EARTH ENVIRONMENTAL
& GEOTECHNICAL

Geo-Environmental Site Investigation Report

26 Sheldon Avenue

London

N6 4JT

Report Ref: B3428/23/GEO

December 2023

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Prepared for: qR Architects

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Written by:

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Director

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1

2.0 INTRODUCTION 2

2.1 BACKGROUND 2
2.2 TERMS OF REFERENCE 2
2.3 REPORT SCOPE 2
2.4 LIMITATIONS OF THE STUDY 2

3.0 THE SITE 3

3.1 SITE LOCATION & DESCRIPTION 3
3.2 PROPOSED DEVELOPMENT 5

4.0 GEOLOGICAL SETTING 6

4.1 GEOLOGY 6
4.2 GROUND SUBSIDENCE 6
4.3 RADON POTENTIAL 6
4.4 SOIL CHEMISTRY 6
4.5 MINING, GROUND WORKINGS & NATURAL CAVITIES 6

5.0 ENVIRONMENTAL SETTING 7

5.1 INDUSTRIAL LAND USE INFORMATION 7
5.2 WASTE AND LANDFILL SITES 7
5.3 ENVIRONMENTAL PERMITS, INCIDENTS AND REGISTERS 7
5.4 HYDROGEOLOGY AND HYDROLOGY 7
5.5 ENVIRONMENTALLY SENSITIVE SITES 8
5.6 VISUAL AND CULTURAL DESIGNATIONS 8
5.7 HABITAT DESIGNATIONS 8

6.0 FLOODING 9

7.0 SITE HISTORY 10

8.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT 12

8.1 INTRODUCTION 12
8.2 POTENTIAL SOURCES 13
8.3 POTENTIAL RECEPTORS 13
8.4 POTENTIAL PATHWAYS 13
8.5 PRELIMINARY RISK ASSESSMENT 14

9.0 SITE INVESTIGATION 15

9.1 GENERAL 15
9.2 EXPLORATORY FIELDWORK 15
9.3 LABORATORY TESTING PROGRAMME 17
9.3.1 Geotechnical Testing 17
9.3.2 Environmental Testing 18

10.0 GROUND CONDITIONS ENCOUNTERED 19

10.1 SOIL PROFILE ENCOUNTERED 19
10.2 OBSTRUCTIONS 19
10.3 GROUNDWATER 19
10.4 LAND GAS 19
10.5 VISUAL / OLFACTORY EVIDENCE OF CONTAMINATION 20
10.6 EXISTING FOUNDATIONS 20

11.0 ENGINEERING PROPERTIES OF STRATA ENCOUNTERED 21

11.1 GENERAL 21
11.2 CLAYGATE MEMBER 21

12.0 GEOTECHNICAL ASSESSMENT 24

12.1 PROPOSED DEVELOPMENT 24
12.2 GROUND CONDITIONS ENCOUNTERED 24
12.3 PILED FOUNDATIONS 24
12.4 BASEMENT CONSTRUCTION 25
12.5 CHEMICAL ATTACK ON BURIED CONCRETE 26
12.6 SUITABILITY OF EXCAVATED MATERIALS 26
12.7 TEMPORARY WORKS 26

13.0 SOIL CONTAMINATION RISK ASSESSMENT 27

13.1 GENERAL 27
13.2 TIER I HUMAN HEALTH SOIL RISK ASSESSMENT – GROUNDWORKERS DURING DEVELOPMENT 27
13.3 TIER I HUMAN HEALTH SOIL RISK ASSESSMENT – FUTURE SITE USERS 28
13.4 SOIL WASTE ASSESSMENT 31

14.0 GROUND GAS RISK ASSESSMENT 32

14.1 LAND GAS 32
14.2 RADON GAS 33

15.0 PROTECTION OF BURIED WATER PIPES 34

16.0 REVIEW OF PRELIMINARY CONTAMINATION RISK ASSESSMENT 35

17.0 GROUND CONTAMINATION CONCLUSIONS AND RECOMMENDATIONS 36

17.1 SOIL CONTAMINATION 36
17.2 SOIL DISPOSAL 36
17.4 LAND GAS PROTECTION MEASURES 36
17.5 RISK TO BURIED (WATER) SERVICES 36
17.6 SITE PERSONNEL & OTHER MATTERS 36

LIST OF FIGURES

Figure 1 Site Location Plan
Figure 2 General Site Photographs
Figure 3 Proposed Development Details
Figure 4 Historical Map Extracts
Figure 5 Exploratory Hole Location Plan
Figure 6 SPT v Depth Plot

TABLES

Table 1 Summary of Industrial Land Use
Table 2 Summary of Site History
Table 3 Consequence, Probability and Risk
Table 4 Estimation of Level of Risk by Comparison of Consequence and Probability
Table 5 Preliminary Conceptual Model
Table 6 Summary of Exploratory Holes Undertaken
Table 7 Summary of Geotechnical Laboratory Tests Undertaken
Table 8 Summary of Ground Conditions Encountered
Table 9 Existing Foundation Details
Table 10 Summary of Laboratory Geotechnical Test Results
Table 11 Summary of SPT Results and Design Values (Clay)
Table 12 Summary of Guideline Values for Protection of Workers and the General Public During Development of Contaminated Land
Table 13 Soil Results Comparison with C4SL/S4UL Levels (Metals)
Table 14 Soil Results Comparison with C4SL/S4UL Levels (Petroleum Hydrocarbons)
Table 15 Soil Results Comparison with C4SL/S4UL Levels (Polyaromatic Hydrocarbons & Phenols)
Table 16 Modified Wilson & Card Classification (CIRIA Report 665)
Table 17 Gas Risk Assessment – Traffic Lights with Typical Maximum Concentrations and Gas Screening Values
Table 18 Ground Gas Protection Measures Required for the Traffic Lights
Table 19 Summary of Contamination Test Results & Guidance Levels for Water Services
Table 20 Revised Conceptual Model

APPENDICES

Appendix 1 Groundsure Report
Appendix 2 Floodview Report
Appendix 3 Exploratory Hole Logs
Appendix 4 In Situ Test results
Appendix 5 Monitoring Results
Appendix 6 Laboratory Test Results
Appendix 7 Waste Classification
Appendix 8 Report Limitations

1.0 EXECUTIVE SUMMARY

Appointment	A Site Investigation has been commissioned to examine ground conditions and retrieve soil samples for geotechnical and chemical testing for a proposed development at 26 Sheldon Avenue, Hornsey.
The Site	The site is located in Highgate, London at NGR TQ 27482 87875, postcode N6 4JT. The site is underlain by the Claygate Member.
Environmental Considerations	On site: conservation area, Highgate Haringey. Within 250m of Site: 1 historical tank, 1 recent industrial land use, 4 habitat designations.
Site History	The site has been occupied by a field since 1864 (earliest available record) until 1935 where the site was developed to its current day layout.
The Investigation	The investigation comprised 1 cable percussion borehole and 2 window sample boreholes with associated sampling for laboratory geotechnical testing and in situ testing, 4 foundation pits with associated sampling, gas/groundwater monitoring, laboratory geotechnical and contamination testing.
Ground Conditions Encountered	The foundation pits encountered topsoil (250mm) in FP03 overlying Claygate Member. Made ground was encountered in all other holes to a depth between 0.7m and 1.0m underlain by Claygate Member, confirmed to a depth of 20mbgl. Groundwater was encountered in CP01 only at 8.5m depth.
Foundation Assessment	Piled foundations suitable. Design Sulphate Class for the site = DS-1 ACEC site classification = AC-1s.
Soil Contamination Risk Assessment	Low potential risk from soil contamination to workers during construction. Low potential risk to future site users. Remediation of soils not required.
Soil Waste Assessment	All samples tested (7 nr) are classified as Non-Hazardous.
Protection of Buried Water Services	Non-standard material likely to be required.
Land Gas Risk Assessment	Radon protection measures not required on site. Land Gas protection measures are required on site
This sheet is intended to provide a summary only of the report. It does not provide a definitive engineering analysis for the purposes of costing or construction and is subject to the limitation of the agreed brief.	

2.0 INTRODUCTION

2.1 Background

A Site Investigation has been commissioned by qR Architects, acting on behalf of Dr. S. Patel (the 'Client), to examine ground conditions and retrieve soil samples for geotechnical and chemical testing for a proposed residential development at 26 Sheldon Avenue in Hornsey, London.

Earth Environmental & Geotechnical (Southern) Ltd (EEGSL) originally carried out a site investigation and basement impact assessment for the site in December 2022. Ther Local Authority have requested supplementary works to support the above reports to satisfy their planning requirements, and in particular ground contamination aspects for the project.

2.2 Terms of Reference

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) was commissioned by the Client to undertake the supplementary site works in accordance with a proposal 3428 dated 30th November 2023.

The objectives of this investigation are as follows:

- *Assessment of ground and groundwater conditions for design of foundations and infrastructure associated with proposed development.*
- *Assess the presence and likely extent of any potential environmental hazards associated within the areas of the site investigated.*

2.3 Report Scope

This report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes, the in situ and laboratory test results and results of any monitoring. All information collected has been used to provide an interpretation of the ground conditions, with recommendations on geotechnical design and potential ground contamination risks for the proposed development.

This report includes all the information from the previous investigation and supersedes the EEGSL Report for the site (reference B2538/22/GEO/1, December 2022).

2.4 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the client and is confidential to them.

Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the boreholes and trial pits, particularly at intervening locations. Whilst every effort is made to ensure accuracy of data supplied, all opinions expressed as to the spatial distribution of strata between sampling locations is for guidance only and no responsibility is accepted as to its accuracy.

3.0 THE SITE

3.1 Site Location & Description

The site is located in Highgate, London, approximately 0.91km from Highgate Centre at approximate National Grid Reference TQ 27482 87875 and with a closest postcode of N6 4JT.

The site is a near rectangular shaped parcel of land with current access via a driveway off Sheldon Avenue to the northwest of the site. The site occupies an area of approximately 0.93 hectares and is currently occupied by a single three storey brick building with associated driveway, garden areas and swimming pool.

The surrounding area comprises predominantly of residential properties with Highgate Golf Course located to the north of the site.

Figure 1 – Aerial Photograph Showing Site Location and Surrounding Area

General site photographs are presented in Figure 2 overleaf.

Figure 2 – General Site Photographs

Rear of property

Front of property including CP01

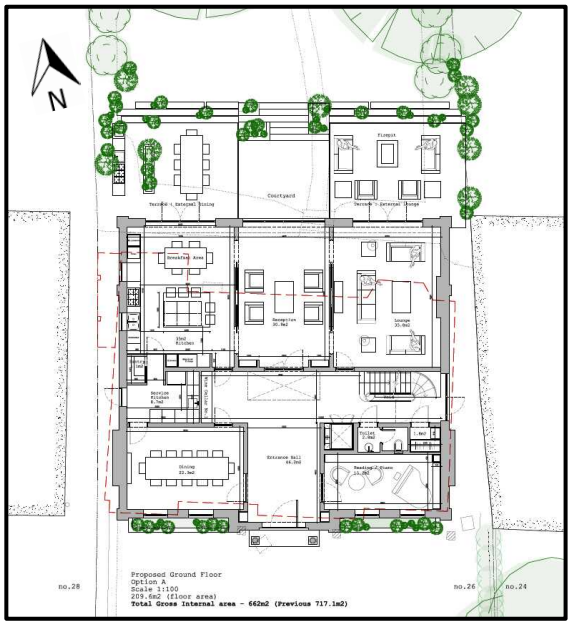
Rear of Property

3.2 Proposed Development

It is proposed to demolish the existing building on site and construct a new two-storey private dwelling above ground with a one-storey basement. Existing garden areas, swimming pool and driveway will be retained.

The proposed development layout details are shown in Figure 3 below.

Figure 3 – Proposed Development Details (Ground Floor)



4.0 GEOLOGICAL SETTING

The geology of the site is covered by British Geological Survey (BGS) online data and the site-specific Groundsure Insight Report (Appendix 1).

The following sections are generally limited to locations within 250m of the site boundary unless it is considered that installation or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

4.1 Geology

The British Geological Survey (BGS) states that the site is not underlain by artificial ground (Made Ground) or superficial deposits.

According to the BGS, the site is underlain by the Claygate Member, of Eocene age. The Claygate Member comprises dark grey clays with sand laminae, passing up into thin alternations of clays, silts and fine-grained sand, with beds of bioturbated silt. Ferruginous concretions and septarian nodules occur in places.

There are no faults located within 250m of site.

There are 7 historical borehole records within 250m of the site, confirming the depth of the Claygate Member to be between 1.40mbgl and 3.0mbgl. The Claygate member is underlain by the London Clay formation between depths of 5.4mbgl and 6.3mbgl.

4.2 Ground Subsidence

The site is in an area where the hazard rating for compressible deposits and ground dissolution of rocks is negligible. A very low hazard rating exists for running sands, landslides and collapsible deposits and a moderate hazard rating for shrink swell clays.

4.3 Radon Potential

The property is in a Radon Affected Area where less than 1% of properties are above the Action Level. Radon protection measures are not required.

4.4 Soil Chemistry

There is one estimated urban soil chemistry record on site, recording levels of arsenic = 16 - 18mg/kg, bioaccessible arsenic = 2.8-3.2mg/kg, cadmium = 0.5mg/kg, copper, 52-60mg/kg, chromium = 90-100mg/kg, nickel = 23-28mg/kg, tin = 28mg/kg, lead = 258-293mg/kg and bioaccessible lead = 177-201mg/kg.

4.5 Mining, Ground Workings & Natural Cavities

There are no recorded mining, ground workings or natural cavities within 250m of the site.

5.0 ENVIRONMENTAL SETTING

Environmental conditions are covered by Environment Agency (EA) and British Geological Survey (BGS) online data, and the site-specific Groundsure Insight report (Appendix 1).

The following sections are generally limited to locations within 250m of the site boundary unless it is considered that installations or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

5.1 Industrial Land Use Information

Historical and current industrial land usage on-site and within 250m of the site is summarised in Table 1 below:

Table 1 - Summary of Industrial Land Use

Description	Records within 250m of site	Details
Historical Industrial Land Uses	0	
Historical Tanks	1	232m NW: Tank 1973
Historical Energy Features	0	-
Historical Petrol Station	0	-
Historical Garage	0	-
Historical Military Land	0	-
Historical Railway Features	0	-
Recent Industrial Land Use	1	233m NW: Tank
Current/Recent Petrol Stations	0	-
Electricity Cables	0	-
Gas Pipelines	0	-
Current Railway Features	0	-

5.2 Waste and Landfill Sites

There are no historical or current landfill sites, waste exemptions or waste facilities within 250m of the site.

5.3 Environmental Permits, Incidents and Registers

There are no records of environmental permits, incidents and registers within 250m of the site.

5.4 Hydrogeology and Hydrology

The bedrock permeability on site has been classed as low to high with mixed flow type.

The bedrock beneath the site is classified as ‘Secondary A’ by the Environment Agency. The EA definition is given overleaf:

> *“Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers”*

Soils on site are classified as having intermediate leaching potential.

The site is not located within a source protection zone.

There are no recorded groundwater abstraction, surface water or potable water licenses within 250m of the site.

There are 9 records of surface water features within 250m of site. The closest is 149m NW of site, described as an inland river not influenced by normal tidal action. The other 8 records appear to be the same water course running between 200m W and 249m W of site.

The site falls within the Dollis Brook and Upper Brent water body catchment area.

5.5 Environmentally Sensitive Sites

The site is not located within an environmentally sensitive site. However the site is located within a SSSI Impact risk zone where infrastructure, mineral oil and gas, residential (more than 100 properties or more than 50 properties outside existing settlements), air pollution, combustion, waste, composting, discharges and water supply require consultations.

5.6 Visual and Cultural Designations

There are no recorded world heritage sites, national parks, listed buildings or Scheduled Ancient Monuments within 250m of the site.

A conservation area is located on site, named Higate Haringey, designated in December 1967.

The agricultural designation of the site is Urban.

5.7 Habitat Designations

There are 4 habitat designations within 250m of site, the closest is 136m SE, it is not recorded as a main habitat, but additional habitats are present. A deciduous woodland is located 247m SW from the site.

Habitat network enhancement zone 2 is located 69m S.

6.0 FLOODING

Details on flooding are included in the site-specific Groundsure Floodview Report, included in Appendix 2 and summarised below.

The overall flood risk is **NEGLIGIBLE**.

Table 3 – Summary of Flood Data

Flooding	Identified?
Risk of flooding form rivers and sea	Not Identified
Flood storage areas: part of floodplain	Not Identified
Historical flood areas	Not Identified
Areas benefitting from flood defences	Not Identified
Flood defences	Not Identified
Proposed flood defences	Not Identified
Surface water flood risk	Not Identified
Groundwater Flooding	Not Identified

7.0 SITE HISTORY

The historical development of the site has been determined by reference to historical plans and Google Earth imagery. The reviewed historical plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding of the site. The earliest available historical mapping covering the site dates back to 1864. The site history is summarised in Table 2 below.

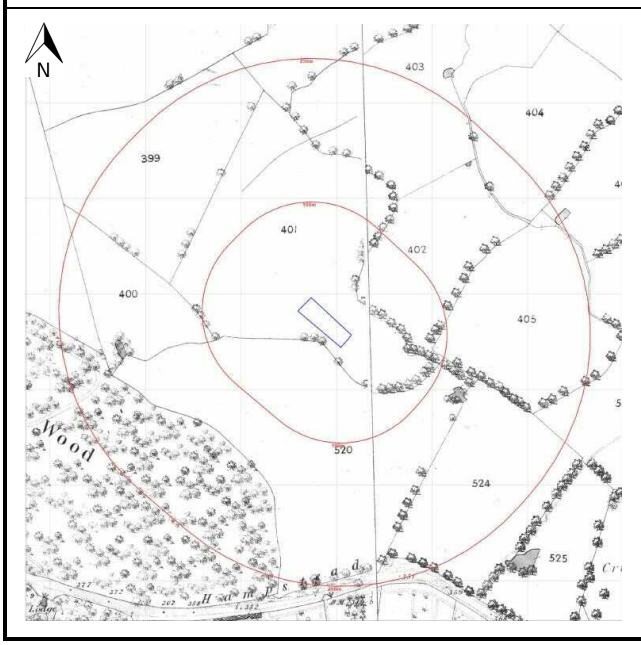
Table 2 - Summary of Site History

Date	Site	Surrounding Land Use (Within 250m of Site)
1864	Site is an open field	Fields surround the site. Bishops Wood 150m SW.
1896	No significant change	Residential development to SE. Stonemont Road 90m SE.
1914	Residential property associated garden intersects the southern corner of site.	No significant change
1920	No significant change.	Golf club present 100m NW
1935	Site present day layout. Large residential building to the northern end of site with associated garden to the rear.	Increased residential development in all directions.
1950 - 1991	No significant change	No significant change
2003	Building to the rear of the garden now present.	No significant change
2010-2022	No significant change	No significant change

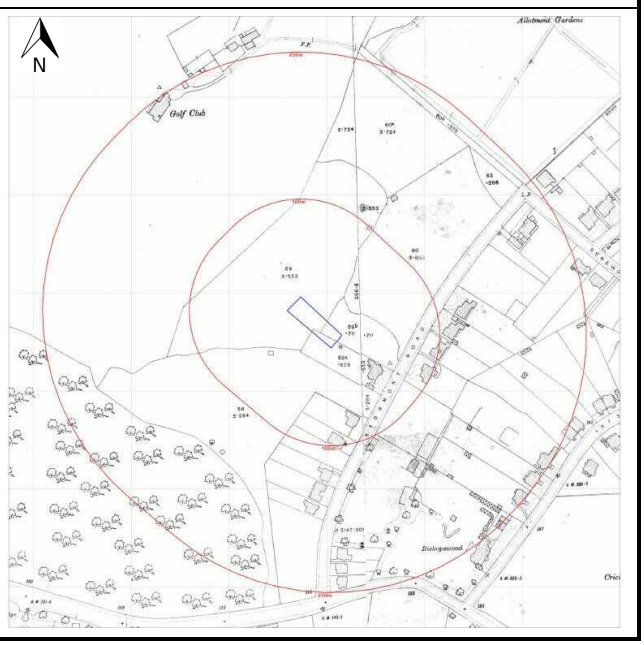
Selected extracts from historical maps are presented in Figure 4 below and overleaf.

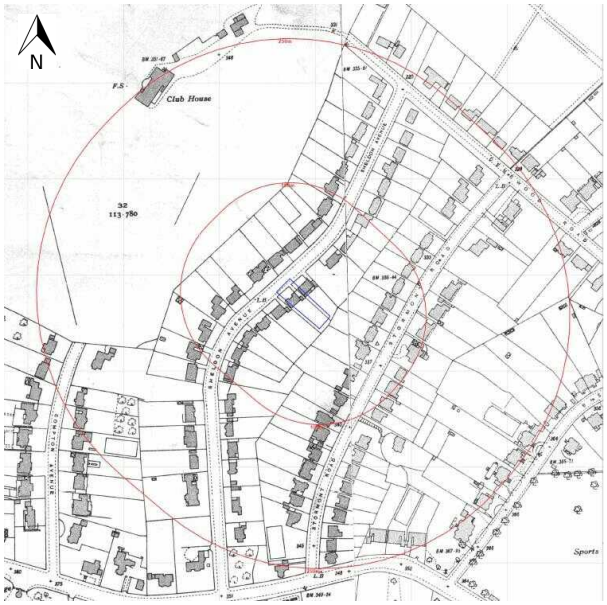
Figure 4 – Historical Map Extracts

1864



1915



1935	2003
	

8.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

8.1 Introduction

The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by DEFRA and the EA Model Procedures for the Management of Land Contamination, CLR11[(2004)].

Table 5 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 3 and Table 4 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and CLR11.

Table 5 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

The PCM/PRA is based on a residential end use.

Table 3 - Consequence, Probability and Risk

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage and an event either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution	Very High – acute risk to the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage and all the elements are present, which means that it is probable an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage and circumstances are possible for an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term	Moderate – Long term or short term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.) Slight effect on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source, however it is likely that they would at worst be mild.
		Very Low – it is unlikely that the source-pathway-receptor scenarios will give rise to an impact on human health or the environment.

Table 4 - Estimation of Level of Risk by Comparison of Consequence and Probability

		Consequence			
		High	**Moderate**	**Low**	**Very low**
Probability	**High Likelihood**	Very High	High risk	Moderate risk	Moderate to low risk
	Likely	High risk	Moderate risk	Moderate to low risk	Low risk
	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk

8.2 Potential Sources

The following potential sources have been considered for the assessment site.

- There are no records indicating potential sources of contamination directly on site or close to the site.

8.3 Potential Receptors

The following receptors have been considered as part of this assessment.

- Current land users.
- Adjacent land users.
- Future land users.
- Construction workers during site development works.

8.4 Potential Pathways

The following pathways have been considered as part of this assessment.

- Direct / dermal contact, ingestion, inhalation pathways of potentially contaminated soils.
- Vertical or lateral migration of contamination on and off site.

Table 5 - Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Contamination of the ground beneath site due to current and historical use	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Unlikely	Low	Very Low	The risk to current site users from potential contamination within the ground beneath site is considered **VERY LOW** based on a lack of historical usage/development.
		Future Site users	Unlikely	Low	Very Low	The risk to future site users via direct exposure is considered to be **VERY LOW** given the lack of historical use of the site.
		Construction Workers	Unlikely	Low	Very Low	The risk to construction workers via direct exposure is considered to be **VERY LOW** given the lack of historical use of the site.
	Vertical or lateral migration of contamination (including ground gas) on and off site.	Current Site Users	Unlikely	Low	Very Low	Based on anticipated ground conditions beneath the site the risk to current users from migrating contamination at the assessment site is considered as VERY **LOW**.
		Adjacent land users	Unlikely	Low	Very Low	The risk to adjacent site users from migrating contamination at the assessment site is considered VERY **LOW**.
		Future land users	Unlikely	Low	Very Low	Based on anticipated ground conditions beneath the site the risk to current users from migrating contamination (ground gas) at the assessment site is considered VERY **LOW**.
		Controlled Waters	Unlikely	Low	Very Low	The current risk to controlled waters from contamination at the assessment site is considered VERY **LOW.** There are no surface water features within 250m of the site.
		Construction Workers	Unlikely	Low	Very Low	Based on anticipated ground conditions beneath the site the risk to construction workers from migrating contamination (ground gas) at the assessment site is considered VERY **LOW** in the absence of monitoring information. The risk to construction workers from mobile contamination and ground gas is considered VERY **LOW** in the absence of ground investigation data.

8.5 Preliminary Risk Assessment

From review of historical and current day information, the site appears to have remained a field and undeveloped until 1935 when the present day layout was generally established. As a result, there is a lack of contamination sources on site or in the surrounding area which has been largely residential.

Based on the above information the site has an overall risk rating of **VERY LOW.**

9.0 SITE INVESTIGATION

9.1 General

The fieldwork on site was carried out in two stages; the first phase between the 25th and 28th October 2022, and the second phase on 5th December 2023. The following sections describe the site investigation works from both phases.

9.2 Exploratory Fieldwork

The fieldwork comprised:

- 1 No. 150 mm diameter borehole (designated CP01) was sunk to a depth of 20m below existing ground level, using a light cable percussion boring rig. With this type of rig boreholes are advanced by the percussive action of drill tools suspended on a winch-driven steel cable. The tools generally include a clay-cutter for penetrating fine-grained soils, and a shell for use in coarse-grained, or "granular", soils. Representative disturbed samples were recovered as boring proceeded. In addition, "undisturbed" 100mm diameter samples (U100's) were recovered, as appropriate, using standard thick-walled, open-drive samplers, with a steel cutting shoe, dynamically driven by a sliding hammer. Standard penetration tests (SPT's) were conducted in suitable materials. Chiselling techniques were not required to penetrate the materials encountered. Details of groundwater conditions were noted and are indicated on the attached borehole logs included in Appendix 2. These observations relate only to the time of boring, and do not necessarily reflect possible seasonal fluctuations. They may have been affected by the installation of casing, or the addition of water to aid boring. A 50mm diameter standpipe was installed at a depth of 15m below ground level. Installation and backfill details are shown with the appropriate borehole logsheet in Appendix 3.

- 2 No. window sample boreholes (designated WS01 and WS02) were sunk to a depth of 4.0m below existing ground level. The window sampler boring was carried out using a modular rig system due to access restrictions. The rig uses a chain-driven trip hammer to drive sampling tubes or penetrometers into the ground. These tools are coupled to the anvil of the hammer by solid drill rods. Sampling tubes comprise "windowless samplers", which are plain sampler tubes in which a continuous disturbed sample is recovered within a semi-rigid plastic liner. In order to reduce friction within the borehole, sampling tubes of progressively smaller diameter are used as the borehole depth increases. Sampler diameters generally range from between approximately 90mm to 50mm. Groundwater observations were noted where possible. These observations relate to the time of the investigation only, and do not necessarily reflect seasonal fluctuations. The boreholes were backfilled with arisings on completion. Window Sample logs are included in Appendix 3.

- 4No. foundation pits were excavated to depths of between 0.6m and 1.5m below existing ground level, using hand tools, under the direct and continuous supervision of EEGSL. Representative disturbed samples were recovered from the excavated material as pitting proceeded. Details of ground and groundwater conditions were noted. The trial pits were backfilled immediately on completion of sampling and testing. Trial pit logs are included in Appendix 3.

- Dynamic probe tests were carried out generally in accordance with BS EN ISO 22476-2 at each window sample location, from ground level to depths of up to 6.0m below ground level. The results of these tests are shown in Appendix 4. The "super heavy" test (DPSH) uses a 50.5mm diameter cone, and a 63.5kg hammer, falling over a distance of 750mm. The resistance of the ground to the dynamic penetration is given by the number of blows required to drive the cone over depth increments of 100mm (DPN100).

- EEGSL carried out groundwater/gas monitoring in standpipes after the first fieldwork period, the results of which are presented in the Appendix 5.

Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary. On completion, all samples recovered from the site were taken to a specialist laboratory for testing.

All site investigation work was supervised full time by a representative of EEGSL. The logging of soils and rocks has been carried out in accordance with BS5930(2015) except where superseded by the soil and rock description methodology in BS EN14688-1(2002), BS EN 14688-2(2004) and BS EN 14689-1(2003).

A summary of exploratory holes undertaken in presented in Table 6 below.

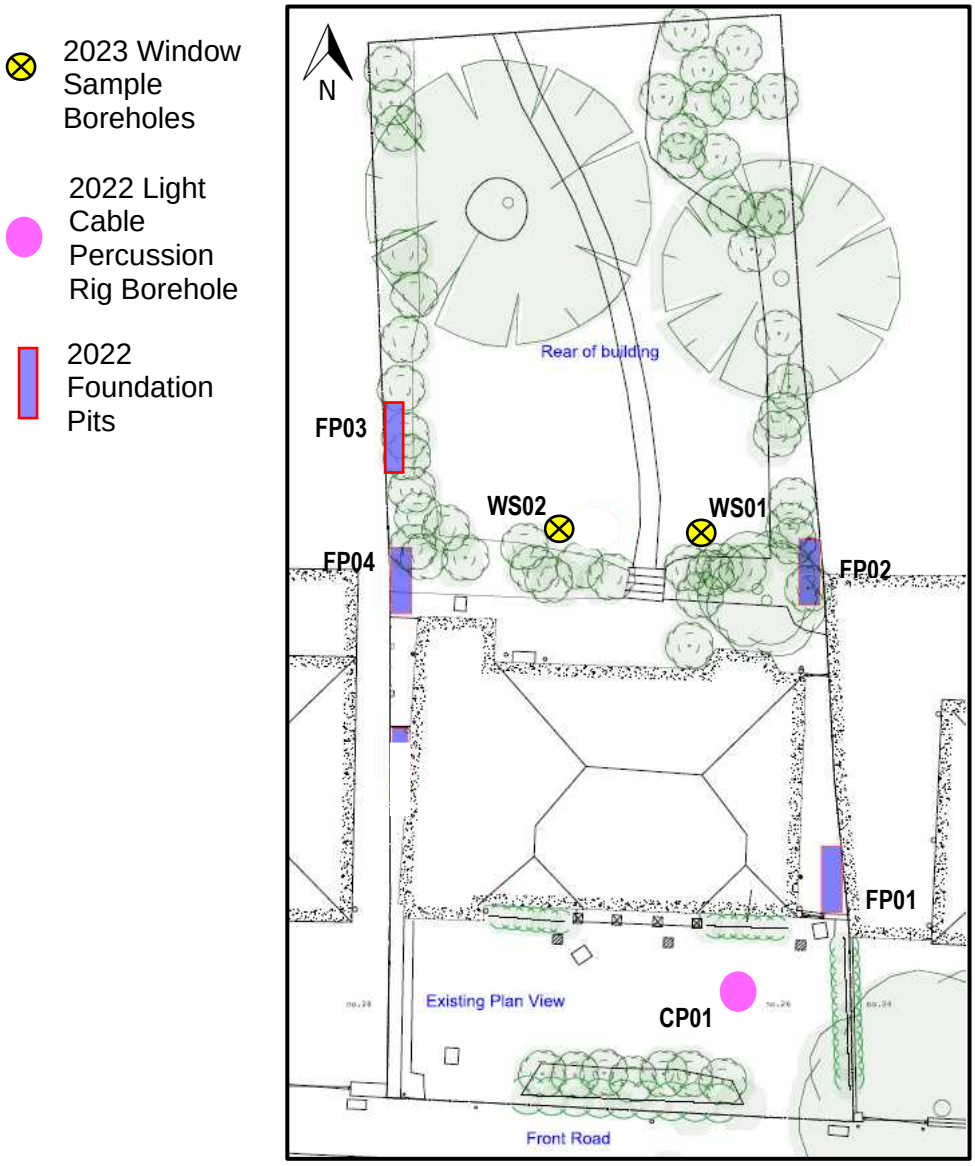
Table 6 – Summary of Exploratory Holes Undertaken

Hole	Type*	Depth (m)	Date Started	Date Finished	Backfill Details**
BH1	CP	20.00	25/10/2022	27/10/2022	SP & A
FP01	HP	0.70	26/11/2022	26/11/2022	A
FP02	HP	1.10	26/11/2022	26/11/2022	A
FP03	HP	0.60	26/11/2022	26/11/2022	A
FP04	HP	0.80	26/11/2022	26/11/2022	A
WS01	WS	4.00	05/12/2023	05/12/2023	A
DPWS01	DP	6.00	05/12/2023	05/12/2023	-
WS02	WS	4.00	05/12/2023	05/12/2023	A
DPWS02	DP	6.00	05/12/2023	05/12/2023	-

*CP = cable percussion borehole, WS = Window Sample Borehole, HP = Hand Pit, DP = Dynamic Probe
**A = Arisings, SP = standpipe

The fieldwork was carried out generally in accordance with BS 5930:2015 Code of Practice for Site Investigations, Eurocode 7, unless otherwise stated. The exploratory hole locations are shown approximately on the Exploratory Hole Location Plan (Figure 5) overleaf.

Figure 5 - Exploratory Hole Location Plan



9.3 Laboratory Testing Programme

9.3.1 *Geotechnical Testing*

A programme of laboratory testing was carried out on samples taken from the various strata to assist in classification and determine the engineering properties of the materials underlying the site. The testing was scheduled by EEGSL and carried out by GSTL Ltd The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given in Table 7 overleaf.

Table 7 - Summary of Geotechnical Laboratory Tests Undertaken

TEST	STANDARD	No.
Moisture Content	BS1377:1990 Part 2, Clause 3.2	6
Liquid Limit, Plastic Limit, Plasticity Index	BS1377:1990 Part 2, Clause 4/5	6
Sulphate content of 2:1 soil:water extract	BS1377:1990 Part 3, Clause 5	4
pH value	BS1377:1990 Part 3, Clause 9	4
Triaxial tests - "Quick" undrained	BS1377:1990 Part 7, Clause 8	8

The results of the laboratory geotechnical tests are included in Appendix 6.

9.3.2 *Environmental Testing*

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEGSL and carried out by Chemtest Ltd and DETS Ltd.

Chemical analyses were carried out on 7 soil samples and were submitted for the following suite of determinants:

Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Sulphate (SO_4), Sulphide, pH, Soil Organic Matter, Phenol, speciated Total Petroleum Hydrocarbons (TPH) and speciated Polyaromatic Hydrocarbons (PAH).

The results of the laboratory contamination tests are included in Appendix 6.

The range of potentially hazardous contaminants present on the site can be wide and varied, and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out. It is also possible that contaminants exist on the site but were not present at any of the exploratory hole locations.

10.0 GROUND CONDITIONS ENCOUNTERED

10.1 Soil Profile Encountered

The sequence of strata encountered beneath the site was as follows:

- **Topsoil** – encountered in FP03, thickness 0.25m.
- **Made Ground –** Variable Made Ground was encountered in all the exploratory holes, comprising:
  - Asphalt (FP01 only), thickness 0.07m.
  - Paving slab (CP01 only), thickness 0.1m.
  - Gravelly Sand gravel of various lithologies including brick and concrete (All exploratory holes except FP03), thickness 0.15m to 0.40m.
  - Sandy clay with brick, asphalt, concrete, (All exploratory holes except FP03) thickness 0.30m to 0.55m.
- **Claygate Member** was encountered in all the boreholes with the exception of FP03 and comprised:
  - Slightly silty sandy CLAY.

The depths of the various materials encountered in each of the exploratory holes are summarised in Table 8 below.

Table 8 - Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m)						GROUND-WATER
	TOPSOIL	MADE GROUND				CLAYGATE MEMBER	
		Paving Slab	Asphalt	Gravelly sand	Sandy clay	Sandy CLAY	
CP01		GL – 0.10		0.10 – 0.50	0.50 – 1.00	1.00 – 20.00	8.50m
WS01		GL - 0.30				0.30 - 4.00	2.0 & 4.0m
WS02		GL - 0.50				0.50 – 4.00	3.6m
FP01			GL – 0.07	0.07 – 0.27	0.27 – 0.70	0.70 – 1.50	
FP02				GL – 0.15	0.15 – 0.70	0.70 – 1.10	
FP03	GL – 0.25					0.25 – 0.60	
FP04				GL- 0.35	0.35 – 0.80		

10.2 Obstructions

Underground man-made obstructions were not encountered during the investigation.

10.3 Groundwater

Groundwater was encountered at a depth of between 2.0m and 8.5mbgl within the Claygate Member.

Subsequent monitoring of groundwater in the standpipe indicated groundwater levels at depths ranging between 3.43m and 3.58m.

10.4 Land Gas

Results obtained during the initial monitoring visit indicated levels of Methane (CH_4) = 0% by volume, Carbon Dioxide (CO_2) = 5.5% by volume, and Oxygen (O_2) = 5.3% by volume. Hydrogen Sulphide levels of 0ppm and Carbon Monoxide levels ranging of 0ppm were recorded. Borehole

pressures ranging from -0.35Pa to -11Pa and gas flows ranging from 0l/hr to -1.9l/hr were recorded. Atmospheric pressure was recorded as 987mb.

Results obtained during subsequent monitoring visits indicated Methane levels ranging from 0.2% to 0.4% by volume, Carbon Dioxide levels ranging from 5.0% to 5.2% by volume, and Oxygen levels ranging from 5.6% to 6.9% by volume. Hydrogen Sulphide levels of 0ppm and Carbon Monoxide levels ranging from 0ppm to 11ppm were recorded. Borehole pressures ranging from -0.35Pa to -0.42Pa and gas flows of 0l/hr were recorded. Atmospheric pressure was recorded in the range 980mb to 994mb.

It should be noted that the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore be representative of the conditions only at the time of sampling.

10.5 Visual / Olfactory Evidence of Contamination

No visual or olfactory contamination was observed on site or encountered in any of the exploratory holes during the investigation.

10.6 Existing Foundations

Details of the existing foundation are summarised in the following table:

Table 9 - Existing Foundation Details

Location	Depth to Top of Foundation	Depth to Base of Foundation	Comments
FP01	0.2mbgl	1.30mbgl	Concrete foundation stepped 0.18m from wall.
FP02	0mbgl	0.60mbgl	Concrete foundation stepped 0.20m from wall.
FP03	0.27mbgl	0.45mbgl	Concrete foundation stepped 0.05m from wall.
FP04	0mbgl	0.60mbgl	Concrete foundation stepped 0.11m from wall overlaying 0.15m of brick, overlaying 0.2m of concrete.

11.0 ENGINEERING PROPERTIES OF STRATA ENCOUNTERED

11.1 General

This section discusses the engineering properties of the strata encountered based on results of in situ testing and laboratory testing obtained during the investigation.

Table 10 below summarises results of laboratory testing.

Table 10 - Summary of Laboratory Geotechnical Test Results

Location	Depth (m)	Strata	CLASSIFICATION						STRENGTH	CHEMICAL	
			Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)	Shear Strength (kN/m²)	Water Soluble Sulphate (mg/l)	pH Value
CP01	1.20	CM	27	49	17	32					
CP01	2.00	CM	24	40	14	26					
CP01	4.50	CM								398	8.2
CP01	5.00	CM	14				1.98	1.73	57		
CP01	7.50	CM	7.7				2.00	1.85	97		
CP01	9.00	CM	11				2.05	1.85	126		
CP01	10.00	CM								322	8.2
CP01	11.50	CM	11				2.03	1.83	87		
CP01	13.50	CM	7.5				2.00	1.86	93		
CP01	15.00	CM	9.1				1.90	1.75	113	338	8.0
CP01	17.50	CM	12				1.94	1.73	142		
CP01	19.50	CM	12				2.05	1.83	149		
CP01	20.00	CM								102	8.2
WS01	1.00-2.00	CM	28	53	24	29					
WS01	2.60-2.80	CM	27	54	24	30					
WS01	3.30-3.70	CM	27	46	23	23					
WS02	1.50-1.70	CM	32	55	25	30					
CM = Claygate Member											

11.2 Claygate Member

Atterberg Limit tests have given values of **liquid limit** in the range 40% to 55% and **plastic limit** values in the range 14% to 25%, resulting in values of **plasticity index** in the range 23% to 32%. These results suggest the samples tested are a clay of intermediate plasticity as shown on the Plasticity Charts included in the Appendices. For design purposes, a value of plasticity index = 30% is recommended, based on the upper quartile value of the results.

In accordance with NHBC Chapter 4.2 Building Near Trees(2003) soils can be classified in terms of **volume change potential**, using the relationship:

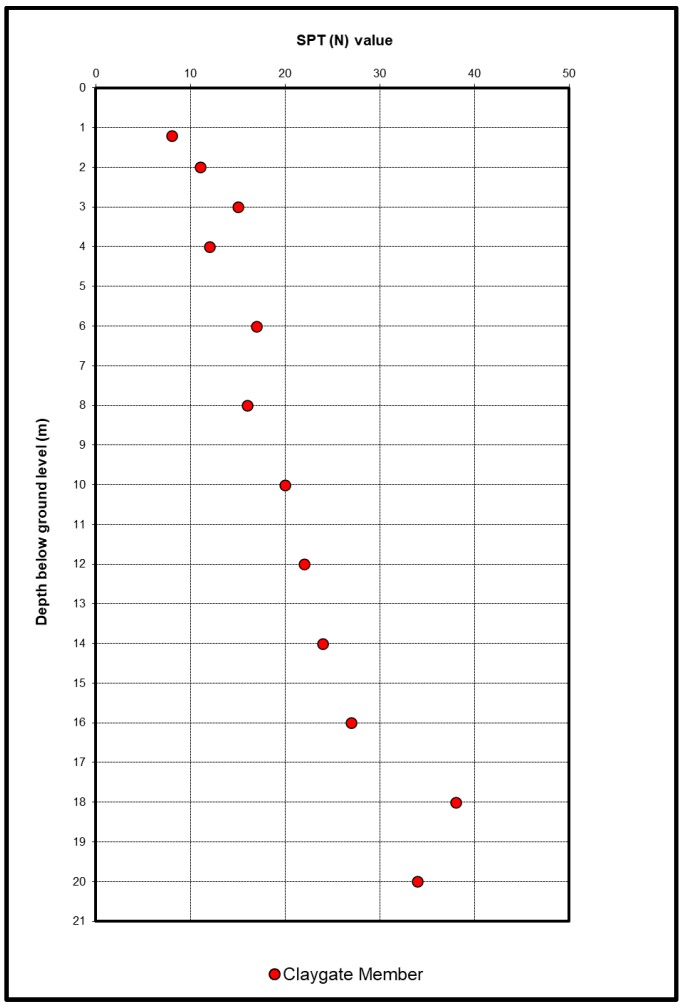
$$I_p' = I_p \times \frac{\text{\% less than 425µm}}{100\%}$$

….where I_p' = modified plasticity index, I_p = plasticity index.

Based on the laboratory test results, the above relationship and Table 1 of NHBC Chapter 4.2, the samples of Claygate Member are shown to have **medium volume change potential**.

SPT N values range from 8 to 38, as can be seen from SPT v Depth Plot (Figure 6) and show a gradual increase with depth. These results suggest the clay is soft to firm becoming firm to stiff to very stiff with depth.

Figure 6 – SPT v Depth Plot



Triaxial tests give values of **undrained shear strength**, c_u, ranging from 57kN/m^2 to 149kN/m^2, suggesting the clay is firm to stiff and has medium to high strength.

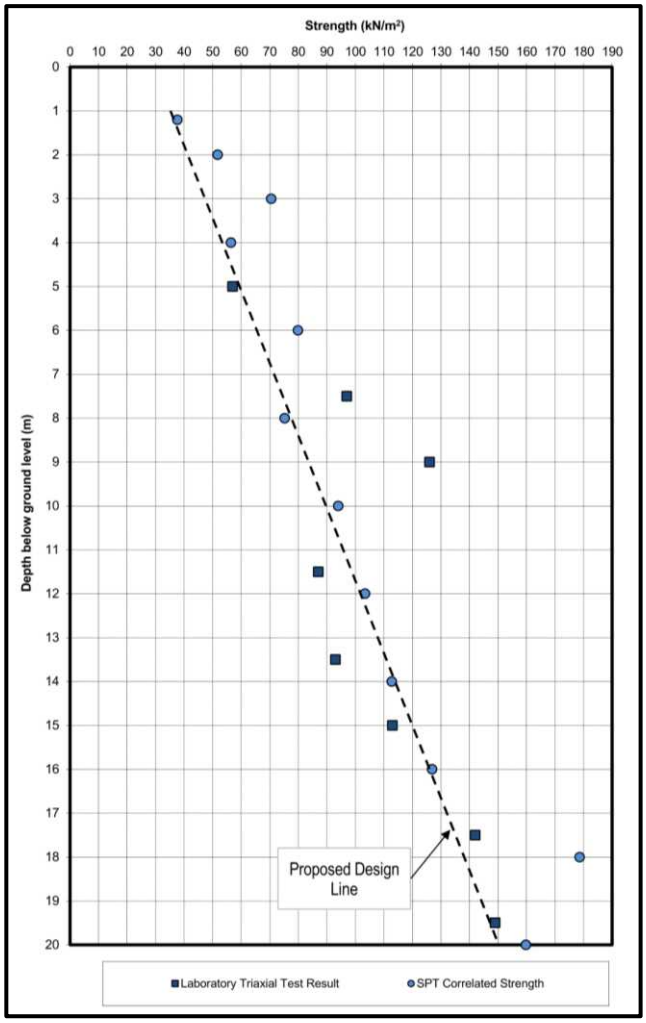
Shear strength may also be estimated from a correlation by Stroud and Butler(1975): for a clay with a plasticity index of 31%, c_u = 4.7 x SPT N value. Based on the above N values this correlation gives values of cu in the range 38kN/m^2 to 179kN/m^2, suggesting the clay has low to very high strength.

A plot of strength v depth is presented in Figure 7 overleaf.

From Figure 7, the following strength profile is recommended for design purposes:

- At 1.0m depth c_u = 40kN/m^2, increasing linearly to;
- c_u = 155kN/m^2 at 20.0m depth.

Figure 7 – Strength v Depth Plot



Effective stress strength parameters may also be obtained from correlations with plasticity index. For a plasticity index of 31%:

- BS8002(1994), Table 2 gives $\phi'_{crit} \approx 25^o$;
- Gibson(1953), gives $\phi_d = 26.5^o$.

Based on all the above, design values of $\phi' = 25^o$ and $c' = 0kN/m^2$ are recommended.

Laboratory tests have given values of **water soluble sulphate** in the range 102mg/l to 398mg/l, together with **pH Values** in the range 8.0 to 8.2.

12.0 GEOTECHNICAL ASSESSMENT

12.1 Proposed Development

The proposed development comprises a two-storey private dwelling above ground with a one-storey basement. The proposed basement excavation will be supported by a permanent secant pile wall, installed along the basement perimeter. The head of the secant pile wall is proposed to be propped in the temporary state. It is understood that the bulk excavation works, and construction of permanent works elements will take place utilizing a bottom-up methodology, with the secant wall installed to support the excavation in the temporary and permanent conditions, with the permanent concrete lining wall and slabs installed inside the proposed basement. At the time of writing this report, anticipated structural loadings were not known.

12.2 Ground Conditions Encountered

The borehole has encountered Made Ground (thickness 1.0m) overlying soft to firm, becoming stiff with depth, sandy clay, proven to a maximum depth of 20.0mbgl. Groundwater was encountered at a depth of 8.5mbgl in CP01 during drilling. Subsequent monitoring indicated groundwater levels at depths ranging between 3.43m and 3.58mgl.

12.3 Piled Foundations

The proposed development may be founded on a system of ground beams spanning onto piles taken down into the stiff clay at depth.

A variety of pile types may be used, including bored and continuous flight auger (CFA) piles. Driven piles are unlikely to be suitable, due to noise/vibration constraints.

Because of the various advantages and limitations of each pile type, and the cost implications, advice should be sought from specialist piling contractors to determine the most suitable and cost-effective type. They should also be able to give recommended pile diameters and depths and likely pile capacities, with guaranteed performance. It is recommended a pile test be carried out to confirm pile capacities. In assessing the pile capacities, contractors should make an allowance for the effects of negative skin friction, particularly in the near surface Made Ground and soft clay.

Table 11 overleaf gives preliminary estimates of working loads of a single concrete pile taken down into the sandy clay. The figures are given for guidance only. It is essential the specialist piling contractor provides a robust pile design and confirms pile working loads in the ground conditions encountered.

The working loads are taken as the lowest of either:

$$\frac{Q_u}{FoS\ (1.5)} \quad \text{or} \quad \frac{Qs}{FoS\ (1.5)} + \frac{Q_b}{FoS\ (3.0)}$$

..where Q_u = Ultimate Bearing Capacity
Q_s = Skin Friction (adhesion)
Q_b = End Bearing
FoS = Factor of Safety

Table 11 – Summary of Pile Working Loads

Pile Depth	Stratum at toe level	Pile Diameter (mm)	Allowable Working Load (kN)
10m	Sandy CLAY (stiff)	300mm	85
		450mm	145
		600mm	215
		750mm	295
15m	Sandy CLAY (stiff)	300mm	130
		450mm	210
		600mm	310
		750mm	430
20m	Sandy Clay (very stiff)	300mm	165
		450mm	280
		600mm	410
		750mm	560
*strength of clays based on design line in Figure 7 Effects negative skin friction in upper layers not considered.			

The above estimates are for guidance only and should not be used for final design purposes. It is essential the specialist piling contractor provides a pile design and confirms pile working loads in the ground conditions encountered.

There may be differential settlement between piled structures and the surrounding ground level. Provision should, therefore, be made to make up ground levels at threshold positions, loading bays, vehicle access doorways, etc. Alternatively, these materials should be removed and replaced in a controlled manner by suitable existing materials or imported engineered fill.

It is essential the advice of a specialist piling contractor is sought and that positive assurances are provided by the piling contractor that their proprietary system is capable of providing the required working loads in the ground conditions encountered.

12.4 Basement Construction

It is understood the basement walls will be formed using a secant piled wall.

The piles will need to be toed well into the underlying strata, to reduce settlements and resist rotation/uplift.

For design of basement walls, the coefficient of earth pressure at rest, K_0 should be taken in estimating earth pressures. Settlement will depend on the depth of toe-in and the material properties at the lower part of the piling. Settlement should be checked once the design is finalised.

Consideration should be given to how the retained material is drained in the basement. Normally weep holes would be incorporated into retaining structures to prevent build-up of pore water pressure. Clearly this will not be possible where the retaining wall forms part of a basement. In this case alternative methods of drainage will be required such as granular backfill with drainage pipes and pumps.

12.5 Chemical Attack on Buried Concrete

Chemical tests (see Appendices) show generally low levels of water soluble sulphates together with near neutral to slightly alkaline conditions. Based on these conditions, it is recommended that for buried concrete the Design Sulphate Class for the site, as defined in BRE Special Digest 1[(2005)], be taken as DS-1, and the Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-1s.

12.6 Suitability of Excavated Materials

Acceptability criteria and testing, and methods of compaction/placement will depend on the type of contract and specification used for the construction of the proposed development and it is recommended that earthworks specifications are reviewed by a suitably qualified engineer, once these have been prepared by the relevant parties.

The granular Made Ground may be suitable as structural fill providing it is not contaminated and does not contain excessive amounts of clay and providing moisture contents are controlled during placement. The control of moisture contents will be important as the cohesive content of this stratum is likely to be sensitive to moisture content changes.

The cohesive Made Ground and near surface soft clays are unlikely to be suitable for re-use as structural fill and should be used for landscaping purposes only, providing they are not contaminated.

The stiff natural clays could be suitable for re-use, subject to compliance testing.

12.7 Temporary Works

Formations will be susceptible to damage both by weather and trafficking, and should be protected immediately on exposure, particularly in areas where construction plant will access the site.

Excavations in the Made Ground are likely to be unstable and should be battered back to an angle of 1 in 2, or a system of close sheeting and shoring adopted to ensure stability, and in particular where personnel are required to enter excavations. All excavations should be adequately supported where personnel are required to enter.

Groundwater seepages could be encountered in basement excavations, depending on depth of excavation. Pumping of excavations from a suitable located sump will be required to keep excavations dry.

All natural materials on site should be capable of being excavated using conventional excavating machinery.

13.0 SOIL CONTAMINATION RISK ASSESSMENT

13.1 General

The following sections provide a Human Health Soil Assessment for groundworkers during development and future site users.

13.2 Tier I Human Health Soil Risk Assessment – Groundworkers During Development

To assess the risk of soil contamination to construction and ground workers during development, guidelines from the HSE Document 'Protection of workers and the general public during development of contaminated land'[(1991)] are used. The document assesses soil contamination test results and classifies the site as being uncontaminated or contaminated with varying degrees of contamination from 'slight' to 'unusually heavy'.

The guideline values and laboratory test results are summarised in the following table:

Table 12 - Summary of Guideline Values for Protection of Workers and the General Public During Development of Contaminated Land

Contaminant	Typical Values* for:					Test Results	Class
	Uncontaminated Soils	Slight Contamination	Contaminated	Heavy Contamination	Unusually Heavy Contamination		
	Class A	Class B	Class C	Class D	Class E		
pH (acid)	6-7	5-6	4-5	2-4	<2	5.8-7.0	A-B
pH (alkaline)	7 - 8	8 - 9	9 - 10	10 - 12	12	7.8-9.1	A-C
Arsenic	0 - 30	30 - 50	50 - 100	100 - 500	500	8.0-19	A
Cadmium	0 - 1	1 - 3	3 - 10	10 - 50	50	<0.10-0.19	A
Chromium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	19-31	A
Copper	0 - 100	100 - 200	200 - 500	500 - 2500	2500	9.0-15	A
Lead	0 - 500	500 - 1000	1000 - 2000	2000 – 1%	1.0%	8.3-180	A
Mercury	0 - 1	1 - 3	3 - 10	10 - 50	50	<0.05-0.33	A
Nickel	0 - 20	20 - 50	50 - 200	200 - 1000	1000	6-20	A
Zinc	0 - 250	250 - 500	500 - 1000	1000 - 5000	5000	32-180	A
Boron	0 - 2	2 - 5	5 - 50	50 - 250	250	<1	A
Selenium	0 - 1	1 - 3	3 - 10	10 - 50	50	<2	A
Barium	0-500	500-1000	1000-2000	2000-1.0%	1.0%	19-280	A
Beryllium	0 - 5	5 - 10	10 - 20	20 - 50	50	<0.5-0.8	A
Vanadium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	32-37	A
Sulphate	0 - 2000	2000 - 5000	5000 – 1%	1% - 5%	5.05%	110-1300	A
Sulphide	0 - 10	10 - 20	20 - 100	100 - 500	500	<5	A
Cyanide (free)	0 - 1	1 - 5	5 - 50	50 - 100	100	<1	A
Coal Tar	0-500	500-1000	1000-2000	2000-1.0%	1.0%	<42	A
Phenol	0 - 2	2 - 5	5 - 50	50 - 250	250	<2	A

Based on the above results there is a low potential risk from soil contamination to construction workers, ground workers and members of the public, and appropriate measures, such as PPE, site health plans, appropriate disposal of material arisings will mitigate any risk.

13.3 Tier I Human Health Soil Risk Assessment – Future Site Users

As part of the contamination assessment, the chemical results obtained by EEGSL have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values(March 2014), where available; and
- Tier 1 assessment values - based on LQM/CIEH Suitable 4 Use Levels(2015) (S4ULs).

As a preliminary screening assessment, all results have been compared to residential end use criteria.

The comparison of results is summarised in Tables 13, 14 and 15 below.

Table 13 - Soil Results Comparison with C4SL/S4UL Levels (Metals)

Determinand	C4SL/S4UL Levels (mg/kg)*		CP01 0.0m	CP01 0.7m	CP01 3.0m	WS01 0.5-0.7m	WS01 1.8-2.0m	WS02 0.3-0.5m	WS02 0.8-1.0m	No of Exceedences
	Residential with homegrown produce	**Residential** without homegrown produce								
Arsenic	37	40	19	8.8	9.4	8	10	8	9	0
Beryllium	1.7	1.7	0.6	< 0.5	0.8	<0.5	<0.5	<0.5	<0.5	0
Boron	290	11000	< 0.40	< 0.40	< 0.40	<1	<1	<1	<1	0
Cadmium	26	149	0.19	< 0.10	0.11	<0.2	<0.2	<0.2	<0.2	0
Chromium	910	910	19	27	31	24	22	19	21	0
Chromium VI	21	21	< 0.50	< 0.50	< 0.50	<2	<2	<2	<2	0
Copper	2400	7100	15	10	9.1	9	11	11	10	0
Lead	200	310	180	13	8.3	12	11	31	17	0
Mercury	1.2	1.2	0.33	< 0.05	< 0.05	<1	<1	<1	<1	0
Nickel	180	180	20	11	20	7	10	7	6	0
Selenium	250	430	0.54	0.71	0.90	<2	<2	<2	<2	0
Vanadium	410	1200	37	35	37	37	35	32	35	0
Zinc	3700	4000	180	32	44	39	36	48	39	0

Table 14 - Soil Results Comparison with C4SL/S4UL Levels (Petroleum Hydrocarbons)

Determinand		C4SL/S4UL Levels (mg/kg)*						CP01 0.0m	CP01 0.7m	CP01 3.0m	WS01 0.5-0.7m	WS01 1.8-2.0m	WS02 0.3-0.5m	WS02 0.8-1.0m	No. of Excedence
		Residential with homegrown produce			Residential without homegrown produce										
SOM (%)		**1.0**	**2.5**	**6.0**	**1.0**	**2.5**	**6.0**	<0.40	<0.40	<0.40	1.2	0.5	1.4	1.1	**-**
Benzene		0.87	17	0.37	3.3	0.70	1.4	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0
Toluene		130	290	660	880	1900	3900	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	0
Ethylbenzene		47	110	260	83	190	440	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0
o-xylenes		60	140	330	88	210	480	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0
m-xylenes		59	140	320	82	190	450	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0
p-xylenes		56	130	310	79	180	430	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0
Aliphatic (EC)	5-6	42	78	160	42	78	160	-	-	-	<0.01	<0.01	<0.01	<0.014	0
	>6-8	100	230	530	100	230	530	-	-	-	<0.05	<0.05	<0.05	<0.05	0
	>8-10	27	65	150	27	65	150	16	15	15	<2	<2	<2	<2	0
	>10-12	130	330	760	130	330	770	<2	<2	<2	<2	<2	7	<2	0
	>12-16	1100	24000	4300	1100	24000	4400	1.3	1.3	1.0	<3	<3	9	<3	0
	>16-35	65000	92000	110000	65000	92000	110000	<3	<3	<3	<10	<10	<10	<10	0
Aromatic (EC)	5-7	70	78	300	370	690	1400	-	-	-	<0.01	<0.01	<0.01	<0.01	0
	>7-8	130	230	660	860	1800	3900	-	-	-	<0.05	<0.05	<0.05	<0.05	0
	>8-10	34	65	190	47	110	270	-	-	-	2	<2	<2	<2	0
	>10-12	74	330	380	250	590	1200	<1	<1	<1	4	4	<2	<2	0
	>12-16	140	24000	660	1800	2300	2500	1.5	<1	<1	<2	<2	<2	<2	0
	>16-21	280	92000	930	1900	1900	1900	13	6.9	6.7	<3	<3	<3	<3	0
	>21-35	1100	92000	1700	1900	1900	1900	10	7.5	4.3	<10	<10	<10	<10	0

Table 15 - Soil Results Comparison with C4SL/S4UL Levels (Polyaromatic Hydrocarbons & Phenols)

Determinand	C4SL/S4UL Levels (mg/kg)*						CP01 0.0m	CP01 0.7m	CP01 3.0m	WS01 0.5-0.7m	WS01 1.8-2.0m	WS02 0.3-0.5m	WS02 0.8-1.0m	No. of Excedence
	Residential with homegrown produce			Residential without homegrown produce										
Polycyclic Aromatic Hydrocarbons														
SOM (%)	**1.0**	**2.5**	**6.0**	**1.0**	**2.5**	**6.0**	<0.40	<0.40	<0.40	1.2	0.5	1.4	1.1	-
Naphthalene	2.3	5.6	13	2.3	5.6	13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Acenaphthylene	170	420	920	2900	4600	6000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Acenaphthene	210	510	1100	3000	4700	6000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Fluorene	170	400	860	2800	3800	4500	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Phenanthrene	95	220	440	1300	1500	1500	0.78	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Anthracene	2400	5400	11000	31000	35000	37000	0.32	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Fluoranthene	280	560	890	1500	1600	1600	1.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Pyrene	620	1200	2000	3700	3800	3800	1.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Benz(a)anthracene	7.2	11	13	11	14	15	0.70	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Chrysene	15	22	27	30	31	32	0.67	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Benzo(a)pyrene	5.0	2.7	3.0	5.3	3.2	3.2	0.97	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4.0	4.0	0.88	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Benzo(k)fluoranthene	77	93	100	110	110	110	0.43	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Dibenz(a,h)anthracene	0.24	0.28	0.3	0.31	0.31	0.32	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Benzo(ghi)perylene	320	340	350	360	360	360	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0
Phenols														
Phenol	280	550	1100	750	1300	2300	<0.10	<0.10	<0.10	<2	<2	<2	<2	**0**

From Tables 13, 14 and 15 it can be the samples have levels of contamination below the guidance levels for residential end use.

Asbestos has not been encountered in any of the samples tested.

Significantly elevated levels of **Total Petroleum Hydrocarbons** have not been encountered.

From Tables 13, 14 and 15 it can be the samples have levels of contamination below the guidance levels for residential end use.

Asbestos has not been encountered in any of the samples tested.

Significantly elevated levels of **Total Petroleum Hydrocarbons** have not been encountered.

13.4 Soil Waste Assessment

Environment Agency Technical Guidance WM3.1: Hazardous Waste; "Guidance on the classification and assessment of waste", May 2018, published by Environment Agency of England and Wales, SEPA, NIEA and Natural Resources Wales has been used to characterise soil materials.

HazWasteOnline™ a cloud-based software application for the management, analysis and reporting of hazardous waste materials has been used to make this assessment.

The Hazardous Waste Assessment (included in Appendix 7) confirms that the samples tested can be classified as **Non-Hazardous**.

14.0 GROUND GAS RISK ASSESSMENT

14.1 Land Gas

The potential risk associated with gases being generated in the ground (whether from natural or man-made sources) depends on the concentrations of gas and its flow rate to the surface. These factors are assessed by monitoring of the gas installations in the boreholes. The variable nature of gas generation and the effect of barometric pressure on gas flow, means that the volume of gas potentially reaching the ground surface is normally inconsistent over time.

For the assessment of sites, in terms of the potential for ground gas to present a hazard, the risk based methodology detailed in the NHBC Guidance on Methane and Carbon Dioxide(Edition No. 4, March 2007) is used. This is a risk based approach that is designed to allow quick and easy design of gas protection for a low-rise development by comparing the measured gas emission rates to Characteristic Situations, based on risk based Gas Screening Values (GSVs), as described by CIRIA Report C665(2007). The GSVs equate to the borehole gas volume flow rate as defined by Wilson and Card(1999) as the borehole flow rate multiplied by the concentration in the air stream of the particular gas being considered.

For the purposes of this evaluation the calculations will be carried out for both carbon dioxide and methane encountered in the boreholes on site, and a peak flow rate of 0.2l/hr to give a worst case scenario adopted in order to establish the appropriate protection measures, as follows:

- Carbon dioxide: maximum flow rate = 0.2l/hr, max concentration = 5.5%
- Methane: maximum flow rate = 0.2l/hr, max concentration = 0.4%.

Based on the above figures, the GSV is calculated as:

- Carbon dioxide: GSV = 0.2 x 0.055 = 0.011l/hr
- Methane: GSV = 0.2 x 0.004 = 0.0008l/hr.

The above results suggest the site can be given a Characteristic Situation of (1), in accordance with the table below, however it is recommended the Characteristic Situation is increased to (2) where concentrations are >5%v/v i.e. 'low risk'.

Table 17 - Modified Wilson & Card Classification (CIRIA Report 659)

Characteristic Situation (CIRIA Report 149)	*Risk Classification*	*GSV (CH_4 or CO_2) (l/hr)*	*Additional Factors*	*Typical Source of Generation*
1	Very Low Risk	<0.07	Typically methane ≤1%v/v and/or carbon dioxide ≤5% v/v. Otherwise consider increase to Situation 2.	Natural Soils with low organic content. "Typical" Made Ground.
2	Low Risk	<0.7	Borehole flow rate not to exceed 70l/hr. Otherwise increase to Situation 3.	Natural soil, high peat/organic content. "Typical" Made Ground.
3	Moderate Risk	<3.5		Old landfill, inert waste, mineworking flooded.
4	Moderate to High Risk	<15	Quantitative risk assessment required to evaluate scope of measures required.	Mineworking susceptible to flooding, completed landfill (WMP 26B criteria)
5	High Risk	<70		Mineworking unflooded inactive with shallow workings near surface.
6	Very High Risk	>70		Recent landfill site.

With respect to residential development, the above results suggest the site can be classified as 'Amber 1' and gas protection measures will not be required, in accordance with the following tables, taken from the NHBC Guidance:

Table 18 - Gas Risk Assessment – Traffic Lights with Typical Maximum Concentrations and Gas Screening Values

Traffic Light Classification	Methane[1]		Carbon Dioxide[1]	
	Typical maximum concentration[3] (%v/v)	Gas Screening Value[2,4] (l/hr)	Typical maximum concentration[3] (%v/v)	Gas Screening Value[2,4] (l/hr)
Green				
Amber 1	1	0.16	5	0.78
Amber 2	5	0.63	10	1.56
Red	20	1.56	30	3.10

Notes:

1 The worst case ground gas regime identified on site, either methane or carbon dioxide, at the worst-case temporal conditions that the site may be expected to encounter will be the decider as to what Traffic Light is allocated.
2 Gas Screening Value is the borehole Gas Volume Flow Rate, in litres per hour, as defined in Wilson and Card (1999), which is the borehole flow rate multiplied by the concentration in the air stream of the particular gas being considered.
3 The Typical Maximum Concentrations can be exceeded in certain circumstances should the Conceptual Model indicate it is safe to do so.
4 The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment taking into account site specific conditions.

Table 19 - Ground Gas Protection Measures Required for the Traffic Lights

Traffic Light	Ground Gas Protection Measures Required
Green	Ground gas protection measures not required.
Amber1	Low-level ground gas protection measures are required, using a membrane and ventilated sub-floor void that creates a permeability contrast to limit the ingress of gas into buildings. Gas protection measures are to be installed as prescribed in BRE414. Ventilation of the sub-floor void should be designed to provide a minimum of one complete volume change per 24hrs.
Amber2	High level ground gas protection measures are required, creating a permeability contrast to prevent ingress of gas into buildings. Gas protection measures are to be installed as prescribed in BRE414. **Membranes used should always be fitted by a specialist contractor and should be fully certified**. As with Amber1, ventilation of the sub-floor void should be designed to provide a minimum of one complete volume change per 24hrs.
Red	Standard residential housing is not normally acceptable without further Ground Risk Assessment and/or possible remedial mitigation measures to reduce/remove the source of the ground gases. In certain circumstances, active protection methods could be applied, but only when there is a legal agreement assuring the management and maintenance of the system for the life of the property.

Based on the above, it is considered the development will require low level gas protection measures.

14.2 Radon Gas

Based on information included in the Groundsure report, no protection against the ingress of radon gas into the new building is required. Appropriate construction techniques are detailed in the BRE document *Radon: guidance on protective measures for new dwellings*(2015).

15.0 PROTECTION OF BURIED WATER PIPES

Previous guidance on buried water pipes was contained in Water Regulations Advisory Scheme (WRAS) Guidance Note No. 9-04-03(2002), however this has been superseded by the UK Water Industry Research Report 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' Ref 10/WM/03/21(January 2011).

The table below summarises levels of contamination encountered in the soil samples tested and guidance values from both WRAS(2002) and 10/WM/03/21(2011). For the purposes of the evaluation corrosive and toxic substances are those included in WRAS guidance and organic contaminants are those included in 10/WM/03/21(2011) where available.

Table 20 - Summary of Contamination Test Results & Guidance Levels for Water Services

Contaminant	Threshold Level (mg/kg)	CP01 0.00m	CP01 0.70m	CP01 3.00m	WS01 0.5-0.7m	WS01 1.8-2.0m	WS02 0.3-0.5m	WS02 0.8-1.0m	No. of Exceedences
Corrosion									
Sulphate	2000	1300	460	110	433	946	<200	<200	0
Sulphide	250	4.3	2.3	2.5	<5	<5	<5	<5	0
pH	5 ≤ pH ≤ 8	9.1	6.8	7.8	7.0	5.8	6.5	6.6	1
Toxic Substances									
Arsenic	10	19	8.8	9.4	8	10	8	9	1
Cadmium	3	0.19	<0.10	0.11	<0.2	<0.2	<0.2	<0.2	0
Chromium (hexavalent)	25	<0.50	<0.50	<0.50	<2	<2	<2	<2	0
Chromium (total)	600	19	27	31	24	22	19	21	0
Cyanide (free)	25	<0.50	<0.50	<0.50	<1	<1	<1	<1	0
Cyanide (complex)	250	<0.50	<0.50	<0.50	<1	<1	<1	<1	0
Lead	500	180	13	8.3	12	11	31	17	0
Mercury	1	0.33	<0.05	<0.05	<1	<1	<1	<1	0
Selenium	3	0.54	0.71	0.90	<2	<2	<2	<2	0
Organic Contaminants									
BTEX & MTBE	0.1	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	0
EC5-EC10 ali + aro hydrocarbons	2	16	15	15	<2	<2	<2	<2	3
EC10-EC16 ali + aro hydrocarbons	10	<2	<2	<2	4	4	16	<3	1
EC16-EC40 ali + aro hydrocarbons	500	23	14.4	11.0	<10	<10	<10	<10	0
Phenols	2	<0.10	<0.10	<0.10	<2	<2	<2	<2	0
Polycyclic Aromatic Hydrocarbons (PAH)	50	7.8	<2.0	<2.0	<1.6	<1.6	<1.6	<1.6	0

Notes:
(1) For copper pipes, corrosive if pH<5 or >8.

Based on the above results it is considered that non-standard materials are likely to be required for new water pipes. Further advice should be sought from the local water company.

16.0 REVIEW OF PRELIMINARY CONTAMINATION RISK ASSESSMENT

The following table provides a review of the Preliminary Conceptual Model/Contamination Risk Assessment included in Section 8.0, based on the findings of the Phase II investigation, and laboratory testing.

Table 21 - Revised Conceptual Model

Source	Pathway	Receptor	Risk
Contamination of the ground beneath site due to current and historical use	Dermal contact, ingestion and inhalation of soils, dust	Current Site Users	VERY LOW
		Future Site users	VERY LOW
		Construction Workers	VERY LOW
	Vertical or lateral migration of contamination (including ground gas) on and off site.	Current Site Users	VERY LOW
		Adjacent land users	VERY LOW
		Future land users	VERY LOW
		Controlled Waters	VERY LOW
		Construction Workers	VERY LOW

17.0 GROUND CONTAMINATION CONCLUSIONS AND RECOMMENDATIONS

17.1 Soil Contamination

Based on available soil contamination test results there is a low potential risk from soil contamination to construction workers and ground workers during development and appropriate measures such as PPE, site health plans, appropriate disposal of material arisings will mitigate any risk. The groundworks contractor must provide a soil management plan including methods of dealing with unanticipated soil contamination encountered during groundworks.

As discussed in the above sections, the contamination tests indicate generally low concentrations of the potential contaminants, below the recommended levels for residential end use with and without homegrown produce. Based on these results, remediation of soils will not be required on site.

17.2 Soil Disposal

Soils should be disposed of at a suitable site, registered to take the levels of contamination encountered. All samples tested have been classified as Non-Hazardous in accordance with Environment Agency guidance WM3.1.

17.4 Land Gas Protection Measures

Based on results of monitoring, land gas protection measures will be required. Radon protection measures will not be required.

17.5 Risk to Buried (Water) Services

Based on the results of laboratory testing it is considered non-standard materials are likely to be required for new water pipes.

17.6 Site Personnel & Other Matters

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene and on-site washing facilities should be available.

Due diligence is required during the construction period, and should any further evidence of contamination be found, appropriate investigation and / or action should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.

APPENDIX 1

GROUNDSURE REPORT

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

26, SHELDON AVENUE, HORNSEY, LONDON, N6 4JT

Order Details

Date: 17/11/2022

Your ref: B2538

Our Ref: GS-9205210

Site Details

Location: 527479 187878

Area: 0.1 ha

Authority: London Borough of Haringey

Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	**1.1**	**Historical industrial land uses**	0	0	0	11	-
15	**1.2**	**Historical tanks**	0	0	1	5	-
16	**1.3**	**Historical energy features**	0	0	0	6	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	**2.1**	**Historical industrial land uses**	0	0	0	19	-
19	**2.2**	**Historical tanks**	0	0	1	6	-
20	**2.3**	**Historical energy features**	0	0	0	12	-
21	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
23	3.5	Historical waste sites	0	0	0	0	-
23	3.6	Licensed waste sites	0	0	0	0	-
23	**3.7**	**Waste exemptions**	0	0	0	2	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
25	**4.1**	**Recent industrial land uses**	0	0	2	-	-
26	4.2	Current or recent petrol stations	0	0	0	0	-
26	4.3	Electricity cables	0	0	0	0	-
26	4.4	Gas pipelines	0	0	0	0	-
26	4.5	Sites determined as Contaminated Land	0	0	0	0	-

26	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
27	4.7	Regulated explosive sites	0	0	0	0	-
27	4.8	Hazardous substance storage/usage	0	0	0	0	-
27	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
27	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
27	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
28	4.12	Radioactive Substance Authorisations	0	0	0	0	-
28	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	1	-
28	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
28	4.15	Pollutant release to public sewer	0	0	0	0	-
29	4.16	List 1 Dangerous Substances	0	0	0	0	-
29	4.17	List 2 Dangerous Substances	0	0	0	0	-
29	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
29	4.19	Pollution inventory substances	0	0	0	0	-
29	4.20	Pollution inventory waste transfers	0	0	0	0	-
30	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
31	5.1	Superficial aquifer	None (within 500m)				
32	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
33	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
34	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
34	5.5	Groundwater vulnerability- local information	None (within 0m)				
35	5.6	Groundwater abstractions	0	0	0	0	0
35	5.7	Surface water abstractions	0	0	0	0	0
35	5.8	Potable abstractions	0	0	0	0	0
35	5.9	Source Protection Zones	0	0	0	0	-
36	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
37	**6.1**	**Water Network (OS MasterMap)**	0	0	9	-	-

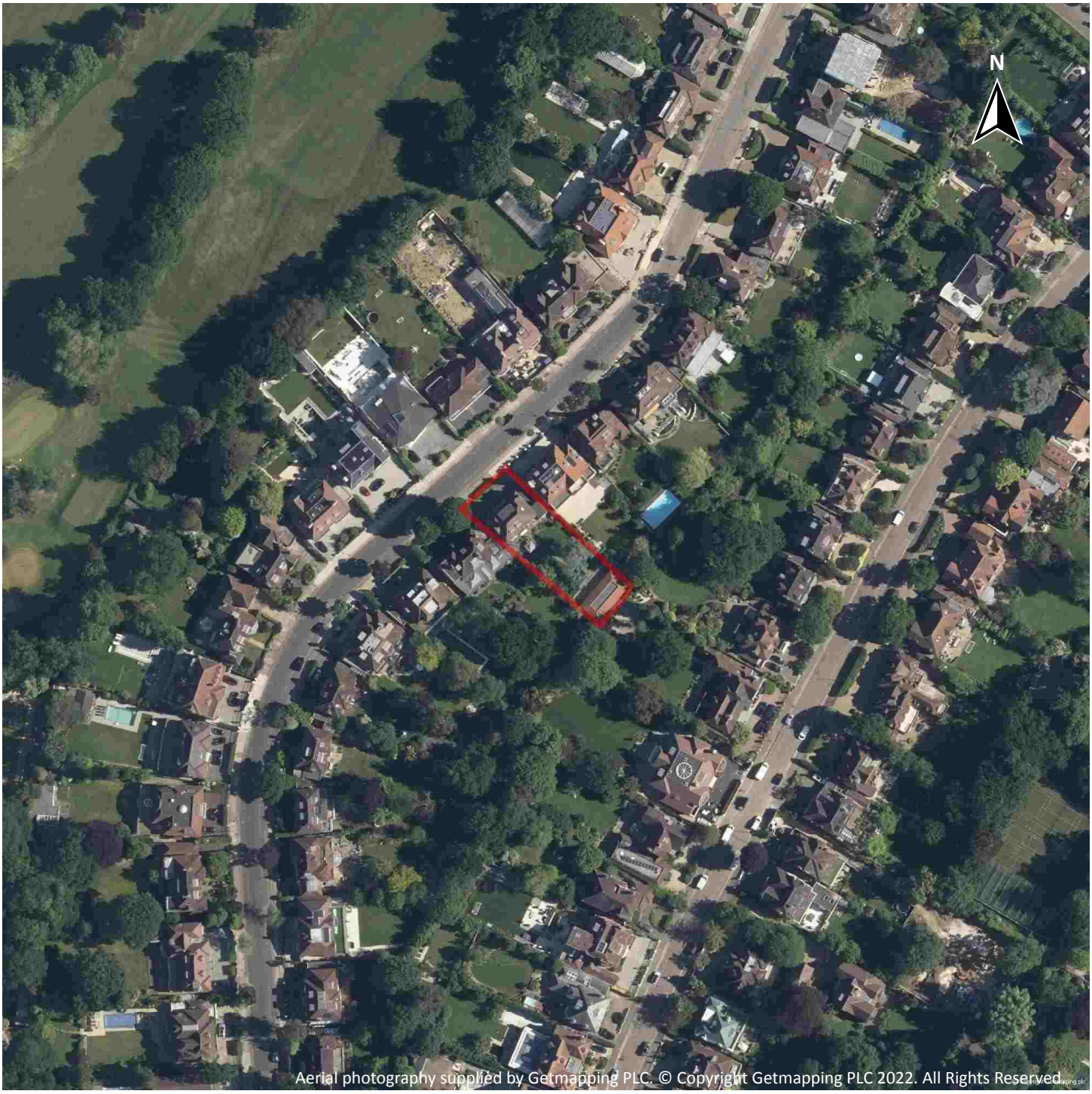
38	**6.2**	**Surface water features**	0	0	3	-	-
39	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
39	**6.4**	**WFD Surface water bodies**	0	0	0	-	-
39	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
40	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
40	7.2	Historical Flood Events	0	0	0	-	-
40	7.3	Flood Defences	0	0	0	-	-
41	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
41	7.5	Flood Storage Areas	0	0	0	-	-
42	7.6	Flood Zone 2	None (within 50m)				
42	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
43	**8.1**	**Surface water flooding**	1 in 250 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
45	**9.1**	**Groundwater flooding**	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
46	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	1	1
47	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
47	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
47	10.4	Special Protection Areas (SPA)	0	0	0	0	0
47	10.5	National Nature Reserves (NNR)	0	0	0	0	0
48	**10.6**	**Local Nature Reserves (LNR)**	0	0	0	0	4
48	**10.7**	**Designated Ancient Woodland**	0	0	0	0	6
49	10.8	Biosphere Reserves	0	0	0	0	0
49	10.9	Forest Parks	0	0	0	0	0
49	10.10	Marine Conservation Zones	0	0	0	0	0
49	10.11	Green Belt	0	0	0	0	0
49	10.12	Proposed Ramsar sites	0	0	0	0	0

50	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
50	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
50	10.15	Nitrate Sensitive Areas	0	0	0	0	0
50	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
51	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
52	**10.18**	**SSSI Units**	0	0	0	1	2
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
54	11.1	World Heritage Sites	0	0	0	-	-
55	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
55	11.3	National Parks	0	0	0	-	-
55	11.4	Listed Buildings	0	0	0	-	-
55	**11.5**	**Conservation Areas**	1	0	0	-	-
56	11.6	Scheduled Ancient Monuments	0	0	0	-	-
56	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
57	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
58	12.2	Open Access Land	0	0	0	-	-
58	12.3	Tree Felling Licences	0	0	0	-	-
58	12.4	Environmental Stewardship Schemes	0	0	0	-	-
58	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
59	**13.1**	**Priority Habitat Inventory**	0	0	4	-	-
60	**13.2**	**Habitat Networks**	0	0	1	-	-
60	13.3	Open Mosaic Habitat	0	0	0	-	-
60	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
61	**14.1**	**10k Availability**	Identified (within 500m)				
62	14.2	Artificial and made ground (10k)	0	0	0	0	-
63	14.3	Superficial geology (10k)	0	0	0	0	-

63	14.4	Landslip (10k)	0	0	0	0	-
64	**14.5**	**Bedrock geology (10k)**	1	0	2	0	-
65	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
66	**15.1**	**50k Availability**	Identified (within 500m)				
67	15.2	Artificial and made ground (50k)	0	0	0	0	-
67	15.3	Artificial ground permeability (50k)	0	0	-	-	-
68	15.4	Superficial geology (50k)	0	0	0	0	-
68	15.5	Superficial permeability (50k)	None (within 50m)				
68	15.6	Landslip (50k)	0	0	0	0	-
68	15.7	Landslip permeability (50k)	None (within 50m)				
69	**15.8**	**Bedrock geology (50k)**	1	0	2	0	-
70	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
70	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
71	**16.1**	**BGS Boreholes**	0	0	7	-	-
Page	Section	Natural ground subsidence					
73	**17.1**	**Shrink swell clays**	Moderate (within 50m)				
74	**17.2**	**Running sands**	Very low (within 50m)				
75	**17.3**	**Compressible deposits**	Negligible (within 50m)				
76	**17.4**	**Collapsible deposits**	Very low (within 50m)				
77	**17.5**	**Landslides**	Very low (within 50m)				
78	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
79	18.1	Natural cavities	0	0	0	0	-
80	18.2	BritPits	0	0	0	0	-
80	18.3	Surface ground workings	0	0	0	-	-
80	**18.4**	**Underground workings**	0	0	0	0	10
81	18.5	Historical Mineral Planning Areas	0	0	0	0	-

81	18.6	Non-coal mining	0	0	0	0	0
81	18.7	Mining cavities	0	0	0	0	0
81	18.8	JPB mining areas	None (within 0m)				
81	18.9	Coal mining	None (within 0m)				
82	18.10	Brine areas	None (within 0m)				
82	18.11	Gypsum areas	None (within 0m)				
82	18.12	Tin mining	None (within 0m)				
82	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
83	**19.1**	**Radon**	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
84	**20.1**	**BGS Estimated Background Soil Chemistry**	2	0	-	-	-
84	**20.2**	**BGS Estimated Urban Soil Chemistry**	2	4	-	-	-
85	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
86	21.1	Underground railways (London)	0	0	0	-	-
86	21.2	Underground railways (Non-London)	0	0	0	-	-
86	21.3	Railway tunnels	0	0	0	-	-
86	21.4	Historical railway and tunnel features	0	0	0	-	-
86	21.5	Royal Mail tunnels	0	0	0	-	-
87	21.6	Historical railways	0	0	0	-	-
87	21.7	Railways	0	0	0	-	-
87	21.8	Crossrail 1	0	0	0	0	-
87	21.9	Crossrail 2	0	0	0	0	-
87	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 14/06/2021

Site Area: 0.1ha

Recent site history - 2019 aerial photograph

Capture Date: 29/06/2019

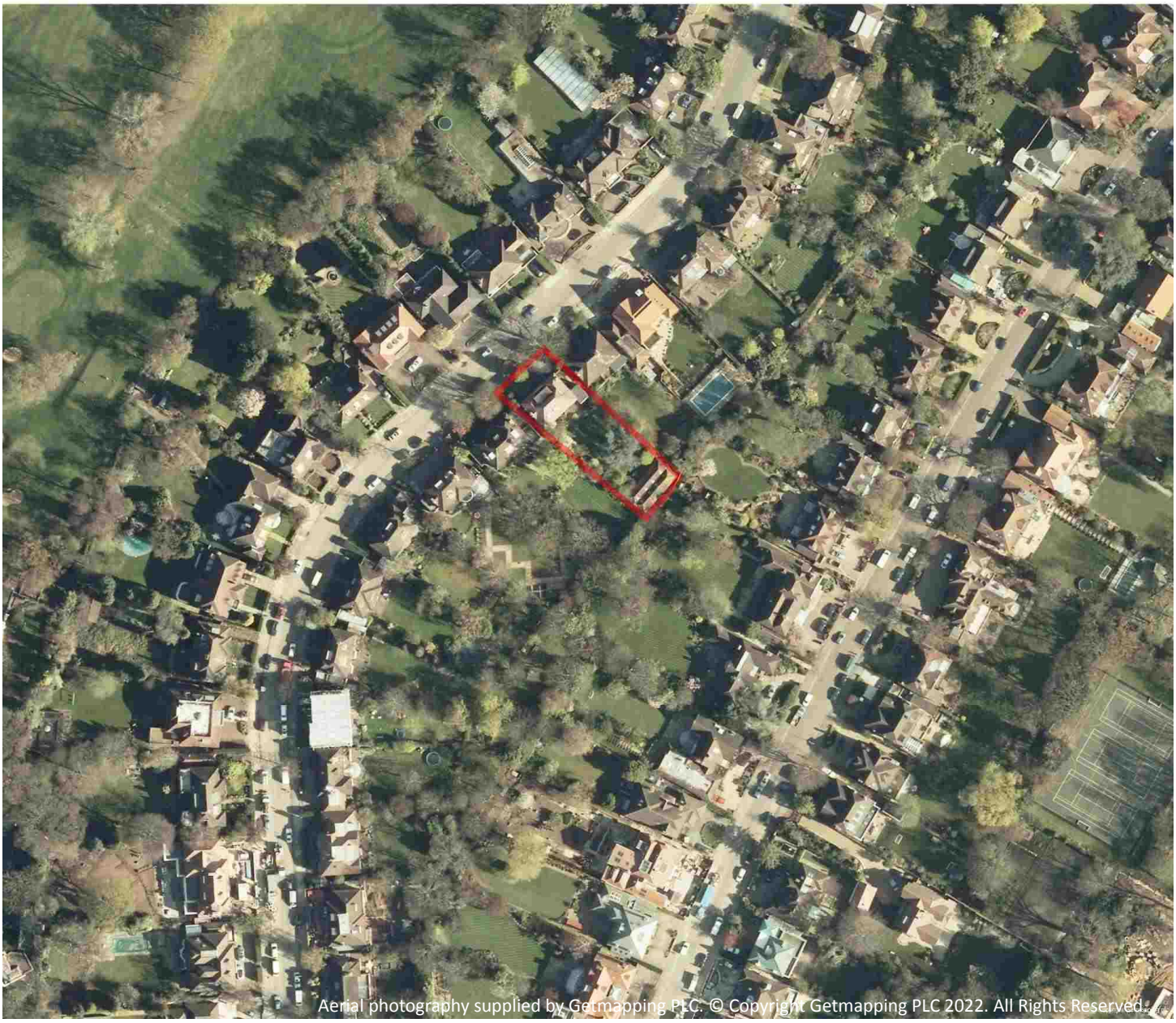
Site Area: 0.1ha

Recent site history - 2013 aerial photograph

Capture Date: 20/04/2013

Site Area: 0.1ha

Recent site history - 2008 aerial photograph



Capture Date: 15/04/2008

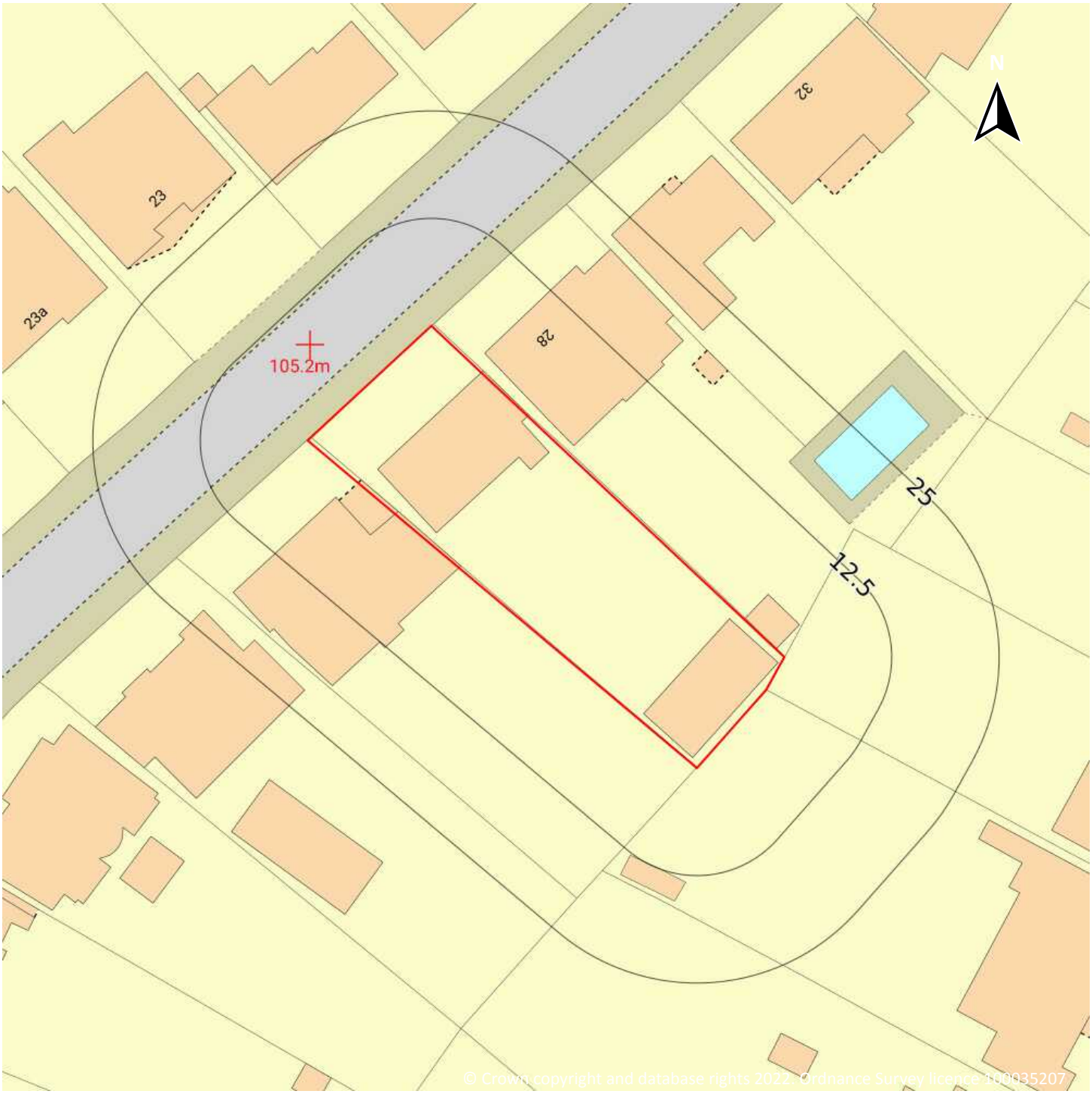
Site Area: 0.1ha

Recent site history - 1999 aerial photograph

Capture Date: 04/09/1999

Site Area: 0.1ha

OS MasterMap site plan



Site Area: 0.1ha

1 Past land use

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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	11

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
2	266m S	Nursery	1958 - 1996	2243738

ID	Location	Land use	Dates present	Group ID
3	278m NE	Hospital	1965 - 1974	2218542
C	359m SE	Hospital	1974 - 1996	2242082
4	390m N	Unspecified Heap	1958	2205597
D	411m S	Unspecified Heap	1958 - 1996	2203862
D	411m S	Unspecified Heap	1949	2242821
E	435m E	Unspecified Ground Workings	1894	2187914
E	440m E	Unspecified Heap	1920	2136550
E	445m E	Unspecified Ground Workings	1949	2224765
E	448m E	Unspecified Ground Workings	1958	2251108
7	480m SW	Unspecified Pit	1949	2125332

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**6**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
1	232m NW	Tanks	1973	376371
D	471m S	Unspecified Tank	1936	364769
D	475m S	Unspecified Tank	1896	364764
D	475m S	Unspecified Tank	1950	364770
6	476m NW	Unspecified Tank	1873	364767
8	497m S	Unspecified Tank	1950	405760

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	6

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	284m N	Electricity Substation	1950 - 1991	284542
A	285m N	Electricity Substation	1950 - 1961	258271
B	302m S	Electricity Substation	1991 - 1995	285043
B	303m S	Electricity Substation	1975	280921
C	450m SE	Electricity Substation	1975 - 1991	275413
5	456m SW	Electricity Substation	1975 - 1995	281087

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

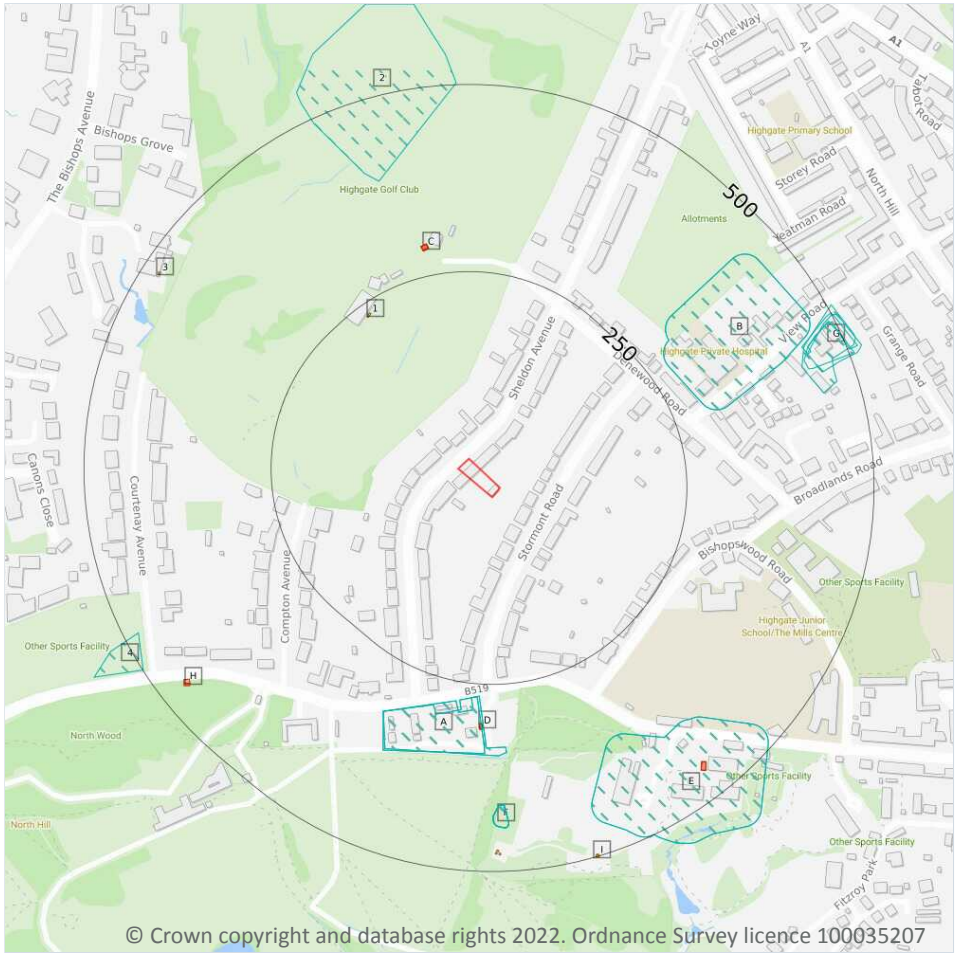
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	19

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	266m S	Nursery	1974	2243738
A	266m S	Nursery	1996	2243738
A	267m S	Nursery	1965	2243738

ID	Location	Land Use	Date	Group ID
A	267m S	Nursery	1958	2243738
B	278m NE	Hospital	1965	2218542
B	278m NE	Hospital	1974	2218542
E	359m SE	Hospital	1974	2242082
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2	390m N	Unspecified Heap	1958	2205597
F	411m S	Unspecified Heap	1965	2203862
F	411m S	Unspecified Heap	1974	2203862
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G	440m E	Unspecified Heap	1920	2136550
G	445m E	Unspecified Ground Workings	1949	2224765
G	448m E	Unspecified Ground Workings	1958	2251108
4	480m SW	Unspecified Pit	1949	2125332

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**7**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	232m NW	Tanks	1973	376371
F	471m S	Unspecified Tank	1936	364769
F	475m S	Unspecified Tank	1896	364764
F	475m S	Unspecified Tank	1950	364770

ID	Location	Land Use	Date	Group ID
3	476m NW	Unspecified Tank	1873	364767
I	497m S	Unspecified Tank	1950	405760
I	497m S	Unspecified Tank	1950	405760

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**12**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
C	284m N	Electricity Substation	1950	284542
C	284m N	Electricity Substation	1973	284542
C	285m N	Electricity Substation	1991	284542
C	285m N	Electricity Substation	1950	258271
C	285m N	Electricity Substation	1961	258271
D	302m S	Electricity Substation	1991	285043
D	303m S	Electricity Substation	1995	285043
D	303m S	Electricity Substation	1975	280921
E	450m SE	Electricity Substation	1975	275413
E	451m SE	Electricity Substation	1991	275413
H	456m SW	Electricity Substation	1975	281087
H	459m SW	Electricity Substation	1995	281087

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	2

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	266m N	DENEWOOD ROAD, LONDON, N6 4AH	WEX251728	Disposing of waste exemption	Not on a farm	Burning waste in the open
2	337m NE	-	WEX267137	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use

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Site Outline

Search buffers in metres (m)

Recent industrial land uses

Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	2

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Company	Address	Activity	Category
A	233m NW	Tank	Greater London, N6	Tanks (Generic)	Industrial Features
A	235m NW	Tank	Greater London, N6	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	1

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Address	Details	
1	440m NW	Bishops Wood	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: TEMP.0030 Permit Version: 1 Receiving Water: RIVER THAMES	Status: REVOKED - UNSPECIFIED Issue date: 15/09/1989 Effective Date: 15/09/1989 Revocation Date: 05/10/2000

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer

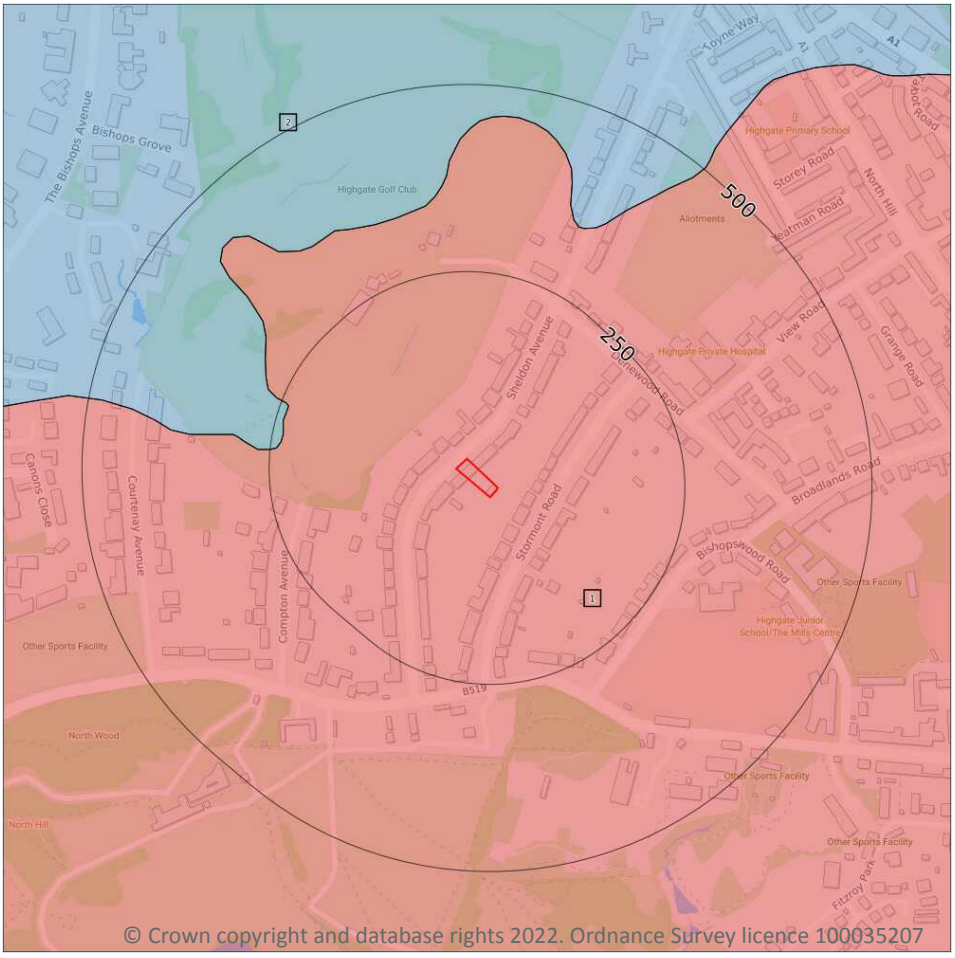
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	2

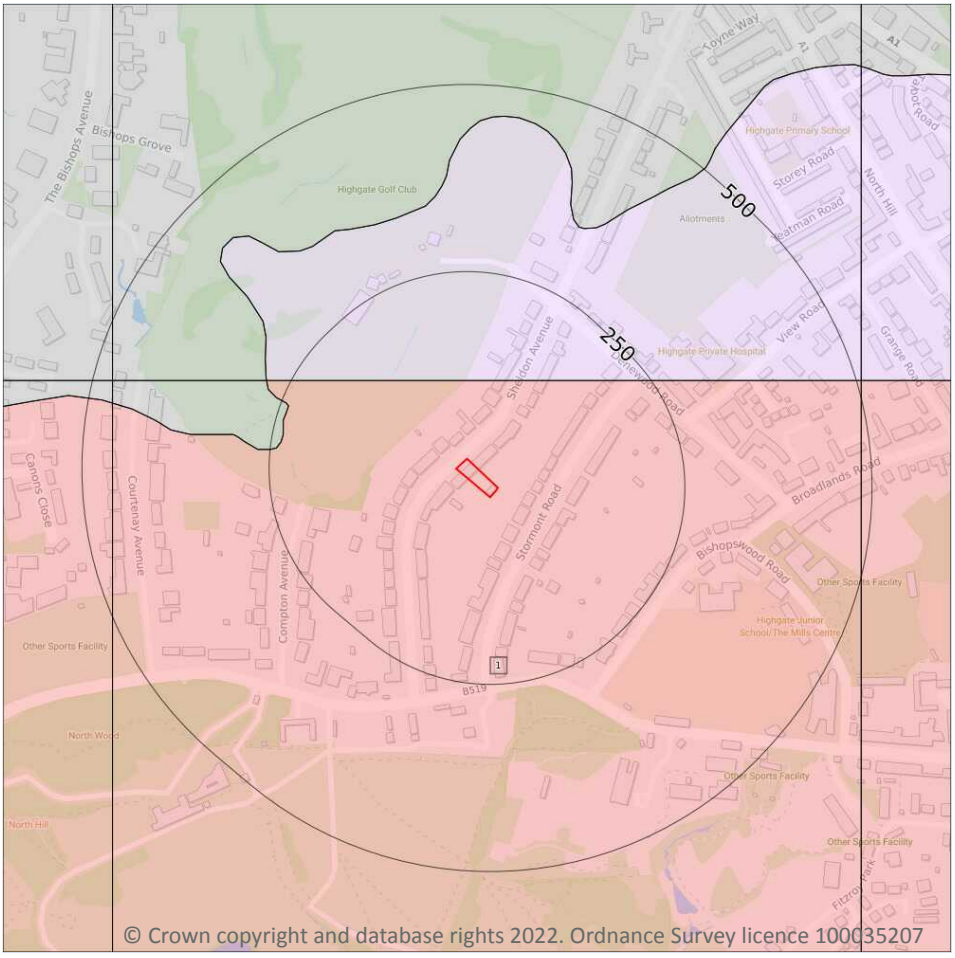
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 32**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	236m W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability
- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability
- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 33**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Mixed**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones

5.6 Groundwater abstractions

Records within 2000m	0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

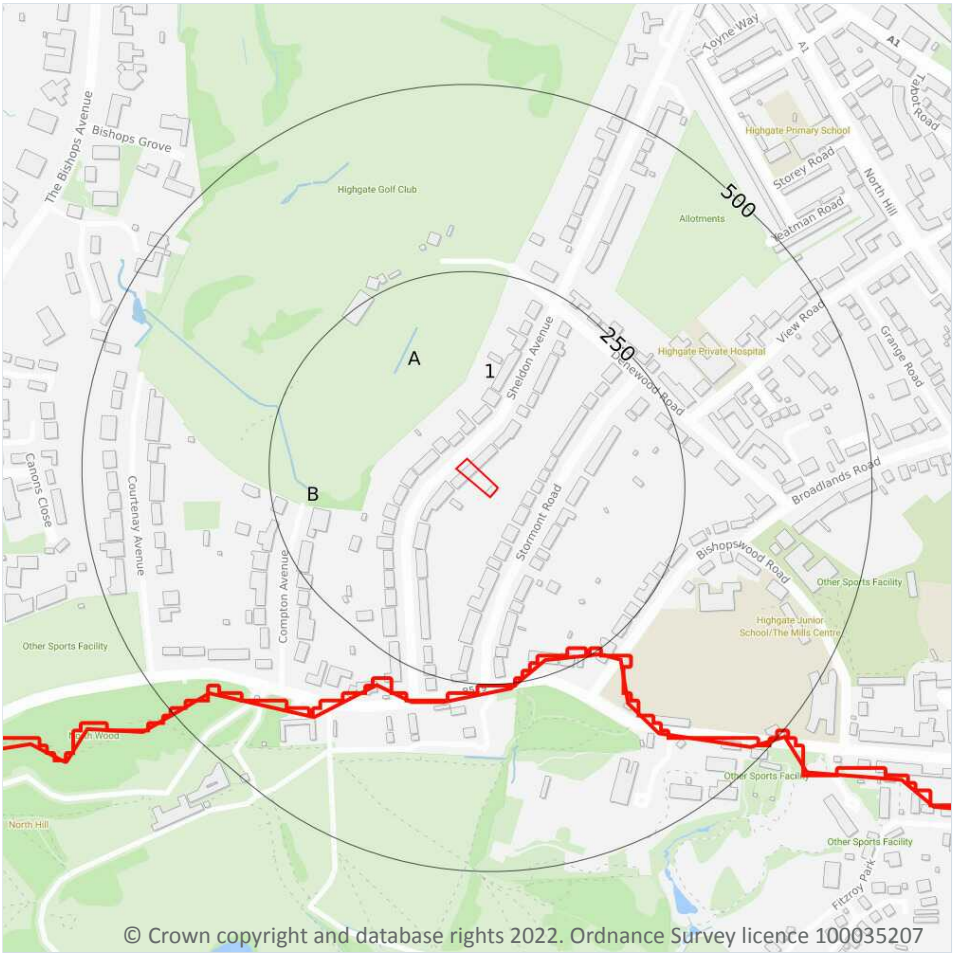
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	9

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 37**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	149m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
B	200m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	207m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	215m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	221m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	237m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	247m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	248m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	249m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	3

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 37**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 37**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River**	**Dollis Brook and Upper Brent**	**GB106039022980**	**Brent Rivers and Lakes**	**London**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 37**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	3537m W	River	Dollis Brook and Upper Brent	GB106039022980	Moderate	Fail	Moderate	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	0

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

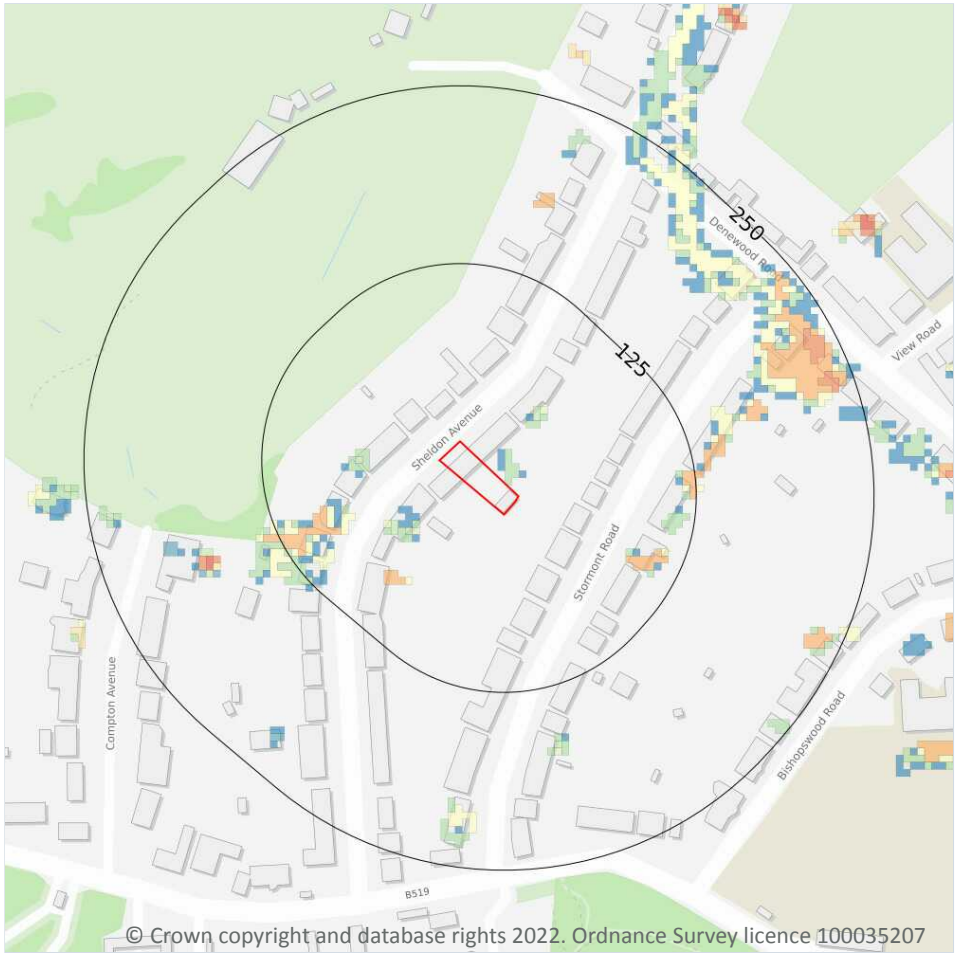
7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 250 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 250 year, Greater than 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 43**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding

Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

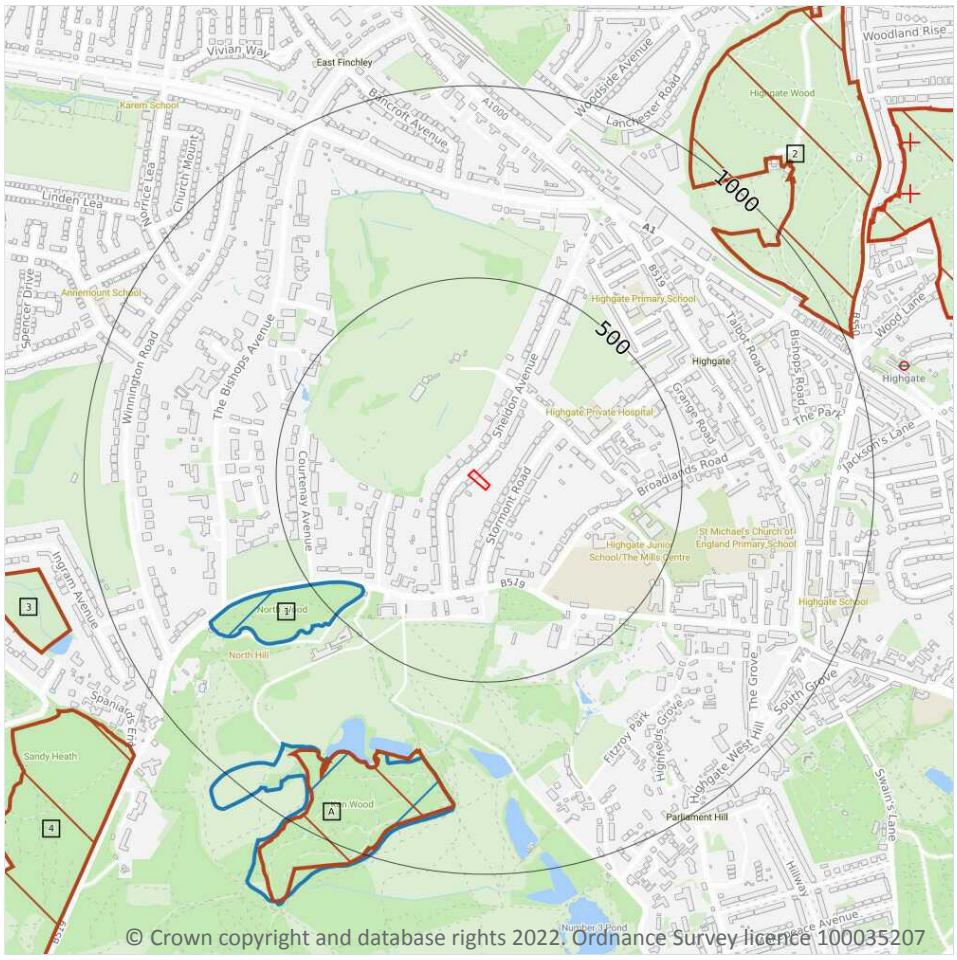
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 45**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Local Nature Reserves (LNR)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	2

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Data source
1	402m SW	Hampstead Heath Woods	Natural England

ID	Location	Name	Data source
A	715m S	Hampstead Heath Woods	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	4

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Data source
B	1171m NE	Queen's Wood	Natural England
-	1238m E	Parkland Walk	Natural England
-	1604m NE	Parkland Walk	Natural England
-	1922m NW	Big Wood & Little Wood	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	6

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Woodland Type
A	700m S	Ken Wood	Ancient & Semi-Natural Woodland
2	875m NE	Queens Wood	Ancient & Semi-Natural Woodland
3	1111m W	Unknown	Ancient & Semi-Natural Woodland
4	1128m SW	Bishops Wood	Ancient & Semi-Natural Woodland
B	1171m NE	Queens Wood	Ancient & Semi-Natural Woodland
-	1922m NW	Big Wood	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

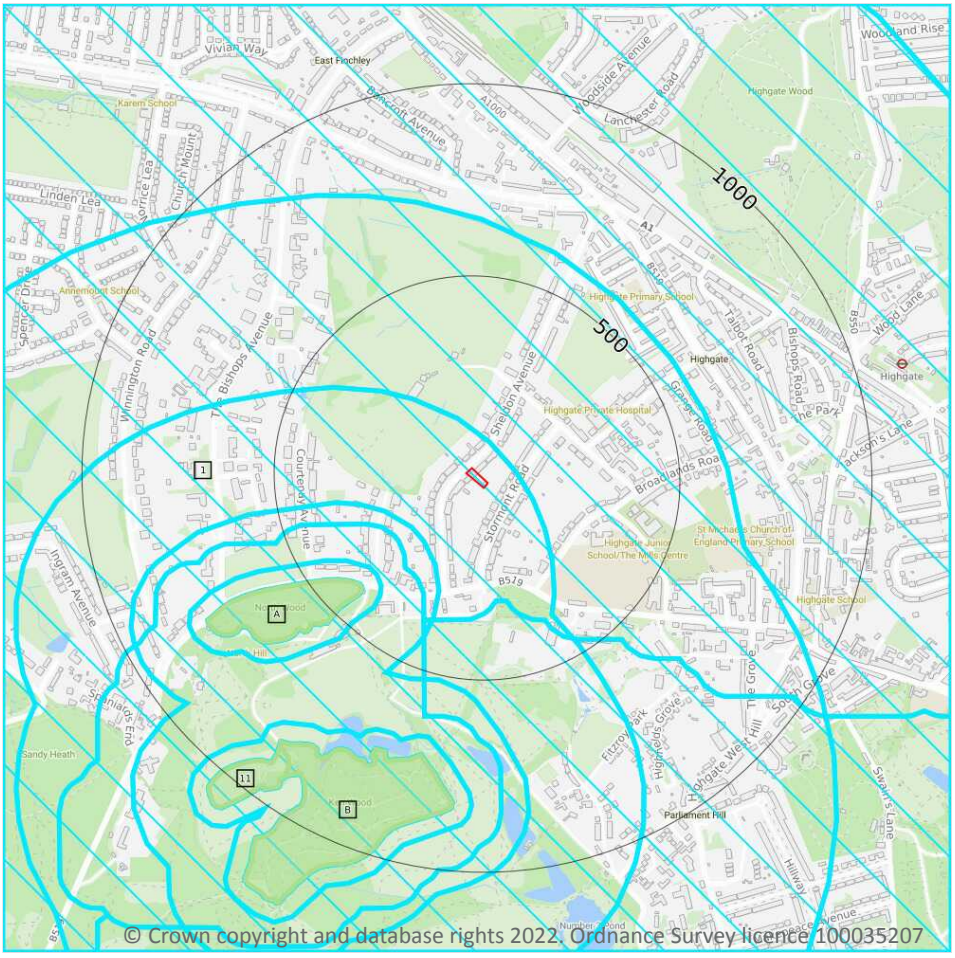
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 51**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals.** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction.** **Residential - Residential development of 100 units or more.** **Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.** **Air pollution - Any development that could cause air pollution (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores).** **Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management.** **Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.** **Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	3

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 51**

ID: A
Location: 402m SW
SSSI name: Hampstead Heath Woods
Unit name: 2
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	18/05/2018

ID: B
Location: 715m S
SSSI name: Hampstead Heath Woods
Unit name: 2
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

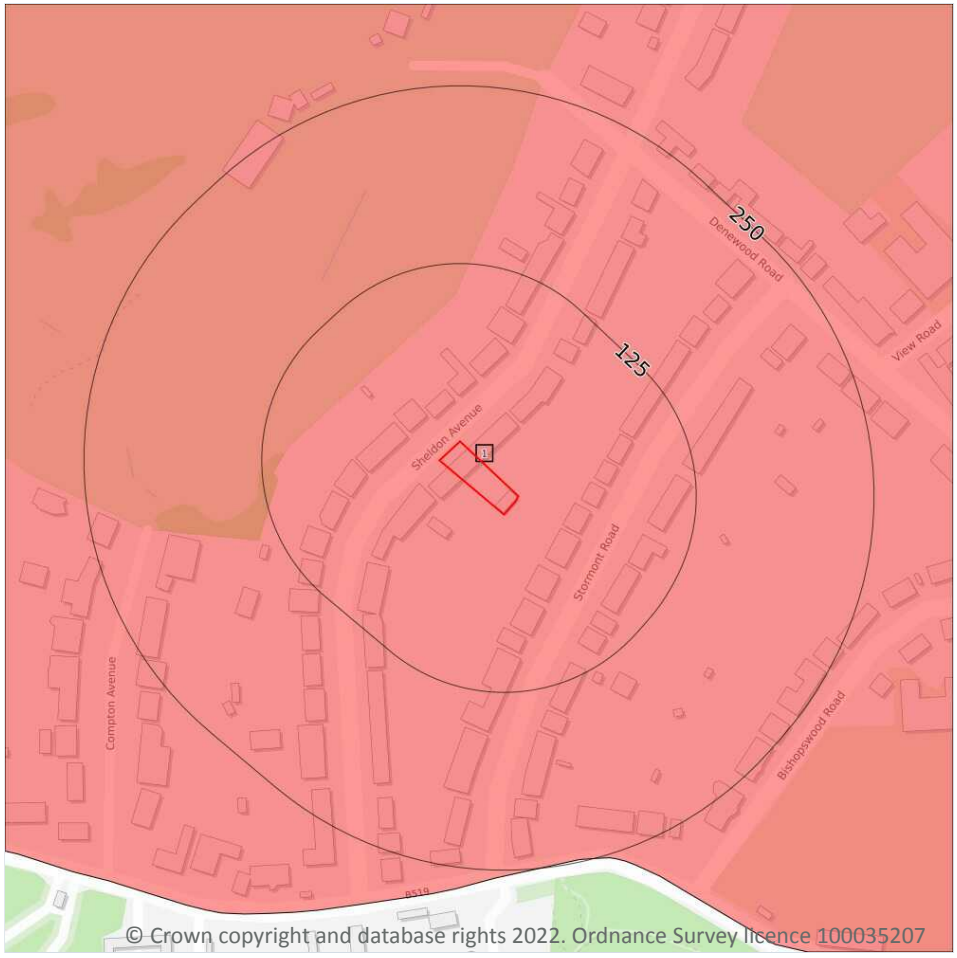
Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	18/05/2018

ID: 11
Location: 857m SW
SSSI name: Hampstead Heath Woods
Unit name: 1
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Spring/flush fen (lowland)	Favourable	18/05/2018

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	1

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

Features are displayed on the Visual and cultural designations map on **page 54**

ID	Location	Name	District	Date of designation
1	**On site**	**Highgate, Haringey**	**Haringey**	**21/12/1967**

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	**0**

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m	**0**

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations

Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 57**

ID	Location	Classification	Description
1	**On site**	**Urban**	**-**

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	4

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 59**

ID	Location	Main Habitat	Other habitats
2	136m SE	No main habitat but additional habitats present	Main habitat: DWOOD (INV > 50%)
3	175m E	No main habitat but additional habitats present	Main habitat: DWOOD (INV > 50%)
4	180m E	No main habitat but additional habitats present	Main habitat: DWOOD (INV > 50%)
5	247m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	1

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 59**

ID	Location	Type	Habitat
1	69m S	Network Enhancement Zone 2	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

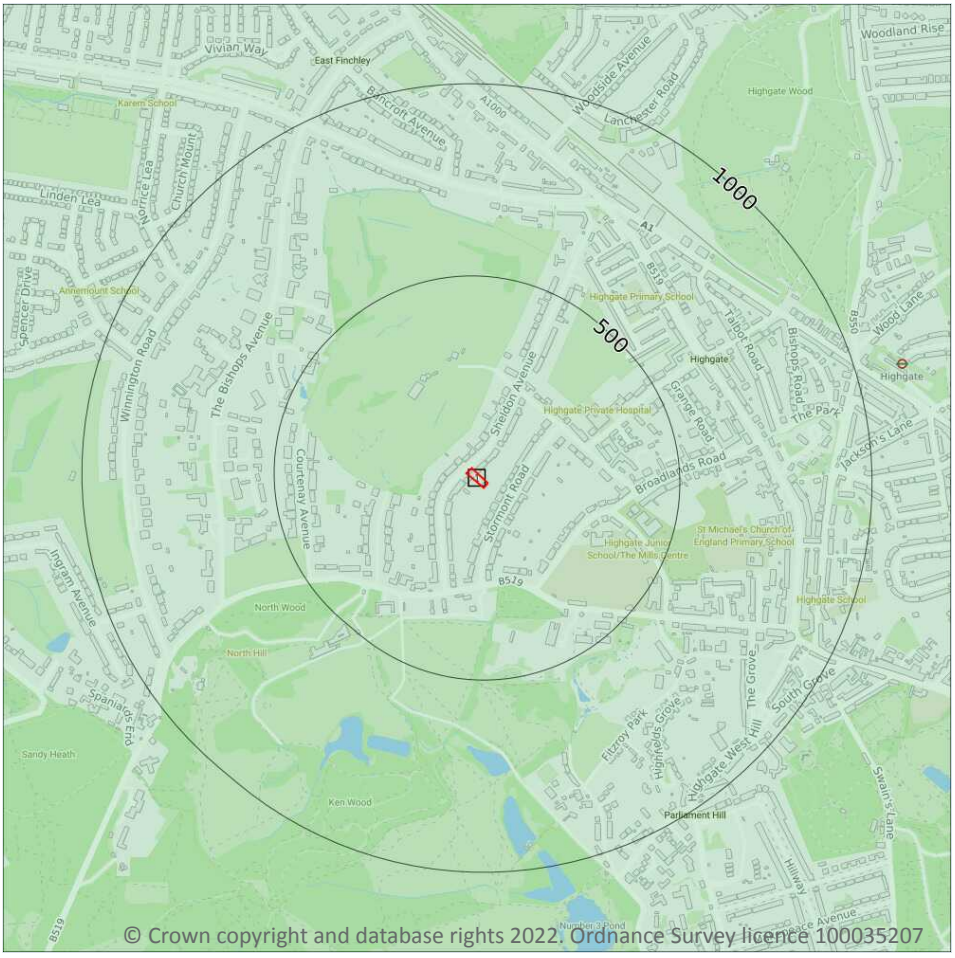
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 61**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TQ28NE**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

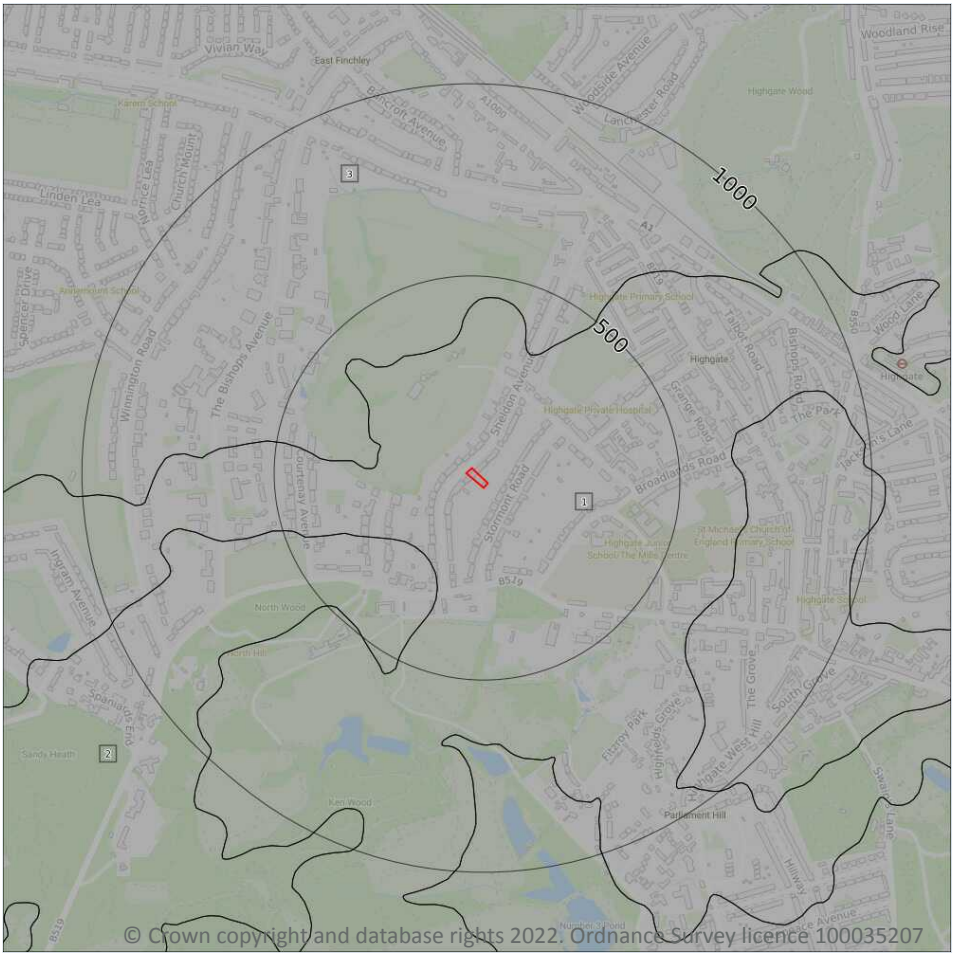
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	3

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 64**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CLGB-SDST**	**Claygate Member - Sandstone**	**Eocene Epoch**
2	232m SW	BGS-SANDU	Bagshot Formation - Sand	Eocene Epoch
3	233m W	LC-CLAY	London Clay Formation - Clay	Eocene Epoch

This data is sourced from the British Geological Survey.

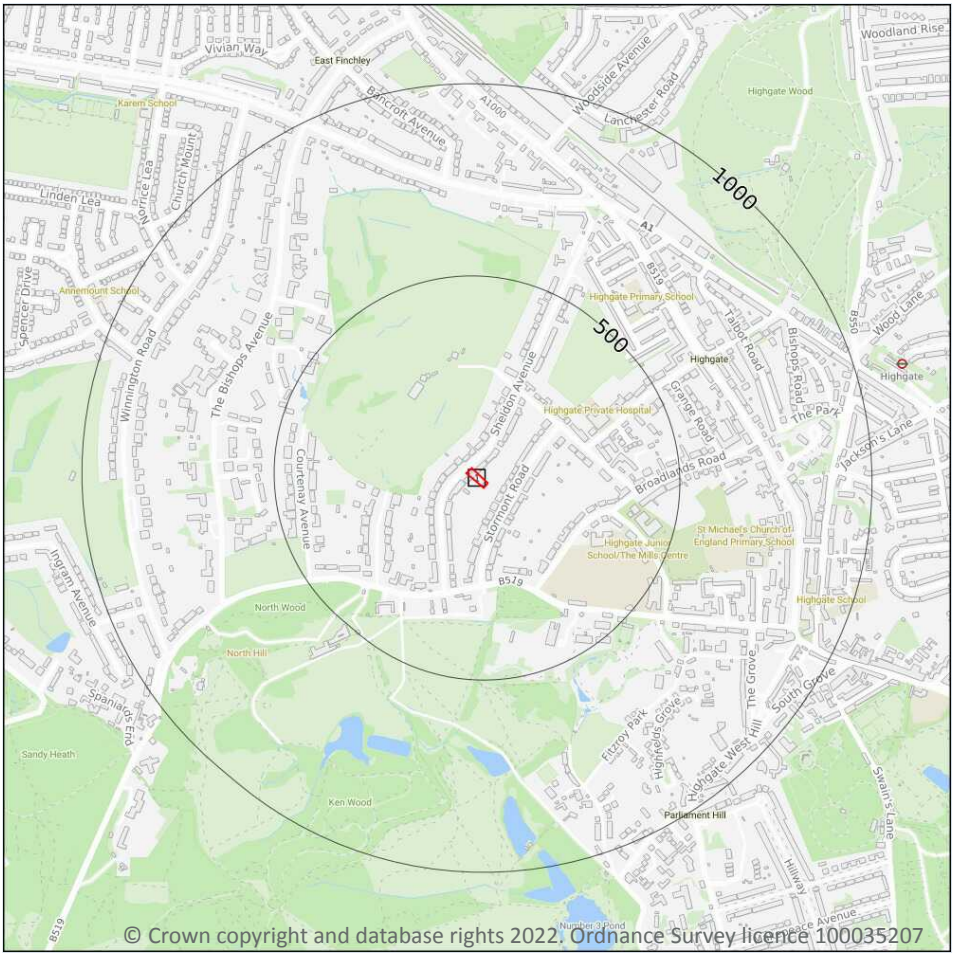
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



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Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 66**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW256_north_london_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

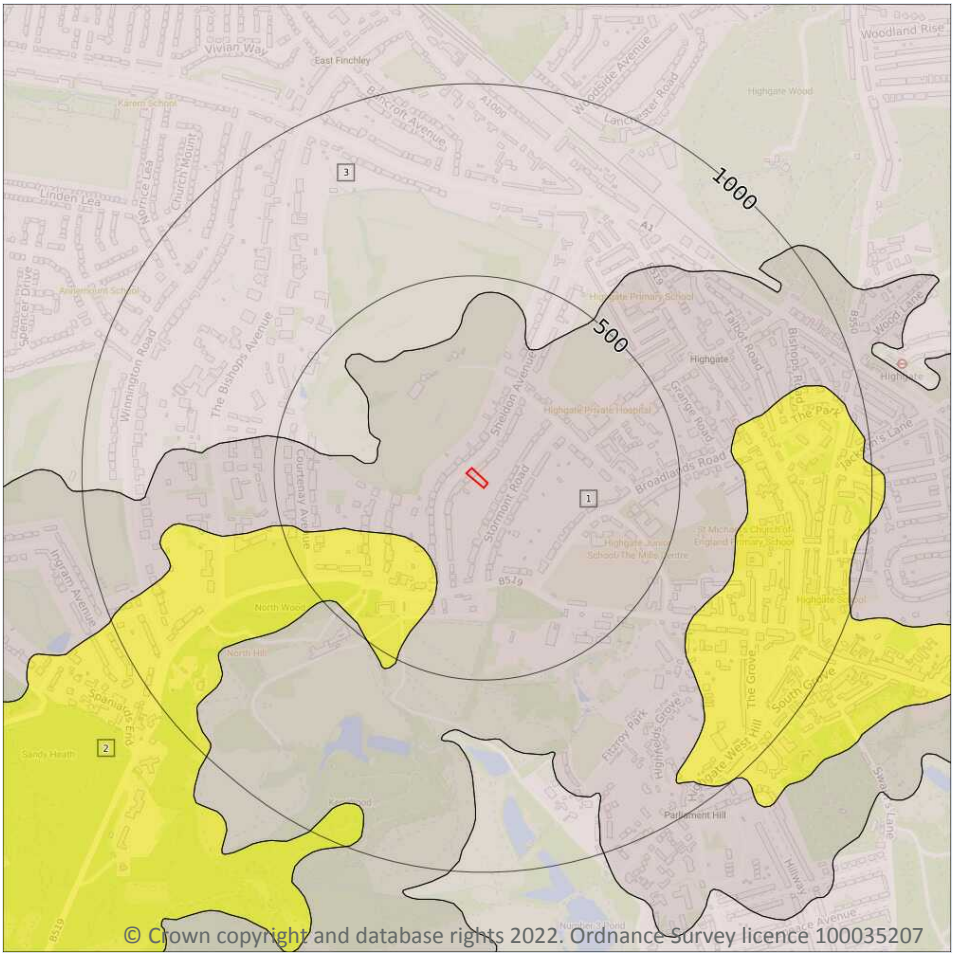
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	3

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 69**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CLGB-XCZS**	**CLAYGATE MEMBER - CLAY, SILT AND SAND**	**YPRESIAN**
2	222m SW	BGS-S	BAGSHOT FORMATION - SAND	YPRESIAN
3	236m W	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Very Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes

Site Outline

Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m	7

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

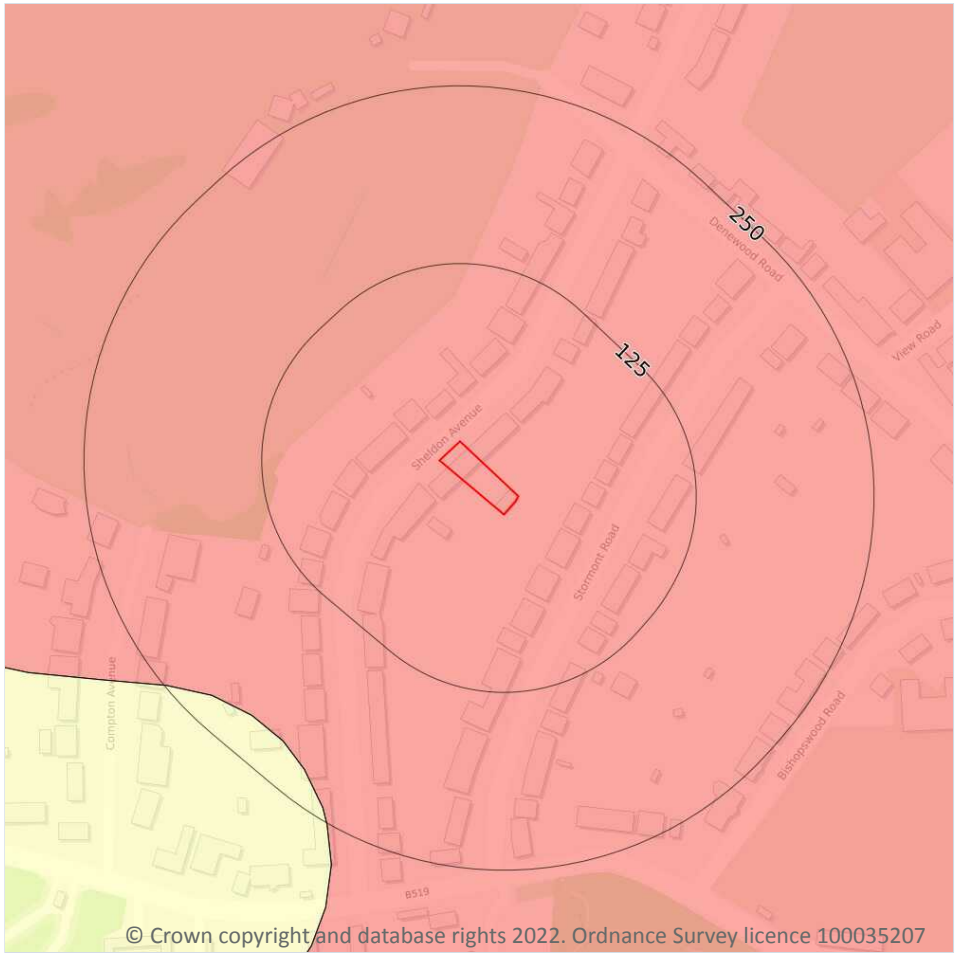
Features are displayed on the Boreholes map on **page 71**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	211m SE	527667 187709	18 BISHOPSWOOD ROAD LONDON N6 2	10.0	N	18375052
A	230m SE	527681 187696	18 BISHOPSWOOD ROAD LONDON N6 1A	20.0	N	18375049
A	233m SE	527683 187694	18 BISHOPSWOOD ROAD LONDON N6 1	10.2	N	18375044

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	239m SE	527686 187689	18 BISHOPSWOOD ROAD LONDON N6 TP4	3.1	N	18375061
A	240m SE	527695 187698	18 BISHOPSWOOD ROAD LONDON N6 TP2	0.65	N	18375056
A	241m SE	527693 187694	18 BISHOPSWOOD ROAD LONDON N6 TP3	0.65	N	18375059
A	241m SE	527698 187699	18 BISHOPSWOOD ROAD LONDON N6 TP1	3.1	N	18375054

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

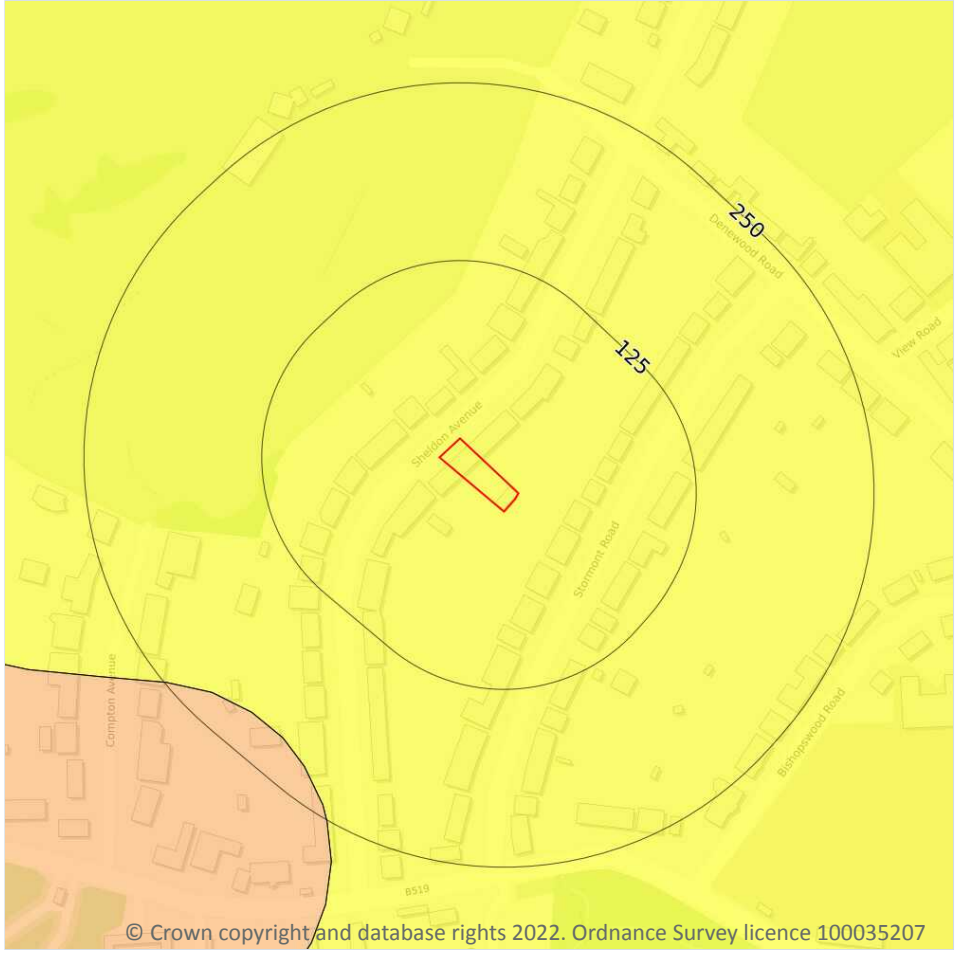
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 73**

Location	Hazard rating	Details
On site	**Moderate**	**Ground conditions predominantly high plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 74**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 75**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits

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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 76**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides

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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 77**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks

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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

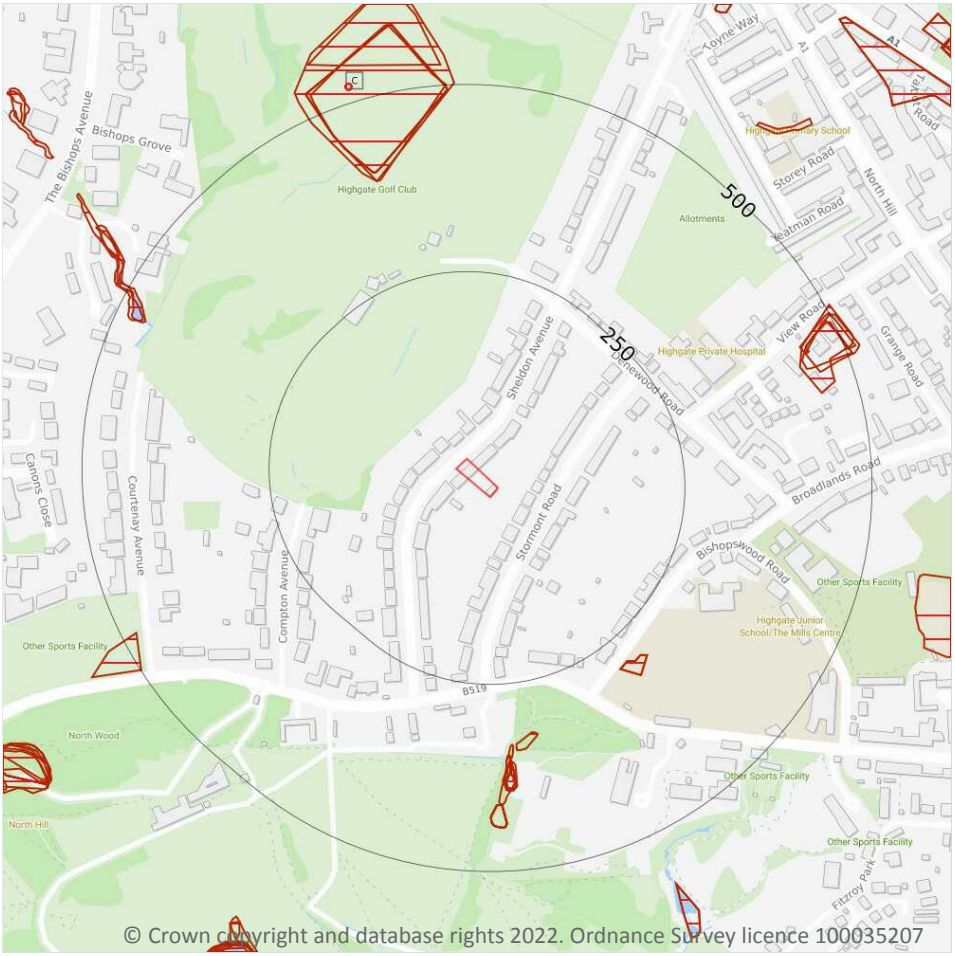
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 78**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	0

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	10

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 79**

ID	Location	Land Use	Year of mapping	Mapping scale
C	517m N	Unspecified Shaft	1965	1:10560
C	517m N	Unspecified Shaft	1974	1:10000
C	517m N	Unspecified Shaft	1995	1:10000
-	900m NE	Tunnels	1965	1:10560
-	900m NE	Tunnels	1974	1:10000
-	900m NE	Tunnels	1995	1:10000
-	900m NE	Tunnels	1958	1:10560
-	903m NE	Tunnel	1869	1:10560
-	903m NE	Tunnel	1879	1:10560
-	903m NE	Tunnel	1879	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon

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Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 83**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	6

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**16**	**2.8**	**258**	**177**	**0.5**	**100**	**52**	**23**	**28**
On site	**18**	**3.2**	**293**	**201**	**0.5**	**90**	**60**	**28**	**28**
4m NW	18	3.2	279	192	0.5	92	56	27	25
21m NE	18	3.2	271	186	0.5	97	53	25	24
44m S	16	2.8	251	172	0.5	97	51	22	28
44m S	16	2.8	279	192	0.5	92	60	26	36

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

APPENDIX 2

FLOODVIEW REPORT

Groundsure
LOCATION INTELLIGENCE

Floodview

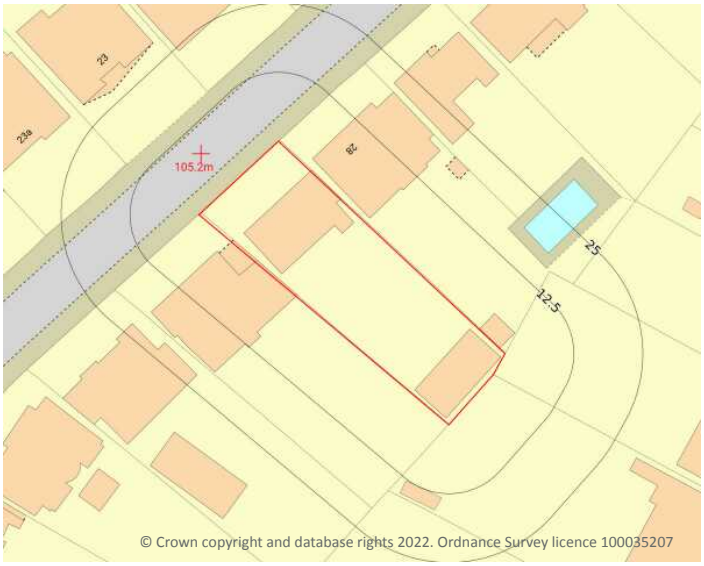
26, SHELDON AVENUE, HORNSEY, LONDON, N6 4JT

Overall Flood Risk

NEGLIGIBLE

Complies with relevant Law Society practice notes on flood risk in property transactions.

Site plan



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Search Results

Rivers and the Sea
Very Low

Groundwater
Negligible

Historic Flood
Not identified

FloodScore™ insurance rating
Very Low

Flood Defences
No

NPPF Requirements

Surface Water
Negligible

Full assessments for other environmental risks are available in other Groundsure searches including Groundsure Review report. Contact Groundsure or your search provider for further details.

Overview of findings and recommendations

To save you time when assessing the report, we only provide maps and data tables of features within the search radius that we have identified to be of note. These relate to environmental risks that may have liability implications, affect insurance premiums, property values and/or a lender's willingness to lend.

You can view the fully comprehensive library of information we have searched on **page 4**.

Flooding

National Planning Policy Framework (NPPF)

A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use. The NPPF states that the flood risk assessment should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment.

Datasets searched

This is a full list of the data searched in this report. If we have found results of note we will state "Identified". If no results of note are found, we will state "Not identified". Our intelligent filtering will hide "Not identified" sections to speed up your workflow.

Flooding	
Risk of flooding from rivers and the sea	Not identified
Flood storage areas: part of floodplain	Not identified
Historical flood areas	Not identified
Areas benefiting from flood defences	Not identified
Flood defences	Not identified
Proposed flood defences	Not identified
Surface water flood risk	Not identified
Groundwater flooding	Not identified

Flood information

The Flood Risk Assessment section is based on datasets covering a variety of different flooding types. No inspection of the property or of the surrounding area has been undertaken by Groundsure or the data providers. The modelling of flood hazards is extremely complex and in creating a national dataset certain assumptions have been made and all such datasets will have limitations. These datasets should be used to give an indication of relative flood risk rather than a definitive answer. Local actions and minor variations, such as blocked drains or streams etc. can greatly alter the effect of flooding. A low or negligible modelled flood risk does not guarantee that flooding will not occur. Nor will a high risk mean that flooding definitely will occur. Groundsure's overall flood risk assessment takes account of the cumulative risk of river and coastal data, historic flood events and areas benefiting from flood defences provided by the Environment Agency/Natural Resources Wales (in England and Wales) and surface water (pluvial) and groundwater flooding provided by Ambiental Risk Analytics. In Scotland the river and coastal flood models are also provided by Ambiental Risk Analytics.

Risk of flooding from rivers and the sea

This is an assessment of flood risk for England and Wales produced using local data and expertise, provided by the Environment Agency (RoFRaS model) and Natural Resources Wales (FRAW model). It shows the chance of flooding from rivers or the sea presented in categories taking account of flood defences and the condition those defences are in. The model uses local water level and flood defence data to model flood risk.

The categories associated with the Environment Agency and Natural Resources Wales models are as follows:

RoFRaS (rivers and sea) and FRAW (rivers):

Very Low - The chance of flooding from rivers or the sea is considered to be less than 1 in 1000 (0.1%) in any given year.

Low - The chance of flooding from rivers or the sea is considered to be less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) in any given year.

Medium - The chance of flooding from rivers or the sea is considered to be less than 1 in 30 (3.3%) but greater than 1 in 100 (1%) in any given year.

High - The chance of flooding from rivers or the sea is considered to be greater than or equal to 1 in 30 (3.3%) in any given year.

FRAW (sea):

Very Low - The chance of flooding from the sea is considered to be less than 1 in 1000 (0.1%) in any given year.

Low - The chance of flooding from the sea is considered to be less than 1 in 200 (0.5%) but greater than or equal to 1 in 1000 (0.1%) in any given year.

Medium - The chance of flooding from the sea is considered to be less than 1 in 30 (3.3%) but greater than 1 in 200 (0.5%) in any given year.

High - The chance of flooding from the sea is considered to be greater than or equal to 1 in 30 (3.3%) in any given year.

Historic flood events

Over 86,000 events are recorded within this database. This data is used to understand where flooding has occurred in the past and provides details as available. Absence of a historic flood event for an area does not mean that the area has never flooded, but only that Environment Agency/Natural Resources Wales do not currently have records of flooding within the area. Equally, a record of a flood footprint in previous years does not mean that an area will flood again, and this information does not take account of flood management schemes and improved flood defences.

Surface water flooding

Ambiental Risk Analytics surface water flood map identifies areas likely to flood following extreme rainfall events, i.e. land naturally vulnerable to surface water or “pluvial” flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1000 year rainfall events. The flood risks for these rainfall events are reported where the depth would be greater than the threshold for a standard property to modern building standards. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though older ones may even flood in a 1 in 5 year rainstorm event.

Proposed flood defences

The data includes all Environment Agency/Natural Resources Wales's projects over £100K that will change or sustain the standards of flood defence in England and Wales over the next 5 years. It also includes the equivalent schemes for all Local Authority and Internal Drainage Boards.

Flood storage areas

Flood Storage Areas may also act as flood defences. A flood storage area may also be referred to as a balancing reservoir, storage basin or balancing pond. Its purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval. These areas are also referred to as Zone 3b or 'the functional floodplain' and has a 5% or greater chance of flooding in any given year, or is designed to flood in the event of an extreme (0.1%) flood or another probability which may be agreed between the Local Planning Authority and Environment Agency/Natural Resources Wales, including water conveyance routes. Development within Flood Storage Areas is severely restricted.

Groundwater flooding

Groundwater flooding is flooding caused by unusually high groundwater levels. It occurs as excess water emerging at the ground surface or within underground structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months, and it can result in significant damage to property. This risk assessment is based on a 5m Digital Terrain Model (DTM) and 1 in 100 year and 1 in 250 year return periods.

Conveyancing Information Executive and our terms & conditions

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The Standards

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- Compliance with the Conveyancing Information Executive Standards will be a condition within the Conveyancing Information Executive Member's Terms and Conditions.
- Conveyancing Information Executive Members will promote the benefits of and deliver the Search to the agreed standards and in the best interests of the customer and associated parties.

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- acknowledge it within 5 working days of receipt
- normally deal with it fully and provide a final response, in writing, within 20 working days of receipt
- liaise, at your request, with anyone acting formally on your behalf

Complaints should be sent to:
Operations Director, Groundsure Ltd, Sovereign House, Church Street, Brighton, BN1 1UJ. Tel: 08444 159 000. Email: info@groundsure.com If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk We will co-operate fully with the Ombudsman during an investigation and comply with their final decision.

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Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information in your Floodview report. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

APPENDIX 3

EXPLORATORY HOLE LOGS

Percussion Drilling Log

Project Name: 26 Sheldon Avenue	Client: qR Architects Ltd	Date: 25/10/2022 - 27/10/2022
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: DJR Geotechnical Drilling Ltd	
Project No. : B2538	Crew Name: DJR	Drilling Equipment: Dando 150

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP		CA	1:25	Sheet 1 of 5

Sample and In Situ Testing						
Depth (m)	Type	Results	Depth (m)	Level (m)	Stratum Description	
0.00 - 0.50	B				MADE GROUND: Paving Slab	
0.00 - 0.50	ES		0.10		MADE GROUND: Yellow brown fine to coarse SAND with large fragments of red brick and concrete.	
0.50 - 1.20	B		0.50		MADE GROUND: Brown/orange mottled grey sandy CLAY with large fragments of red brick. Sand is fine to coarse.	
0.70 - 1.00	D					
0.70 - 1.00	ES					
			1.00		Brown mottled grey slightly silty sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).	1
1.20	SPT	N=8 (1,1/1,2,2,3)				
1.30	D					
2.00	D				*...becoming brown mottled dark yellow and very sandy.*	2
2.00	SPT	N=11 (1,1/2,3,3,3)				
3.00	D					3
3.00	ES					
3.00	SPT	N=15 (1,2/3,4,4,4)				
4.00	D		4.00		Friable firm to very stiff dark grey slightly silty very sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).	4
4.00 - 5.00	B					
4.00	SPT	N=12 (1,2/2,3,3,4)				
4.50	D					
4.50	ES					
5.00 - 5.45	UT					5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		11.00	150								

Remarks

Hand dug pit to 0.50mbgl. Groundwater was encountered at 8.50mbgl.

Percussion Drilling Log

Project Name: 26 Sheldon Avenue	Client: qR Architects Ltd	Date: 25/10/2022 - 27/10/2022
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: DJR Geotechnical Drilling Ltd	
Project No. : B2538	Crew Name: DJR	Drilling Equipment: Dando 150

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP		CA	1:25	Sheet 2 of 5

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
								Friable firm to very stiff dark grey slightly silty very sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).	
		6.00	D						6
		6.00	SPT	N=17 (2,3/4,4,4,5)					
		6.50	ES						
		7.00	D						7
		7.00 - 7.45	UT						
		7.50	D						
		8.00	D						8
		8.00	SPT	N=16 (2,2/3,4,4,5)					
	▼	8.50	ES						
		9.00	D						9
		9.00 - 9.45	UT						
		9.50	D						
		10.00	D						10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		11.00	150								

Remarks

Hand dug pit to 0.50mbgl. Groundwater was encountered at 8.50mbgl.

Percussion Drilling Log

Project Name: 26 Sheldon Avenue	Client: qR Architects Ltd	Date: 25/10/2022 - 27/10/2022
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: DJR Geotechnical Drilling Ltd	
Project No. : B2538	Crew Name: DJR	Drilling Equipment: Dando 150

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP		CA	1:25	Sheet 3 of 5

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		10.00	SPT	N=20 (3,3/4,5,5,6)				Friable firm to very stiff dark grey slightly silty very sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).	
		10.50	D						
		10.50	ES						
		11.00	D						11
		11.00 - 11.45	UT						
		11.50	D						
		12.00	D						12
		12.00	ES						
		12.00	SPT	N=22 (3,4/5,5,5,7)					
		13.00	D					*...becoming sandy.*	13
		13.00	ES						
		13.00 - 13.45	UT						
		14.00	D						14
		14.00	ES						
		14.00	SPT	N=24 (3,4/5,6,6,7)					
		15.00	D						15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		11.00	150								

Remarks

Hand dug pit to 0.50mbgl. Groundwater was encountered at 8.50mbgl.

Percussion Drilling Log

Project Name: 26 Sheldon Avenue	Client: qR Architects Ltd	Date: 25/10/2022 - 27/10/2022
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: DJR Geotechnical Drilling Ltd	
Project No. : B2538	Crew Name: DJR	Drilling Equipment: Dando 150

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP		CA	1:25	Sheet 4 of 5

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		15.00	ES					Friable firm to very stiff dark grey slightly silty very sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).	
		15.00 - 15.45	UT						
		15.50	D						
		16.00	D						16
		16.00	ES						
		16.00	SPT	N=27 (4,5/6,7,7,7)					
		17.00	D						17
		17.00	ES						
		17.00 - 17.45	UT						
		17.50	D						
		18.00	D					*...with rare shell fragments.*	18
		18.00	ES						
		18.00	SPT	N=38 (4,6/8,10,10,10)					
		19.00	D						19
		19.00 - 19.45	UT						
		19.50	D						
		20.00	D		20.00				20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		11.00	150								

Remarks

Hand dug pit to 0.50mbgl. Groundwater was encountered at 8.50mbgl.

Percussion Drilling Log

Project Name: 26 Sheldon Avenue	Client: qR Architects Ltd	Date: 25/10/2022 - 27/10/2022
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: DJR Geotechnical Drilling Ltd	
Project No. : B2538	Crew Name: DJR	Drilling Equipment: Dando 150

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP		CA	1:25	Sheet 5 of 5

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		20.00 20.00	ES SPT	 N=34 (4,6/7,7,10,10)				End of Borehole at 20.000m

21
22
23
24
25

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		11.00	150								

Remarks

Hand dug pit to 0.50mbgl. Groundwater was encountered at 8.50mbgl.

Window Sample Log

Project Name: Sheldon Avenue	Client: qR Architects	Date: 05/12/2023
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: PM Sampling	Co-ords: E527480.00 N187873.00
Project No. : 3428	Crew Name: PM Sampling	Drilling Equipment: Modular WS Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS01	WS		CK	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.30			MADEGROUND: Grass over soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse of brick and flint. Sand is fine to medium.
		0.50 - 0.70	ES		0.50			*Root 1.5cm in diameter*
		1.00 - 1.20	D					Soft pale brown mottled orange grey slightly sandy CLAY. Sand is fine.
								Soft to very soft fissured pale brown mottled grey orange slightly sandy CLAY. Sand is fine. Fissures are undulating and very closely spaced.
								Gravelly band. Gravel is subrounded fine to medium of chalk. Band is 5cm thick.
	▼	1.80 - 2.00	ES		1.70			Soft fissured reddish brown mottled grey sandy CLAY. Sand is fine. Fissures are undulating and very closely spaced.
					2.00			
					2.20			No recovery due to groundwater being present.
		2.60 - 2.80	D					Soft fissured reddish brown mottled grey very sandy CLAY. Sand is fine.
					2.80			*Sandy band 3mm thick.*
								Soft fissured mottled dark reddish brown grey and orange sandy CLAY. Sand is fine.
		3.30 - 3.70	B		3.30			Soft blueish grey sandy CLAY. Sand is fine.
	▼				4.00			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	87										
2.00	76										
3.00	67										
4.00	56										

Remarks

1. Scanned with cable avoidance tool. 2. Borehole terminated at 4.0m due to difficult drilling conditions. 3. Groundwater encountered at 2.0-2.2m and at 4.0m which rose to 2.5m after 30 minutes. Window sample hole backfilled with arisings.

Window Sample Log

Project Name: Sheldon Avenue	Client: qR Architects	Date: 05/12/2023
Location: 26 Sheldon Avenue, London, N6 4JT	Contractor: PM Sampling	Co-ords: E527486.00 N187876.00
Project No. : 3428	Crew Name: PM Sampling	Drilling Equipment: Modular WS Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS02	WS		CK	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.30 - 0.50	ES		0.30			MADEGROUND: Grass over soft dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is subangular to subrounded fine to coarse of brick and asphalt. Sand is fine to medium.
		0.50 - 0.70	D		0.50			MADEGROUND: Soft pale mottled orange grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse of brick and flint. Sand is fine.
		0.80 - 1.00	ES					Soft to very soft pale brown mottled orange grey slightly sandy CLAY. Sand is fine.
		1.50 - 1.70	D		1.50			*…Becoming fissured. Fissures are undulating and very closely spaced.*
					1.90			Soft to very soft fissured pale brown mottled grey orange slightly sandy CLAY. Sand is fine. Fissures are undulating and very closely spaced.
								Soft pale brown mottled dark reddish brown grey sandy CLAY. Sand is fine.
								…Becoming darker with depth.
	▼				3.60			Very soft blueish grey wet sandy CLAY. Sand is fine.
					4.00			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	87										
2.00	76										
3.00	67										
4.00	56										

Remarks

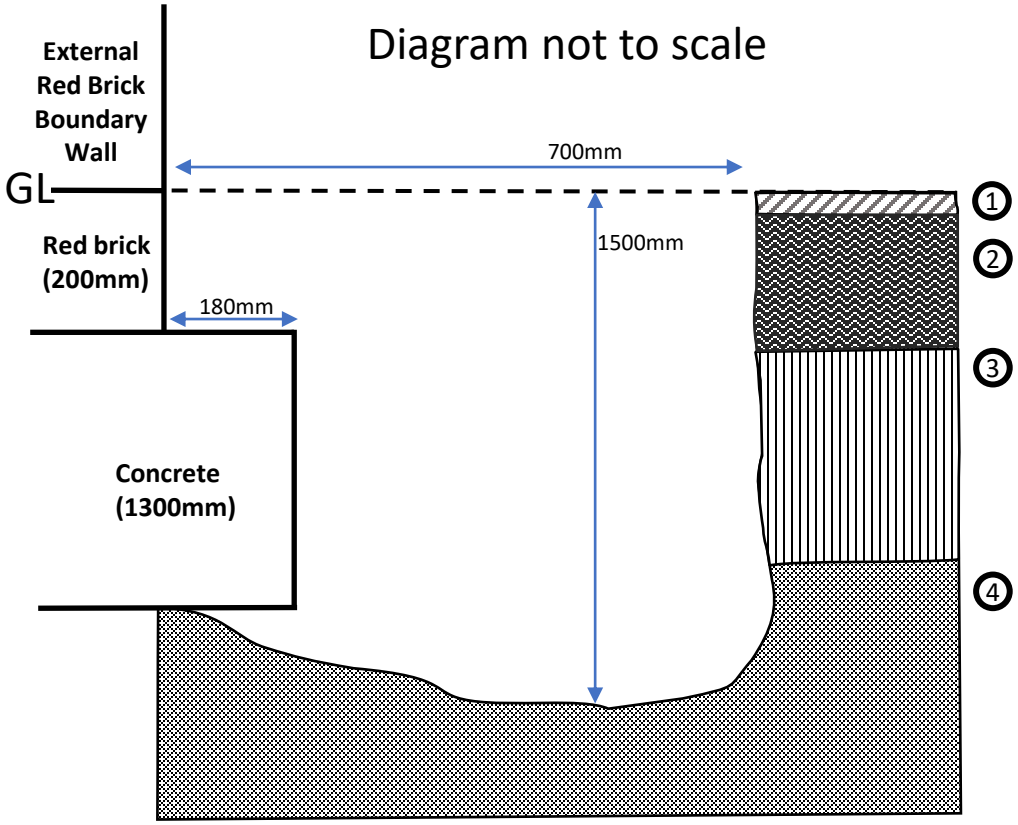
1. Scanned with cable avoidance tool. 2. Borehole terminated at 4.0m due to difficult drilling conditions. 3. Groundwater encountered at 4.0m which didn't rise after 30 minutes. Window sample hole backfilled with arisings.

B2538 26 Sheldon Avenue – External Inspection Pit

Section FP01

FP01 Top View of Hand Pit

FP01 View of Exposed Foundations



Depth and Description of Strata

No groundwater was encountered.

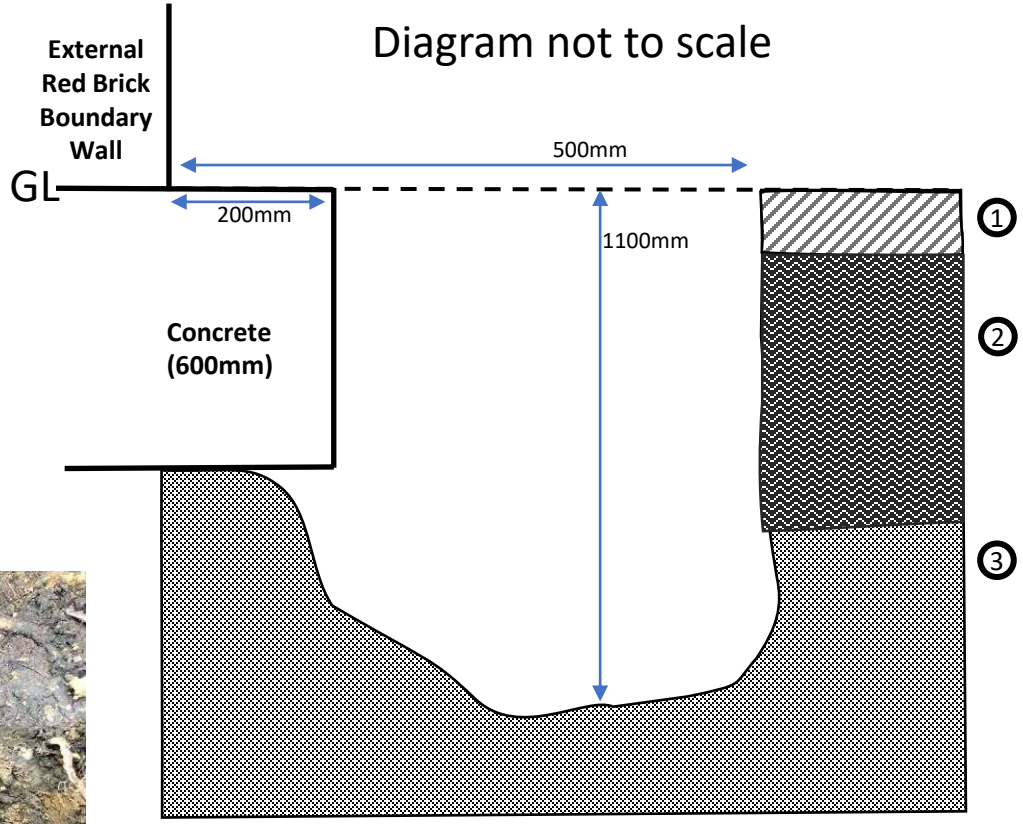
1. GL-0.07: MADE GROUND: Asphalt
2. 0.07-0.27: MADE GROUND: Yellow gravelly fine to coarse SAND with fragments of red brick, asphalt and concrete. Gravel is subangular-subrounded fine-coarse of flint
3. 0.27-0.70: MADE GROUND: Brown orange sandy CLAY with fragments of red brick. Sand is fine to coarse.
4. 0.27-0.70: Brown orange sandy CLAY. Sand is fine to coarse.

B2538 26 Sheldon Avenue – External Inspection Pit

Section FP02

FP02 Top View of Hand Pit

FP02 View of Exposed Foundations



Depth and Description of Strata

No groundwater was encountered.

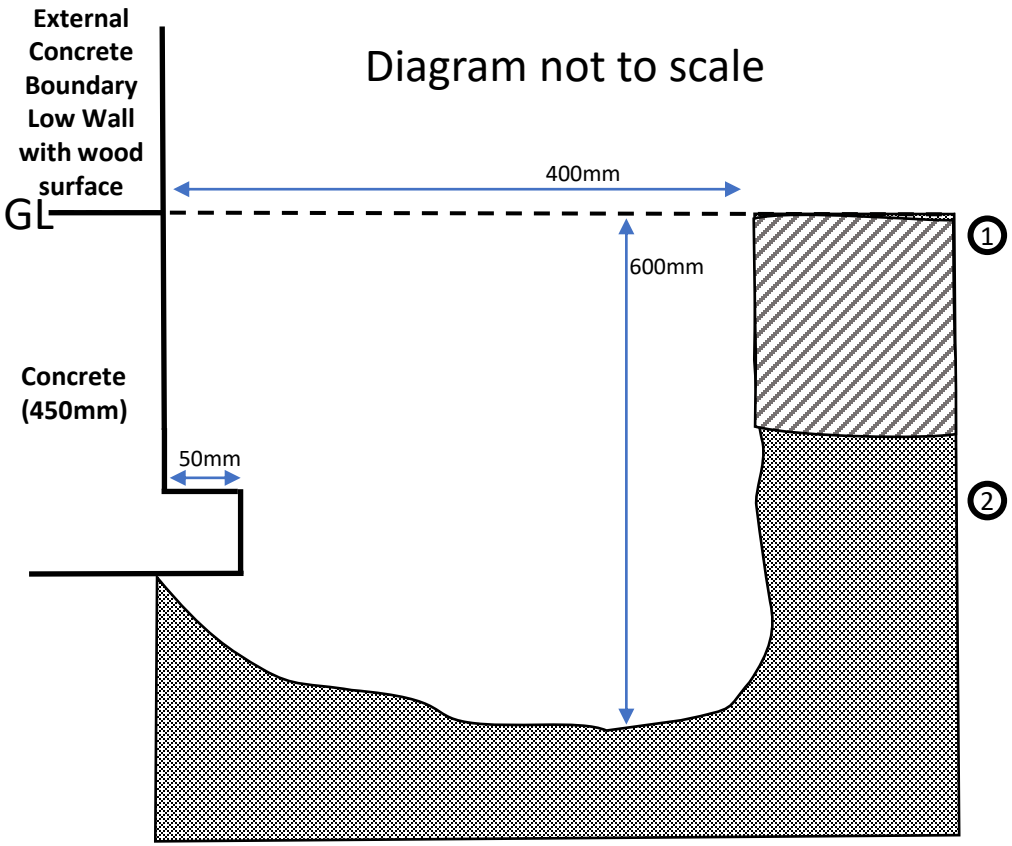
1. GL-0.15: MADE GROUND: Black clayey fine to coarse SAND with fragments of red brick and concrete.
2. 0.15-0.70: MADE GROUND: Brown/orange mottled pale grey sandy CLAY with fragments of red brick and concrete. Sand is fine to coarse.
3. 0.70-1.10: Brown /orange mottled pale grey sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).

B2538 26 Sheldon Avenue – External Inspection Pit

Section FP03

FP03 Top View of Hand Pit

FP03 View of base of Foundations



Depth and Description of Strata

No groundwater was encountered.

1 GL-0.25: TOPSOIL: Dark brown slightly clayey fine to coarse SAND.

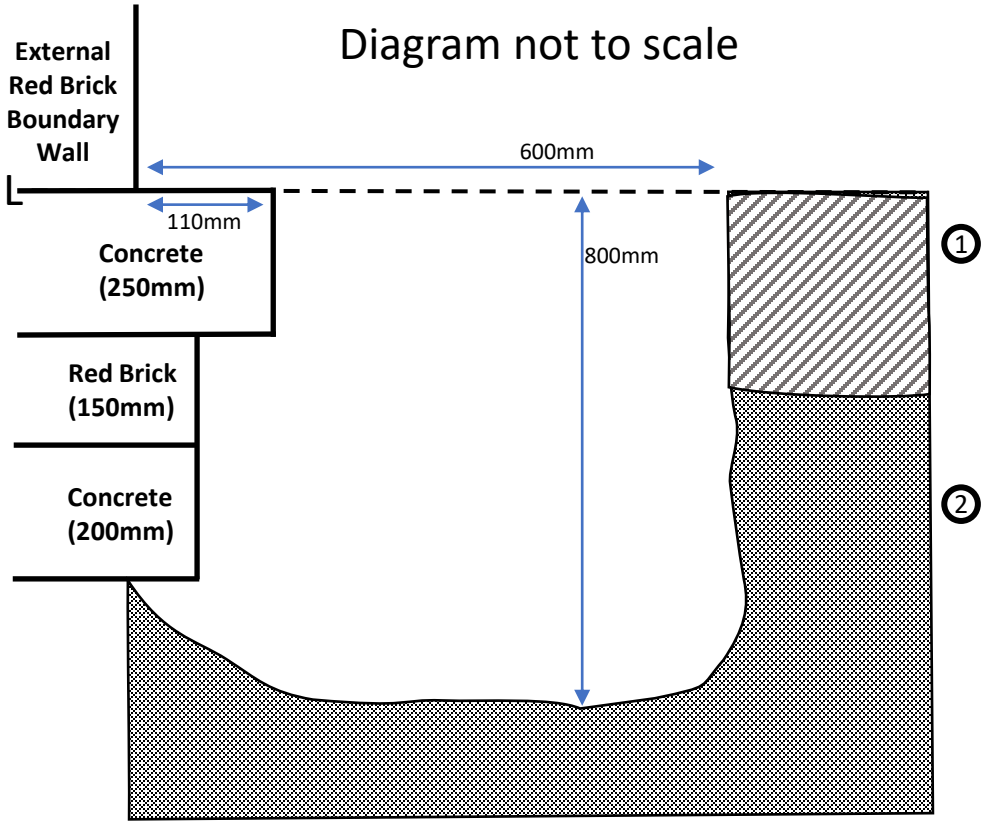
2 0.25-0.60: Brown/orange mottled pale grey sandy CLAY. Sand is fine to coarse. (CLAYGATE MEMBER).

B2538 26 Sheldon Avenue – External Inspection Pit

Section FP04

FP04 Top View of Hand Pit

FP04 View of Exposed Foundations



Depth and Description of Strata

No groundwater was encountered.

1 GL-0.35: MADE GROUND: Dark brown/black clayey fine to coarse SAND with fragments of glass, red brick, concrete, metal and asphalt.

2 0.35-0.80: MADE GROUND: Brown/orange sandy CLAY with fragments of asphalt and red brick. Sand is fine to coarse.

APPENDIX 4

IN SITU TEST RESULTS

Dynamic Probe Test Results Sheet

Site:	**26 Sheldon Avenue**	Date:	05-Dec-23
Job Number:	**B3428**	Test Type:	DPSH
Client:	qR Architects	Final Depth:	6.00
Rig Type:	Modular Rig	Sheet 1 of 1	

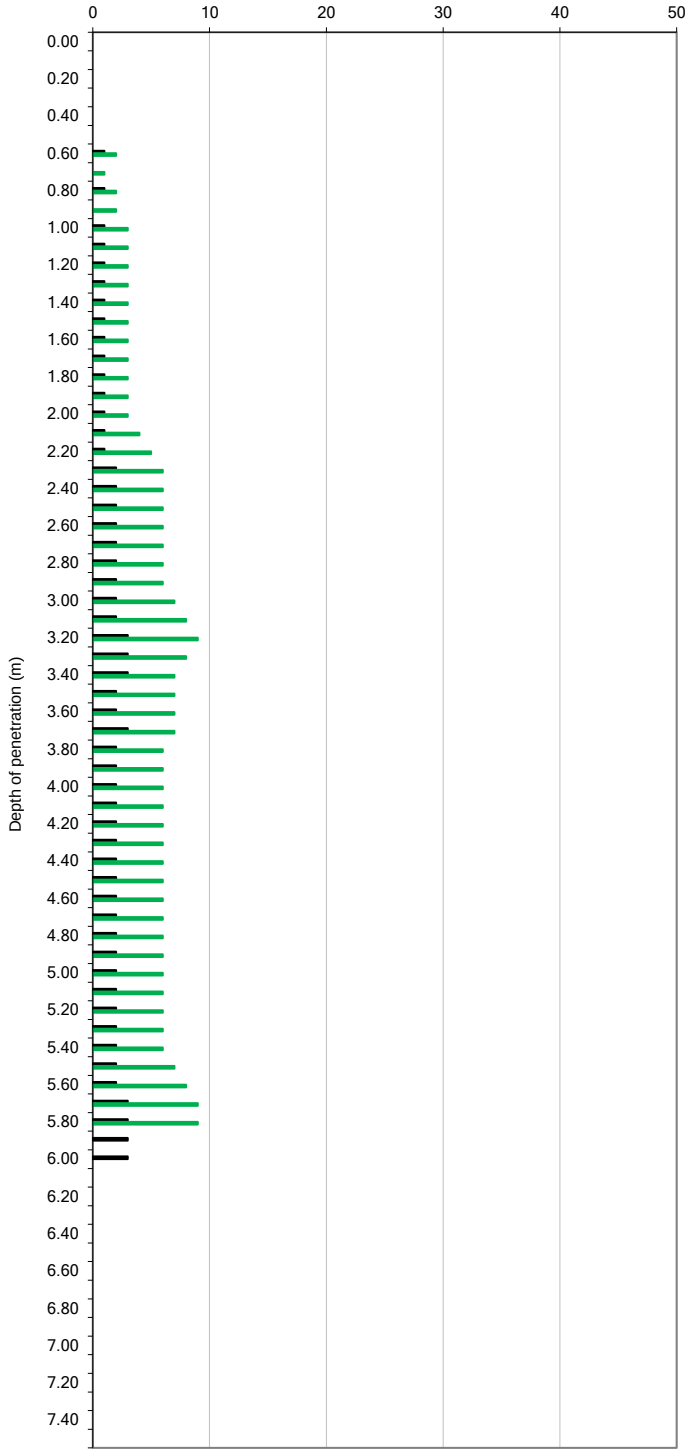
EARTH ENVIRONMENTAL & GEOTECHNICAL

DP No: **WS01**

Penetration Test Results

Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00			
0.10			
0.20			
0.30			
0.40			
0.50			
0.60	1	2	2
0.70	0	1	1
0.80	1	2	2
0.90	0	2	2
1.00	1	3	3
1.10	1	3	3
1.20	1	3	3
1.30	1	3	3
1.40	1	3	3
1.50	1	3	3
1.60	1	3	3
1.70	1	3	3
1.80	1	3	3
1.90	1	3	3
2.00	1	3	3
2.10	1	4	4
2.20	1	5	5
2.30	2	6	6
2.40	2	6	6
2.50	2	6	6
2.60	2	6	6
2.70	2	6	6
2.80	2	6	6
2.90	2	6	6
3.00	2	7	7
3.10	2	8	8
3.20	3	9	9
3.30	3	8	8
3.40	3	7	7
3.50	2	7	7
3.60	2	7	7
3.70	3	7	7
3.80	2	6	6
3.90	2	6	6
4.00	2	6	6
4.10	2	6	6
4.20	2	6	6
4.30	2	6	6
4.40	2	6	6
4.50	2	6	6
4.60	2	6	6
4.70	2	6	6
4.80	2	6	6
4.90	2	6	6
5.00	2	6	6
5.10	2	6	6
5.20	2	6	6
5.30	2	6	6
5.40	2	6	6
5.50	2	7	7
5.60	2	8	8
5.70	3	9	9
5.80	3	9	9
5.90	3		
6.00	3		
6.10			
6.20			
6.30			
6.40			
6.50			
6.60			
6.70			
6.80			
6.90			
7.00			
7.10			
7.20			
7.30			
7.40			
7.50			

Hammer Mass: 63.5 kg Cone Dia: 50.5mm
Drop Height: 750 mm Test by: PM Samplir



DPN_{100} values (shorter bars) & equivalent SPT values (longer bars)

General Remarks:
DPN_{100} = Dynamic penetration resistance for 100mm penetration.
DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.
* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).
For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Site:	**26 Sheldon Avenue**	Date:	05-Dec-23
Job Number:	**B3428**	Test Type:	DPSH
Client:	qR Architects	Final Depth:	6.00
Rig Type:	Modular Rig	Sheet 1 of 1	

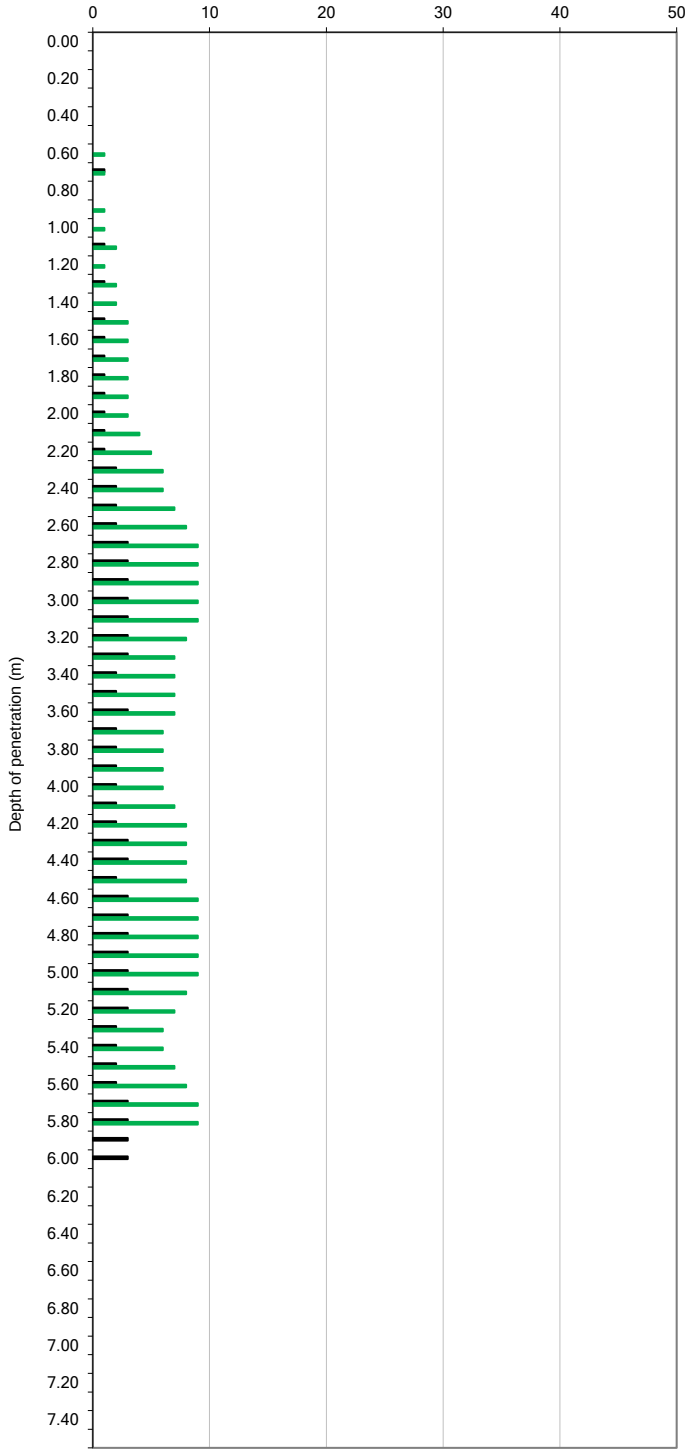
EARTH ENVIRONMENTAL & GEOTECHNICAL

DP No: **WS01**

Penetration Test Results

Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00			
0.10			
0.20			
0.30			
0.40			
0.50			
0.60	0	1	1
0.70	1	1	1
0.80	0	0	0
0.90	0	1	1
1.00	0	1	1
1.10	1	2	2
1.20	0	1	1
1.30	1	2	2
1.40	0	2	2
1.50	1	3	3
1.60	1	3	3
1.70	1	3	3
1.80	1	3	3
1.90	1	3	3
2.00	1	3	3
2.10	1	4	4
2.20	1	5	5
2.30	2	6	6
2.40	2	6	6
2.50	2	7	7
2.60	2	8	8
2.70	3	9	9
2.80	3	9	9
2.90	3	9	9
3.00	3	9	9
3.10	3	9	9
3.20	3	8	8
3.30	3	7	7
3.40	2	7	7
3.50	2	7	7
3.60	3	7	7
3.70	2	6	6
3.80	2	6	6
3.90	2	6	6
4.00	2	6	6
4.10	2	7	7
4.20	2	8	8
4.30	3	8	8
4.40	3	8	8
4.50	2	8	8
4.60	3	9	9
4.70	3	9	9
4.80	3	9	9
4.90	3	9	9
5.00	3	9	9
5.10	3	8	8
5.20	3	7	7
5.30	2	6	6
5.40	2	6	6
5.50	2	7	7
5.60	2	8	8
5.70	3	9	9
5.80	3	9	9
5.90	3		
6.00	3		
6.10			
6.20			
6.30			
6.40			
6.50			
6.60			
6.70			
6.80			
6.90			
7.00			
7.10			
7.20			
7.30			
7.40			
7.50			

Hammer Mass: 63.5 kg Cone Dia: 50.5mm
Drop Height: 750 mm Test by: PM Samplir



DPN_{100} values (shorter bars) & equivalent SPT values (longer bars)

General Remarks:
DPN_{100} = Dynamic penetration resistance for 100mm penetration.
DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.
* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).
For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

APPENDIX 5

MONITORING RESULTS

Project Name:	26 Sheldon Avenue
Date:	07/11/2022
Logger	GF

Weather:	Slight drizzle

*mbgl - Meters below Ground Level

	Initial Flow Readings		Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Steady State Flow Readings (taken after gas readings)		Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	CP01	**CH4 (%)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			3.58	15.33	Gas tap venting.
Flow Rate (l/hr)	-1.9	**CO2 (%)**	0	4.7	5	5.2	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.4	5.4	5.5	5.5	5.4	**Flow Rate (l/hr)**	-1.9			
Atmospheric Pressure (mbar)	987	**H2S (ppm**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**Atmospheric Pressure (mbar)**	986			
Borehole Pressure (Pa)	-11	**O2 (%)**	19	15.8	8.2	6.2	5.8	5.6	5.6	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3	5.3	**Borehole Pressure (Pa)**	-11			
Time	11:20	**LEL (%)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**Time**	11:26			
Peak VOC	5	**CO (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**Peak VOC**	6.2			

Project Number:	B2538
Project Name:	26 Sheldon Avenue
Date:	09/11/2022
Logger	CA

Weather:	Mild, cloudy, slight rain, some sun

*mbgl - Meters below Ground Level

	Initial Flow Readings		Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Steady State Flow Readings (taken after gas readings)		Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	CP01	**CH4 (%)**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2			3.43	15.4	
Flow Rate (l/hr)	0	**CO2 (%)**	0.1	0.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	**Flow Rate (l/hr)**	0			
Atmospheric Pressure (mbar)	994	**H2S (ppm**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**Atmospheric Pressure (mbar)**	994			
Borehole Pressure (Pa)	-0.42	**O2 (%)**	20.6	20.6	7.6	7.6	5.9	5.9	5.7	5.7	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6	**Borehole Pressure (Pa)**	-0.35			
Time	09:44	**LEL (%)**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	**Time**	09:55			
Peak VOC	-	**CO (ppm)**	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**Peak VOC**	-			

Gas Monitoring Record

Project Number:	B2538
Project Name:	26 Sheldon Avenue
Date:	16/11/2022
Logger	CA

Weather:	Cloudy, rainy, slight wind

*mbgl - Meters below Ground Level

	Initial Flow Readings		Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Steady State Flow Readings (taken after gas readings)		Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	CP01	**CH4 (%)**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4			3.54	15.08	
Flow Rate (l/hr)	0	**CO2 (%)**	0.1	3.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	**Flow Rate (l/hr)**	-0.1			
Atmospheric Pressure (mbar)	981	**H2S (ppm**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**Atmospheric Pressure (mbar)**	980			
Borehole Pressure (Pa)	-0.41	**O2 (%)**	20.6	17.4	7.1	6.8	6.9	6.9	6.9	6.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.9	**Borehole Pressure (Pa)**	-0.4			
Time	09:30	**LEL (%)**	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	6	7	**Time**	09:45			
Peak VOC	-	**CO (ppm)**	1	1	1	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**Peak VOC**	-			

APPENDIX 6

LABORATORY TEST RESULTS

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.4 & 5.3)	
Contract Number	62375	
Project Name	26 Sheldon Road, London	
Date Tested	15/11/2022	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
CP01		D	1.20	-		Brown silty sandy CLAY
CP01		D	2.00	-		Brown silty sandy CLAY
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		

Operator
Darcy Etheridge

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.4 & 5.3)	
Contract Number	62375	
Project Name	26 Sheldon Road, London	
Date Tested	15/11/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
CP01		D	1.20	-		27	49	17	32	100	CI Intermediate Plasticity
CP01		D	2.00	-		24	40	14	26	100	CI Intermediate Plasticity
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
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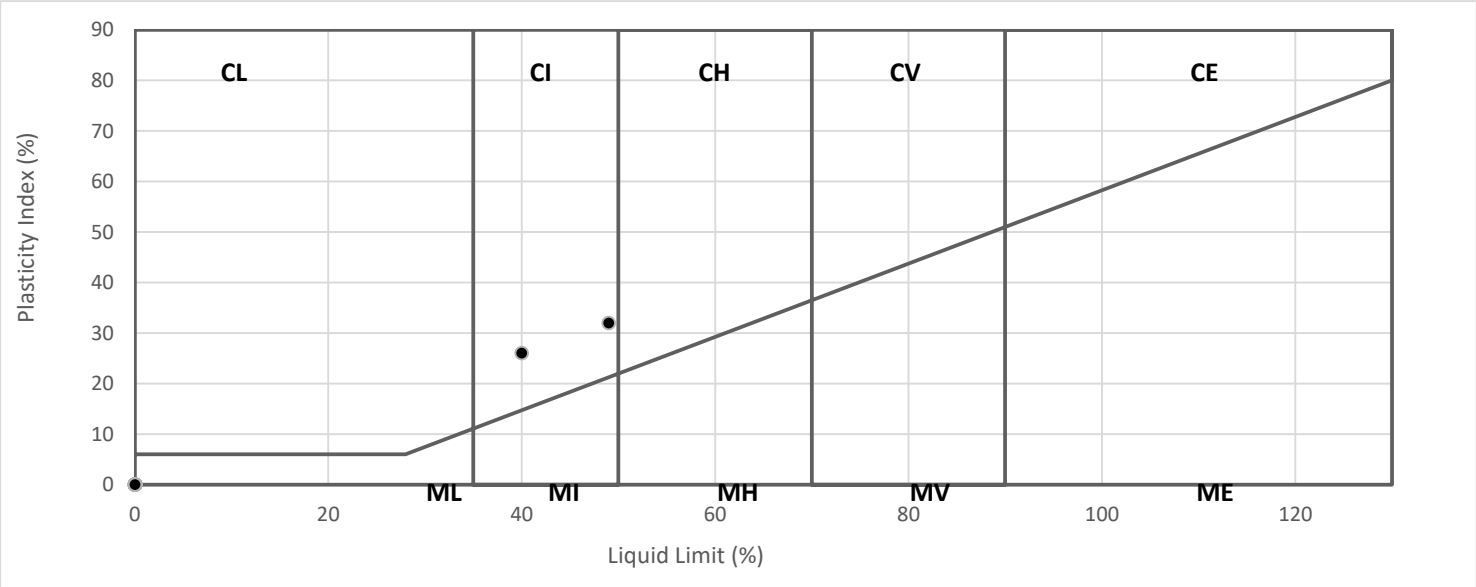
				-							
				-							
				-							
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

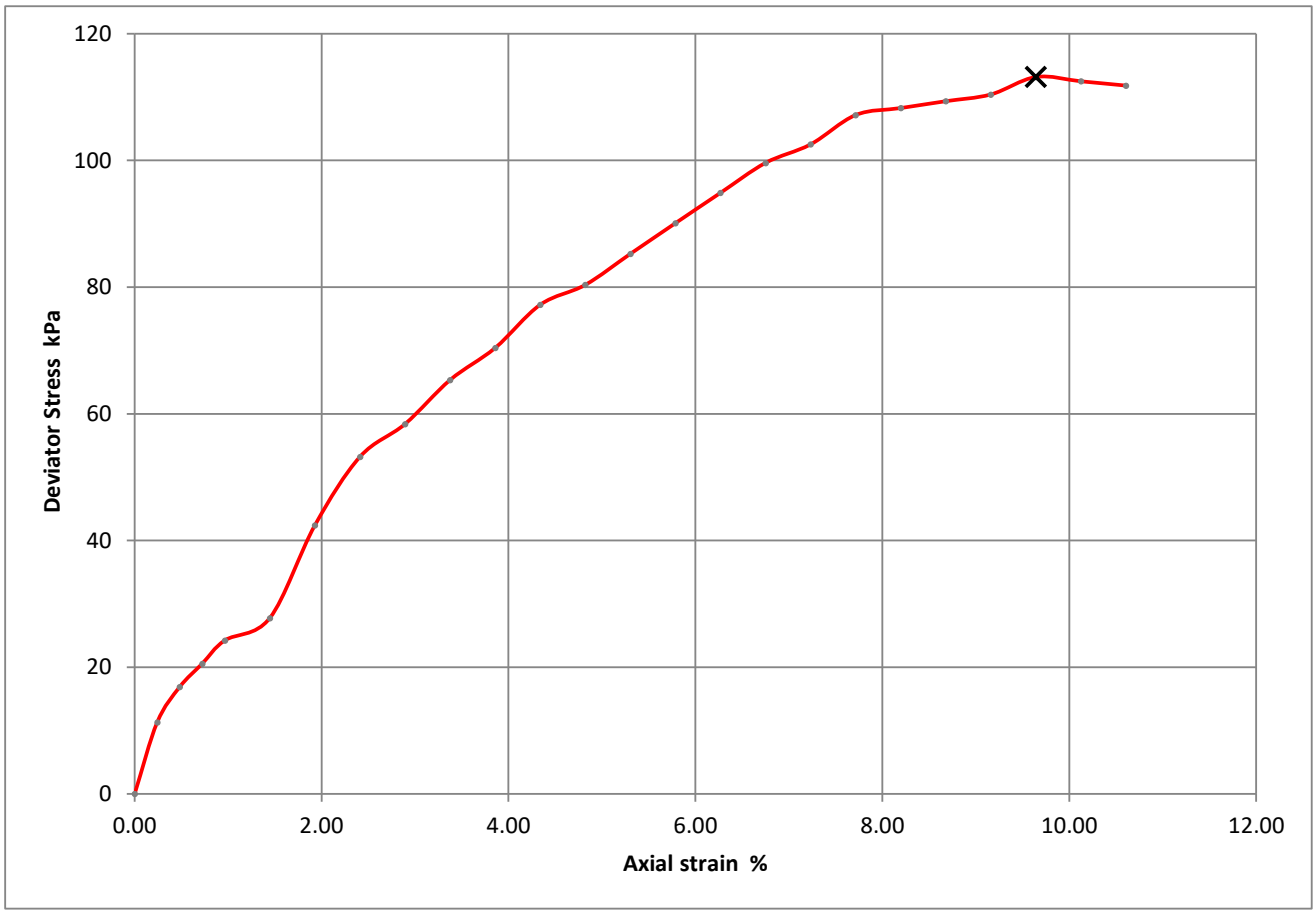
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operator
Darcy Etheridge

UKAS TESTING 2788

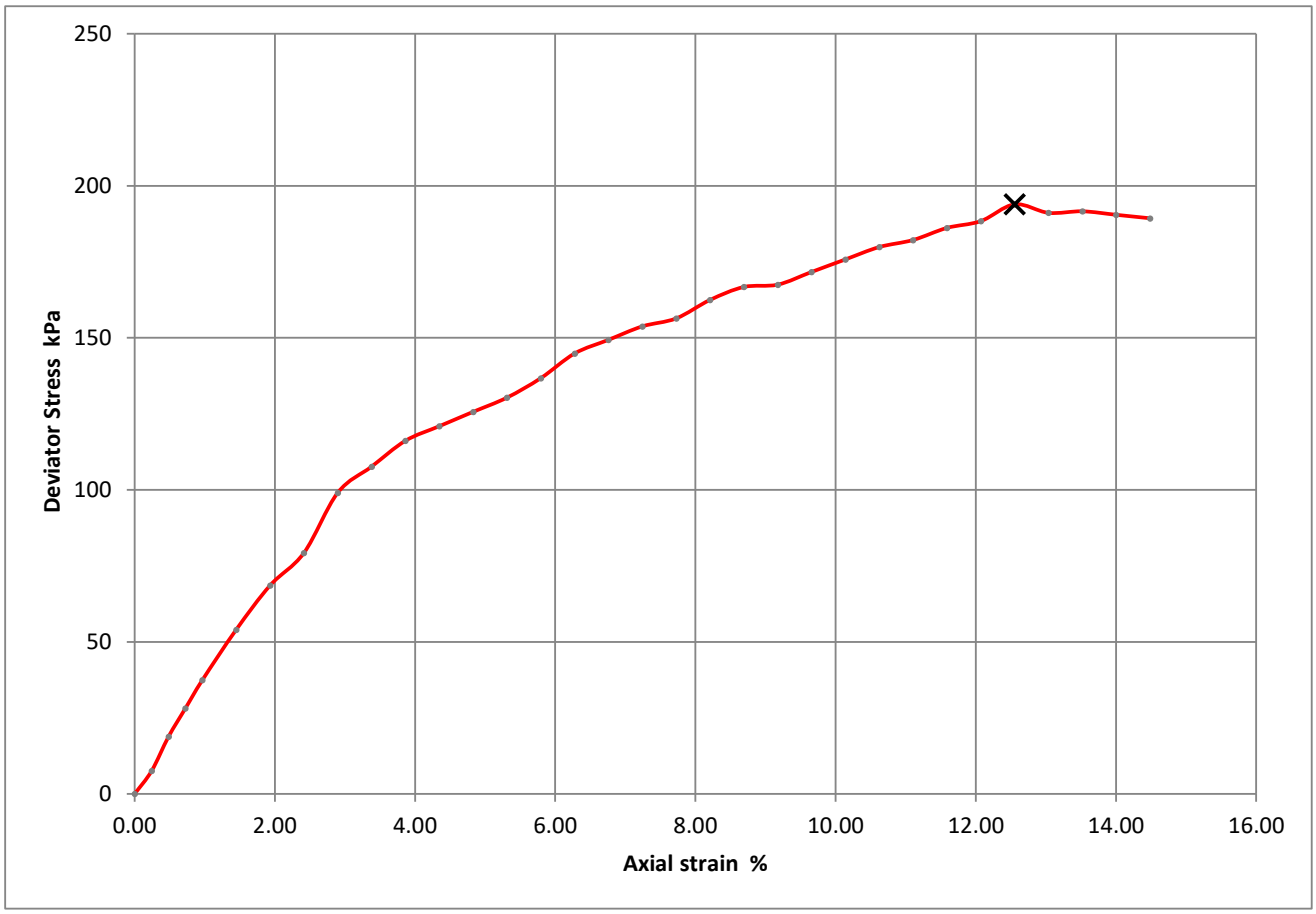
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey sandy silty CLAY	Depth Top (m)	5.00
		Depth Base (m)	5.45
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	14
Bulk Density (Mg/m^3)	1.98
Dry Density (Mg/m^3)	1.73
Specimen Length (mm)	207.4
Specimen Diamteter (mm)	104.3
Cell Pressure (kPa)	100
Deviator Stress (kPa)	113
Undrained Shear Strength (kPa)	57
Failure Strain (%)	10
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.45

UKAS TESTING
2788

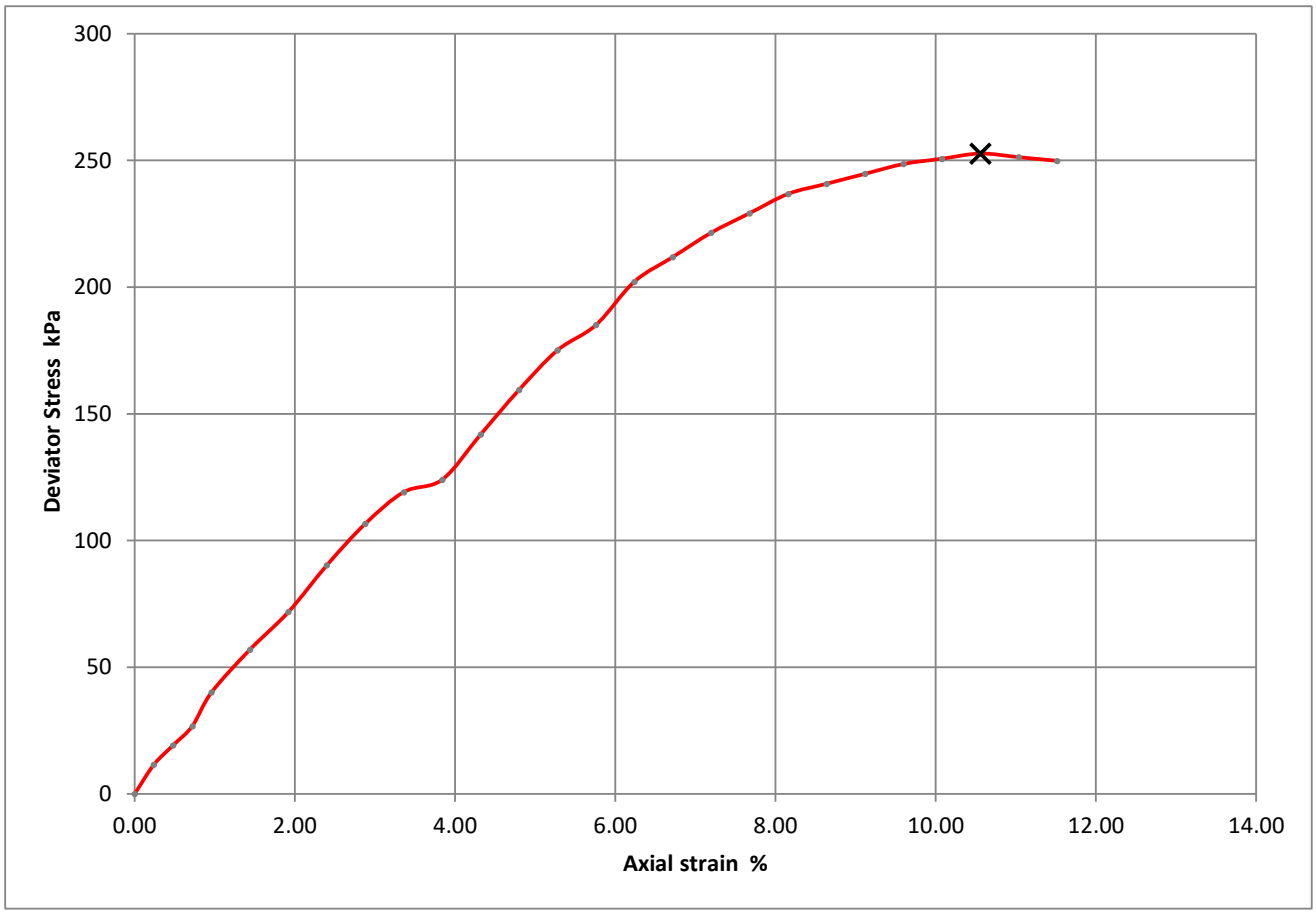
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey silty CLAY	Depth Top (m)	7.50
		Depth Base (m)	7.95
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	7.7
Bulk Density (Mg/m^3)	2.00
Dry Density (Mg/m^3)	1.85
Specimen Length (mm)	207.1
Specimen Diamteter (mm)	104.2
Cell Pressure (kPa)	140
Deviator Stress (kPa)	194
Undrained Shear Strength (kPa)	97
Failure Strain (%)	13
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.45

UKAS TESTING 2788

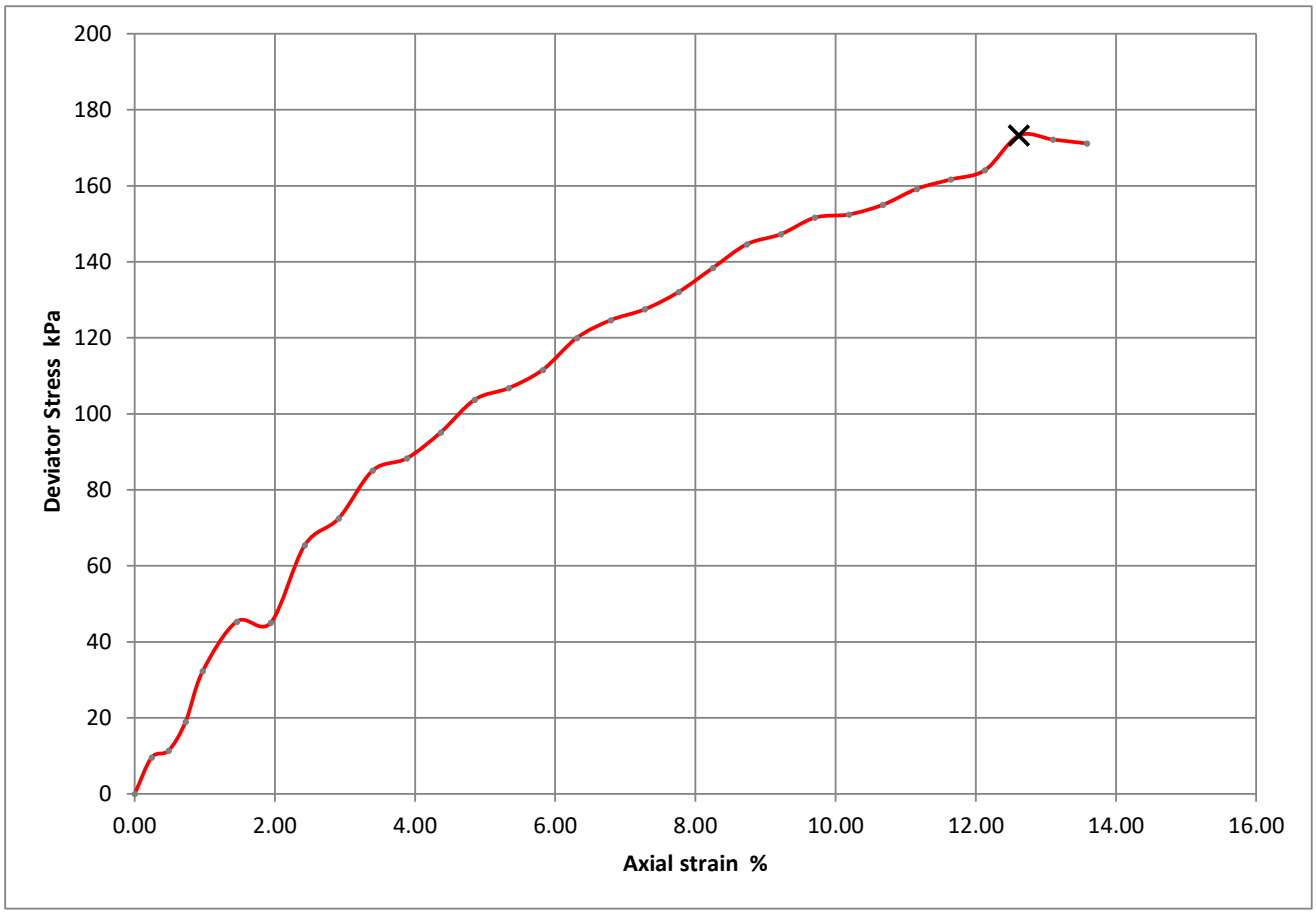
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8**	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey sandy silty CLAY	Depth Top (m)	9.00
		Depth Base (m)	9.45
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	11
Bulk Density (Mg/m^3)	2.05
Dry Density (Mg/m^3)	1.85
Specimen Length (mm)	208.4
Specimen Diamteter (mm)	103.2
Cell Pressure (kPa)	180
Deviator Stress (kPa)	253
Undrained Shear Strength (kPa)	126
Failure Strain (%)	11
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.44

UKAS TESTING 2788

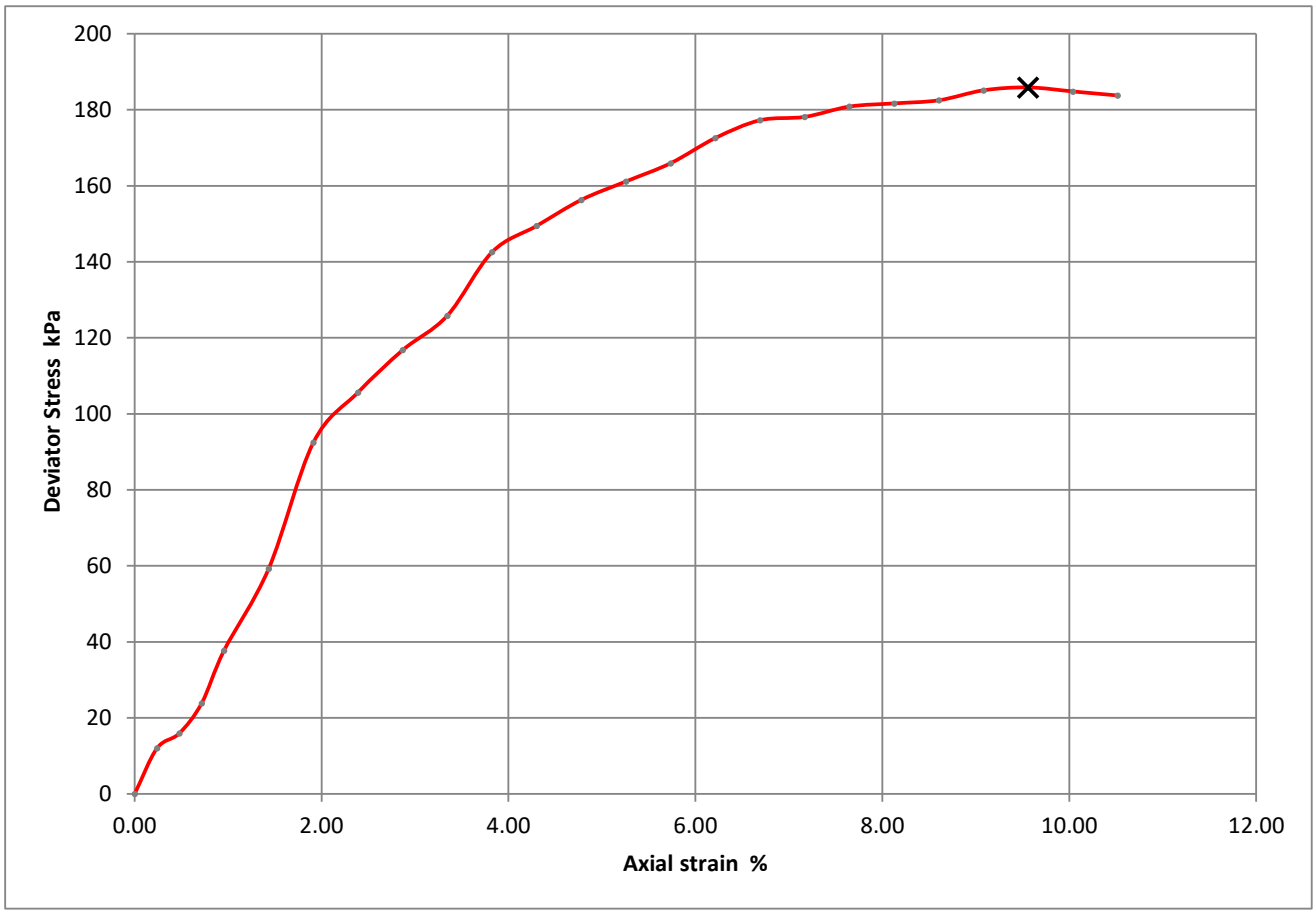
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey fine to coarse gravelly silty CLAY	Depth Top (m)	11.50
		Depth Base (m)	11.95
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	11
Bulk Density (Mg/m^3)	2.03
Dry Density (Mg/m^3)	1.83
Specimen Length (mm)	206.1
Specimen Diamteter (mm)	103.4
Cell Pressure (kPa)	220
Deviator Stress (kPa)	173
Undrained Shear Strength (kPa)	87
Failure Strain (%)	13
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.46

UKAS TESTING 2788

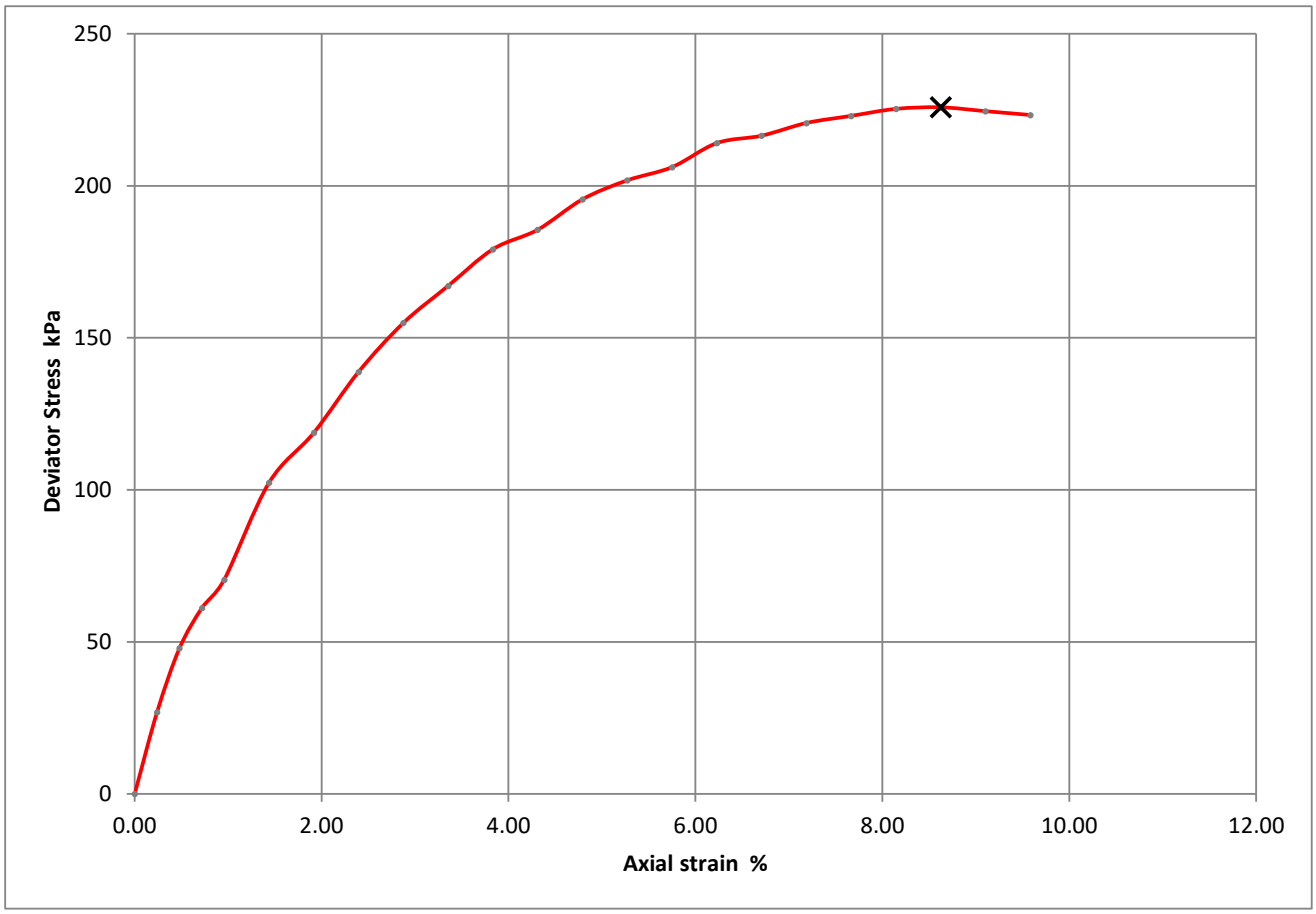
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey sandy silty CLAY	Depth Top (m)	13.50
		Depth Base (m)	13.95
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	7.5
Bulk Density (Mg/m^3)	2.00
Dry Density (Mg/m^3)	1.86
Specimen Length (mm)	209.2
Specimen Diamteter (mm)	101.2
Cell Pressure (kPa)	260
Deviator Stress (kPa)	186
Undrained Shear Strength (kPa)	93
Failure Strain (%)	10
Mode Of Failure	Brittle
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.43

UKAS TESTING
2788

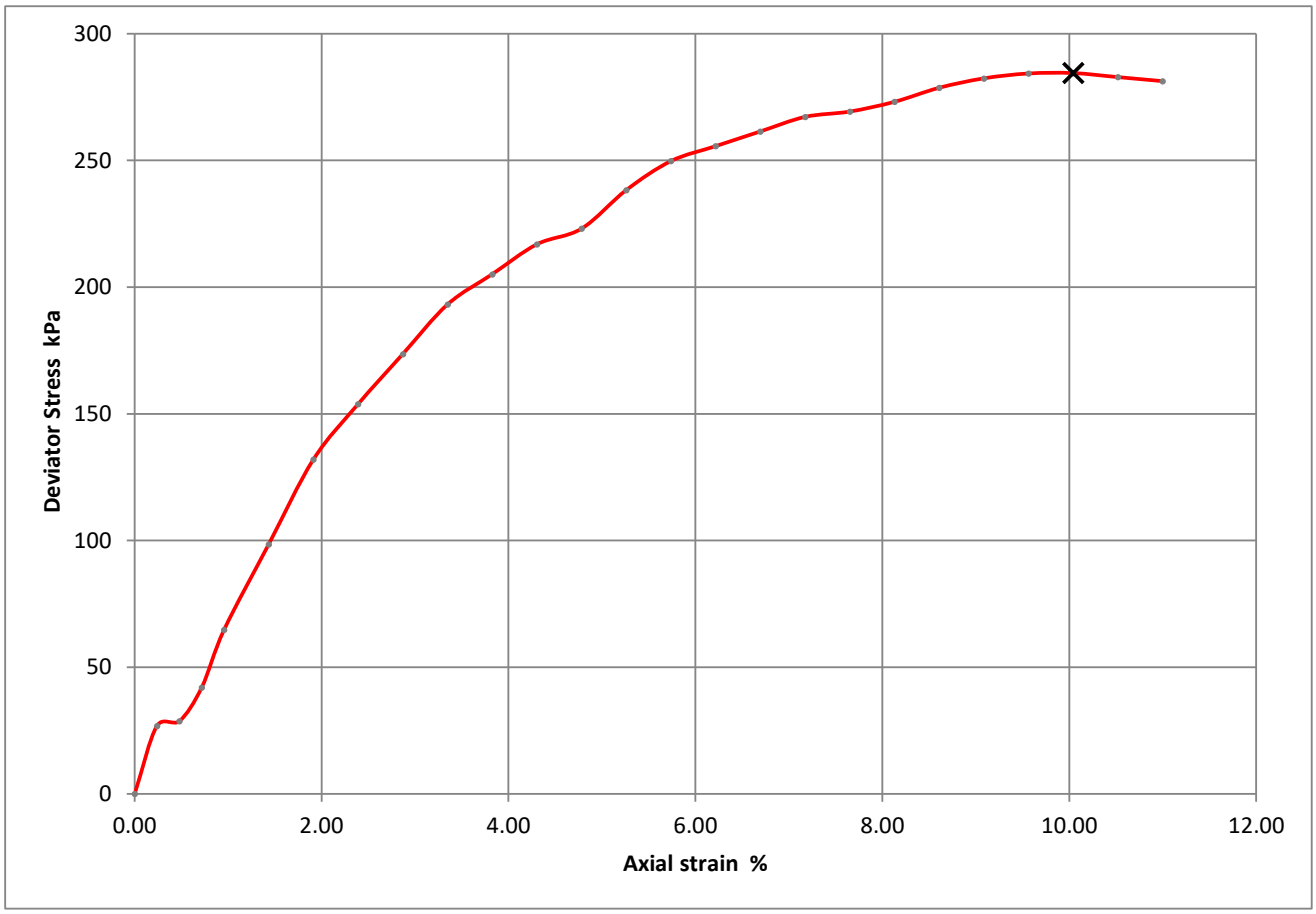
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey silty CLAY	Depth Top (m)	15.00
		Depth Base (m)	15.45
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	9.1
Bulk Density (Mg/m^3)	1.90
Dry Density (Mg/m^3)	1.75
Specimen Length (mm)	208.7
Specimen Diamteter (mm)	103.4
Cell Pressure (kPa)	300
Deviator Stress (kPa)	226
Undrained Shear Strength (kPa)	113
Failure Strain (%)	9
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.44

UKAS TESTING
2788

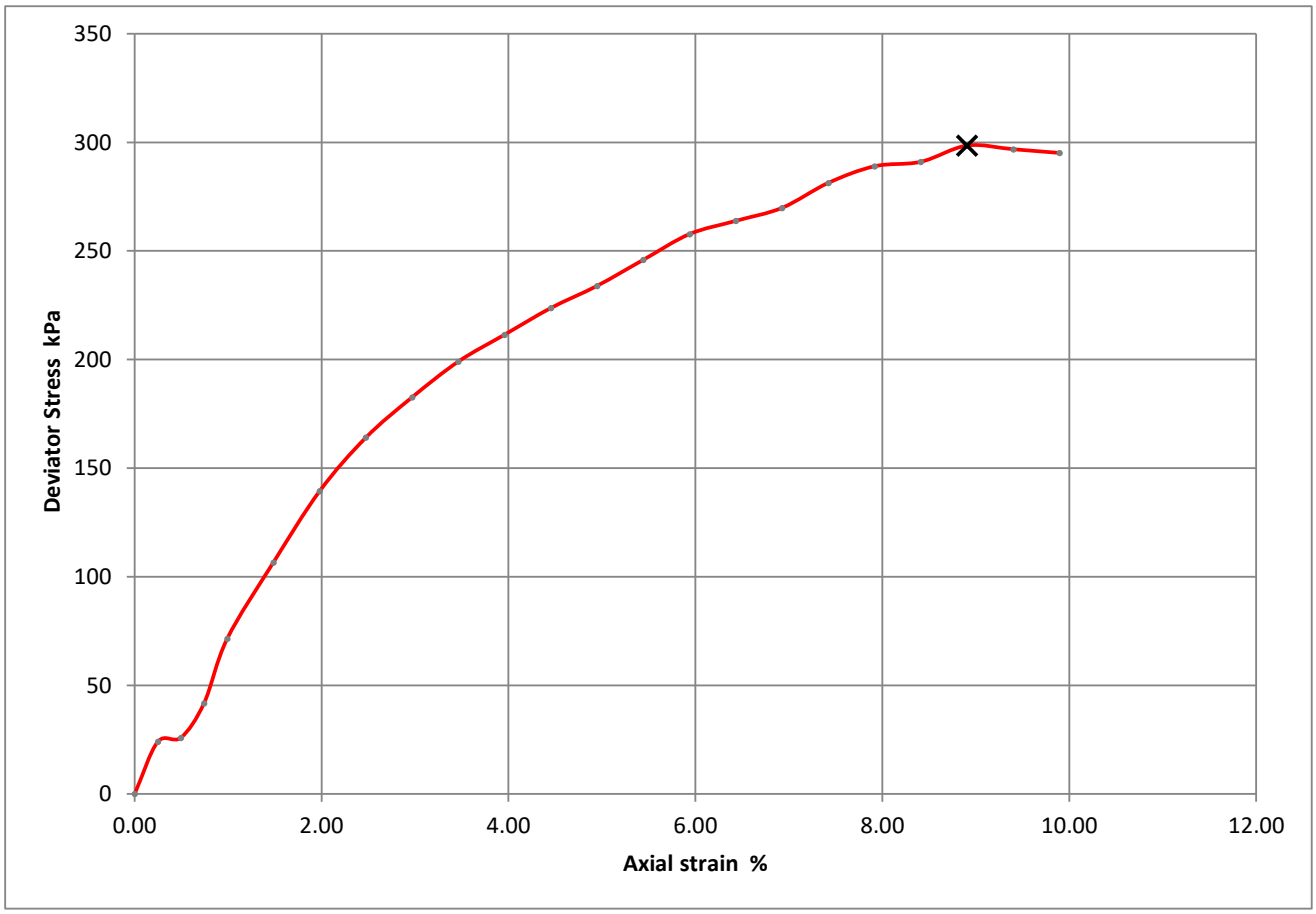
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey silty CLAY	Depth Top (m)	17.50
		Depth Base (m)	17.95
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	12
Bulk Density (Mg/m^3)	1.94
Dry Density (Mg/m^3)	1.73
Specimen Length (mm)	209.1
Specimen Diamteter (mm)	103.4
Cell Pressure (kPa)	340
Deviator Stress (kPa)	284
Undrained Shear Strength (kPa)	142
Failure Strain (%)	10
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.43

UKAS TESTING
2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	62375
		Borehole/Pit No.	CP01
Project Name	26 Sheldon Road, London	Sample No.	
Soil Description	Grey silty CLAY	Depth Top (m)	19.50
		Depth Base (m)	19.95
Date Tested	03/11/2022	Sample Type	U
		Operator	Jordan



Moisture Content (%)	12
Bulk Density (Mg/m^3)	2.05
Dry Density (Mg/m^3)	1.83
Specimen Length (mm)	202.1
Specimen Diamteter (mm)	101.3
Cell Pressure (kPa)	380
Deviator Stress (kPa)	299
Undrained Shear Strength (kPa)	149
Failure Strain (%)	9
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.48

UKAS TESTING
2788

2531

ANALYTICAL TEST REPORT

Contract no: 115614

Contract name: 26 Sheldon Road, London

Client reference: B2538

Clients name: Geo Site and Testing Services

Clients address: Unit 3 and 4 Heol Aur
Dafen Industrial Estate, Dafen
Llanelli, Carmarthenshire
SA14 8QN

Samples received: 10 November 2022

Analysis started: 10 November 2022

Analysis completed: 17 November 2022

Report issued: 17 November 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Rachael Burton
Reporting Manager

Chemtech Environmental Limited

SOILS

Lab number			115614-1	115614-2	115614-3	115614-4
Sample id			CP01	CP01	CP01	CP02
Depth (m)			4.50	10.00	15.00	20.00
Sample Type			D	D	D	D
Date sampled			-	-	-	-
Test	**Method**	**Units**				
pH	CE004 U	units	8.2	8.2	8.0	8.2
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	398	322	338	102

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
115614-1	CP01	4.50	Y	All (NSD)
115614-2	CP01	10.00	Y	All (NSD)
115614-3	CP01	15.00	Y	All (NSD)
115614-4	CP02	20.00	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones, where applicable.

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.4 & 5.3)	
Contract Number	70058	
Project Name	Sheldon Avenue, London	
Date Tested	11/12/2023	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
WS01		D	1.00	-	1.20	Brown silty CLAY
WS01		D	2.60	-	2.80	Brown silty CLAY
WS01		D	3.30	-	3.70	Brown silty CLAY
WS02		D	1.50	-	1.70	Brown silty CLAY
				-		
				-		
				-		
				-		
				-		
				-		
				-		
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Operator
Clayton Jenkins

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.4 & 5.3)	
Contract Number	70058	
Project Name	Sheldon Avenue, London	
Date Tested	11/12/2023	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
WS01		D	1.00	-	1.20	28	53	24	29	100	CH High Plasticity
WS01		D	2.60	-	2.80	27	54	24	30	100	CH High Plasticity
WS01		D	3.30	-	3.70	27	46	23	23	100	CI Intermediate Plasticity
WS02		D	1.50	-	1.70	32	55	25	30	100	CH High Plasticity
				-							
				-							
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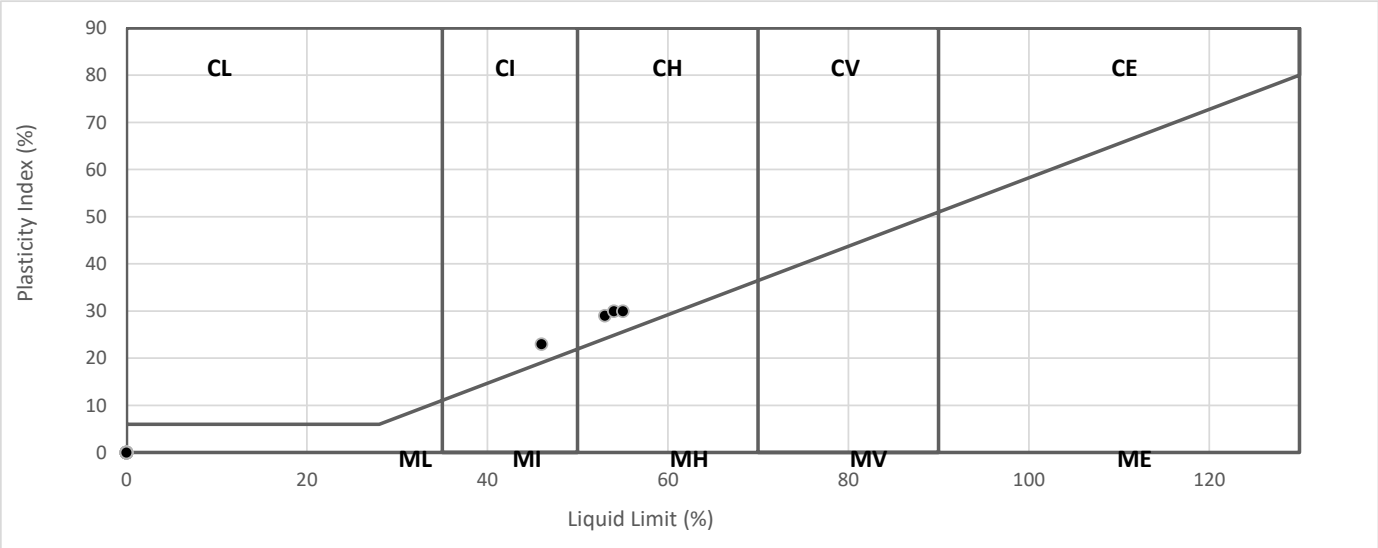
Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:2015+A1:2020



Operator
Clayton Jenkins

UKAS TESTING 2788

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Interim Report

Report No.:	22-42122-0		
Initial Date of Issue:			
Client	Earth Environmental & Geotechnical Southern		
Client Address:	200 Brook Drive, Green Park Reading Berkshire RG2 6UB		
Contact(s):	Erin Viney		
Project	B2538 26 Sheldon Avenue		
Quotation No.:		**Date Received:**	03-Nov-2022
Order No.:	B2538/EV/021122	**Date Instructed:**	09-Nov-2022
No. of Samples:	3		
Turnaround (Wkdays):	10	**Results Due:**	22-Nov-2022
Date Approved:			
Approved By:			

Details:

Results - Soil

Project: B2538 26 Sheldon Avenue

Client: Earth Environmental & Geotechnical Southern				**Chemtest Job No.:**	22-42122	22-42122	22-42122
Quotation No.:				**Chemtest Sample ID.:**	1537757	1537758	1537759
				Sample Location:	CP01	CP01	CP01
				Sample Type:	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	0.70	3.00
				Date Sampled:	25-Oct-2022	25-Oct-2022	25-Oct-2022
				Asbestos Lab:	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	11	16	17
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones and Roots	Stones
Soil Texture	N	2040		N/A	Sand	Clay	Clay
pH	M	2010		4.0	9.1	6.8	7.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010
Cyanide (Complex)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	4.3	2.3	2.5
Sulphate (Total)	U	2430	%	0.010	0.13	0.046	0.011
Arsenic	M	2455	mg/kg	0.5	19	8.8	9.4
Barium	M	2455	mg/kg	0	280	28	19
Beryllium	U	2455	mg/kg	0.5	0.6	< 0.5	0.8
Cadmium	M	2455	mg/kg	0.10	0.19	< 0.10	0.11
Chromium	M	2455	mg/kg	0.5	19	27	31
Copper	M	2455	mg/kg	0.50	15	10	9.1
Mercury	M	2455	mg/kg	0.05	0.33	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50	20	11	20
Lead	M	2455	mg/kg	0.50	180	13	8.3
Selenium	M	2455	mg/kg	0.25	0.54	0.71	0.90
Vanadium	U	2455	mg/kg	0.5	37	35	37
Zinc	M	2455	mg/kg	0.50	180	32	44
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	< 0.40	< 0.40	< 0.40
Aliphatic EPH >C8-C10	M	2690	mg/kg	1.0	16	15	15
Aliphatic EPH >C10-C12	M	2690	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C12-C16	M	2690	mg/kg	1.0	1.3	1.3	1.0
Aliphatic EPH >C16-C21	M	2690	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C21-C35	M	2690	mg/kg	3.0	< 3.0	< 3.0	< 3.0
Aliphatic EPH >C35-C40	N	2690	mg/kg	1.0	< 1.0	< 1.0	< 1.0
C10-C35 Total Aliphatic	M	2690	mg/kg	5.0	6.3	< 5.0	< 5.0
Aromatic EPH >C10-C12	M	2690	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic EPH >C12-C16	M	2690	mg/kg	1.0	1.5	< 1.0	< 1.0
Aromatic EPH >C16-C21	N	2690	mg/kg	2.0	13	6.9	6.7
Aromatic EPH >C21-C35	M	2690	mg/kg	2.0	10	7.5	4.3
Aromatic EPH >C35-C40	N	2690	mg/kg	1.0	1.0	< 1.0	< 1.0

Results - Soil

Project: B2538 26 Sheldon Avenue

Client: Earth Environmental & Geotechnical Southern				**Chemtest Job No.:**	22-42122	22-42122	22-42122
Quotation No.:				**Chemtest Sample ID.:**	1537757	1537758	1537759
				Sample Location:	CP01	CP01	CP01
				Sample Type:	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	0.70	3.00
				Date Sampled:	25-Oct-2022	25-Oct-2022	25-Oct-2022
				Asbestos Lab:	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
C10-C35 Total EPH	M	2690	mg/kg	10.0	31	19	14
C10-C35 Total Aromatic	M	2690	mg/kg	5.0	24	15	12
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.78	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	0.32	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	1.5	< 0.10	< 0.10
Pyrene	M	2800	mg/kg	0.10	1.5	< 0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.70	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	0.67	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.88	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.43	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.97	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	7.8	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C44 Aromatics: >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21–C35, >C35– C44	Acetone/Heptane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Amelia Samuel
Earth Environmental & Geotechnical (Southern Ltd)
Studio 3,
Tollbridge Studios
Toll Bridge Road
Bath
BA1 7DE

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-15014

Site Reference:	Sheldon Avenue
Project / Job Ref:	B3428
Order No:	B3428/CK/06122023
Sample Receipt Date:	07/12/2023
Sample Scheduled Date:	07/12/2023
Report Issue Number:	1
Reporting Date:	13/12/2023

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 23-15014	**Date Sampled**	06/12/23	06/12/23	06/12/23	06/12/23	
Earth Environmental & Geotechnical (Southern Ltd)	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Sheldon Avenue	**TP / BH No**	WS01	WS01	WS02	WS02	
Project / Job Ref: B3428	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: B3428/CK/06122023	**Depth (m)**	0.50 - 0.70	1.80 - 2.00	0.30 - 0.50	0.80 - 1.00	
Reporting Date: 13/12/2023	**DETS Sample No**	689316	689317	689318	689319	

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected	Not Detected	Not Detected	Not Detected	
pH	pH Units	N/a	**MCERTS**	7.0	5.8	6.5	6.6	
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	
Complex Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	
Total Sulphate as SO_4	mg/kg	< 200	**MCERTS**	433	946	< 200	< 200	
Total Sulphate as SO_4	%	< 0.02	**MCERTS**	0.04	0.09	< 0.02	< 0.02	
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	105	55	21	23	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.10	0.06	0.02	0.02	
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	
Organic Matter (SOM)	%	< 0.1	**MCERTS**	1.2	0.5	1.4	1.1	
Arsenic (As)	mg/kg	< 2	**MCERTS**	8	10	8	9	
Barium (Ba)	mg/kg	< 2.5	**MCERTS**	25	36	40	25	
Beryllium (Be)	mg/kg	< 0.5	**MCERTS**	< 0.5	< 0.5	< 0.5	< 0.5	
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (Cr)	mg/kg	< 2	**MCERTS**	24	22	19	21	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	**MCERTS**	9	11	11	10	
Lead (Pb)	mg/kg	< 3	**MCERTS**	12	11	31	17	
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	< 1	< 1	< 1	
Nickel (Ni)	mg/kg	< 3	**MCERTS**	7	10	7	6	
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
Vanadium (V)	mg/kg	< 1	**MCERTS**	37	35	32	35	
Zinc (Zn)	mg/kg	< 3	**MCERTS**	39	36	48	39	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-15014	**Date Sampled**	06/12/23	06/12/23	06/12/23	06/12/23	
Earth Environmental & Geotechnical (Souther	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Sheldon Avenue	**TP / BH No**	WS01	WS01	WS02	WS02	
Project / Job Ref: B3428	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: B3428/CK/06122023	**Depth (m)**	0.50 - 0.70	1.80 - 2.00	0.30 - 0.50	0.80 - 1.00	
Reporting Date: 13/12/2023	**DETS Sample No**	689316	689317	689318	689319	

Determinand	**Unit**	**RL**	**Accreditation**					
Naphthalene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthylene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Phenanthrene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Pyrene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Chrysene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(b)fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(k)fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Dibenz(a,h)anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1	< 0.1	
Total EPA-16 PAHs	mg/kg	< 1.6	**MCERTS**	< 1.6	< 1.6	< 1.6	< 1.6	

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 23-15014	**Date Sampled**	06/12/23	06/12/23	06/12/23	06/12/23	
Earth Environmental & Geotechnical (Souther	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Sheldon Avenue	**TP / BH No**	WS01	WS01	WS02	WS02	
Project / Job Ref: B3428	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: B3428/CK/06122023	**Depth (m)**	0.50 - 0.70	1.80 - 2.00	0.30 - 0.50	0.80 - 1.00	
Reporting Date: 13/12/2023	**DETS Sample No**	689316	689317	689318	689319	

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	**MCERTS**	< 2	< 2	7	< 2	
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	**MCERTS**	< 3	< 3	9	< 3	
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	**MCERTS**	< 3	< 3	< 3	< 3	
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	**MCERTS**	< 10	< 10	< 10	< 10	
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	2	< 2	< 2	< 2	
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	4	4	< 2	< 2	
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	**MCERTS**	< 3	< 3	< 3	< 3	
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	**MCERTS**	< 10	< 10	< 10	< 10	
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-15014	**Date Sampled**	06/12/23	06/12/23	06/12/23	06/12/23	
Earth Environmental & Geotechnical (Souther	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Sheldon Avenue	**TP / BH No**	WS01	WS01	WS02	WS02	
Project / Job Ref: B3428	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: B3428/CK/06122023	**Depth (m)**	0.50 - 0.70	1.80 - 2.00	0.30 - 0.50	0.80 - 1.00	
Reporting Date: 13/12/2023	**DETS Sample No**	689316	689317	689318	689319	

Determinand	**Unit**	**RL**	**Accreditation**					
Benzene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
Toluene : HS_1D_MS	ug/kg	< 5	**MCERTS**	< 5	< 5	< 5	< 5	
Ethylbenzene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
p & m-xylene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
o-xylene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	
MTBE : HS_1D_MS	ug/kg	< 5	**MCERTS**	< 5	< 5	< 5	< 5	

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 23-15014	
Earth Environmental & Geotechnical (Southern Ltd)	
Site Reference: Sheldon Avenue	
Project / Job Ref: B3428	
Order No: B3428/CK/06122023	
Reporting Date: 13/12/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
689316	WS01	None Supplied	0.50 - 0.70	18.6	Light brown clay
689317	WS01	None Supplied	1.80 - 2.00	17.4	Light brown clay
689318	WS02	None Supplied	0.30 - 0.50	15.6	Light brown clay
689319	WS02	None Supplied	0.80 - 1.00	20.7	Light brown clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 23-15014
Earth Environmental & Geotechnical (Southern Ltd)
Site Reference: Sheldon Avenue
Project / Job Ref: B3428
Order No: B3428/CK/06122023
Reporting Date: 13/12/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

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List of HWOL Acronyms and Operators
DETS Report No: 23-15014
Earth Environmental & Geotechnical (Southern Ltd)
Site Reference: Sheldon Avenue
Project / Job Ref: B3428
Order No: B3428/CK/06122023
Reporting Date: 13/12/2023

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

APPENDIX 7

WASTE CLASSIFICATION REPORT

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

GJ4XB-Z1AYL-BVFZC

Job name

Sheldon Avenue, London

Description/Comments

Project

B3428

Site

Classified by

Name:
Simon Leat
Date:
13 Dec 2023 16:45 GMT
Telephone:
0161 975 6088

Company:
Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business & Arts Centre
Houldsworth Street
Stockport
SK5 6DA

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:	-
Course	**Date**
Hazardous Waste Classification	-

Purpose of classification

2 - Material Characterisation

Address of the waste

26 Sheldon Avenue, London **Post Code** N6 4JT

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

Redevelopment of site for residential purposes.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during excavation for basement construction

Description of the waste

sand/clay Made Ground and natural sandy clay

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	CP01[4]	0.00	Non Hazardous		3
2	CP01[5]	0.70	Non Hazardous		6
3	CP01[6]	3.00	Non Hazardous		9
4	WS01	0.50 - 0.70	Non Hazardous		12
5	WS01[2]	1.80 - 2.00	Non Hazardous		14
6	WS02	0.30 - 0.50	Non Hazardous		16
7	WS02[2]	0.80 - 1.00	Non Hazardous		18

Related documents

#	Name	Description
1	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Simon Leat

Created date: 13 Dec 2023 16:45 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	20
Appendix B: Rationale for selection of metal species	21
Appendix C: Version	22

Classification of sample: CP01[4]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
CP01[4]
Sample Depth:
0.00 m
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19	mg/kg	1.32	22.327	mg/kg	0.00223 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.6	mg/kg	2.775	1.482	mg/kg	0.000148 %	✓	
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.19	mg/kg	1.142	0.193	mg/kg	0.0000193 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19	mg/kg	1.462	24.715	mg/kg	0.00247 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	15.031	mg/kg	0.0015 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	180	mg/kg	1.56	249.882	mg/kg	0.016 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.33	mg/kg	1.353	0.398	mg/kg	0.0000398 %	✓	
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20	mg/kg	2.976	52.978	mg/kg	0.0053 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.54	mg/kg	2.554	1.227	mg/kg	0.000123 %	✓	
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		180	mg/kg	2.774	444.418	mg/kg	0.0444 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		31	mg/kg		27.59	mg/kg	0.00276 %	✓	
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
17	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
19		cyanides { • salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		**<LOD**
20	•	pH			PH		9.1	pH		9.1	pH	9.1 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	•	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	•	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	•	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	•	phenanthrene		201-581-5	85-01-8		0.78	mg/kg		0.694	mg/kg	0.0000694 %	✓	
26	•	anthracene		204-371-1	120-12-7		0.32	mg/kg		0.285	mg/kg	0.0000285 %	✓	
27	•	fluoranthene		205-912-4	206-44-0		1.5	mg/kg		1.335	mg/kg	0.000133 %	✓	
28	•	pyrene		204-927-3	129-00-0		1.5	mg/kg		1.335	mg/kg	0.000133 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.7	mg/kg		0.623	mg/kg	0.0000623 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		0.67	mg/kg		0.596	mg/kg	0.0000596 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.88	mg/kg		0.783	mg/kg	0.0000783 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.43	mg/kg		0.383	mg/kg	0.0000383 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.97	mg/kg		0.863	mg/kg	0.0000863 %	✓	
34	•	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	•	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
											Total:	0.0762 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00276%)

Classification of sample: CP01[5]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
CP01[5]
Sample Depth:
0.70 m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.8	mg/kg	1.32	9.76	mg/kg	0.000976 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5	mg/kg	2.775	<1.388	mg/kg	<0.000139 %		**<LOD**
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		**<LOD**
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27	mg/kg	1.462	33.148	mg/kg	0.00331 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10	mg/kg	1.126	9.457	mg/kg	0.000946 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	13	mg/kg	1.56	17.033	mg/kg	0.00109 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11	mg/kg	2.976	27.501	mg/kg	0.00275 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.71	mg/kg	2.554	1.523	mg/kg	0.000152 %	✓	
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		32	mg/kg	2.774	74.569	mg/kg	0.00746 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		19	mg/kg		15.96	mg/kg	0.0016 %	✓	
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
19		cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		**<LOD**
20	●	pH			PH		6.8	pH		6.8	pH	6.8 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	●	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	●	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	●	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	●	phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
26	●	anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27	●	fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
28	●	pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
34	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
											Total:	0.0189 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0016%)

Classification of sample: CP01[6]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
CP01[6]
Sample Depth:
3.00 m
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.4	mg/kg	1.32	10.301	mg/kg	0.00103 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.8	mg/kg	2.775	1.843	mg/kg	0.000184 %	✓	
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.11	mg/kg	1.142	0.104	mg/kg	0.0000104 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		31	mg/kg	1.462	37.606	mg/kg	0.00376 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.1	mg/kg	1.126	8.504	mg/kg	0.00085 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	8.3	mg/kg	1.56	10.746	mg/kg	0.000689 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20	mg/kg	2.976	49.406	mg/kg	0.00494 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.9	mg/kg	2.554	1.908	mg/kg	0.000191 %	✓	
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		44	mg/kg	2.774	101.312	mg/kg	0.0101 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		14	mg/kg		11.62	mg/kg	0.00116 %	✓	
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
17	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
19		cyanides { • salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		**<LOD**
20	•	pH			PH		7.8	pH		7.8	pH	7.8 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	•	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	•	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	•	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	•	phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
26	•	anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27	•	fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
28	•	pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
34	•	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	•	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
											Total:	0.0235 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00116%)

Classification of sample: WS01

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS01
Sample Depth:
0.50 - 0.70 m
Moisture content:
18.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18.6% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8	mg/kg	1.32	8.598	mg/kg	0.00086 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5	mg/kg	2.775	<1.388	mg/kg	<0.000139 %		**<LOD**
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	28.553	mg/kg	0.00286 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9	mg/kg	1.126	8.248	mg/kg	0.000825 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	12	mg/kg	1.56	15.236	mg/kg	0.000977 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		7	mg/kg	2.976	16.959	mg/kg	0.0017 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		**<LOD**
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		39	mg/kg	2.774	88.068	mg/kg	0.00881 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		**<LOD**
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
20	●	pH			PH		7	pH		7	pH	7pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	●	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	●	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	●	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	●	phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
26	●	anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27	●	fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
28	●	pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
34	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.0224 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS01[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS01[2]
Sample Depth:
1.80 - 2.00 m
Moisture content:
17.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17.4% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10	mg/kg	1.32	10.906	mg/kg	0.00109 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5	mg/kg	2.775	<1.388	mg/kg	<0.000139 %		**<LOD**
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22	mg/kg	1.462	26.559	mg/kg	0.00266 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	10.23	mg/kg	0.00102 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	11	mg/kg	1.56	14.172	mg/kg	0.000909 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		10	mg/kg	2.976	24.584	mg/kg	0.00246 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		**<LOD**
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		36	mg/kg	2.774	82.492	mg/kg	0.00825 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		**<LOD**
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
20	●	pH			PH		5.8	pH		5.8	pH	5.8 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	●	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	●	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	●	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	●	phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
26	●	anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27	●	fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
28	●	pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
34	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.0227 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS02

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS02
Sample Depth:
0.30 - 0.50 m
Moisture content:
15.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.6% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8	mg/kg	1.32	8.915	mg/kg	0.000891 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5	mg/kg	2.775	<1.388	mg/kg	<0.000139 %		**<LOD**
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19	mg/kg	1.462	23.438	mg/kg	0.00234 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	10.453	mg/kg	0.00105 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	31	mg/kg	1.56	40.811	mg/kg	0.00262 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		7	mg/kg	2.976	17.584	mg/kg	0.00176 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		**<LOD**
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		48	mg/kg	2.774	112.386	mg/kg	0.0112 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		**<LOD**
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
20	●	pH			PH		6.5	pH		6.5	pH	6.5 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	●	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	●	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	●	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	●	phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
26	●	anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27	●	fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
28	●	pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
34	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.0262 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS02[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS02[2]
Sample Depth:
0.80 - 1.00 m
Moisture content:
20.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20.7% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9	mg/kg	1.32	9.423	mg/kg	0.000942 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5	mg/kg	2.775	<1.388	mg/kg	<0.000139 %		**<LOD**
3		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21	mg/kg	1.462	24.339	mg/kg	0.00243 %	✓	
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10	mg/kg	1.126	8.928	mg/kg	0.000893 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	17	mg/kg	1.56	21.028	mg/kg	0.00135 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		6	mg/kg	2.976	14.161	mg/kg	0.00142 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		**<LOD**
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		39	mg/kg	2.774	85.796	mg/kg	0.00858 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		**<LOD**
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
20	●	pH			PH		6.6	pH		6.6	pH	6.6 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22	●	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23	●	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	●	fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25	●	phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
26	●	anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27	●	fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
28	●	pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
34	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
36	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.0219 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics (edit as required)

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2023.341.5847.10836 (07 Dec 2023)
HazWasteOnline Database: 2023.341.5847.10836 (07 Dec 2023)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

APPENDIX 8

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2023 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth

Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.