox"/> Evidence of Buried Services <input checked="" type="checkbox"/> Overhead Services <input type="checkbox"/> Evidence of Filled Ground <input type="checkbox"/> Stockpiles <input checked="" type="checkbox"/> Evidence of Fly Tipping <input type="checkbox"/> Evidence of ACMs <input type="checkbox"/> Evidence of Vegetation Die Back <input type="checkbox"/> Evidence of High Water Table <input type="checkbox"/> Evidence of Dissolution Features <input type="checkbox"/> Drums/Barrels <input type="checkbox"/> Roof Materials <input checked="" type="checkbox"/> Other
Current Site Use	Residential
Approximate Site Area	8.6
Shape of Site	Irregular
Topography	Flat and level
Was Internal Inspection Possible	Limited Access

Descriptions of any Buildings

Description of Building	Location	Photograph(s)
Apartment block	51° 24' 28.635" N 0° 17' 23.089" W	
Apartment block	51° 24' 32.811" N 0° 17' 20.978" W	
Apartment block	51° 24' 33.729" N 0° 17' 20.309" W	
Tower block	51° 24' 31.988" N 0° 17' 19.106" W	
Coxton	51° 24' 30.935" N 0° 17' 13.58" W	
Tower block	51° 24' 31.468" N 0° 17' 11.098" W	
Houses with garages	51° 24' 30.265" N 0° 17' 10.159" W	
Shelford and duxford	51° 24' 28.648" N 0° 17' 12.054" W	
Terrace houses	51° 24' 28.879" N 0° 17' 17.338" W	
Underground below a towerblock	51° 24' 29.838" N 0° 17' 18.257" W	
The bull and bush	51° 24' 29.809" N 0° 17' 21.132" W	
Tower block	51° 24' 29.153" N 0° 17' 16.559" W	

Trees

Trees	Description	Location of Feature	Photo
1		51° 24' 29" N 0° 17' 23" W	

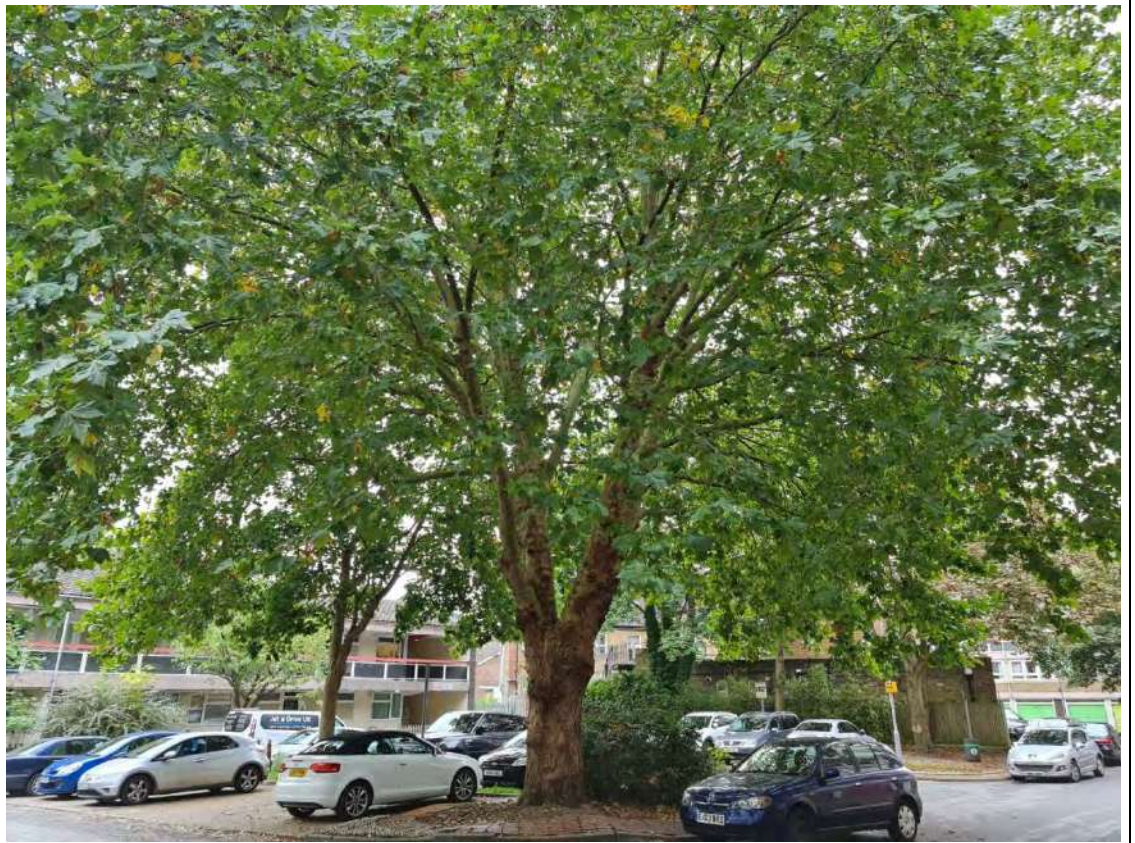
2

0° 0' 0" N
0° 0' 0" E



3

51° 24'
31" N 0°
17' 25"
W



4

51° 24'
32" N 0°
17' 22"
W



5

51° 24'
32" N 0°
17' 26"
W



6

51° 24'
32" N 0°
17' 26"
W



7

51° 24'
33" N 0°
17' 21"
W



8

51° 24'
33" N 0°
17' 21"
W



9

51° 24'
32" N 0°
17' 18"
W



10

51° 24'
34" N 0°
17' 21"
W



11

51° 24'
31" N 0°
17' 14"
W



12

51° 24'
32" N 0°
17' 13"
W



13

51° 24'
32" N 0°
17' 13"
W



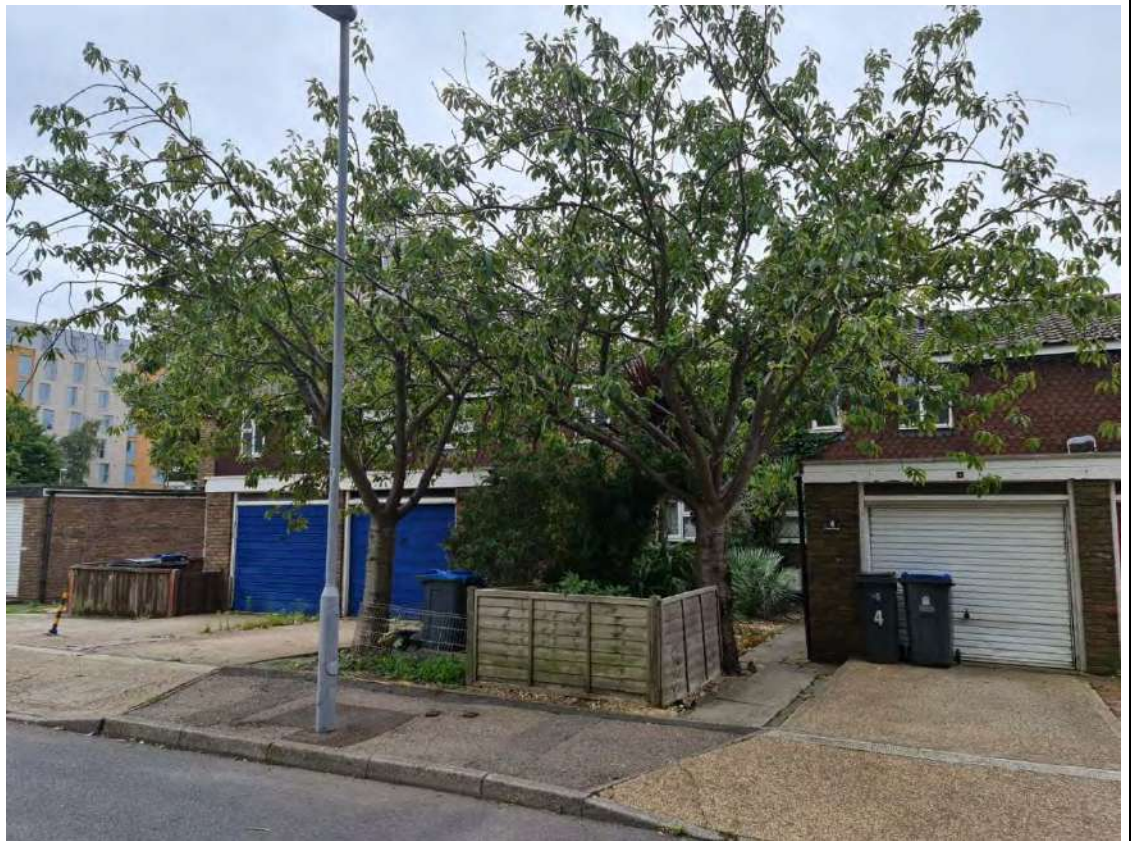
14

51° 24'
30" N 0°
17' 11" W



15

51° 24'
30" N 0°
17' 10"
W



16

51° 24'
30" N 0°
17' 9" W



17

51° 24'
30" N 0°
17' 9" W



18

51° 24'
29" N 0°
17' 9" W



19

51° 24'
29" N 0°
17' 11" W



20

51° 24'
29" N 0°
17' 11" W



21

51° 24'
28" N 0°
17' 16"
W



22

51° 24'
29" N 0°
17' 16"
W



23

51° 24'
28" N 0°
17' 18"
W



24

51° 24'
28" N 0°
17' 18"
W



25

51° 24'
29" N 0°
17' 18"
W



26

51° 24'
29" N 0°
17' 17"
W



27

51° 24'
30" N 0°
17' 15"
W



28

51° 24'
31" N 0°
17' 22"
W



29

51° 24'
34" N 0°
17' 21"
W



30

51° 24'
34" N 0°
17' 21"
W



31

51° 24'
34" N 0°
17' 20"
W



32

51° 24'
30" N 0°
17' 15"
W



33

51° 24'
29" N 0°
17' 15"
W



34

51° 24'
28" N 0°
17' 11" W



35

51° 24'
28" N 0°
17' 11" W



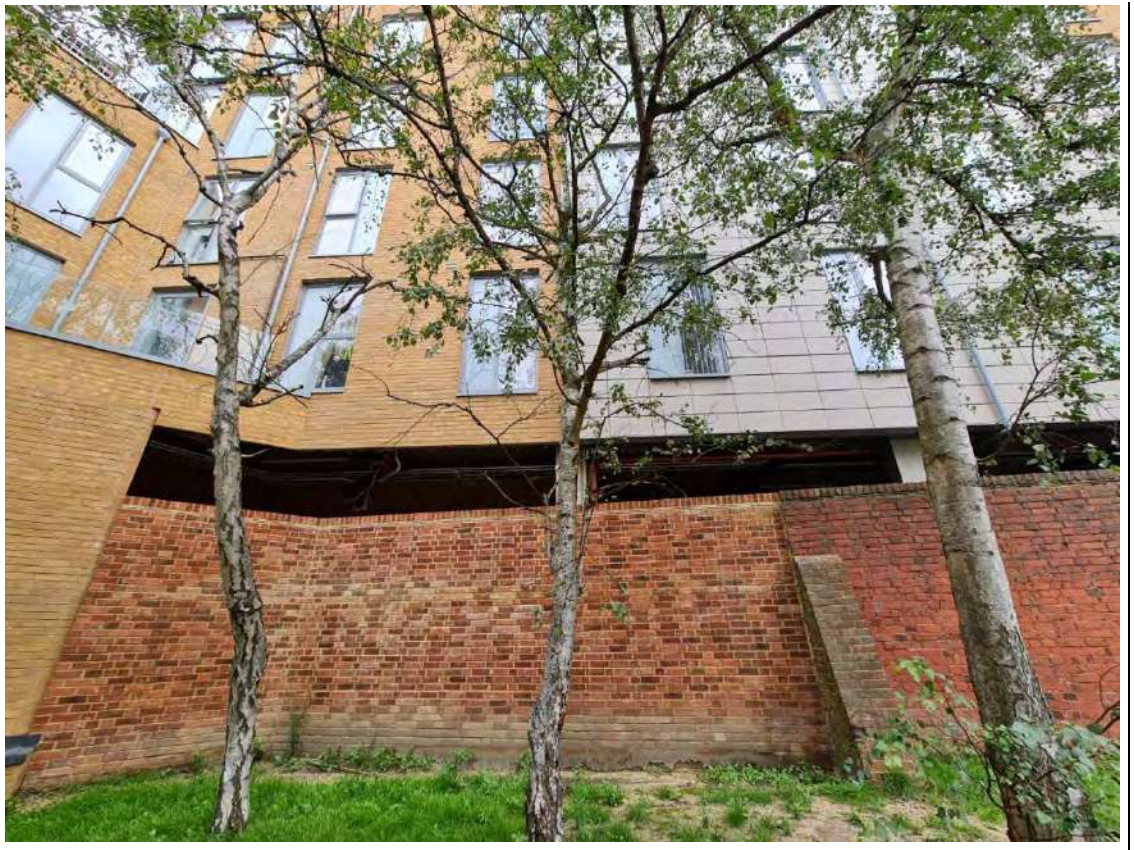
36

51° 24'
28" N 0°
17' 8" W



37

51° 24'
28" N 0°
17' 6" W



38

51° 24'
29" N 0°
17' 7" W



Hard Landscaping

(30 records)

Hard/Soft Landscaping	Description	Location of Feature	Photo(s)
1	.	51° 24' 29" N 0°	

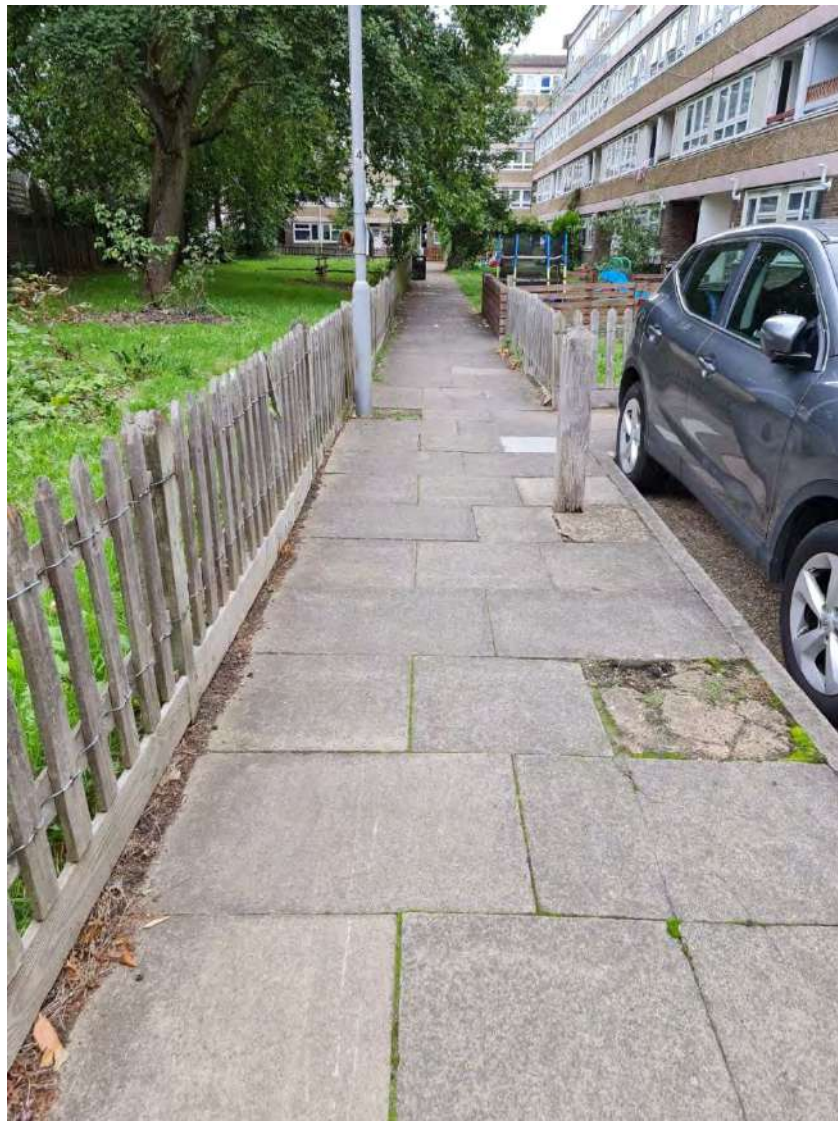
17' 25"
W



2

Pavement

51° 24'
29" N 0°
17' 26"
W



3

Car park

51° 24'
31" N 0°
17' 24"
W



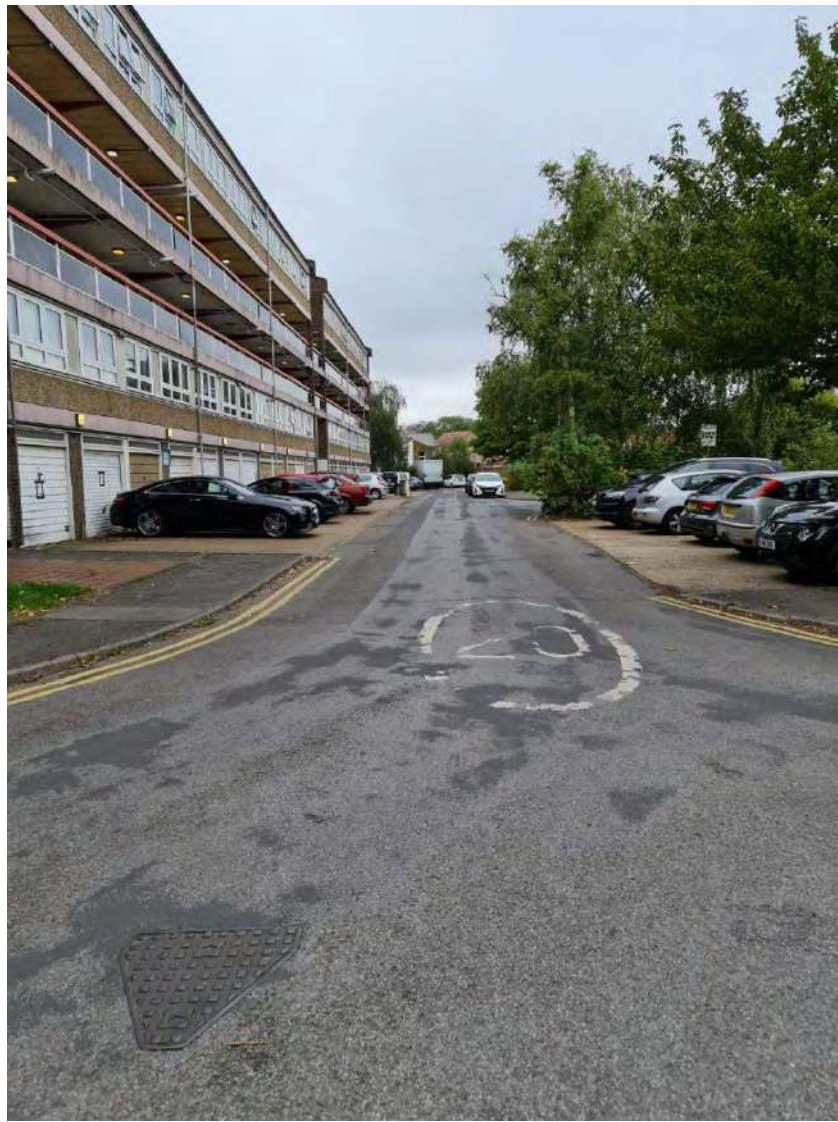
4

51° 24'
32" N 0°
17' 22"
W



5

51° 24'
32" N 0°
17' 22"
W



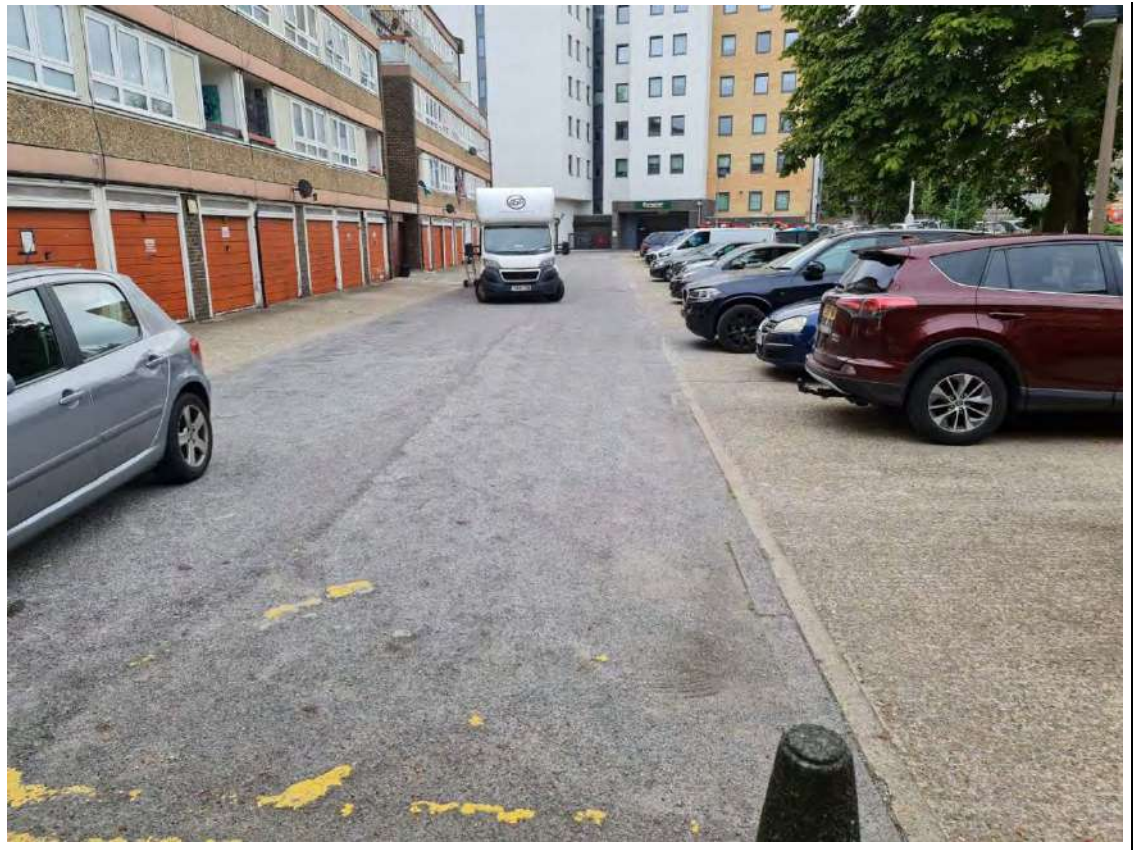
6

51° 24'
33" N 0°
17' 22"
W



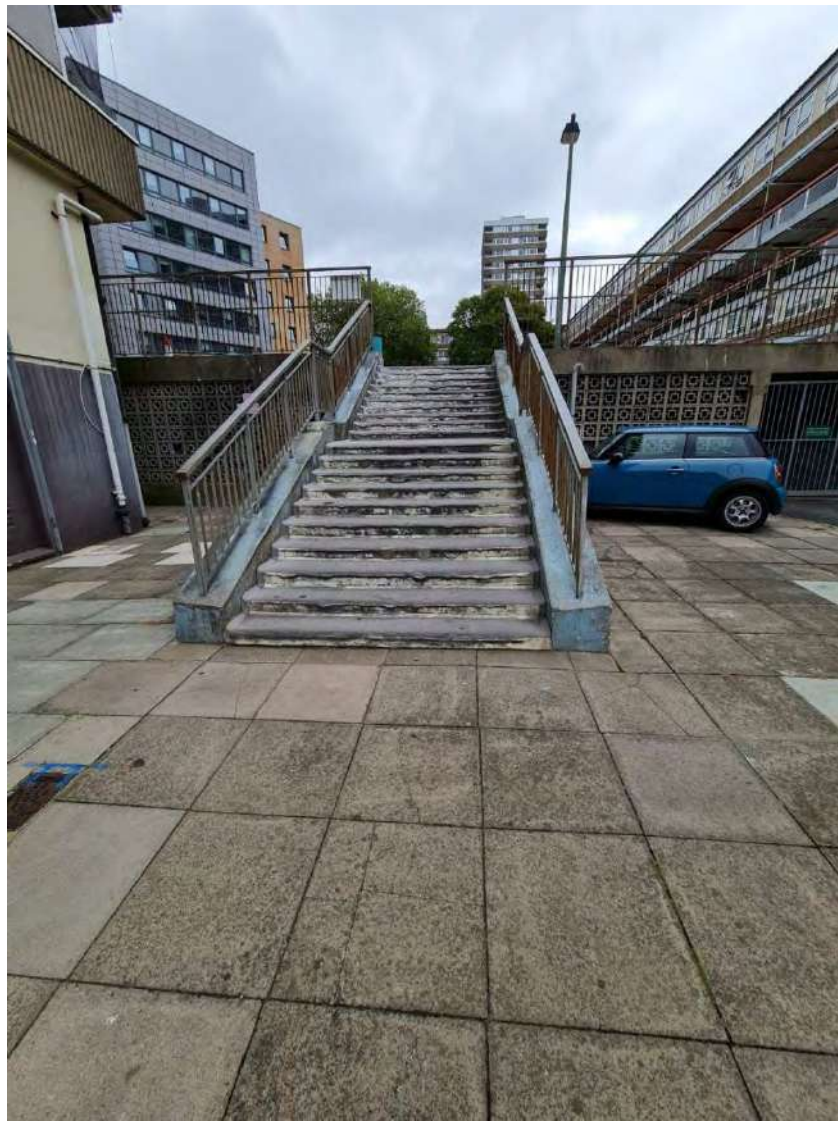
7

51° 24'
34" N 0°
17' 20"
W



8

51° 24'
31" N 0°
17' 18"
W



9

51° 24'
31" N 0°
17' 17"
W



10

Carpark

51° 24'
32" N 0°
17' 17"
W



11

Access
under Play
area

51° 24'
32" N 0°
17' 16"
W



12

51° 24'
31" N 0°
17' 16"
W



13

51° 24'
30" N 0°
17' 10"
W



14

Carpark

51° 24'
30" N 0°
17' 9" W



15

Basketball
court

51° 24'
30" N 0°
17' 9" W



16

51° 24'
29" N 0°
17' 12"
W



17

51° 24'
28" N 0°
17' 21"
W



18

51° 24'
27" N 0°
17' 20"
W



19

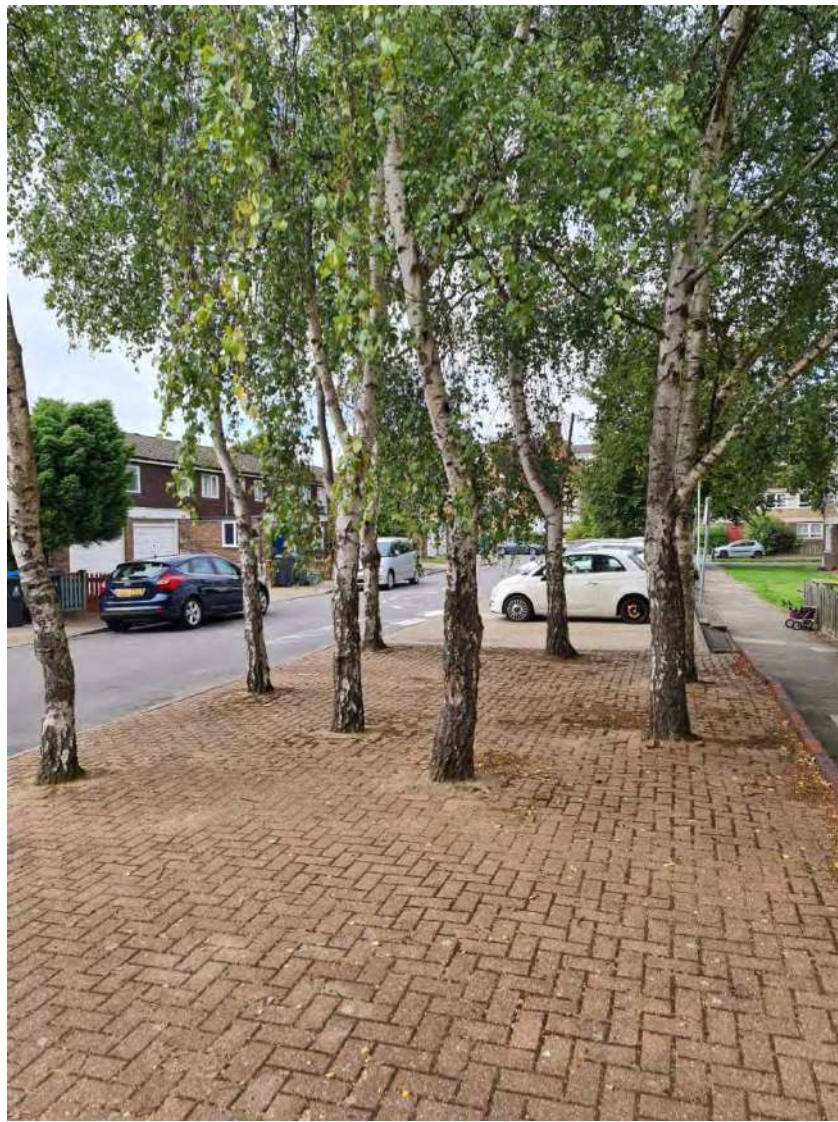
Evidence
for buried
services

51° 24'
27" N 0°
17' 20"
W



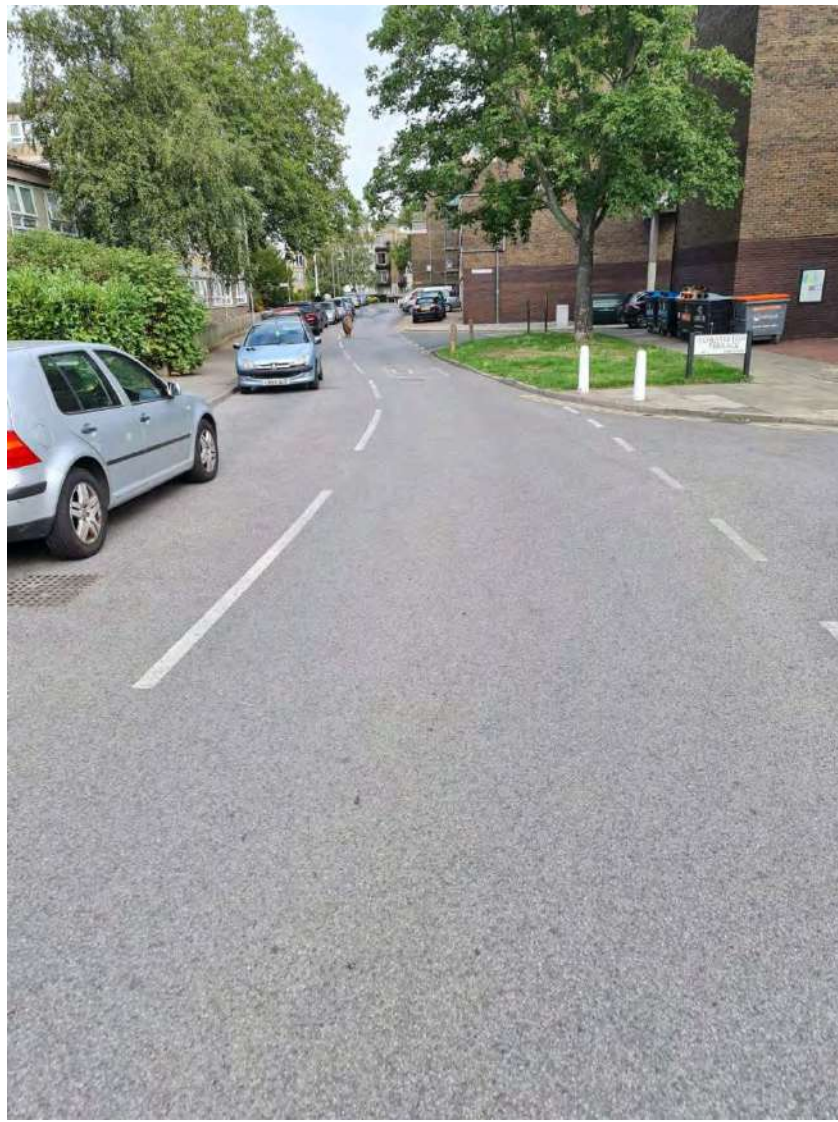
20

51° 24'
30" N 0°
17' 19"
W



21

51° 24'
30" N 0°
17' 22"
W



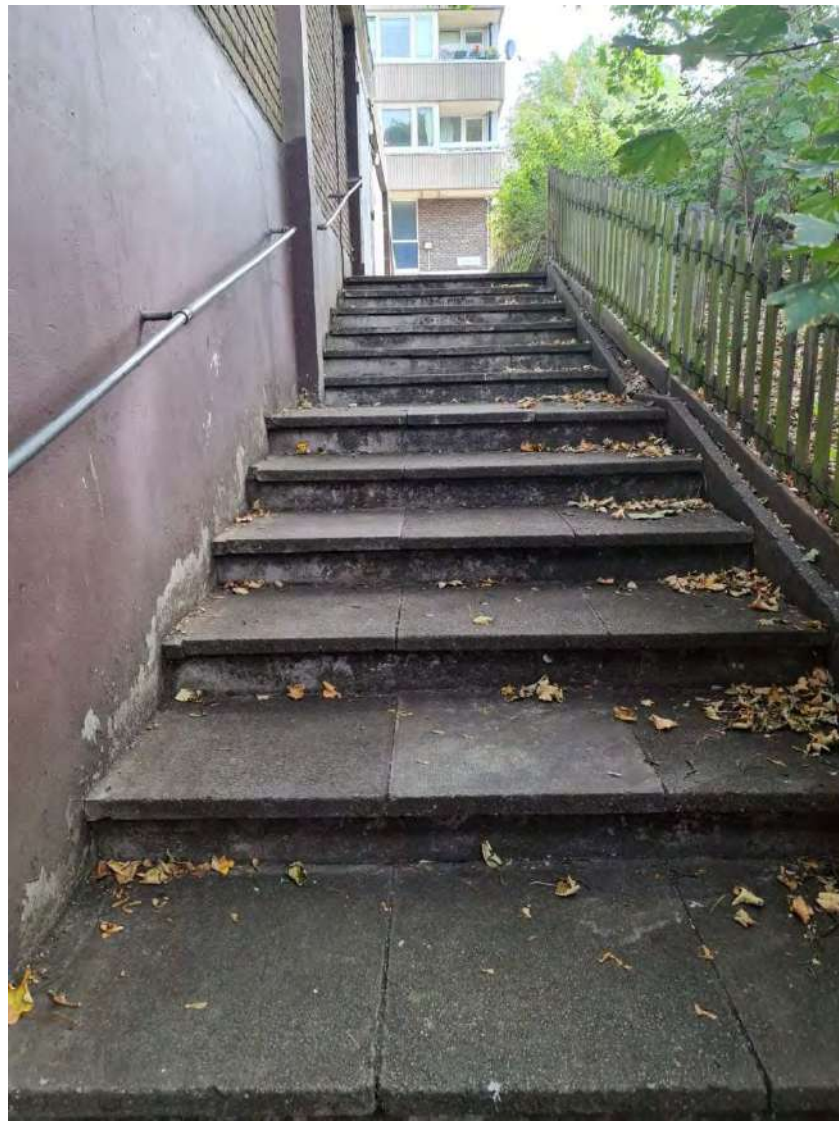
22

51° 24'
34" N 0°
17' 20"
W



23

51° 24'
29" N 0°
17' 18"
W



24

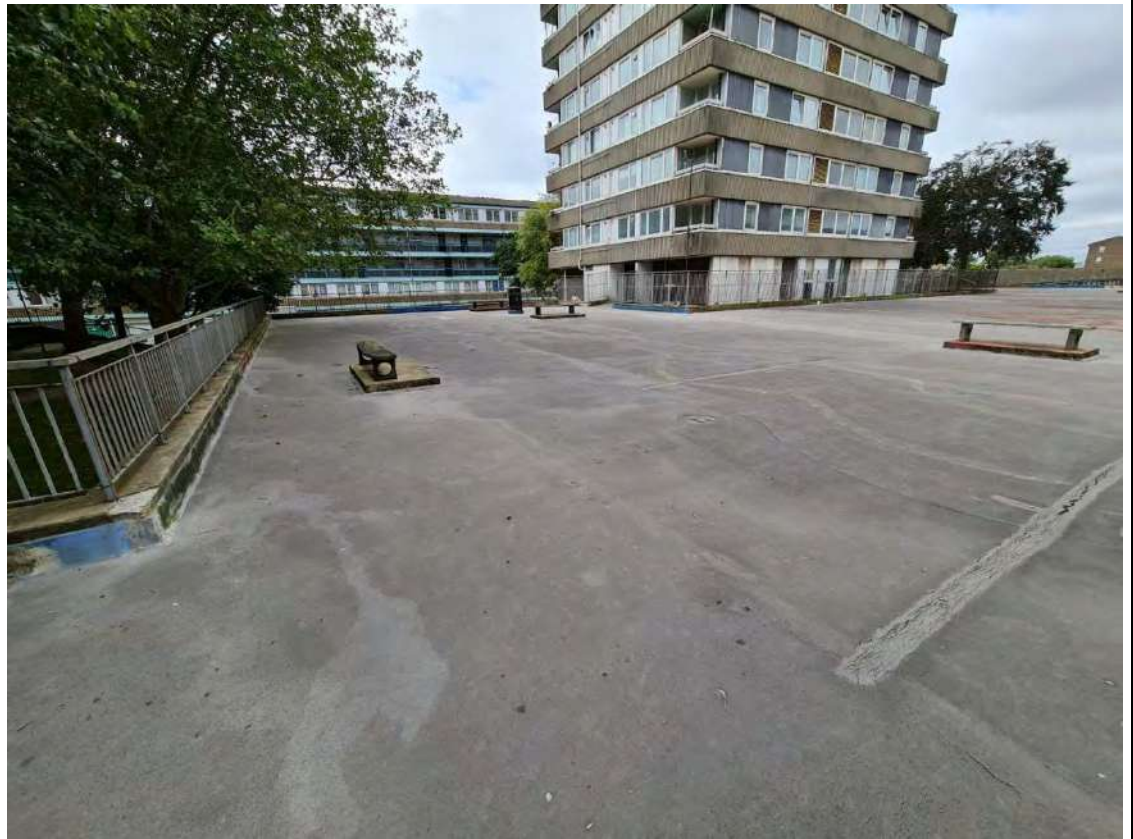
Roof of ?

51° 24'
30" N 0°
17' 17"
W



25

51° 24'
30" N 0°
17' 14"
W



26

51° 24'
30" N 0°
17' 14"
W



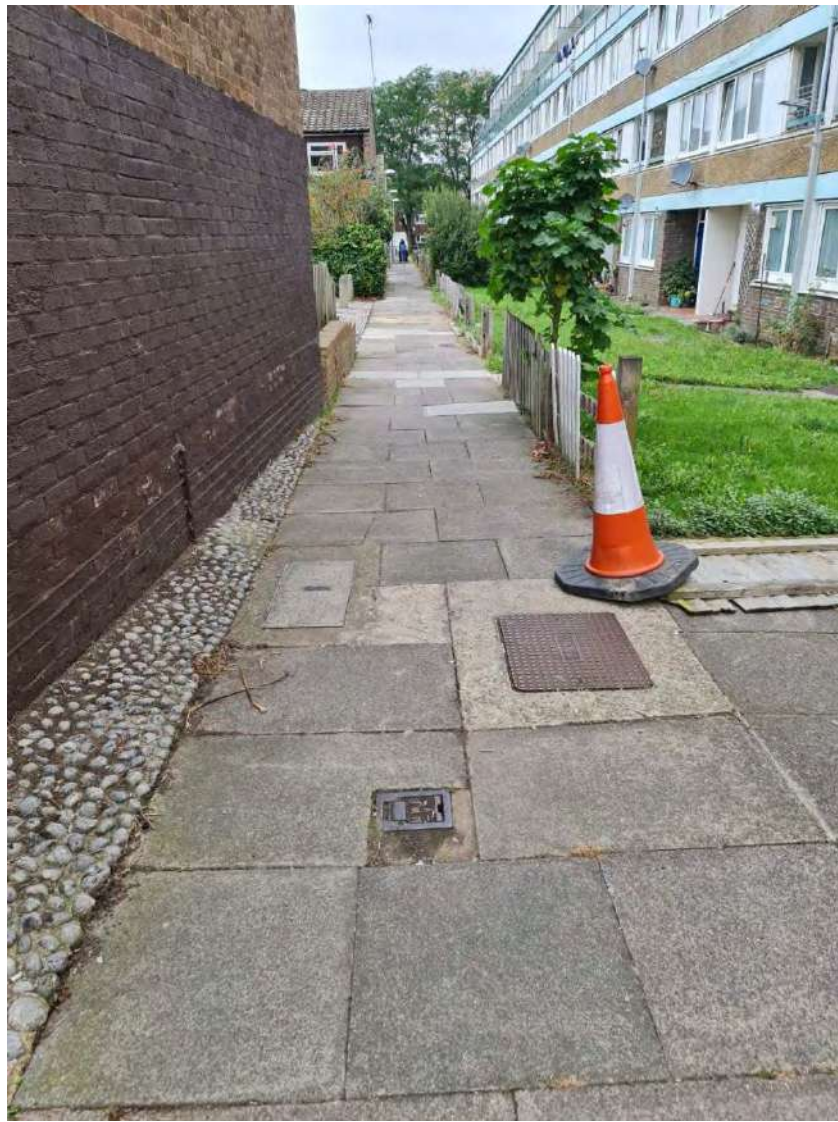
27

51° 24'
28" N 0°
17' 13"
W



28

51° 24'
28" N 0°
17' 13"
W



29

51° 24'
28" N 0°
17' 6" W



30

51° 24'
28" N 0°
17' 7" W



Soft Landscaping

(10 records)

Soft Landscaping	Description	Location of Feature	Photo(s)
1		51° 24' 29" N 0° 17' 23" W	



2

Grates in
back
gardens

51° 24'
29" N 0°
17' 26"
W



3

51° 24'
33" N 0°
17' 21"
W



4

0° 0' 0"
N 0° 0'
0" E

5

Park area

51° 24'
29" N 0°
17' 9" W



6

51° 24'
30" N 0°
17' 18"
W

7

51° 24'
30" N 0°
17' 16"
W



8

51° 24'
30" N 0°
17' 14"
W



9

51° 24'
30" N 0°
17' 14"
W



10

51° 24'
28" N 0°
17' 6" W



Buried Services

(13 records)

Buried Services	Description	Location of Feature	Photo(s)
1	Across road and along	51° 24' 29" N 0°	

pavement

17' 24"
W



2

Gas

51° 24'
29" N 0°
17' 26"
W



3

51° 24'
31" N 0°
17' 26"
W