Dice
Environmental

Ash House,
Phase 1 Geo-Environmental Report

September 2024

Project Ref: 101609

Document Ref: ASH-DEL-XX-XX-RP-GE-0001

Revision P02

Site

Ash House,
8 Second Cross Road,
Twickenham,
TW2 5RF

Client	Mandarin Garage Investments Ltd
Date	23/09/2024
Project Reference	101609
Document Reference	ASH-DEL-XX-XX-RP-GE-0001
Revision	P02

Prepared by:		Abbie Davies BSc AMIEnvSc Geo-Environmental Consultant
Date	2nd September 2024	
Prepared by:		Michael D'Elia BSc FGS Geo-Environmental Consultant
Date	7th September 2024	
Authorised by:		Jake Bayne MSc MIEnvSc CEnv Director
Date	23rd September 2024	

Executive Summary	
Site Description	On the 28th August 2024, a comprehensive site walkover took place, with a photographic record available in Appendix A. The site comprises a rectangular plot of land predominantly occupied by an office building. The site is open to and accessible off of Second Cross Road adjacent north-east of the site. The building is situated in the approximate centre of the site. Concrete parking facilities, cracked in places, are present to the front of the structure, in the north-east of the site. Along the northern border of the parking facilities there is a brick wall, mounted with letter boxes and with a locked box (assumed to be a parcel box) adjacent. Residential bins also line the wall. This part of the site is not to be developed as part of the current development proposal but lies within the ownership boundary. To the rear of the building, in the south-west of the site, there is a rear patio area. The patio is slabbed with concrete, but with shrubs and grasses growing in between the cracks. Shrubs and trees bordering the south-west of the site are also intruding over the wooden fence enclosing the patio space. This part of the site is not to be developed as part of the current development proposal but lies within the ownership boundary. Beyond the presence of Made Ground, no significant visual or olfactory evidence of contamination was observed during the site walkover.
Proposed Development	The proposed development on site is to include the conversion and internal refurbishment of the existing office building into residential use. No associated external space is proposed at this time.
Geology	Geological maps of the area show the site to be underlain by superficial strata of the Kempton Park Gravel Formation, comprising sand and gravel. Geological maps of the area show most of the site to be situated upon bedrock of the London Clay Formation, comprising Clay.
Hydrogeology	The underlying superficial geology is classified as a Principal Aquifer, comprising geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale The underlying bedrock geology is classified as an Unproductive Aquifer, comprising rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. The underlying principal aquifer is classified as being of medium groundwater vulnerability, an Intermediate between high (areas easily transmit pollution to groundwater) and low vulnerability (areas that provide the greatest protection from pollution).

Hydrology	There are no significant surface water bodies proximal to the site.
Radon	The Groundsure reports included within Appendix C shows that the site is located within an area where the percentage of homes above the radon action level is below 1%. Therefore, it is considered that no specific radon protection measures are required for this development.
Ground Gas	No significant potential source of ground gas has been identified for this site.
Conclusions / Recommendations	This report concludes that there is a 'Low' potential risk to future site users and 'Low' potential risk to controlled waters. This is due to the lack of viable pathway to contractors and residential end users of the site. Therefore, no further action is required at this time, in relation to the proposed development of internal refurbishment and change of use of the existing property. Should the development proposal be altered so as to include groundworks or alternative surfacing / shared external space, the recommendations of this Phase 1 should be reviewed and updated if required. These recommendations are considered appropriate based on the site's history, site walkover observations, and scale of the proposed development. These conclusions & recommendation should be approved by the local planning authority.

Contents

Appendices

Appendix A – Figures
Appendix B – Environmental data summary (Groundsure Report)
Appendix C – Historical Maps (Groundsure)
Appendix D – Aerial Photograph Timeline

1. Introduction

1.1. Client Brief

Dice Environmental was instructed by Mandarin Garage Investments Ltd to undertake a Phase 1 Geo-Environmental Report for the site known as 'Ash House, 8 Second Cross Road, Twickenham, TW2 5RF'.

The proposed development on site is to include the conversion and internal refurbishment of the existing office building into residential use. No external space is proposed at this time.

The site location plan and layout are included within Appendix A.

1.2. Report Objectives

This Phase I Geo-Environmental Assessment includes:

- A record, including photographic evidence, of a site inspection walkover, subsequent site description, and appraisal of any observed land contamination, or potential contaminative sources.
- A review of historical maps, including aerial imagery, for the site and surrounding area, with respect to potential sources of contamination.
- A review of the general expected environmental setting, including geology, hydrogeology and hydrology, alongside BGS Borehole Archive records.
- The development of a preliminary conceptual site model based on the concept of 'contaminant linkage', which considers potential contamination sources, pathways and receptors.
- Conclusions and Recommendations drawn from the qualitive risk assessment.
- An Executive Summary.

1.3. References

Assessment guidance and site-specific information has been sought from the following locations:

- EA/DEFRA (2020) LCRM: Land contamination Risk Management (Supersedes (2004), CLR11: Model Procedures for the Assessment of Land Contamination).
- CIRIA. (2001). *Contaminated land risk assessment A guide to good practice.*

- DEFRA. (2018). *MAGIC. Retrieved from Magic Map:* http://magic.defra.gov.uk/MagicMap.aspx

- Environment Agency. (March 2017). *New Groundwater Vulnerability Mapping Methodology in England and Wales. Reference SC040016/R. Environment Agency.*

- Environment Agency. (2008). *R&D Publication 66. Guidance for the Safe Development of Housing on Land Affected by Contamination.*

- Google (2024) *Google Earth Pro 7.3.6.9796. Retrieved from:* https://www.google.com/intl/en_uk/earth/about/versions/#earth-pro

- Scivyer, C. (2015). *BRE 211. Radon: Guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects). Fifth Edition.*

- Richmond.gov.uk (2024) Planning Search *Retrieved from:* https://www2.richmond.gov.uk/lbrplanning/Planning_search.aspx

- The Coal Authority. (2018). *Coal Authority Interactive Viewer. Retrieved from* http://mapapps2.bgs.ac.uk/coalauthority/home.html

1.4. Limitations

The recommendations and opinions expressed in this report are based on information obtained as part of the desk study or provided by others. Information provided from other sources is taken in good faith and Dice Environmental cannot guarantee its accuracy. The ultimate responsibility for any action taken, or lack thereof, shall lie with the developer.

This report does not include specific investigation for the presence of either Potential Asbestos Containing Material (PACM) or Japanese Knotweed at the subject site however, if obvious evidence of either is observed during site walkover, details will be provided in this report. Specialist contractors should be commissioned to make detailed assessments and recommendations if these materials are suspected. This report takes into account coal mining areas as a potential source of contamination (ground gas (CH_4 &CO_2)), however makes no comment on other potential associated concerns (geo-technical).

The information contained in this report is intended for the use of Mandarin Garage Investments Ltd and Dice Environmental can take no responsibility for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2. Site Information

2.1. Site Location

The site is located approximately 650m south-west of Twickenham town centre. The national grid reference (NGR) for the approximate centre of the site is TQ151727 and the coordinates are 515109 , 172756.

A site plan is presented within Appendix A.

2.2. Site Description

On the 28th August 2024, a comprehensive site walkover took place, with a photographic record available in Appendix A, and a written record available in Appendix B.

The site comprises a rectangular plot of land predominantly occupied by an office building. The site is open to and accessible off of Second Cross Road adjacent north-east of the site.

The building is situated in the approximate centre of the site. Concrete parking facilities, cracked in places, are present to the front of the structure, in the north-east of the site. Along the northern border of the parking facilities there is a brick wall, mounted with letter boxes and with a locked box (assumed to be a parcel box) adjacent. Residential bins also line the wall. This part of the site is not to be developed as part of the current development proposal, but lies within the ownership boundary.

To the rear of the building, in the south-west of the site, there is a rear patio area. The patio is slabbed with concrete, but with shrubs and grasses growing in between the cracks. Shrubs and trees bordering the south-west of the site are also intruding over the wooden fence enclosing the patio space. This part of the site is not to be developed as part of the current development proposal but lies within the ownership boundary.

Beyond the presence of Made Ground, no significant visual or olfactory evidence of contamination was observed during the site walkover.

2.3. General Area Context

North: Adjacent north of the site there are predominantly residential properties with associated gardens and parking facilities beyond. From 230m north there are shops, cafes, restaurants and barbers.

East: To the east of the site there are predominantly residential properties with associated gardens and parking facilities. However, approximately 60m east there is a pub, a school is present 180m east and a cricket club and Twickenham Green is present 160m north-east.

South: To the south of the site there are predominantly residential properties with associated gardens and parking facilities. However, there is a veterinary surgery 60m south, and hairdressers/barbers from 70m south,

West: To the west of the site there are predominantly residential properties/apartments with associated gardens and parking facilities. 130m west there is a building design company, and 145m west there are educational buildings.

3. Geo-Environmental Setting

3.1. Geology

3.1.1 Mapping Data

Geological maps of the area show the site to be underlain by superficial strata of the Kempton Park Gravel Formation, comprising sand and gravel.

Geological maps of the area show most of the site to be situated upon bedrock of the London Clay Formation, comprising Clay.

3.1.2 BGS Borehole Archive

No BGS borehole records are available within 250m of the site.

3.1.3. Soil Chemistry

There are no estimated natural background concentrations of potentially harmful elements available for the site. However, estimated urban topsoil chemistry for the soils on site are recorded within the Groundsure Reports (Appendix B) and reproduced in the table below:

Element	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Copper	Nickel
Concentration (mg/kg)	16-18	2.8-3.2	233-256	160-276	0.6-0.7	59-60	69-82	20-23

Table 1: Background urban soil chemistry values

3.2. Hydrogeology

3.1.2 Mapping Data

The underlying superficial geology is classified as a Principal Aquifer, comprising geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale

The underlying bedrock geology is classified as an Unproductive Aquifer, comprising rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The underlying principal aquifer is classified as being of medium groundwater vulnerability, an Intermediate between high (areas easily transmit pollution to groundwater) and low vulnerability (areas that provide the greatest protection from pollution).

The site is not located within a Source Protection Zone.

There are no groundwater abstraction licenses recorded within 500m of the site.

3.1.2 BGS Borehole Archive

No BGS borehole records are available within 250m of the site.

3.3. Hydrology

There are no significant surface water bodies proximal to the site.

3.4. Ecology

There are no Sites of Special Scientific Interest (SSSIs), Conserved wetland sites (Ramsar Sites), Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Local Nature Reserves (LNRs) or National Nature Reserves (NNRs) recorded within 500m of the site.

3.5. Radon

The Groundsure reports included within Appendix B shows that the site is located within an area where the percentage of homes above the radon action level is less than 1%.

Therefore, it is considered that no specific radon protection measures are required for this development.

3.6 Heritage & Archaeological Sites

No Areas of Outstanding Natural Beauty, World Heritage Sites or Scheduled Ancient monuments are present within 500m of the site.

A Conservation Area (area of special architectural or historic interest), identified as Twickenham Green, is present 5m north-east of the site.

3No. Listed Buildings are present within 250m of the site, the closest being K6 Telephone Kiosk 149m north-east.

3.7. Historical Coal & Non-Coal Mining

The site is not located within a coal mining reporting area as defined by the Coal Authority.

No non-coal mining is recorded on or proximal to the site.

3.8. Landfills & Waste Sites

The Groundsure reports included within Appendix B show that:

- There are no active landfills recorded within 500m of the site.
- There are no historical landfills recorded within 500m of the site:

3.9. Industrial Land Use

3.9.1. Current Industrial Land Use

The Groundsure reports included within Appendix B show that:

- No waste treatment works are recorded within 250m of the site.
- A recently obsolete petrol station is present 111m north-east of the site.

Currently, the site is recorded to contain an unspecified works. However, the site walkover confirmed no works is present and the site is an office building.

Proximal industrial land use recorded to the site includes transport and delivery services from 75m south, electricity substations from 126m west and a chimney 145m south-west.

3.9.2. Historic Industrial Land Use

The Groundsure reports included within Appendix C show that:

- No historic petrol stations are recorded within 500m of the site.

Historically, no industrial land use is recorded at the site.

The closest historic industrial land use recorded to the site includes smithies from 40m north (1894). Unspecified works, garages and engineering works were recorded from 95m distance from the site, historical tanks from 208m east, unspecified recorded heap 305m north-west, unspecified pits from 325m east, railway stations from 453m south-east and unspecified ground workings from 497m south-east.

4. Site History

4.1. Historical Map Review

A review of all relevant mapping resources, including aerial images and Groundsure Mapping, has been undertaken below, identifying all the significant changes between 1865 and 2024. Groundsure mapping provides data between 1865 and 2024. Supplementary aerial images between 2003 and 2024 have been obtained from Google Earth Pro.

Map Date	Significant Changes on Site	Significant Changes in the Surrounding Area
1865	The site comprises the grounds of an unspecified property.	The surroundings are predominantly occupied by residential properties, with Twickenham Common to the south-east. A railway is present from 400m east.
1895	No significant change.	A smithy is located 70m north. A disused malthouse is present 100m west. Further residential properties have been developed in the south-east.
1898	Small unspecified structures are present in the south-west of the site.	No significant change.
1915	The structures have been removed, and the site is an empty plot.	A tramway is present approximately 60m south-east.
1934	No significant change.	A fruit preserving works is present from 100m west.
1959	A structure, labelled a works, is present on the site. Two smaller adjoining structures are present in the west.	Unspecified works are present 60m west, from 100m west and 200m north. A garage is present 100m east.
1978-83	No available data.	The works from, 100m west of the site are identified as a printing works and engineering works, with an electricity substation and chimney proximal.
1985 – 88	The small structure in the north-west of the site has been removed.	The development to the south of the site has been demolished.
2024	The site is identified as an office building.	The works from 100m west of the site has been demolished and replaced with an access road to the adjacent school.

Table 2: Summary of site targeted historical map data.

A copy of the historical maps and aerial images used for this review are included within Appendix C and Appendix D.

Mapping data available demonstrates the site has evolved from the grounds of a property, by 1865, to briefly containing small structures by 1898, which were removed in 1915. The site

was occupied by an unspecified works by 1959. The building remains in the present day but is in use as an office.

Significant changes in the surrounding area include the development of a fruit preserving works 100m west of the site by 1934, which was converted into a printing works and engineering works with associated chimney and electricity substation by 1978. In the present day, these have been demolished.

4.2 Council Records

4.2.1. Planning Application History

Significant planning applications previously submitted at the site include:

Application Reference	Date	Description
47/0162	24/08/1948	The execution of repairs and redecorations amounting to £235 (Approved).
47/0722	30/03/1949	The addition of two huts - one as a store and one as a canteen. (Approved)
47/1215	23/09/1949	The erection of a canteen and staff-room (Approved).
47/2370	19/03/1951	Extension of time limit in respect of nissen hut for use as office, assembly shop and store (LMK Manufacturing Co.) (Approved).
47/5139	15/06/1954	Retention of existing building used as office, assembly shop and store (Approved).
59/0100	02/02/1959	Retention of (a) Office, assembly shop and store (b) canteen and staff room (Approved).
61/0267	26/04/1961	Retention of building used as canteen and staff room (Approved).
63/0532	23/05/1963	Use as offices, warehouse and ancillary workshop (Approved).
64/0833	20/07/1964	Continued use for offices, warehouse and joinery shop (Approved).
70/0179	09/02/1970	Change of use of building at rear to drawing office (Temporary Approval).
86/0431	17/03/1986	Formation of new vehicular access from Second Cross Road to 52 Hampton Road, formation of parking space and erection of replacement domestic garage (Approved).
85/0873	17/06/1985	Retention of existing buildings and their continued use for office, storage and display purposes in connection with the business of Data-Cater Limited (Approved).
86/0431/DD01	02/01/1986	Formation of new vehicular access from Second Cross Road to 52 Hampton Road, formation of parking space and erection of replacement domestic garage (Approved).
76/0332	26/03/1976	Continued use of premises for offices and storage purposes in connection with the business of Commercial Catering (Approved).
88/2777/FUL	19/12/1988	Roof Extension To Provide Additional Office Accommodation To Light Industrial Premises (Refused – “unneighbourly and overbearing”).

89/1136/FUL	*14/09/1989*	Removal Of Condition 53 (use By Datacater Only) And Variance Of Condition A Attached To Planning Permission Ref. 85/873 To Allow Non-specified User (Approved).
24/0476/ES191	23/02/2024	The application seeks confirmation that the property lawfully falls within Use Class E on the basis that it has been in continued Class E use for over ten years (Approved|)

Table 3: Previous site planning applications

Planning applications indicate the site was in use as a canteen and staff room around 1949, and was later in use as an office, assembly shop and store by LMK Manufacturing Co. around 1951 (with the canteen and staff room still present in 1961). In 1964, planning applications indicate the site was in use as an office, joinery workshop and warehouse. In 1970, it appears an additional building to the rear of the site was in use as an office. A data company was using the site for office, storage and display purposes around 1985. By 1976, the site was in use by a catering company using the site as an office and for storage. By 2024, it was determined that the site had been use class E for over 10 years.

5. Conceptual Site Model

5.1. Potential Sources

Significant potential on-site sources of contamination which have been identified for the site include:

- General shallow made ground across the site associated with the previous use of the site as a works, warehouse and workshop. The potential contaminants of concern associated with this potential source include:
    - Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), asbestos containing materials (ACMs) and fibres.

Significant potential off-site sources of contamination which have been identified for the site include:

- Made Ground and migratory dusts associated with the historic works proximal to the site from 60m west. The potential contaminants of concern associated with this potential source include:
    - Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), asbestos containing materials (ACMs) and fibres.

No significant potential source of ground gas has been identified for this site.

5.2. Potential Pathways

Pathways to human receptors:

- Direct dermal contact or ingestion of soils, or inhalation of dust/fibres and/or vapours (i.e. human interaction with surface and subsurface materials).

- The migration and accumulation of ground gases through permeable sub-surface materials and/ or preferential pathways.

Pathways to environmental receptors:

- Lateral and vertical migration of groundwater through permeable sub-surface materials and/ or preferential pathways, alongside overland flow.

- Direct dermal contact or ingestion of soils by fauna.

5.3. Potential Receptors

The potential receptors for the site include:

- Humans: site workers during the redevelopment of the site, intended end users of the site (residents) and neighbours.
- Groundwater: The Principal Aquifer within the underlying superficial strata.
- Ecology: Flora and fauna associated with the end use of the site.

5.4. Classification of Consequence, Probability and Risk

Classification of Consequence of Risk

Category	Definition
Severe	Short-term (acute) risk to human health likely to result in 'significant harm' as defined within Part 2A of the Environment Protection Act (1990). Short-term risk of pollution of a sensitive water resource. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.
Medium	Chronic damage to human health (significant harm). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures, services or the environment. Non-permanent health effects to human health.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Easily repairable effects of damage to buildings, structures and services.

Classification of Probability of Risk

Category	Definition
High Likelihood	There is a contaminant linkage and an event, which would either appear likely in the short term and almost inevitable over the long term, or, there is evidence at the receptor of harm or pollution.
Likely	There is a contaminant linkage, and all the elements are present and in the right place, which means that it is probable than 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.
Low Likelihood	There is a contaminant linkage, and circumstances are possible under which 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.
Unlikely	There is a contaminant linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

Risk as a Function of Consequence and Probability

		Consequence			
		Severe	*Medium*	*Mild*	*Minor*
Risk	*High*	Very High Risk	High Risk	Moderate Risk	Low to Moderate Risk
	Likely	High Risk	Moderate Risk	Low to Moderate Risk	Low Risk
	Low	Moderate Risk	Low to Moderate Risk	Low Risk	Very Low Risk
	Unlikely	Low to Moderate Risk	Low Risk	Very Low Risk	Very Low Risk

6. Phase I Conceptual Site Model

Sources	Potential Contaminants of Concern	Pathway	Receptor	Probability	Consequence	Overall Risk
On – Site Sources						
General shallow made ground across the site associated with the previous use of the site as a works, warehouse and workshop.	Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), asbestos containing materials (ACMs) and fibres.	Direct dermal contact or ingestion of soils, or inhalation of dust/fibres and/or vapours.	Site workers during the redevelopment of the site.	Unlikely no groundworks proposed	Medium	Low
			Intended end users of the site (residents).	Unlikely no soft landscaping proposed	Medium	Low
			Neighbours	Unlikely no soft landscaping proposed	Medium	Low
		Lateral and vertical migration of groundwater, alongside overland flow.	The principal aquifer within the underlying superficial strata.	Unlikely no soft landscaping proposed	Medium	Low
		Root uptake of plant life and subsequent ingestion by fauna. Direct dermal contact or ingestion of soils.	Flora and fauna associated with the end use of the site.	Unlikely no soft landscaping proposed	Mild	Very Low

Off – Site Sources						
Made Ground and migratory dusts associated with the historic works proximal to the site from 60m west.	Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), asbestos containing materials (ACMs) and fibres.	Direct dermal contact or ingestion of soils, or inhalation of dust/fibres and/or vapours.	Site workers during the redevelopment of the site.	Unlikely no groundworks proposed	Medium	Low
			Intended end users of the site (residents).	Unlikely no soft landscaping proposed	Medium	Low
		Lateral and vertical migration of groundwater, alongside overland flow.	The principal aquifer within the underlying superficial strata.	Unlikely no soft landscaping proposed	Medium	Low
No significant potential source of ground gas has been identified for this site.	Ground Gas (CH4 & CO2).	The migration and accumulation of ground gases through permeable sub-surface materials and/ or preferential pathways.	Site workers during the redevelopment of the site.	Unlikely	Mild	Very Low
			Intended end users of the site (residents).	Unlikely	Medium	Low

7. Conclusions and Recommendations

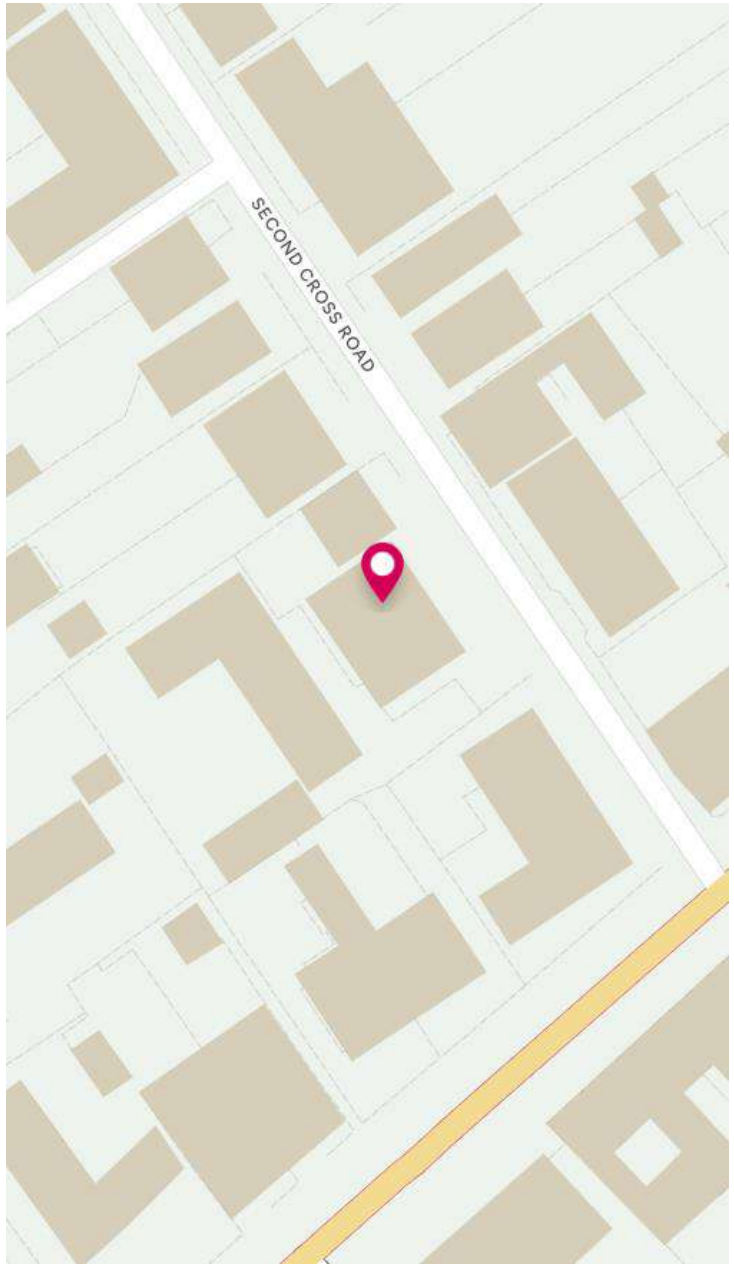
This report concludes that there is a 'Low' potential risk to future site users and 'Low' potential risk to controlled waters. This is due to the lack of viable pathway to contractors and residential end users of the site.

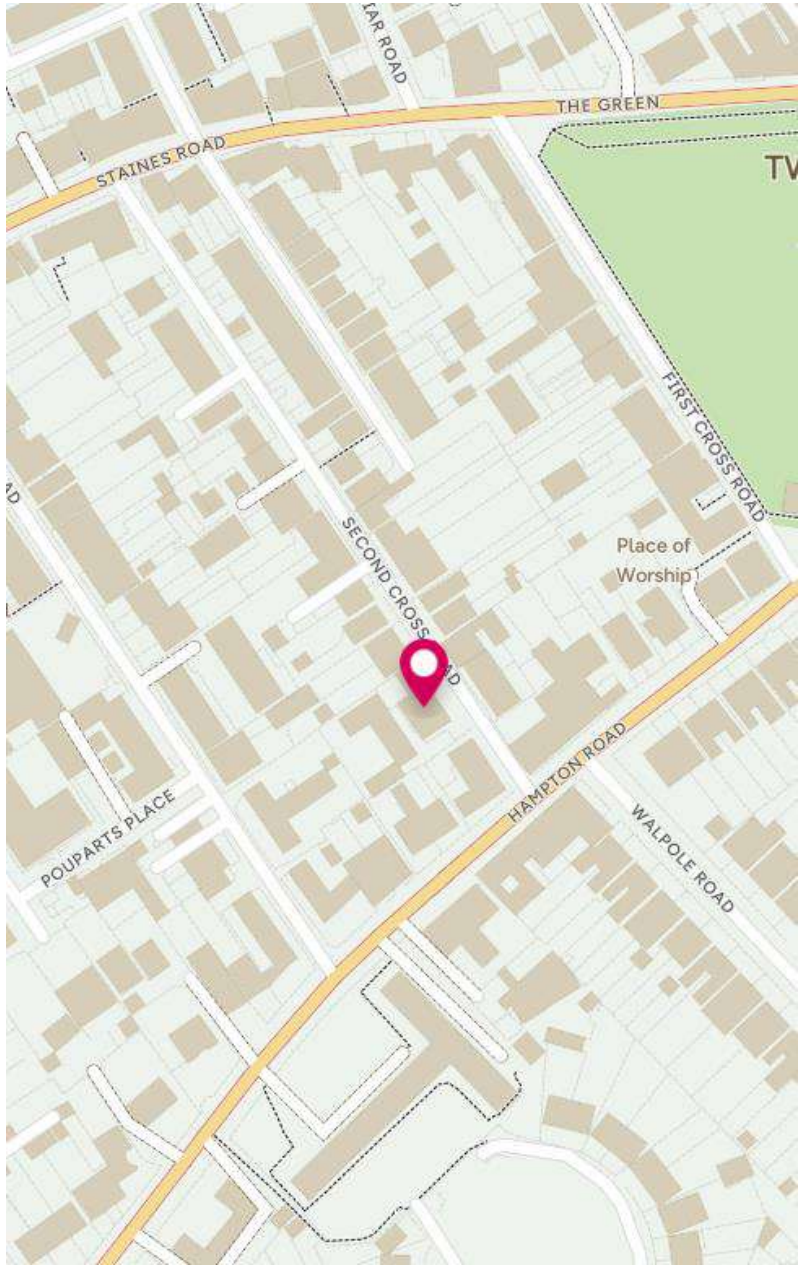
Therefore, no further action is required at this time, in relation to the proposed development of internal refurbishment and change of use of the existing property. Should the development proposal be altered so as to include groundworks or shared external areas with alternative surfacing than the existing hardstanding, the recommendations of this Phase 1 should be reviewed and updated if required.

These recommendations are considered appropriate based on the site's history, site walkover observations, and scale of the proposed development. These conclusions & recommendation should be approved by the local planning authority.

Dice Environmental

APPENDIX A





Dice Environmental

Title
Site Location

Reference
101609

Date
23/09/2024

Site Address

Ash House,
8 Second Cross Road,
Twickenham,
TW2 5RF

Legend

Approximate Site Centre

Scale
NTS

Drawn
AMD

Figure Number
Fig.1

Dice Environmental

Title
Site Layout

Reference	Date
101609	23/09/2024

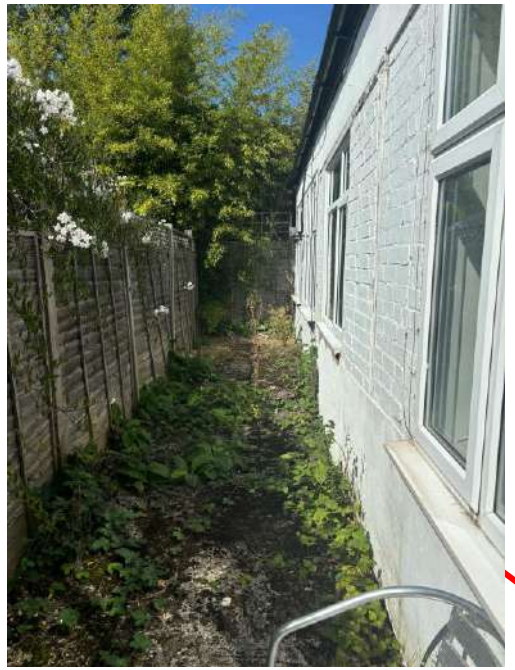
Site Address

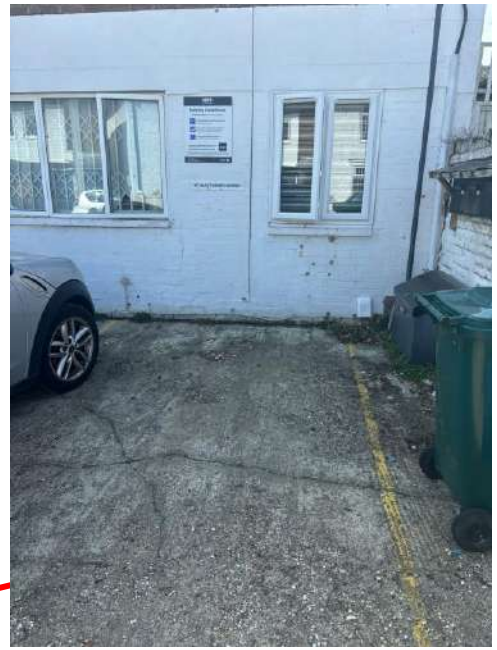
Ash House,
8 Second Cross Road,
Twickenham,
TW2 5RF

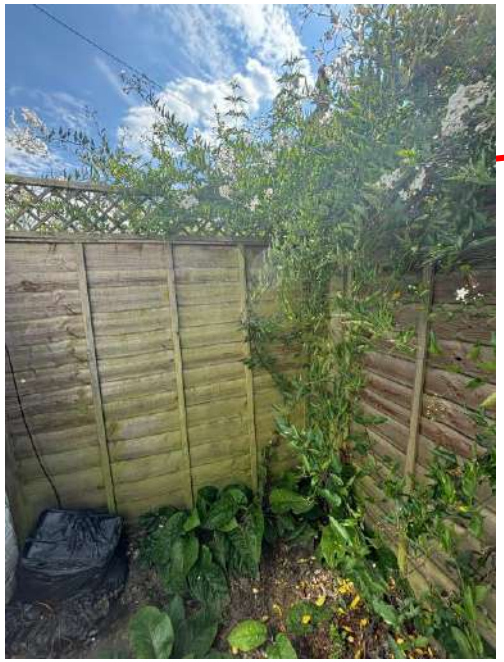
Legend

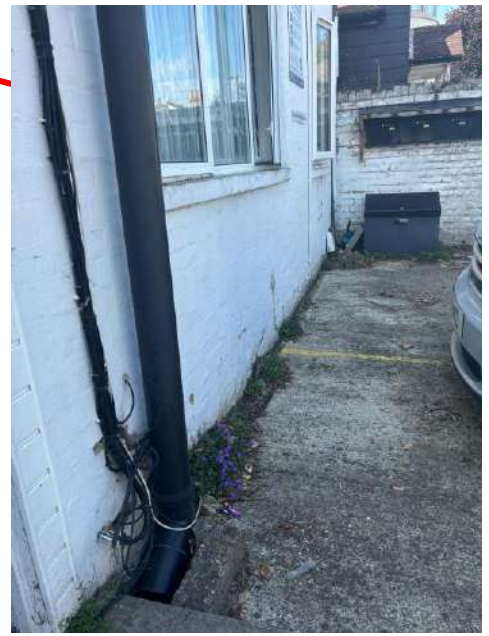
- Site Boundary
- Additional site ownership

Scale	Drawn	Figure Number
NTS	AMD	Fig.2









Dice Environmental

Title
Photos

Reference
101609

Date
23/09/2024

Site Address

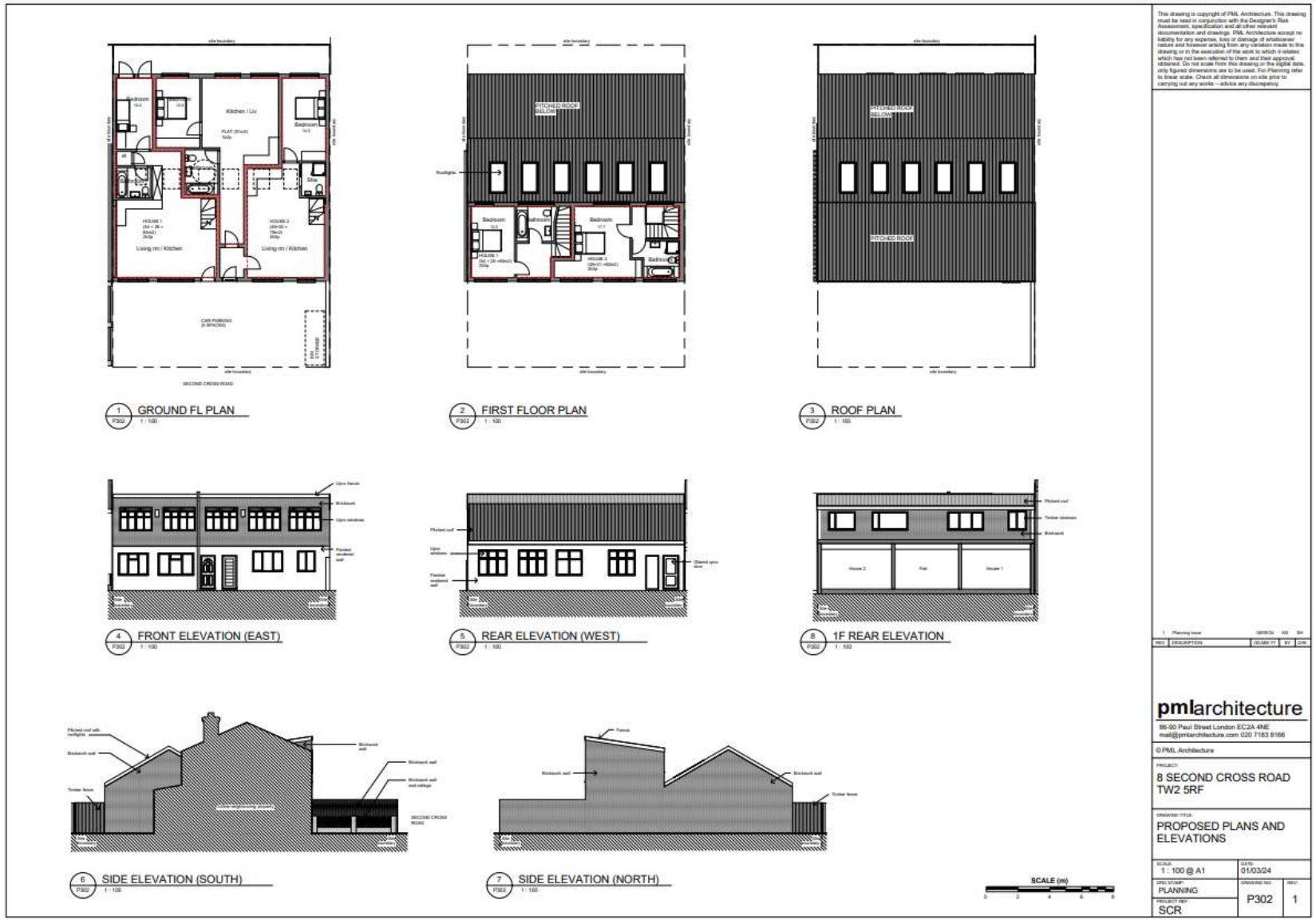
Ash House,
8 Second Cross Road,
Twickenham,
TW2 5RF

Legend

Scale
NTS

Drawn
AMD

Figure Number
Fig.3



Dice Environmental

Title
Development Proposal

Reference
101609

Date
23/09/2024

Site Address

Ash House,
8 Second Cross Road,
Twickenham,
TW2 5RF

Legend

Scale
NTS

Drawn
AMD

Figure Number
Fig.4

Dice Environmental

APPENDIX B

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

unspecified

Order Details

Date: 29/08/2024

Your ref: EMS_967922_1202781

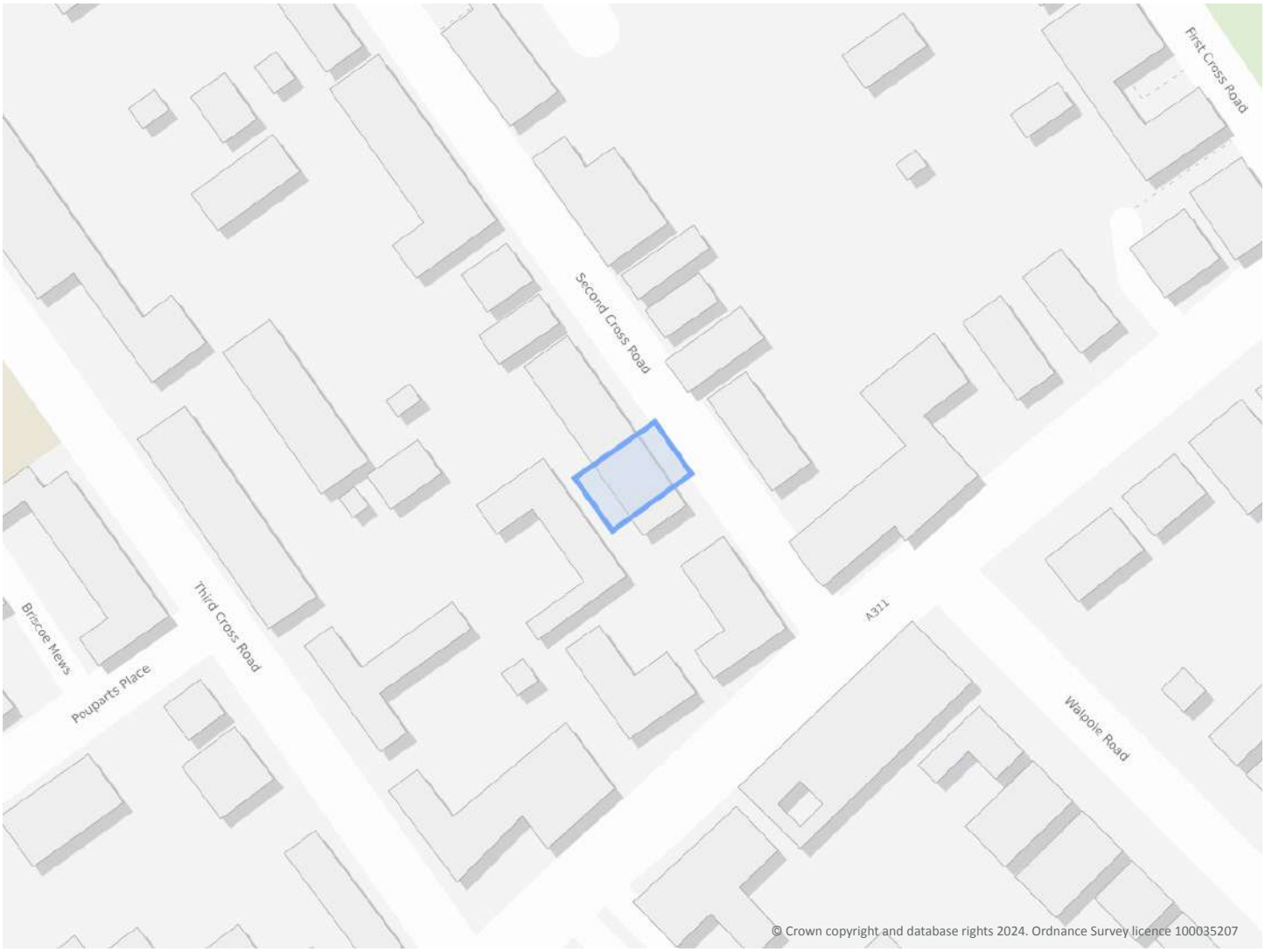
Our Ref: EMS-967922_1228409

Site Details

Location: 515105 172756

Area: 0.03 ha

Authority: London Borough of Richmond upon Thames ↗



Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	1	5	21	-
17 >	1.2 >	Historical tanks >	0	0	1	2	-
17 >	1.3 >	Historical energy features >	0	0	3	12	-
18	1.4	Historical petrol stations	0	0	0	0	-
18 >	1.5 >	Historical garages >	0	0	2	1	-
19	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
20 >	2.1 >	Historical industrial land uses >	0	1	7	31	-
22 >	2.2 >	Historical tanks >	0	0	1	2	-
22 >	2.3 >	Historical energy features >	0	0	8	21	-
24	2.4	Historical petrol stations	0	0	0	0	-
24 >	2.5 >	Historical garages >	0	0	5	1	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
25	3.1	Active or recent landfill	0	0	0	0	-
25	3.2	Historical landfill (BGS records)	0	0	0	0	-
26	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
26	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
26	3.5	Historical waste sites	0	0	0	0	-
26	3.6	Licensed waste sites	0	0	0	0	-
26 >	3.7 >	Waste exemptions >	0	2	1	17	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
29 >	4.1 >	Recent industrial land uses >	1	0	9	-	-
30 >	4.2 >	Current or recent petrol stations >	0	0	1	0	-
30	4.3	Electricity cables	0	0	0	0	-
31	4.4	Gas pipelines	0	0	0	0	-
31	4.5	Sites determined as Contaminated Land	0	0	0	0	-

31	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
31	4.7	Regulated explosive sites	0	0	0	0	-
31	4.8	Hazardous substance storage/usage	0	0	0	0	-
32	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
32	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
32 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	2	0	-
32	4.12	Radioactive Substance Authorisations	0	0	0	0	-
33	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	-
33 >	**4.16 >**	**List 1 Dangerous Substances >**	0	0	0	3	-
34	4.17	List 2 Dangerous Substances	0	0	0	0	-
34 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	0	1	1	-
34	4.19	Pollution inventory substances	0	0	0	0	-
35	4.20	Pollution inventory waste transfers	0	0	0	0	-
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
36 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
38 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
39 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
40	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
40 >	**5.5 >**	**Groundwater vulnerability- local information >**	Identified (within 0m)				
41 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	0	2
42	5.7	Surface water abstractions	0	0	0	0	0
42	5.8	Potable abstractions	0	0	0	0	0
43	5.9	Source Protection Zones	0	0	0	0	-
43	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
44	6.1	Water Network (OS MasterMap)	0	0	0	-	-

44	6.2	Surface water features	0	0	0	-	-
45 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
45	6.4	WFD Surface water bodies	0	0	0	-	-
45 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
47	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
47	7.2	Historical Flood Events	0	0	0	-	-
47	7.3	Flood Defences	0	0	0	-	-
48	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
48	7.5	Flood Storage Areas	0	0	0	-	-
49	7.6	Flood Zone 2	None (within 50m)				
49	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
50 >	8.1 >	Surface water flooding >	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding >					
52 >	9.1 >	Groundwater flooding >	Moderate-High (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
53 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	3
54	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
54	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
54	10.4	Special Protection Areas (SPA)	0	0	0	0	0
54	10.5	National Nature Reserves (NNR)	0	0	0	0	0
55 >	10.6 >	Local Nature Reserves (LNR) >	0	0	0	0	2
55	10.7	Designated Ancient Woodland	0	0	0	0	0
55	10.8	Biosphere Reserves	0	0	0	0	0
56	10.9	Forest Parks	0	0	0	0	0
56	10.10	Marine Conservation Zones	0	0	0	0	0
56	10.11	Green Belt	0	0	0	0	0
56	10.12	Proposed Ramsar sites	0	0	0	0	0

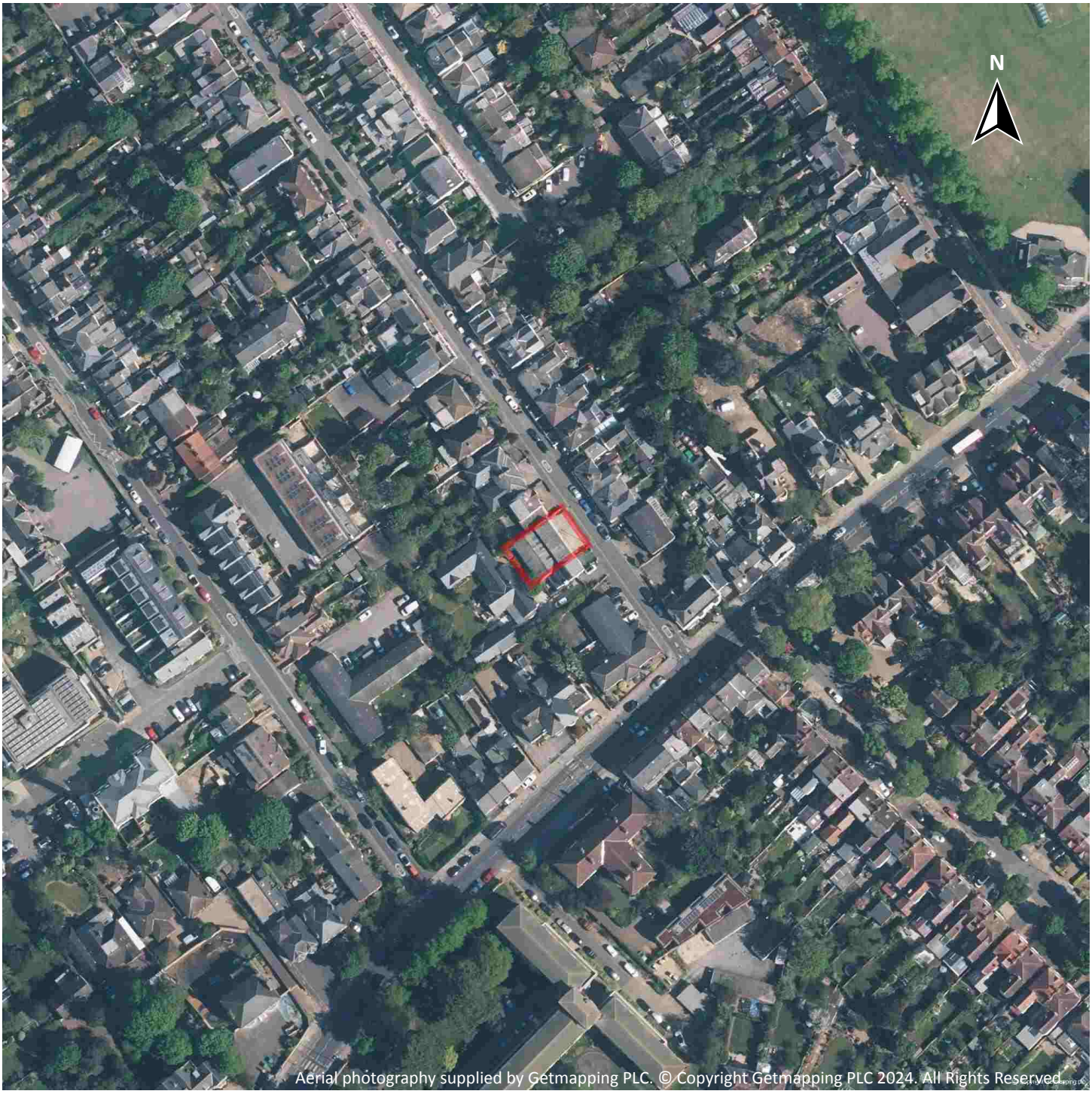
56	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
57	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
57	10.15	Nitrate Sensitive Areas	0	0	0	0	0
57	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
58 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
59 >	10.18 >	SSSI Units >	0	0	0	0	1
Page	Section	**Visual and cultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
60	11.1	World Heritage Sites	0	0	0	-	-
61	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
61	11.3	National Parks	0	0	0	-	-
61 >	11.4 >	Listed Buildings >	0	0	3	-	-
62 >	11.5 >	Conservation Areas >	0	1	1	-	-
62	11.6	Scheduled Ancient Monuments	0	0	0	-	-
62	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
63 >	12.1 >	Agricultural Land Classification >	Urban (within 250m)				
64	12.2	Open Access Land	0	0	0	-	-
64	12.3	Tree Felling Licences	0	0	0	-	-
64	12.4	Environmental Stewardship Schemes	0	0	0	-	-
64	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
65	13.1	Priority Habitat Inventory	0	0	0	-	-
65	13.2	Habitat Networks	0	0	0	-	-
65	13.3	Open Mosaic Habitat	0	0	0	-	-
65	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
66 >	14.1 >	10k Availability >	Identified (within 500m)				
67 >	14.2 >	Artificial and made ground (10k) >	0	0	2	5	-
69 >	14.3 >	Superficial geology (10k) >	1	0	3	0	-

70	14.4	Landslip (10k)	0	0	0	0	-
71 >	14.5 >	Bedrock geology (10k) >	1	0	1	0	-
72	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
73 >	15.1 >	50k Availability >	Identified (within 500m)				
74 >	15.2 >	Artificial and made ground (50k) >	0	0	1	1	-
75	15.3	Artificial ground permeability (50k)	0	0	-	-	-
76 >	15.4 >	Superficial geology (50k) >	1	0	1	0	-
77 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
77	15.6	Landslip (50k)	0	0	0	0	-
77	15.7	Landslip permeability (50k)	None (within 50m)				
78 >	15.8 >	Bedrock geology (50k) >	1	0	0	0	-
79 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
79	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
80	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence >					
81 >	17.1 >	Shrink swell clays >	Low (within 50m)				
82 >	17.2 >	Running sands >	Very low (within 50m)				
83 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
84 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
85 >	17.5 >	Landslides >	Very low (within 50m)				
86 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
88	18.1	BritPits	0	0	0	0	-
89 >	18.2 >	Surface ground workings >	0	0	5	-	-
89	18.3	Underground workings	0	0	0	0	0
89	18.4	Underground mining extents	0	0	0	0	-
89	18.5	Historical Mineral Planning Areas	0	0	0	0	-

90	18.6	Non-coal mining	0	0	0	0	0
90	18.7	JPB mining areas	None (within 0m)				
90	18.8	The Coal Authority non-coal mining	0	0	0	0	-
90	18.9	Researched mining	0	0	0	0	-
91	18.10	Mining record office plans	0	0	0	0	-
91	18.11	BGS mine plans	0	0	0	0	-
91	18.12	Coal mining	None (within 0m)				
91	18.13	Brine areas	None (within 0m)				
91	18.14	Gypsum areas	None (within 0m)				
92	18.15	Tin mining	None (within 0m)				
92	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
93	19.1	Natural cavities	0	0	0	0	-
93	19.2	Mining cavities	0	0	0	0	0
93	19.3	Reported recent incidents	0	0	0	0	-
93	19.4	Historical incidents	0	0	0	0	-
94	19.5	National karst database	0	0	0	0	-
Page	Section	**Radon** >					
95 >	**20.1** >	**Radon** >	Less than 1% (within 0m)				
Page	Section	**Soil chemistry** >	On site	0-50m	50-250m	250-500m	500-2000m
97 >	**21.1** >	**BGS Estimated Background Soil Chemistry** >	1	0	-	-	-
97 >	**21.2** >	**BGS Estimated Urban Soil Chemistry** >	2	4	-	-	-
98	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
99	22.1	Underground railways (London)	0	0	0	-	-
99	22.2	Underground railways (Non-London)	0	0	0	-	-
99	22.3	Railway tunnels	0	0	0	-	-
99	22.4	Historical railway and tunnel features	0	0	0	-	-
99	22.5	Royal Mail tunnels	0	0	0	-	-

100	22.6	Historical railways	0	0	0	-	-
100	22.7	Railways	0	0	0	-	-
100	22.8	Crossrail 1	0	0	0	0	-
100	22.9	Crossrail 2	0	0	0	0	-
100	22.10	HS2	0	0	0	0	-

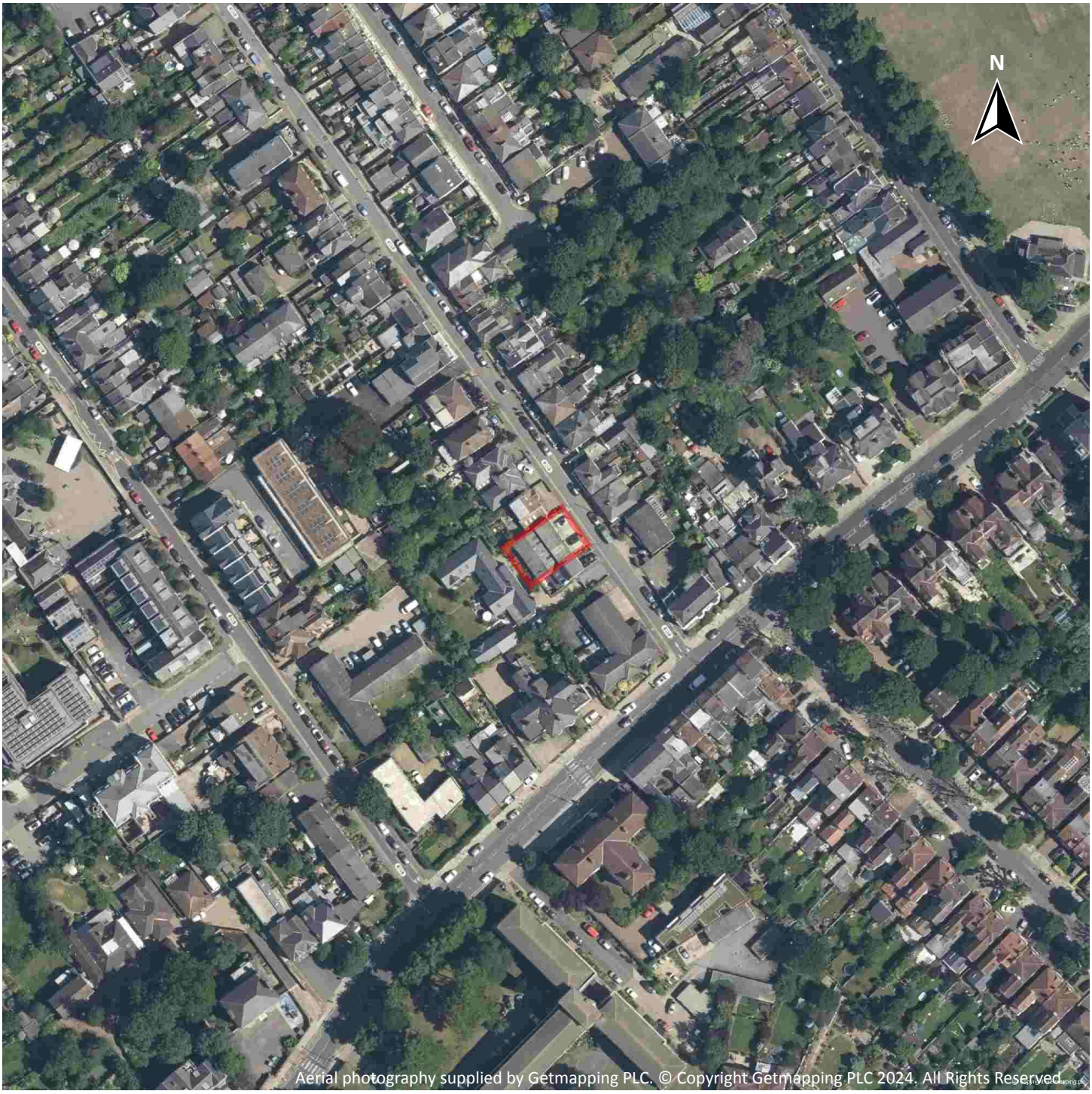
Recent aerial photograph



Capture Date: 30/04/2022

Site Area: 0.03ha

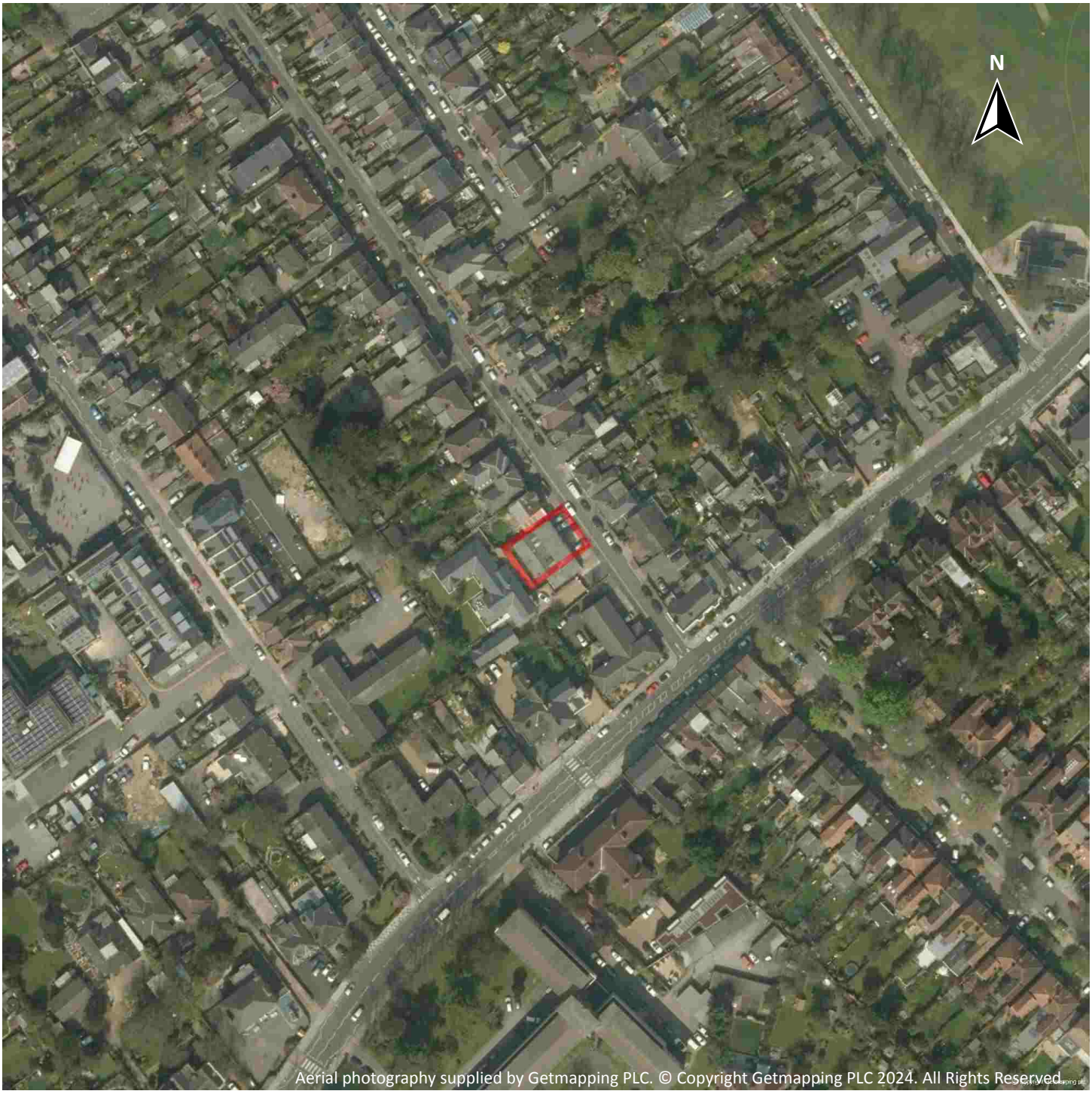
Recent site history - 2021 aerial photograph



Capture Date: 13/06/2021

Site Area: 0.03ha

Recent site history - 2015 aerial photograph



Capture Date: 20/04/2015

Site Area: 0.03ha

Recent site history - 2011 aerial photograph

Capture Date: 30/09/2011

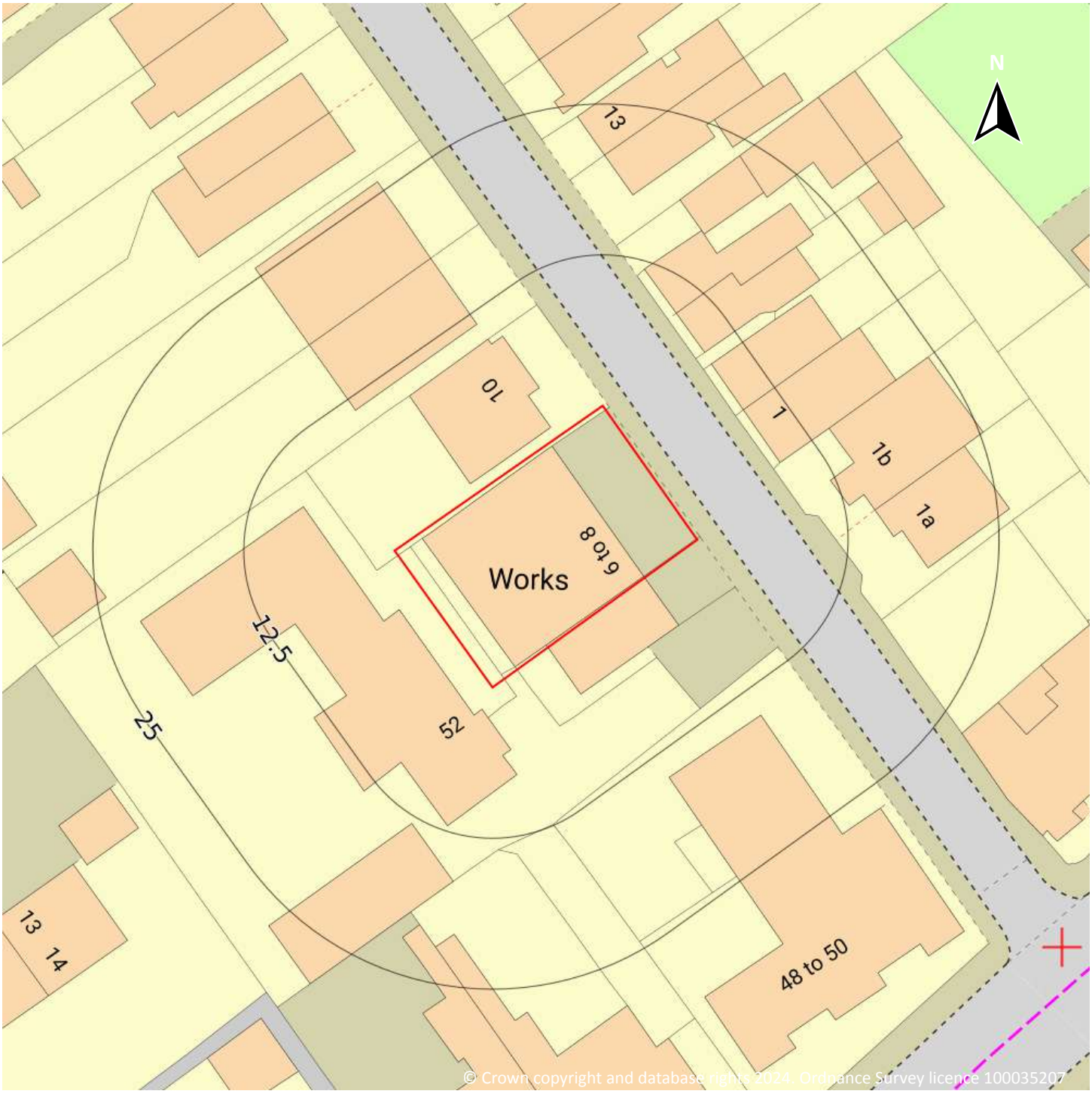
Site Area: 0.03ha

Recent site history - 1999 aerial photograph

Capture Date: 29/08/1999

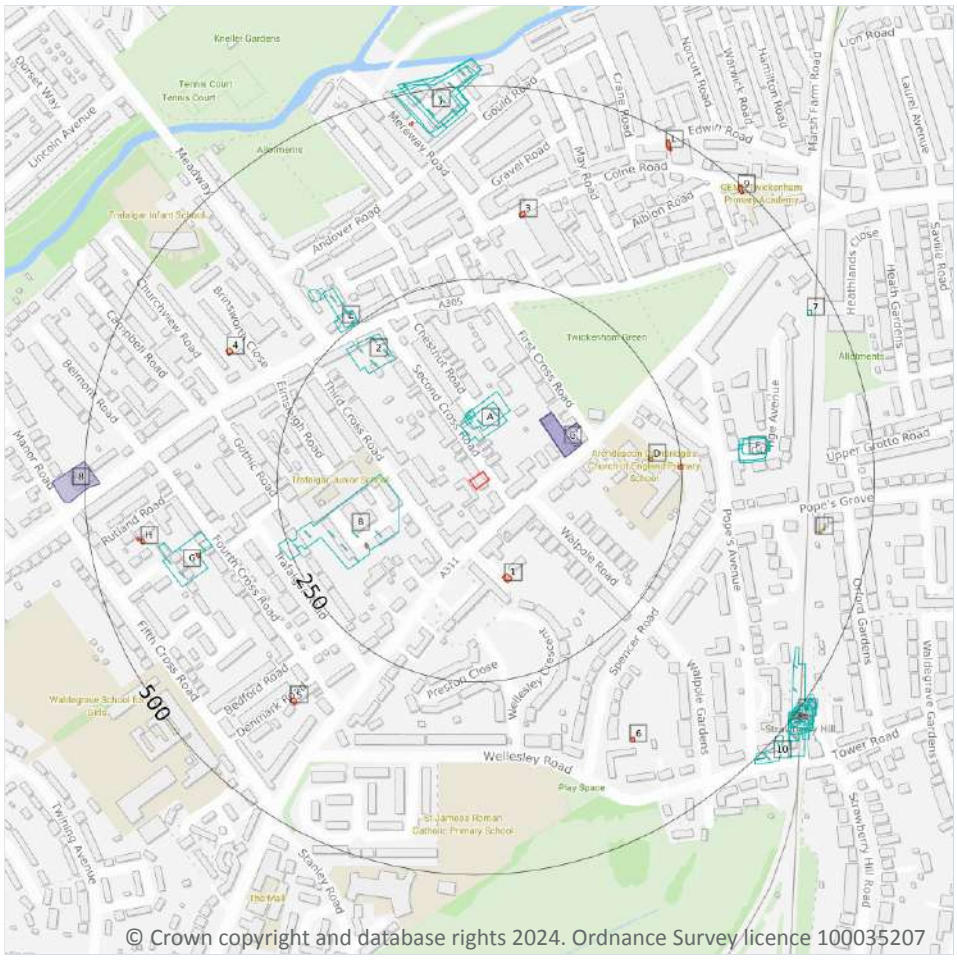
Site Area: 0.03ha

OS MasterMap site plan



Site Area: 0.03ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	27

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 15 >**

ID	Location	Land use	Dates present	Group ID
A	40m N	Smithy	1894	2248469

ID	Location	Land use	Dates present	Group ID
A	53m N	Smithy	1894	2252602
A	64m N	Smithy	1894	2263831
A	69m N	Smithy	1896	2329681
B	95m W	Unspecified Works	1966 - 1983	2280567
2	185m NW	Smithy	1894	2181383
E	251m NW	Smithy	1894 - 1896	2264430
E	252m NW	Smithy	1894	2317173
E	305m NW	Unspecified Heap	1912	2187877
F	325m E	Unspecified Pit	1894	2236515
F	326m E	Unspecified Pit	1894 - 1896	2275086
F	330m E	Unspecified Pit	1894	2203731
G	345m W	Unspecified Works	1983	2183128
J	437m N	Engineering Works	1912	2240480
J	444m N	Engine Works	1912	2188897
J	449m N	Engineering Works	1912 - 1933	2207655
K	453m SE	Railway Station	1896	2322797
J	456m N	Engineering Works	1938	2329204
7	464m NE	Railway Building	1948	2197035
K	492m SE	Railway Station	1966 - 1991	2271335
K	493m SE	Railway Station	1894	2246575
K	493m SE	Railway Station	1912 - 1938	2276736
K	495m SE	Railway Station	1894	2229982
K	495m SE	Railway Station	1938	2254278
K	495m SE	Railway Station	1912	2274717
K	496m SE	Railway Station	1948	2219365
10	497m SE	Unspecified Ground Workings	1894 - 1896	2213951

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	3

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 15 >**

ID	Location	Land use	Dates present	Group ID
D	208m E	Unspecified Tank	1996	388376
I	434m E	Unspecified Tank	1898	388397
I	437m E	Unspecified Tank	1896	388379

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	15

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 15 >**

ID	Location	Land use	Dates present	Group ID
1	117m S	Electricity Substation	1973 - 1996	286831
B	156m SW	Electricity Substation	1978 - 1994	283450
D	246m E	Electricity Substation	1973 - 1996	306904
3	333m N	Electricity Substation	1988 - 1994	277200
4	349m NW	Electricity Substation	1978 - 1994	291139
5	359m SW	Electricity Substation	1972 - 1995	286266
G	363m W	Electricity Substation	1978 - 1994	277359
6	380m SE	Electricity Substation	1981 - 1991	312778

ID	Location	Land use	Dates present	Group ID
H	429m W	Electricity Substation	1978	268079
H	435m W	Electricity Substation	1994	269435
J	459m N	Electricity Substation	1979 - 1994	321597
L	481m NE	Electricity Substation	1994	312612
L	482m NE	Electricity Substation	1979	298143
L	482m NE	Electricity Substation	1988	298517
9	491m NE	Electricity Substation	1979	271750

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	3

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'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
C	98m NE	Garage	1973 - 1985	84072
C	98m NE	Garage	1959 - 1961	88936
8	479m W	Garage	1978	81504

This data is sourced from Ordnance Survey / Groundsure.

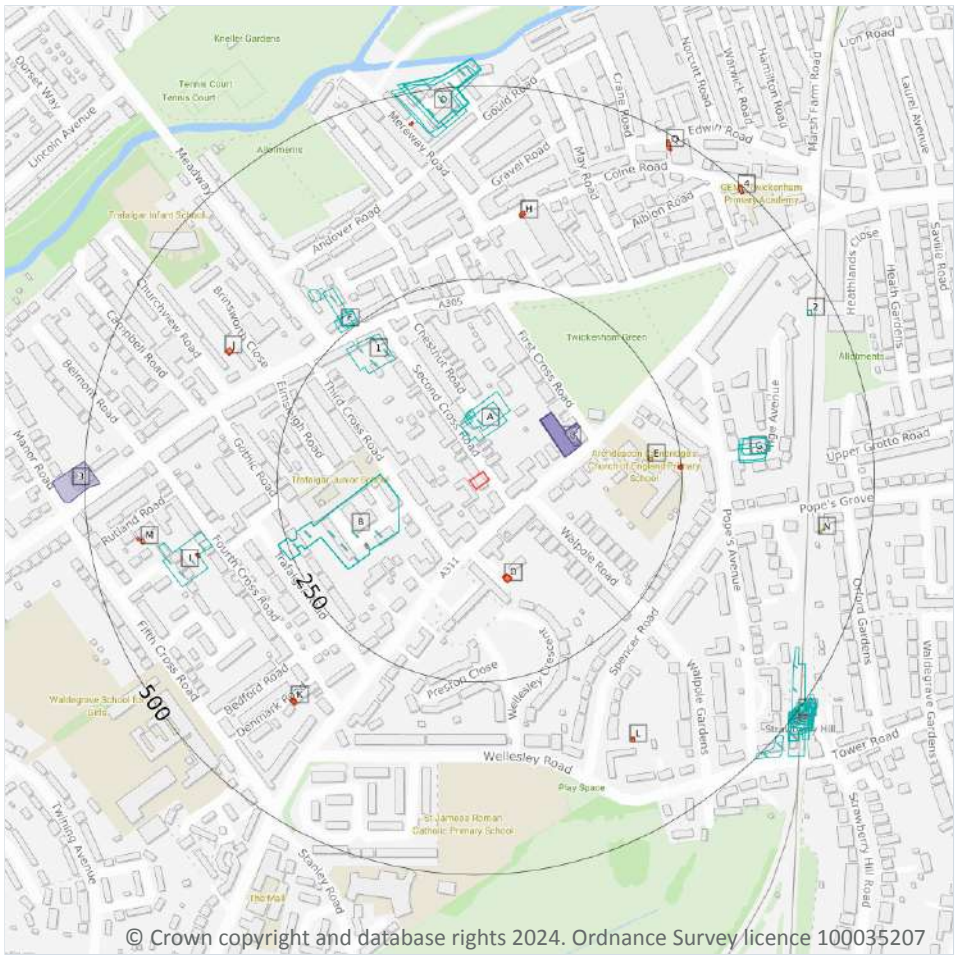
1.6 Historical military land

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



2.1 Historical industrial land uses

Records within 500m	39

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 20 >**

ID	Location	Land Use	Date	Group ID
A	40m N	Smithy	1894	2248469
A	53m N	Smithy	1894	2252602
A	64m N	Smithy	1894	2263831

ID	Location	Land Use	Date	Group ID
A	69m N	Smithy	1896	2329681
B	95m W	Unspecified Works	1973	2280567
B	95m W	Unspecified Works	1983	2280567
B	95m W	Unspecified Works	1966	2280567
1	185m NW	Smithy	1894	2181383
F	251m NW	Smithy	1894	2264430
F	252m NW	Smithy	1894	2317173
F	256m NW	Smithy	1896	2264430
F	305m NW	Unspecified Heap	1912	2187877
G	325m E	Unspecified Pit	1894	2236515
G	326m E	Unspecified Pit	1894	2275086
G	328m E	Unspecified Pit	1896	2275086
G	330m E	Unspecified Pit	1894	2203731
I	345m W	Unspecified Works	1983	2183128
O	437m N	Engineering Works	1912	2240480
O	444m N	Engine Works	1912	2188897
O	449m N	Engineering Works	1933	2207655
P	453m SE	Railway Station	1896	2322797
O	456m N	Engineering Works	1938	2329204
O	456m N	Engineering Works	1912	2207655
2	464m NE	Railway Building	1948	2197035
P	492m SE	Railway Station	1991	2271335
P	492m SE	Railway Station	1973	2271335
P	492m SE	Railway Station	1966	2271335
P	493m SE	Railway Station	1894	2246575
P	493m SE	Railway Station	1933	2276736
P	493m SE	Railway Station	1938	2276736
P	493m SE	Railway Station	1912	2276736

ID	Location	Land Use	Date	Group ID
P	495m SE	Railway Station	1894	2229982
P	495m SE	Railway Station	1935	2276736
P	495m SE	Railway Station	1938	2254278
P	495m SE	Railway Station	1912	2274717
P	496m SE	Railway Station	1948	2219365
P	497m SE	Unspecified Ground Workings	1896	2213951
P	499m SE	Railway Station	1912	2276736
P	499m SE	Railway Station	1894	2229982

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	3

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 20 >**

ID	Location	Land Use	Date	Group ID
E	208m E	Unspecified Tank	1996	388376
N	434m E	Unspecified Tank	1898	388397
N	437m E	Unspecified Tank	1896	388379

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	29

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 20 >**

ID	Location	Land Use	Date	Group ID
D	117m S	Electricity Substation	1985	286831
D	118m S	Electricity Substation	1973	286831
D	118m S	Electricity Substation	1996	286831
B	156m SW	Electricity Substation	1994	283450
B	157m SW	Electricity Substation	1978	283450
E	246m E	Electricity Substation	1985	306904
E	247m E	Electricity Substation	1996	306904
E	247m E	Electricity Substation	1973	306904
H	333m N	Electricity Substation	1994	277200
H	334m N	Electricity Substation	1988	277200
J	349m NW	Electricity Substation	1978	291139
J	350m NW	Electricity Substation	1994	291139
K	359m SW	Electricity Substation	1972	286266
K	360m SW	Electricity Substation	1988	286266
K	360m SW	Electricity Substation	1993	286266
K	360m SW	Electricity Substation	1995	286266
I	363m W	Electricity Substation	1994	277359
I	364m W	Electricity Substation	1978	277359
L	380m SE	Electricity Substation	1991	312778
L	380m SE	Electricity Substation	1981	312778
M	429m W	Electricity Substation	1978	268079
M	435m W	Electricity Substation	1994	269435
O	459m N	Electricity Substation	1979	321597
O	459m N	Electricity Substation	1988	321597
O	459m N	Electricity Substation	1994	321597
Q	481m NE	Electricity Substation	1994	312612
Q	482m NE	Electricity Substation	1979	298143
Q	482m NE	Electricity Substation	1988	298517

ID	Location	Land Use	Date	Group ID
4	491m NE	Electricity Substation	1979	271750

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	6

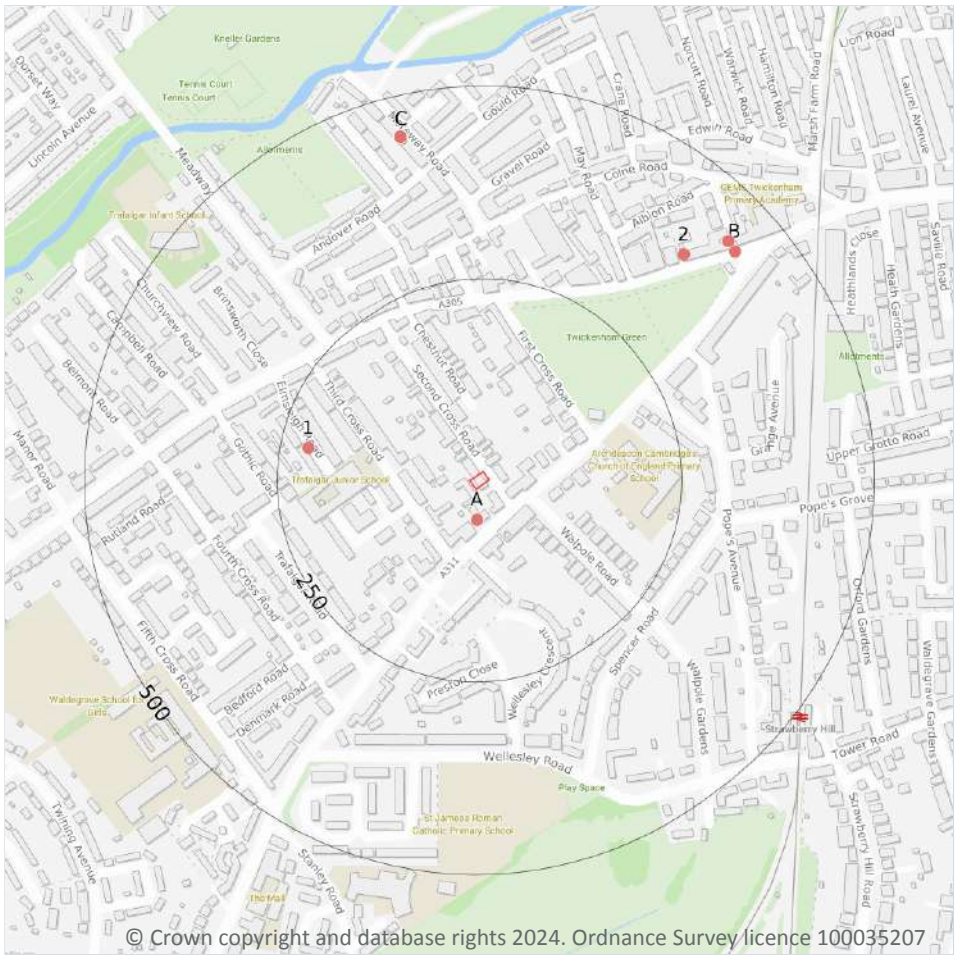
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 20 >**

ID	Location	Land Use	Date	Group ID
C	98m NE	Garage	1985	84072
C	98m NE	Garage	1959	88936
C	98m NE	Garage	1959	88936
C	98m NE	Garage	1973	84072
C	99m NE	Garage	1961	88936
3	479m W	Garage	1978	81504

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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	20

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 25 >**

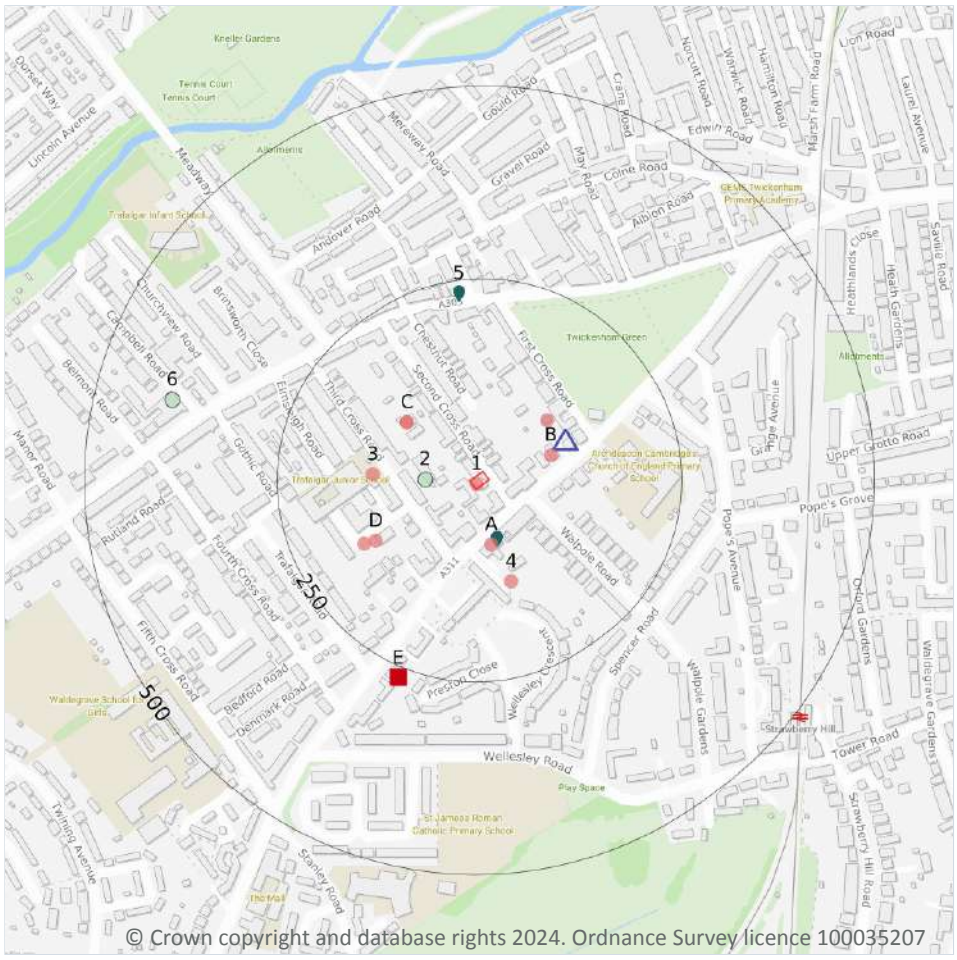
ID	Location	Site	Reference	Category	Sub-Category	Description
A	40m S	58, Hampton Road, Twickenham, Tw2 5qb	WEX301788	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

ID	Location	Site	Reference	Category	Sub-Category	Description
A	40m S	58, Hampton Road, Twickenham, Tw2 5qb	WEX167905	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
1	214m W	Trafalgar Junior School Elmsleigh Road Twickenham Tw2 5eg	EPR/LE5650QU/A001	Storing waste exemption	Non-agricultural waste only	Storage of waste in a secure place
2	383m NE	20 The Green Twickenham Middlesex Tw2 5ab	EPR/TF0704VD/A001	Treating waste exemption	Non-agricultural waste only	Sorting and de-naturing of controlled drugs for disposal
B	433m NE	20 The Green Twickenham Tw2 5ab	EPR/BH0618DR/A001	Treating waste exemption	Non-agricultural waste only	Sorting and de-naturing of controlled drugs for disposal
B	436m NE	20, The Green, Twickenham, Tw2 5ab	WEX297175	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	436m NE	20, The Green, Twickenham, Tw2 5ab	WEX162391	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	436m NE	20, The Green, Twickenham, Tw2 5ab	WEX155998	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
C	444m N	-	WEX301152	Using waste exemption	Not on a farm	Use of waste for a specified purpose
C	444m N	-	WEX301152	Using waste exemption	Not on a farm	Use of waste in construction
C	444m N	-	WEX301152	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
C	444m N	-	WEX301152	Using waste exemption	Not on a farm	Spreading of plant matter to confer benefit
C	444m N	-	WEX301152	Treating waste exemption	Not on a farm	Treatment of waste aerosol cans
C	444m N	-	WEX301152	Using waste exemption	Not on a farm	Use of mulch
C	447m N	Jackson Civil Engineering, Mereway Road Weir, Mereway Road, Twickenham, Middlesex, Tw2 6rg	WEX182782	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising

ID	Location	Site	Reference	Category	Sub-Category	Description
C	447m N	Jackson Civil Engineering, Mereway Road Weir, Mereway Road, Twickenham, Middlesex, Tw2 6rg	WEX182782	Using waste exemption	Not on a farm	Use of waste in construction
C	447m N	Jackson Civil Engineering, Mereway Road Weir, Mereway Road, Twickenham, Middlesex, Tw2 6rg	WEX182782	Using waste exemption	Not on a farm	Spreading of plant matter to confer benefit
C	447m N	Jackson Civil Engineering, Mereway Road Weir, Mereway Road, Twickenham, Middlesex, Tw2 6rg	WEX182782	Using waste exemption	Not on a farm	Use of waste for a specified purpose
C	447m N	Jackson Civil Engineering, Mereway Road Weir, Mereway Road, Twickenham, Middlesex, Tw2 6rg	WEX182782	Treating waste exemption	Not on a farm	Treatment of waste aerosol cans
C	447m N	Jackson Civil Engineering, Mereway Road Weir, Mereway Road, Twickenham, Middlesex, Tw2 6rg	WEX182782	Using waste exemption	Not on a farm	Use of mulch

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

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	10

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Works**	**Greater London, TW2**	**Unspecified Works Or Factories**	**Industrial Features**
A	75m S	Metropolitan Airport Express	43, Hampton Road, Twickenham, Greater London, TW2 5QE	Airlines and Airline Services	Transport, Storage and Delivery

ID	Location	Company	Address	Activity	Category
B	86m E	A Fine Choice	18, Hampton Road, Twickenham, Greater London, TW2 5QB	Distribution and Haulage	Transport, Storage and Delivery
B	106m NE	Trio Systems	14, Hampton Road, Twickenham, Greater London, TW2 5QB	Office and Shop Equipment	Industrial Products
C	111m NW	Ash House Business Centre	Ash House Business Centre 8, Second Cross Road, Twickenham, Greater London, TW2 5RF	Business Parks and Industrial Estates	Industrial Features
C	111m NW	Bath Renovation Ltd	Ash House Business Centre, 8, Second Cross Road, Twickenham, Greater London, TW2 5RF	Industrial Coatings and Finishings	Industrial Products
3	126m W	Electricity Sub Station	Greater London, TW2	Electrical Features	Infrastructure and Facilities
4	128m S	Electricity Sub Station	Greater London, TW2	Electrical Features	Infrastructure and Facilities
D	145m SW	Chimney	Greater London, TW2	Chimneys	Industrial Features
D	159m SW	Electricity Sub Station	Greater London, TW2	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Company	Address	LPG	Status
B	111m NE	OBSOLETE	8-11, Hampton Road, Twickenham, Outer London, TW2 5QE	Not Applicable	Obsolete

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	2

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.

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Address	Details	
A	70m S	Coldel Dry Cleaners, 39 Hampton Road, Twickenham, TW2 5QE	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
5	233m N	Twickenham Green Dry Cleaners, 4 Staines Road, Twickenham, TW2 5AH	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

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	0

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

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	3

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.

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Name	Status	Receiving Water	Authorised Substances
E	265m S	Twickenham Plating 6 Colne Road Twickenham	Not Active	-	-
E	265m S	Twickenham Plating 6 Colne Rd Twickenham	Not Active	-	-
E	265m S	Twickenham Plating Group Plc, 6 Colne Road, Twickenham Tw8	Active	Thames Estuary	Mercury (other), Cadmium

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	2

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

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Details	
2	58m W	Incident Date: 24/08/2001 Incident Identification: 26593 Pollutant: Oils and Fuel Pollutant Description: Petrol	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6	400m W	Incident Date: 31/08/2001 Incident Identification: 28277 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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.

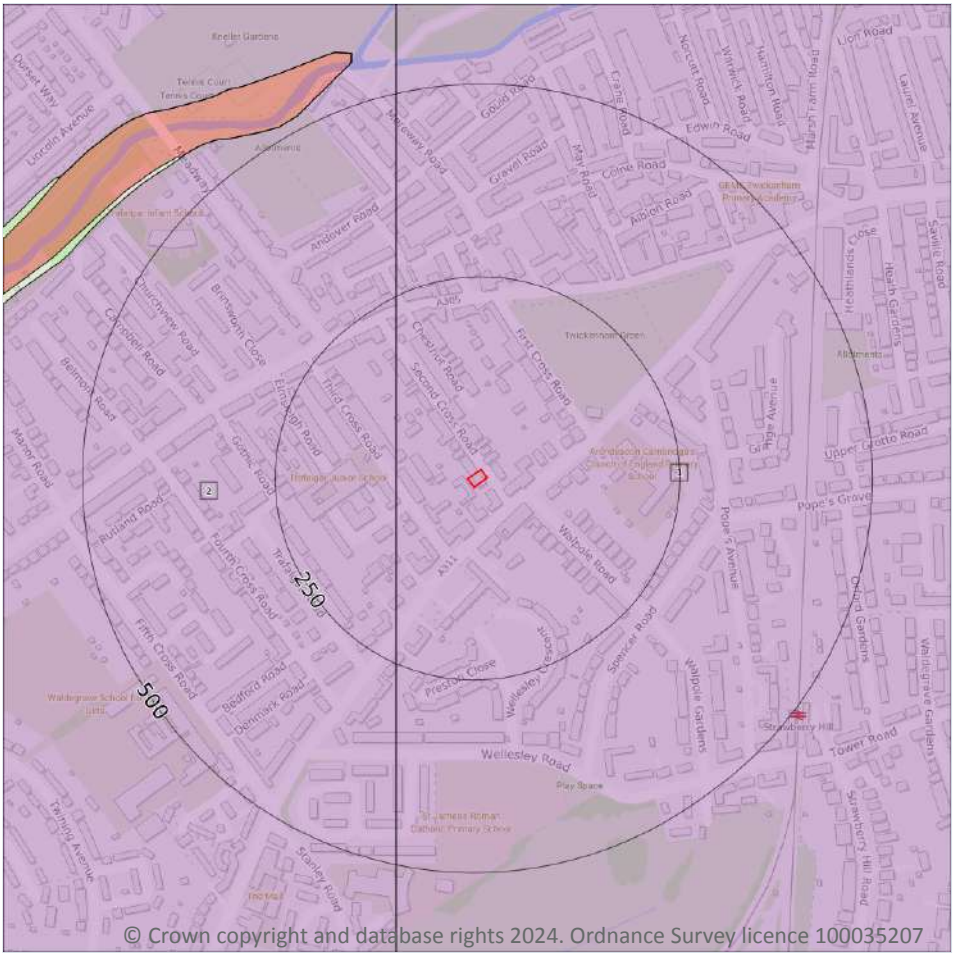
4.21 Pollution inventory radioactive waste

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



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	2

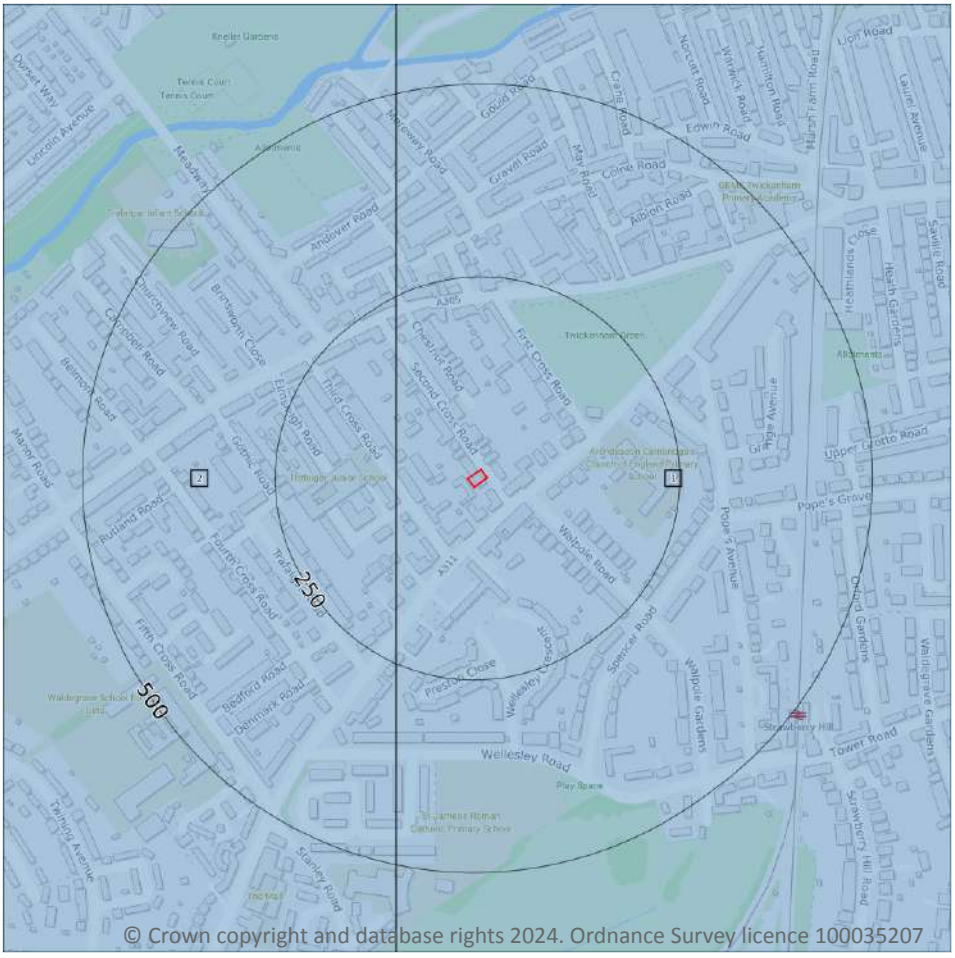
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 36 >**

ID	Location	Designation	Description
1	**On site**	**Principal**	**Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers**
2	93m W	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

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

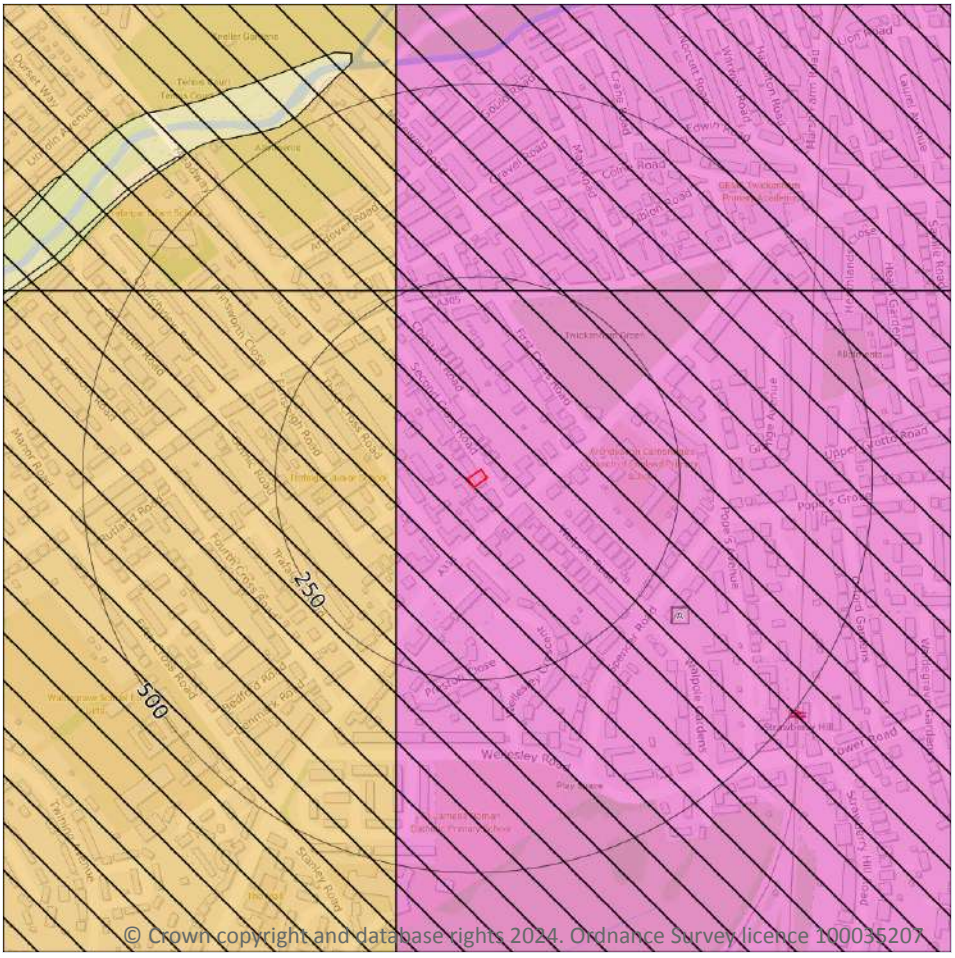
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 38 >**

ID	Location	Designation	Description
1	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
2	93m 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 39 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
A	**On site**	**Summary Classification: Principal superficial aquifer - Medium Vulnerability Combined classification: Unproductive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Principal Thickness: 3-10m Patchiness value: >90% Recharge potential: High**	**Vulnerability: Unproductive Aquifer type: Unproductive 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

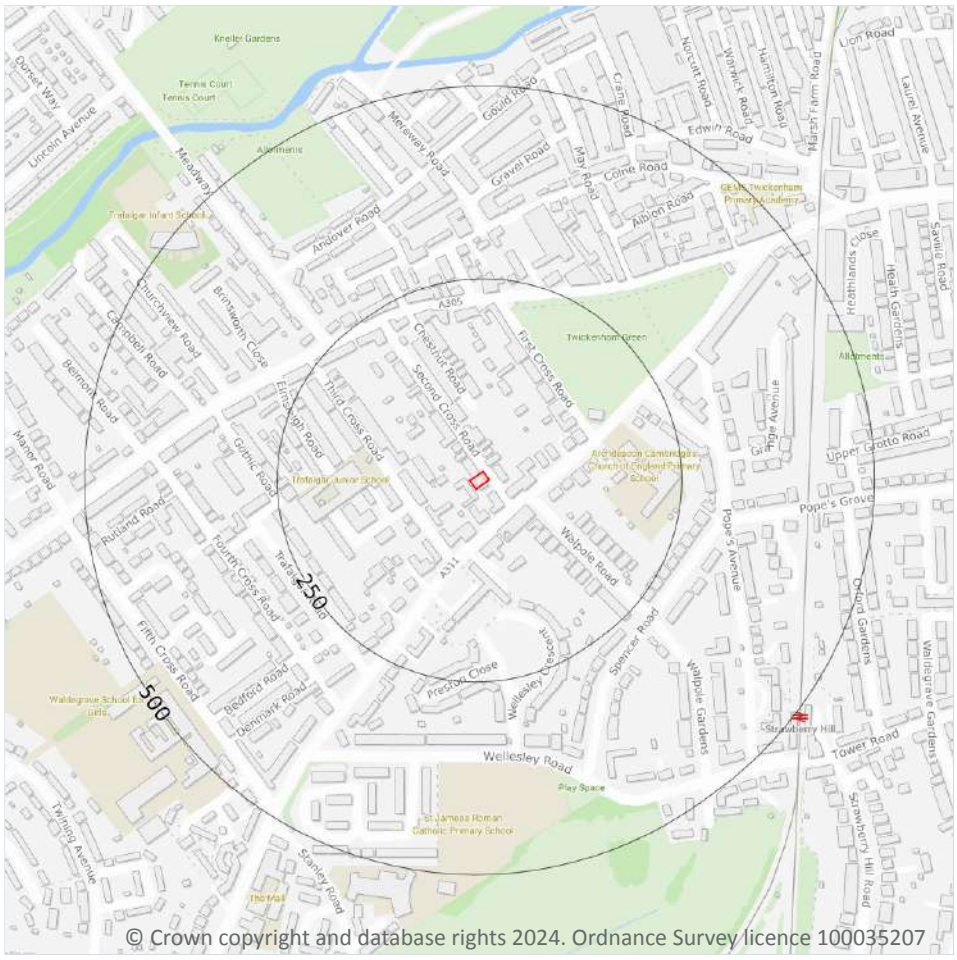
Records on site	**1**

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 ↗.

ID	Summary	Additional information
A	**Highly vulnerable Principal superficial aquifer present in river terrace gravels**	**Principal superficial aquifer in river terrace gravels with only a thin cover of low permeability silts and/or alluvium (shown as unproductive)**

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

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	2

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 41 >**

ID	Location	Details	
-	1073m SW	Status: Active Licence No: TH/039/0034/005 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: THAMES GROUNDWATER Point: RIVER GRAVELS AT FULWELL RAILWAY STATION Data Type: Point Name: Network Rail Infrastructure Limited Easting: 514690 Northing: 171754	Annual Volume (m^3): 745796 Max Daily Volume (m^3): 5212 Original Application No: NPS/NA/001795 Original Start Date: 14/05/2021 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 14/05/2021 Version End Date: -
-	1199m SW	Status: Active Licence No: TH/039/0034/004 Details: Spray Irrigation - Storage Direct Source: THAMES GROUNDWATER Point: FULWELL GOLF CLUB BOREHOLE Data Type: Point Name: Fulwell Golf Club Ltd Easting: 514126 Northing: 172047	Annual Volume (m^3): 17205 Max Daily Volume (m^3): 80.4 Original Application No: NPS/WR/035481 Original Start Date: 18/05/2022 Expiry Date: 31/03/2037 Issue No: 1 Version Start Date: 18/05/2022 Version End Date: -

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.

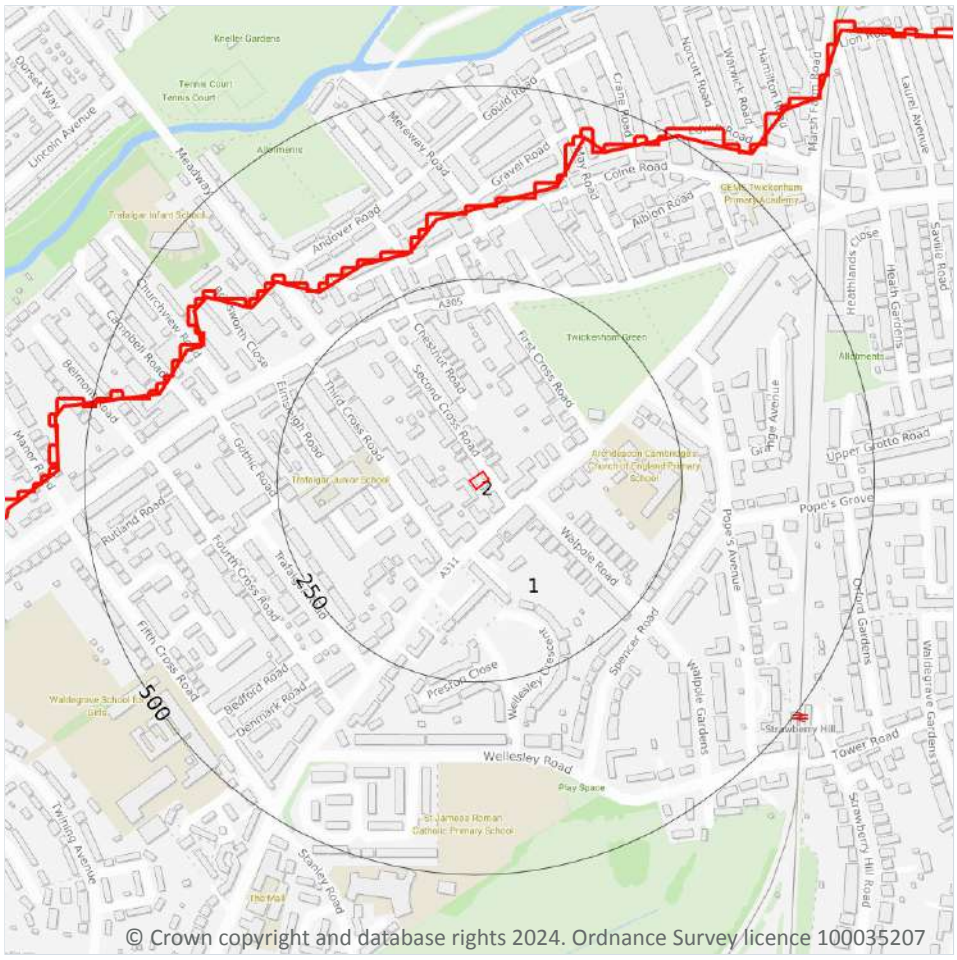
5.10 Source Protection Zones (confined aquifer)

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



6.1 Water Network (OS MasterMap)

Records within 250m	0

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

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	0

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.

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 44 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**131**	**Land area part of London Management Catchment draining to the Tidal Thames**	**London**

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

6.4 WFD Surface water bodies

Records identified	0

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.

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

6.5 WFD Groundwater bodies

Records on site	1

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.

Features are displayed on the Hydrology map on **page 44 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Lower Thames Gravels**	**GB40603G000300** ↗	**Poor**	**Good**	**Poor**	**2019**

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.

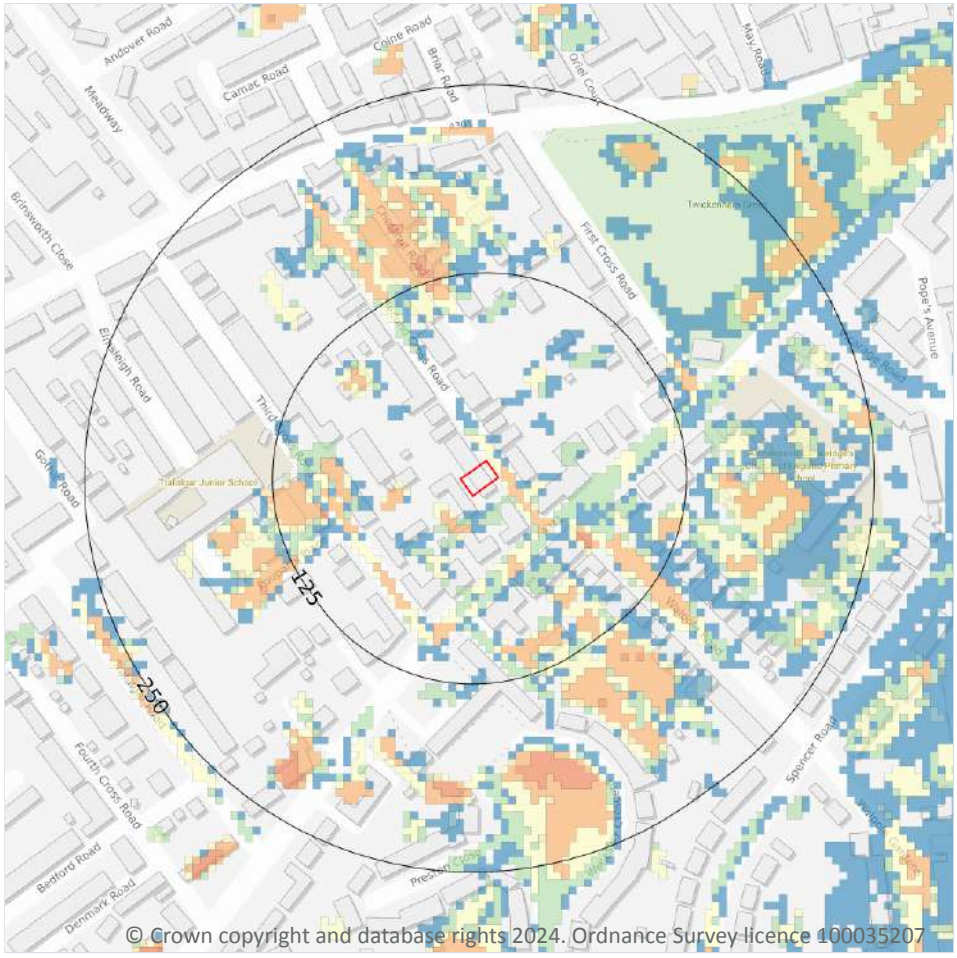
7.7 Flood Zone 3

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 100 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, 0.1m - 0.3m**

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 50 >**

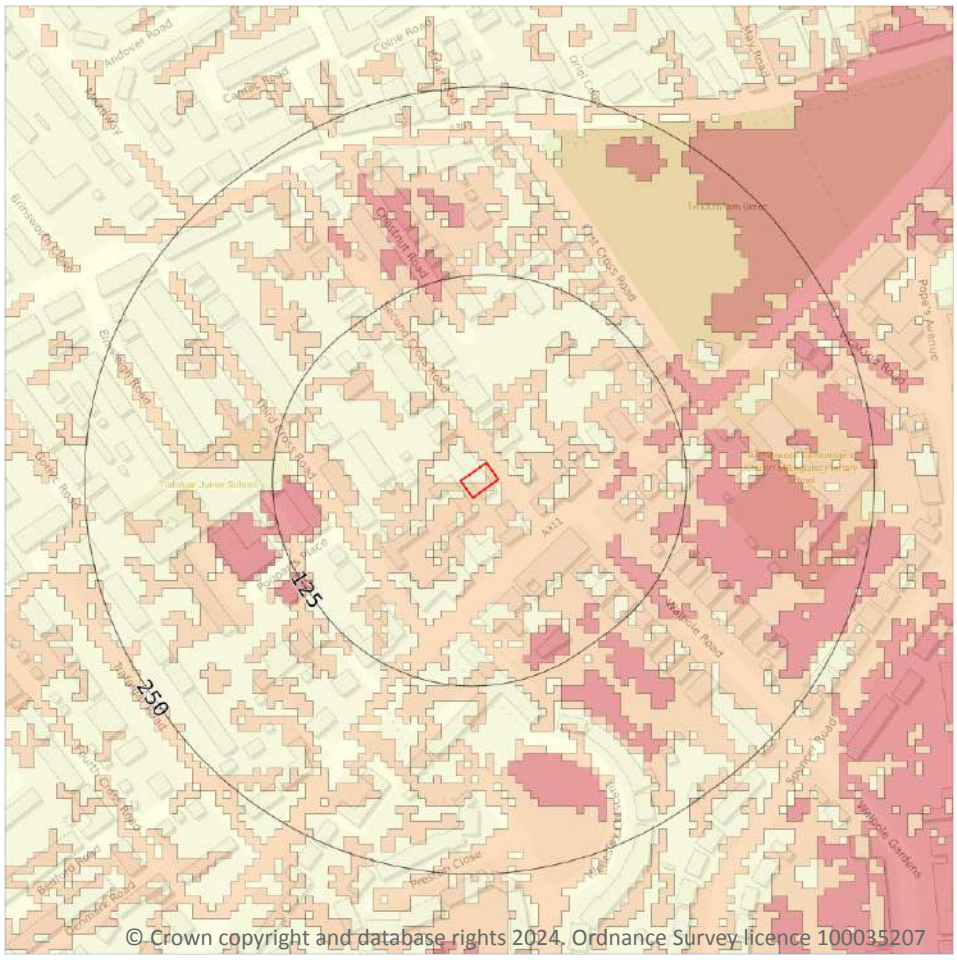
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Between 0.1m and 0.3m
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

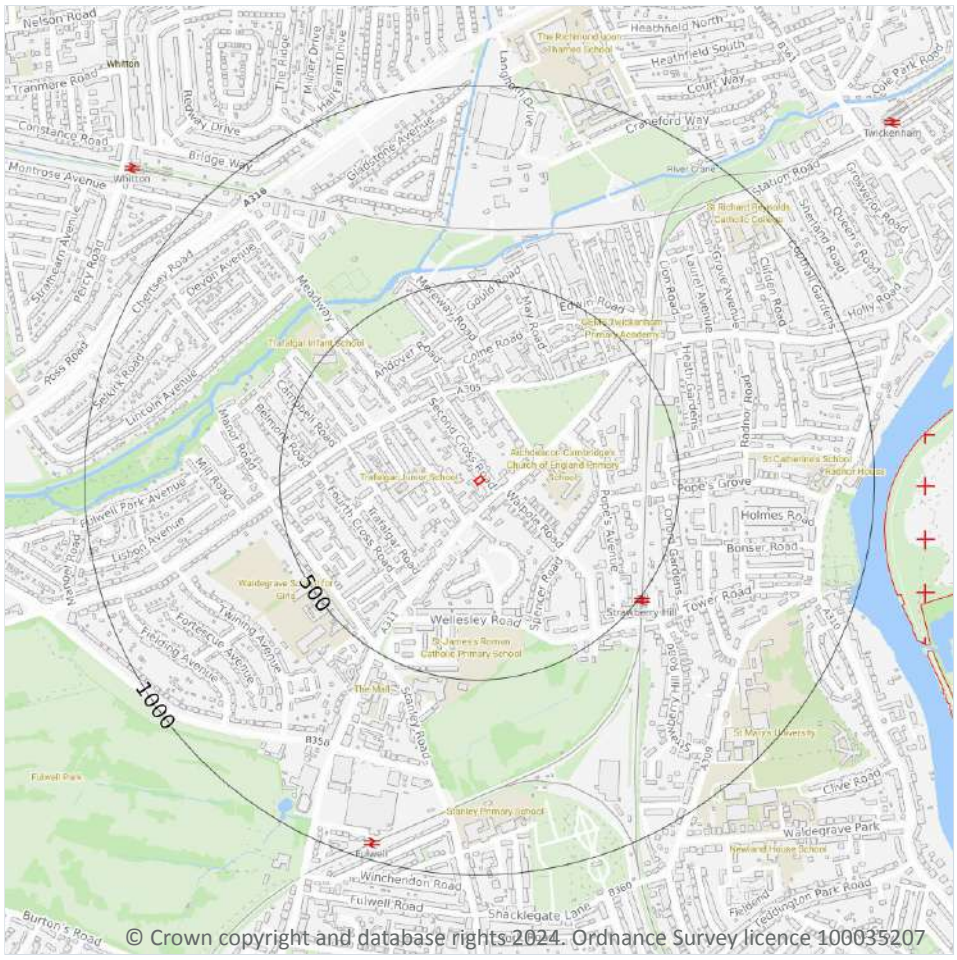
Highest risk on site	**Moderate-High**
Highest risk within 50m	**Moderate-High**

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 52 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Local Nature Reserves (LNR)

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	3

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 53 >**

ID	Location	Name	Data source
-	1754m S	Bushy Park and Home Park	Natural England

ID	Location	Name	Data source
-	1812m S	Bushy Park and Home Park	Natural England
-	1960m S	Bushy Park and Home Park	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	2

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 53 >**

ID	Location	Name	Data source
1	1033m E	Ham Lands	Natural England
2	1218m E	Ham Lands	Natural England

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

10.7 Designated Ancient Woodland

Records within 2000m	0

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.

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.

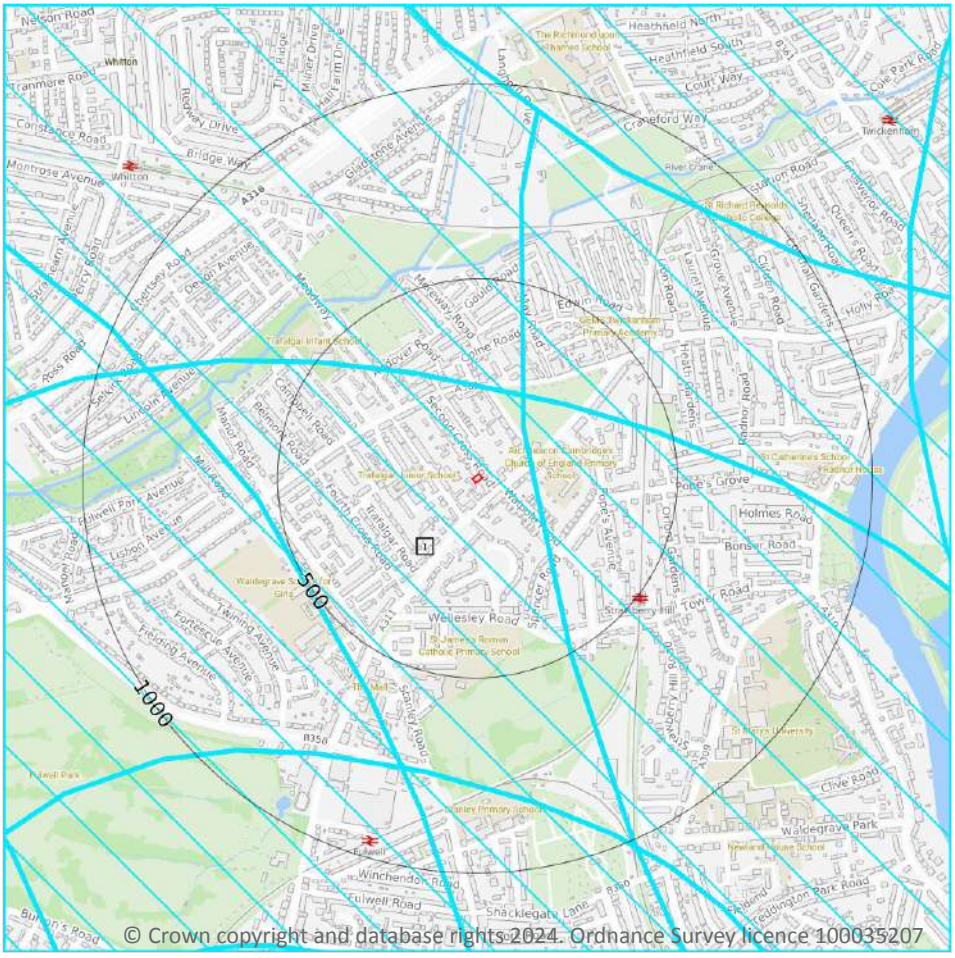
10.16 Nitrate Vulnerable Zones

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



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

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 58 >**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Airports, helipads and other aviation proposals.** **Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 200m², manure stores > 250t).** **Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.** **Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. 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.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**1**

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.

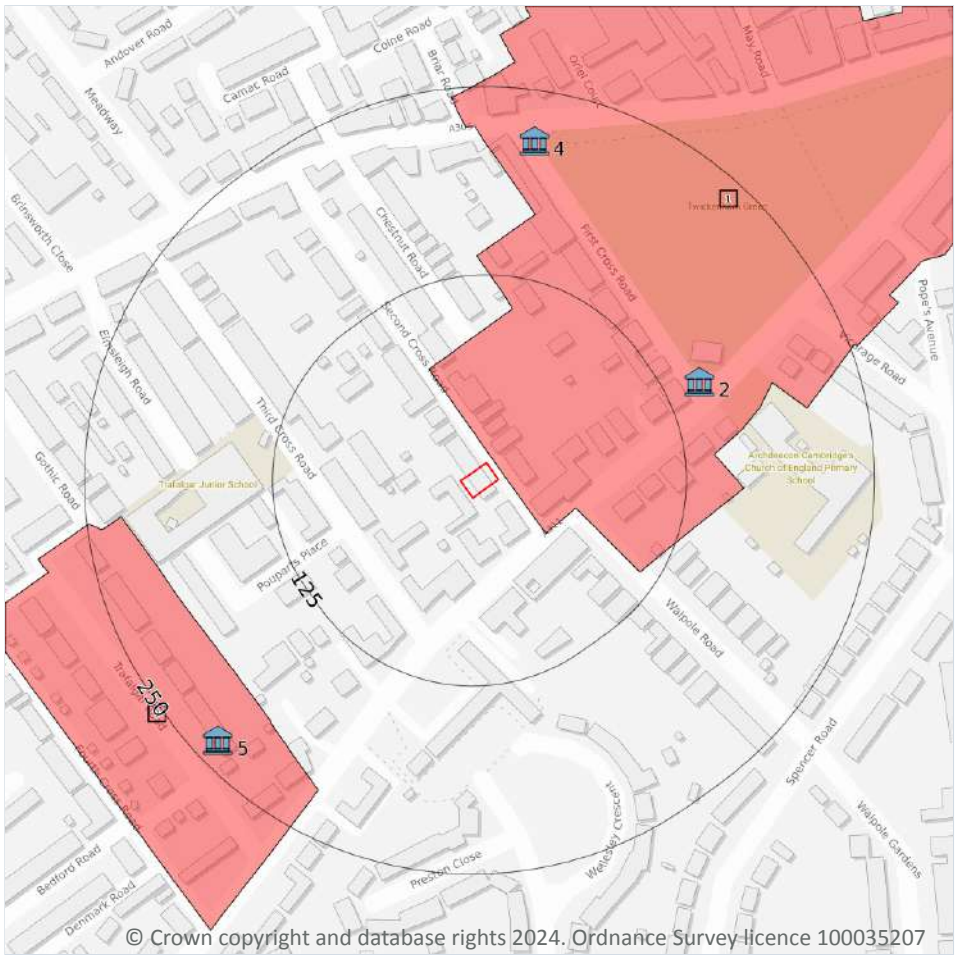
Features are displayed on the SSSI Impact Zones and Units map on **page 58 >**

ID: -
Location: 1754m S
SSSI name: Bushy Park and Home Park
Unit name: North Bushy Park
Broad habitat: Acid Grassland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Invert. assemblage A2 wood decay	Favourable	16/06/2014
Lowland dry acid grassland (U4)	Favourable	16/06/2014
Population of veteran trees	Favourable	28/03/2017

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	3

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.

Features are displayed on the Visual and cultural designations map on **page 60 >**

ID	Location	Name	Grade	Reference Number	Listed date
2	149m NE	K6 Telephone Kiosk Junction Of First Cross Road And The Green	II	1254104	23/06/1987
4	216m N	K6 Telephone Kiosk Junction Of First Cross Road And Staines Road	II	1254103	23/06/1987
5	233m SW	Hazeldene	II	1253010	02/09/1952

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

11.5 Conservation Areas

Records within 250m	2

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 60 >**

ID	Location	Name	District	Date of designation
1	5m NE	Twickenham Green	Richmond upon Thames	14/01/1969
3	196m SW	Trafalgar Road	Richmond upon Thames	14/01/1969

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.

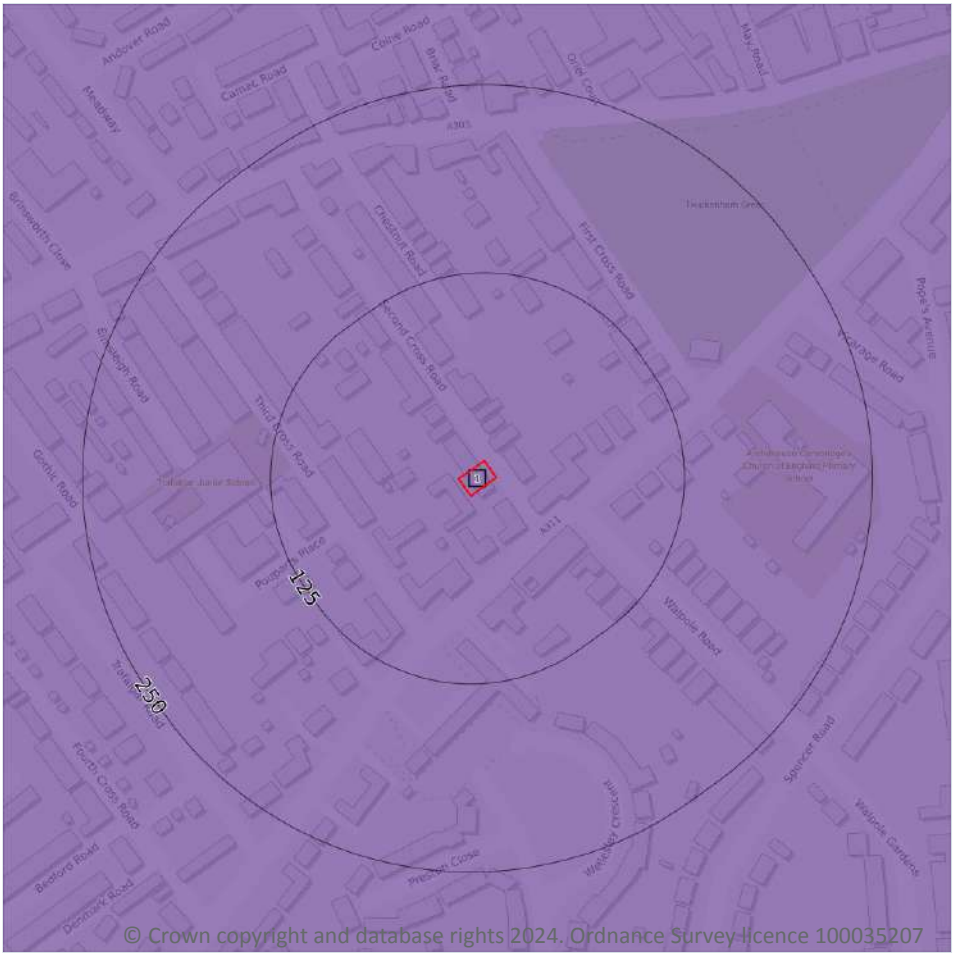
11.7 Registered Parks and Gardens

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 63 >**

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

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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.

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.

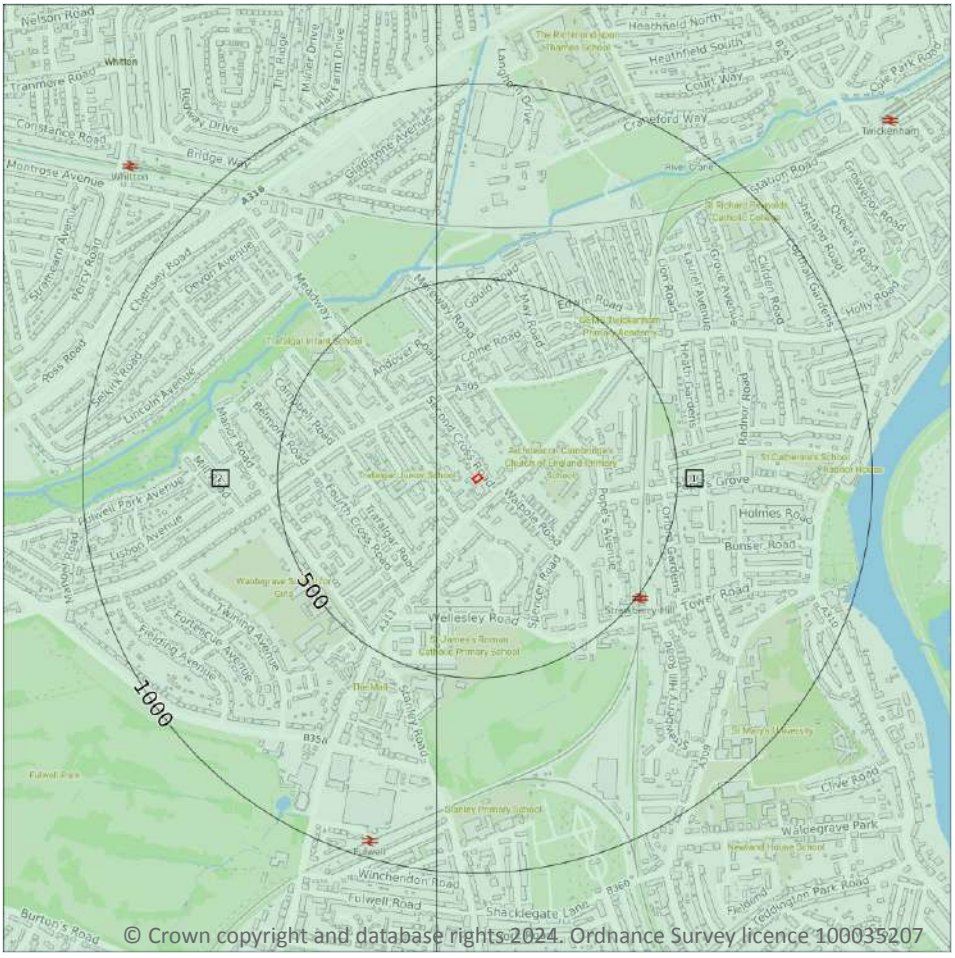
13.4 Limestone Pavement Orders

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	2

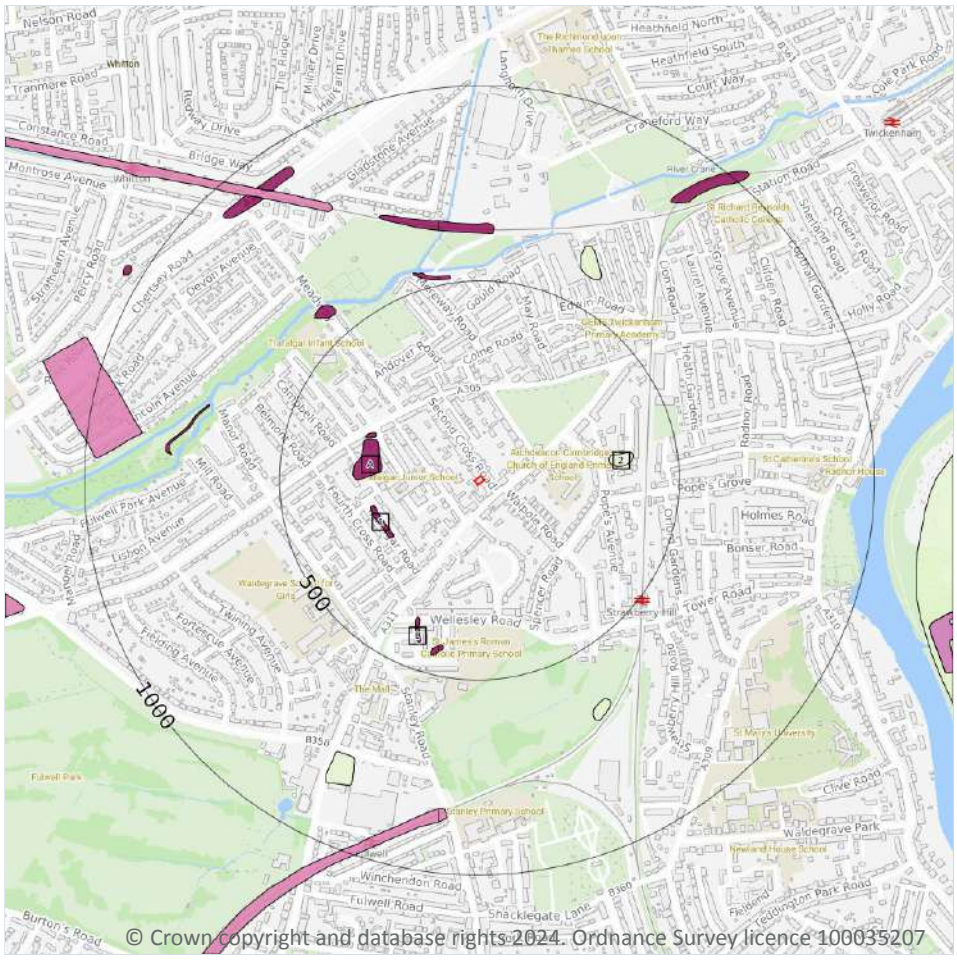
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 66 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**TQ17SE**
2	93m W	Full	Full	Full	No coverage	TQ17SW

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m **7**

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.

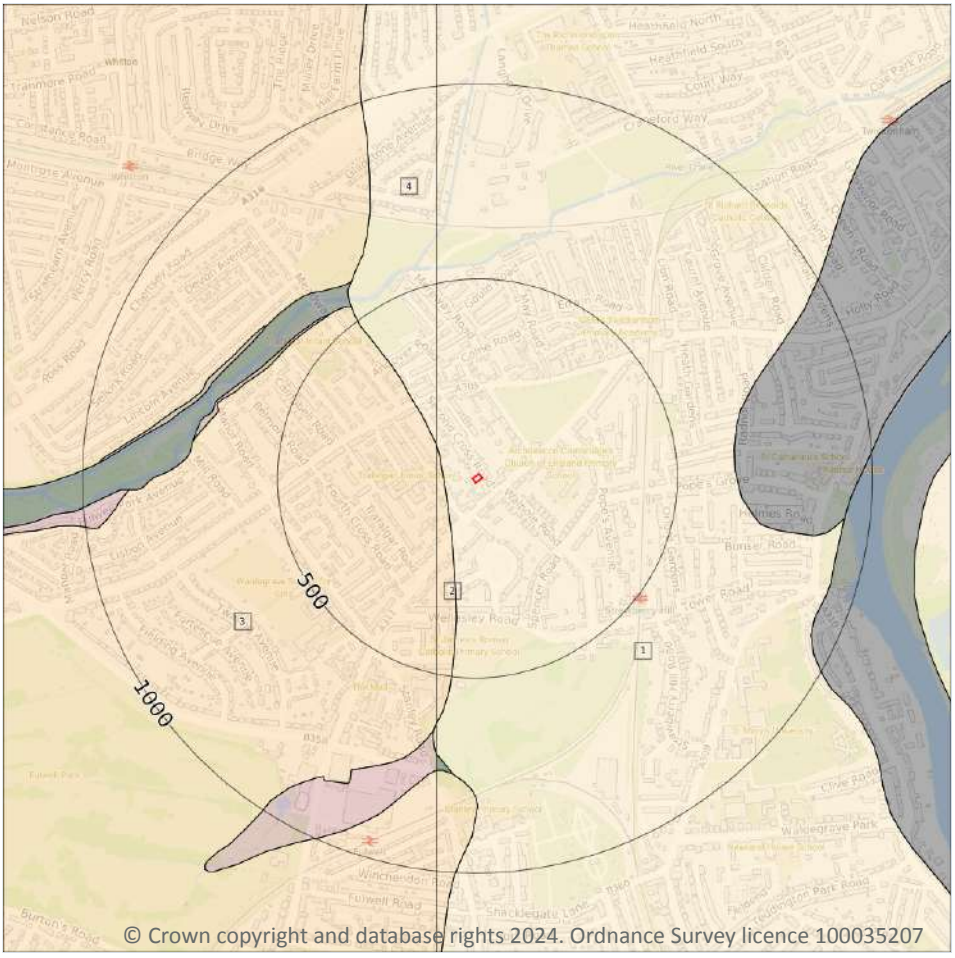
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 67 >**

ID	Location	LEX Code	Description	Rock description
A	239m W	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
1	250m SW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
A	277m NW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
2	323m E	WMGR-UKNOWN	Infilled Ground	Unknown/unclassified Entry

ID	Location	LEX Code	Description	Rock description
B	371m SW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
B	420m S	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
B	424m S	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **4**

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.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 69 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**KPGR-XSV**	**Kempton Park Gravel Formation - Sand And Gravel**	**Sand And Gravel**
2	73m W	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
3	93m W	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
4	129m NW	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

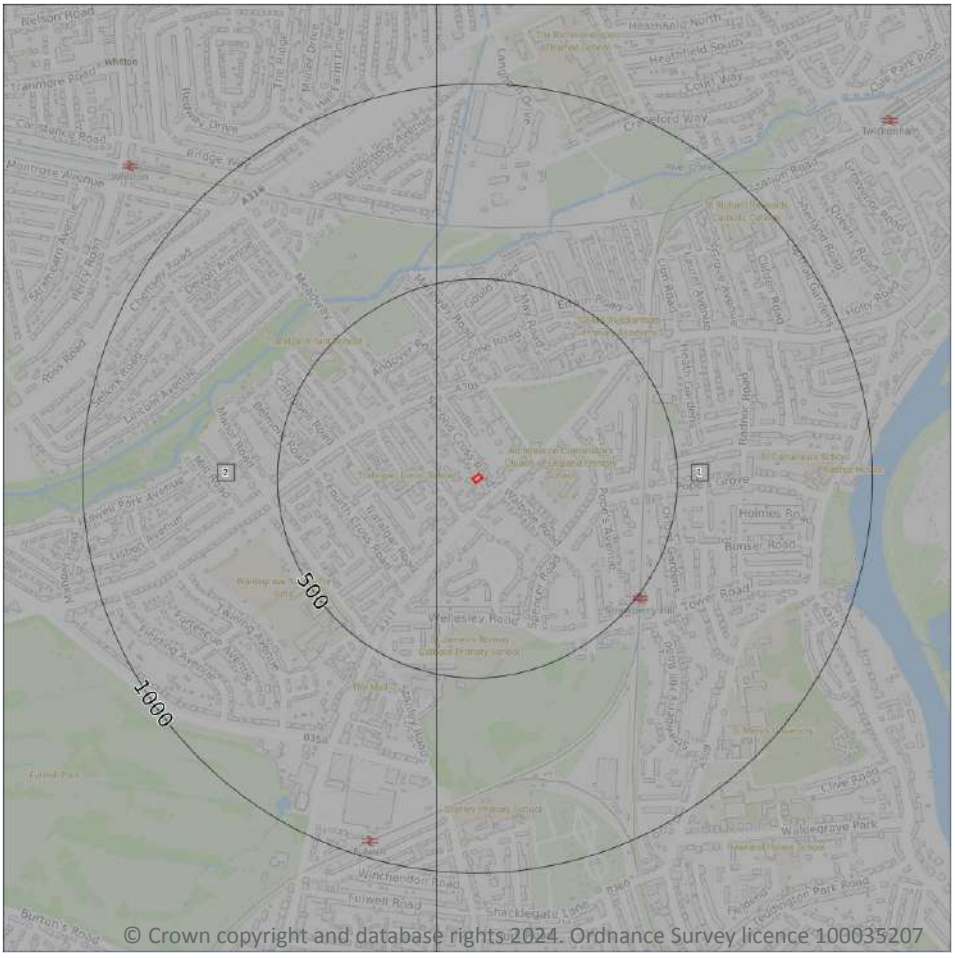
14.4 Landslip (10k)

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 **2**

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 71 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-CLAY**	**London Clay Formation - Clay**	**Eocene Epoch**
2	93m W	LC-CLAY	London Clay Formation - Clay	Eocene Epoch

This data is sourced from the British Geological Survey.

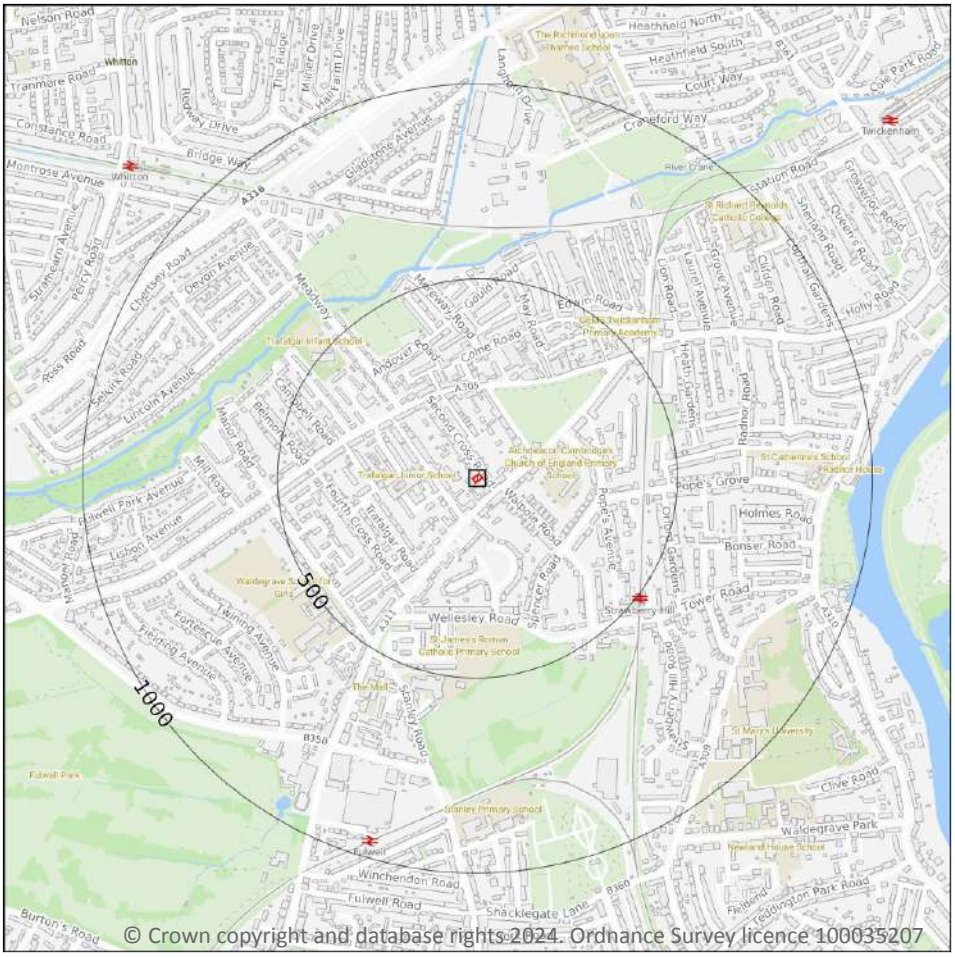
14.6 Bedrock faults and other linear features (10k)

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



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

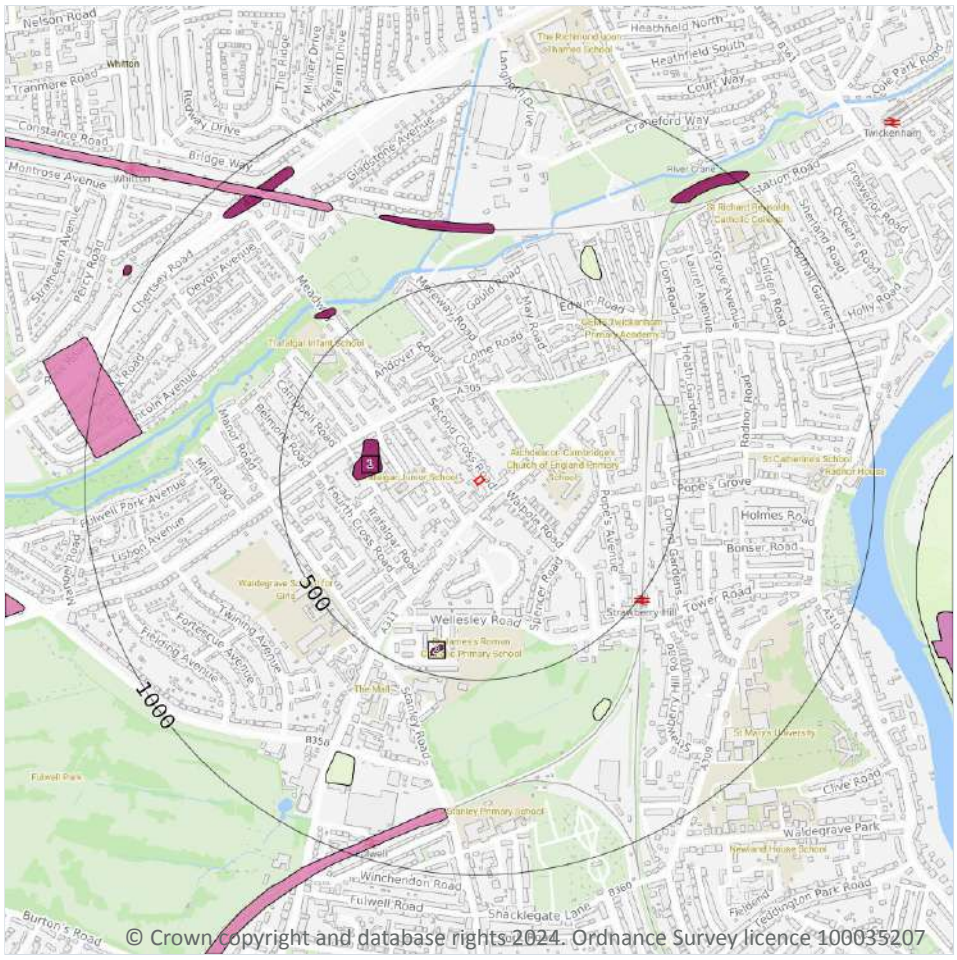
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 73 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW270_south_london_v4**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	2

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.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 74 >**

ID	Location	LEX Code	Description	Rock description
1	239m W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	420m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

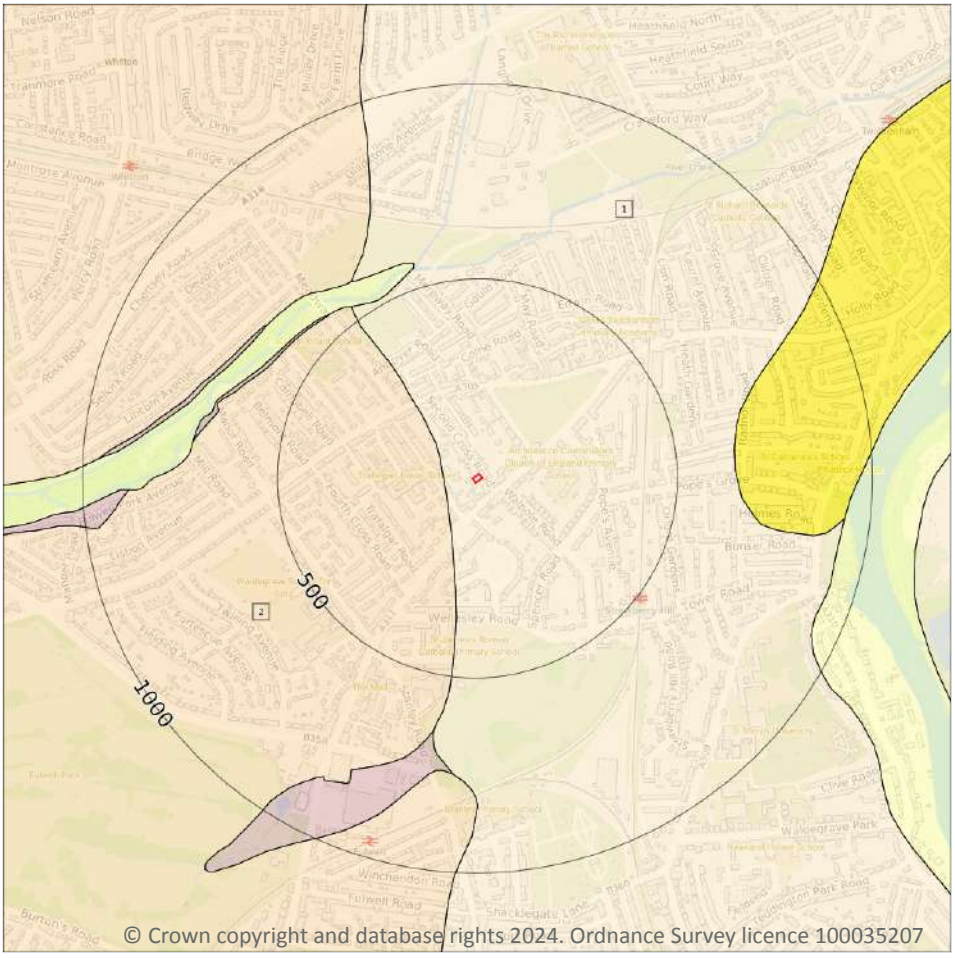
15.3 Artificial ground permeability (50k)

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



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **2**

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.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 76 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**KPGR-XSV**	**KEMPTON PARK GRAVEL MEMBER**	**SAND AND GRAVEL**
2	73m W	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial 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 any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Very High**	**High**

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.

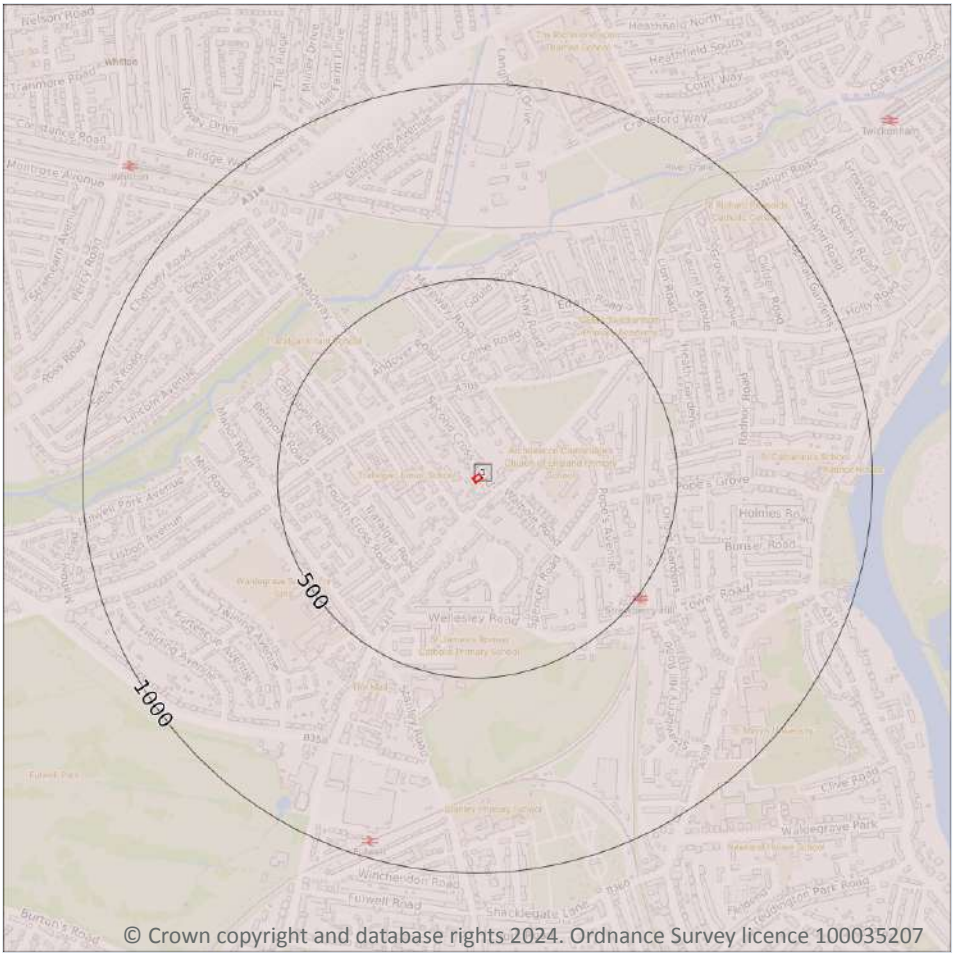
15.7 Landslip permeability (50k)

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	1

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 78 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-XCZ**	**LONDON CLAY FORMATION - CLAY AND SILT**	**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**	**Low**	**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

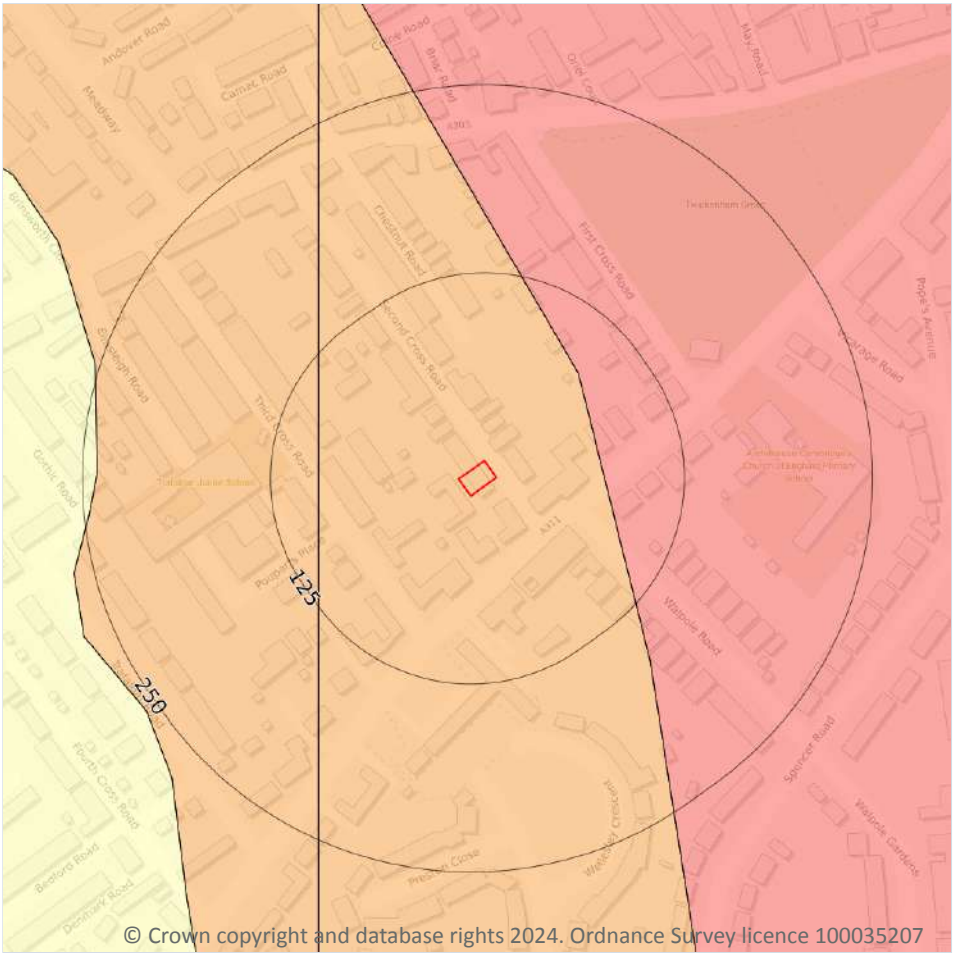
16.1 BGS Boreholes

Records within 250m	0

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.

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

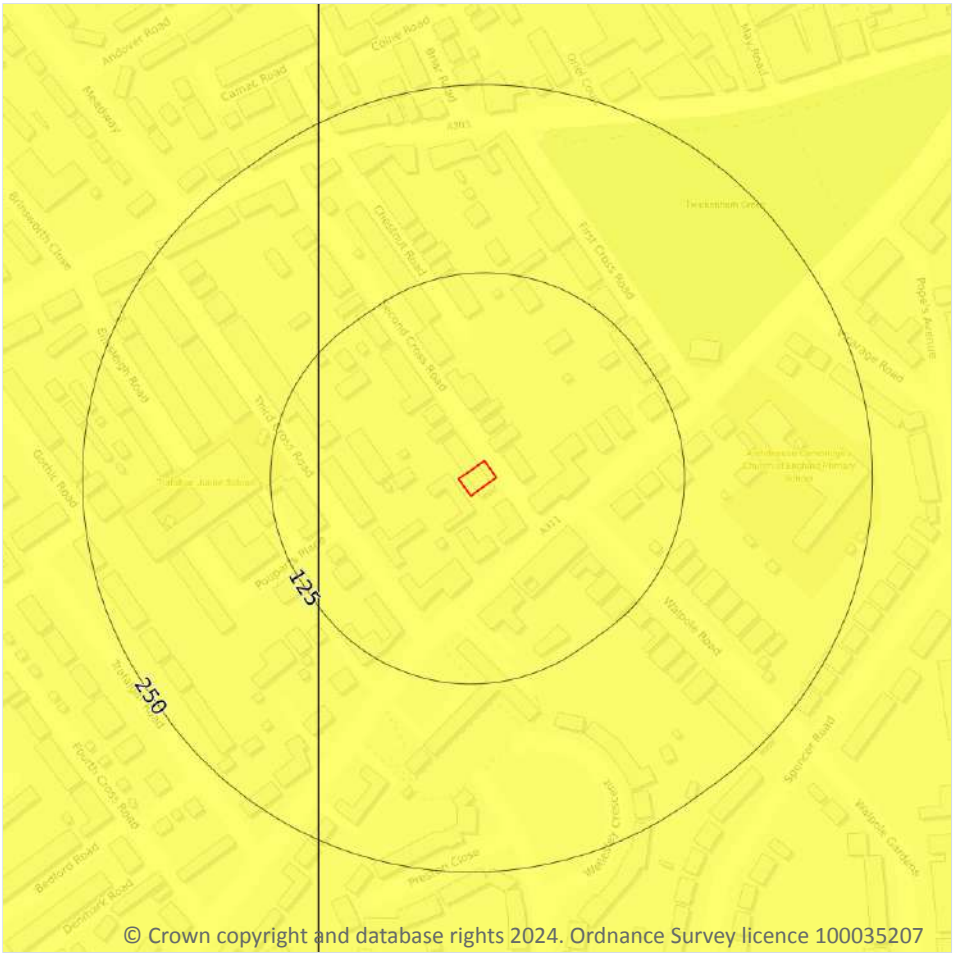
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 81 >**

Location	Hazard rating	Details
On site	**Low**	**Ground conditions predominantly medium 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

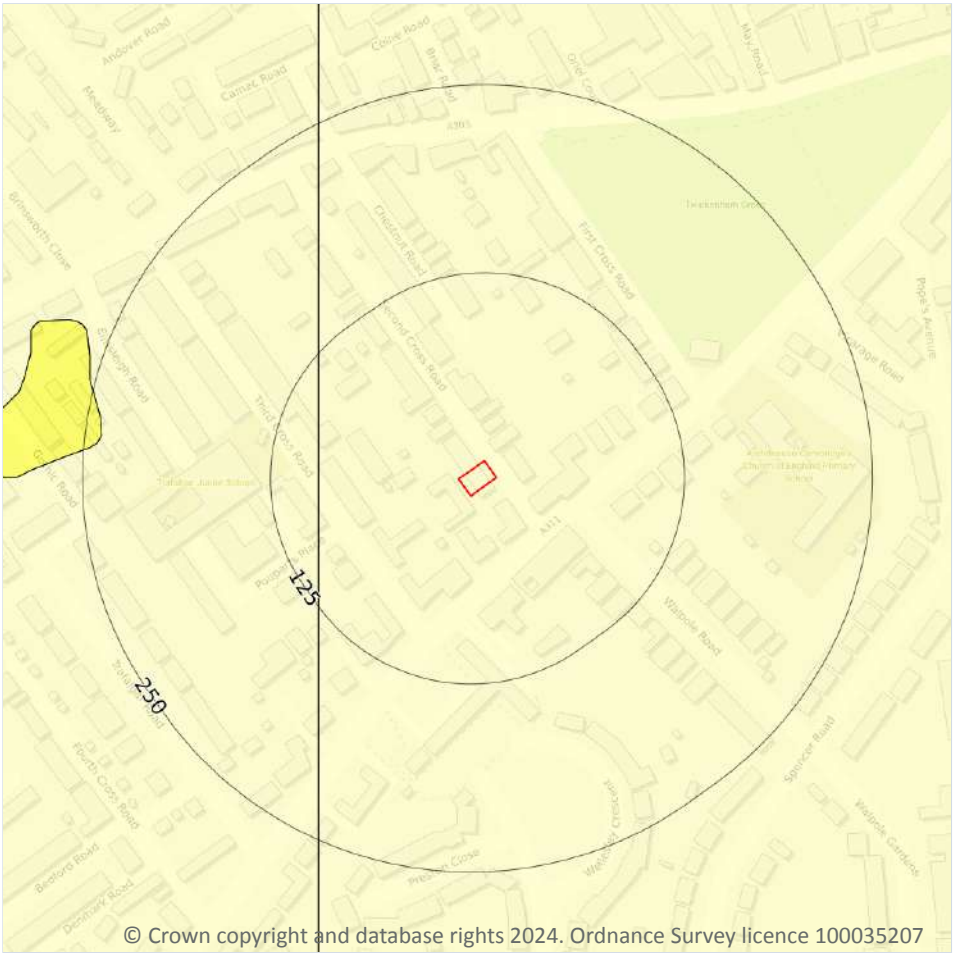
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 82 >**

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

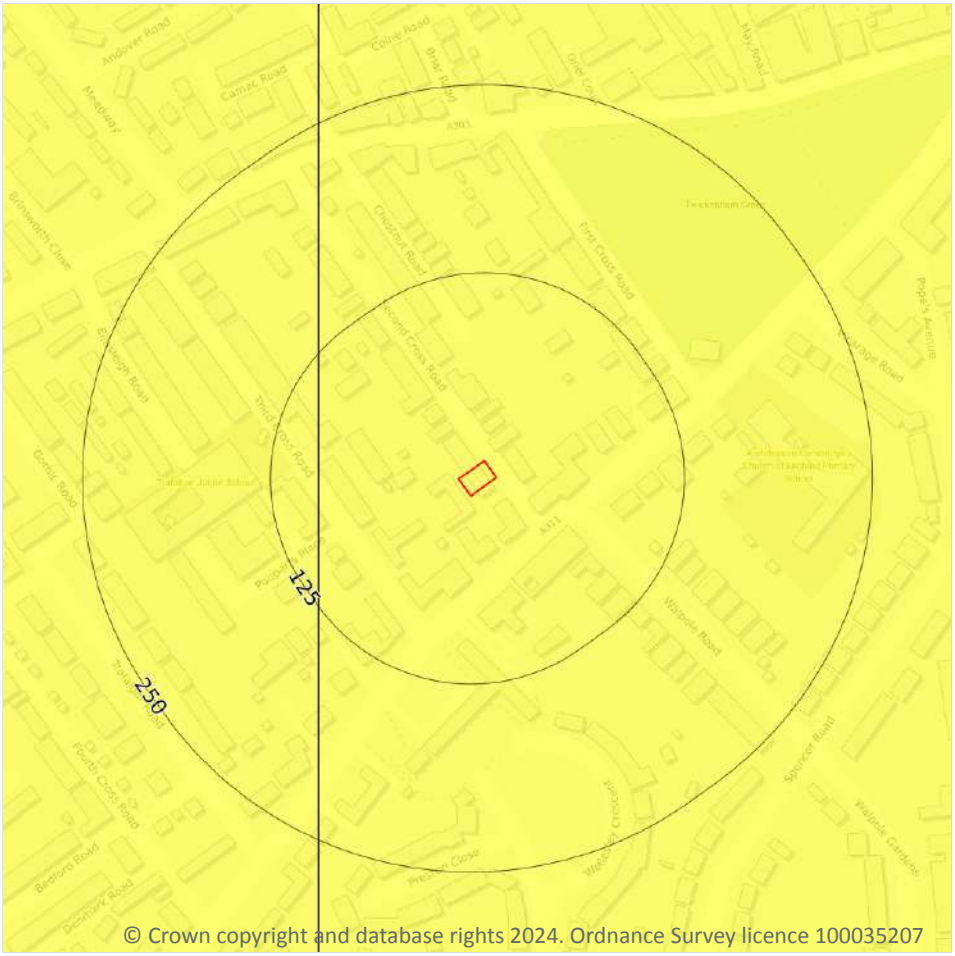
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 83 >**

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



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

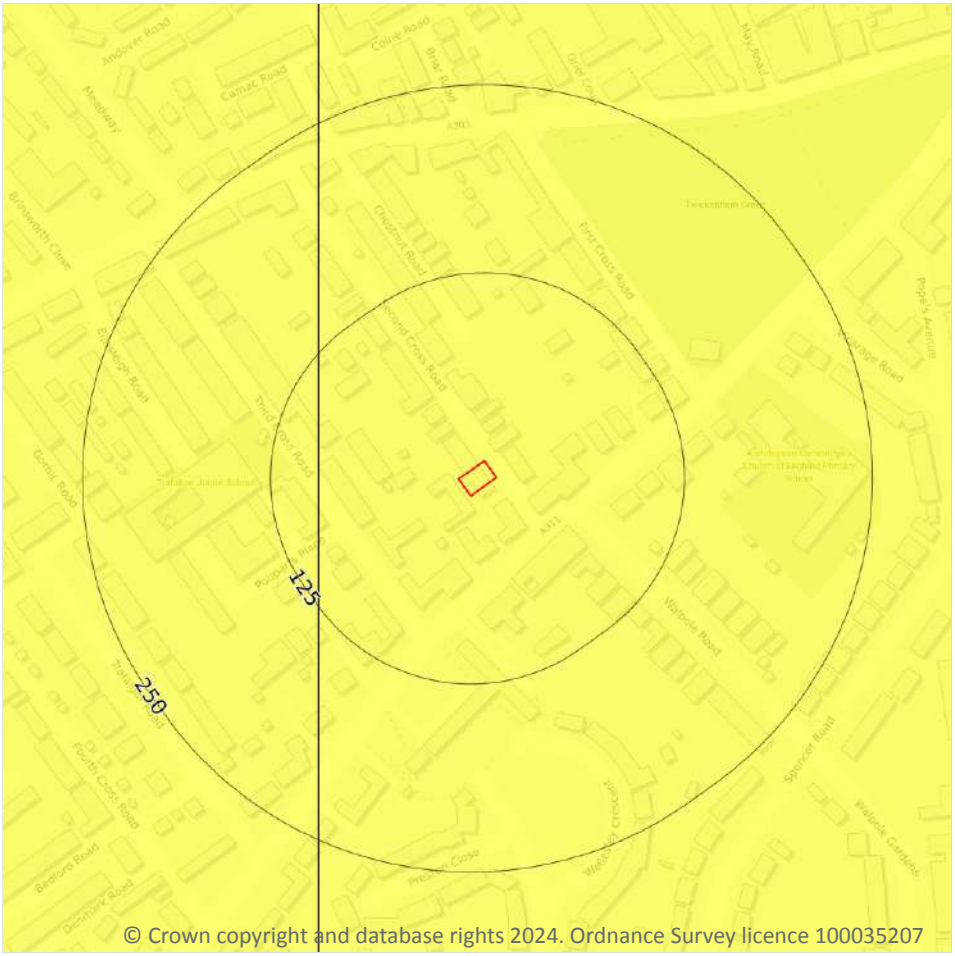
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 84 >**

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



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

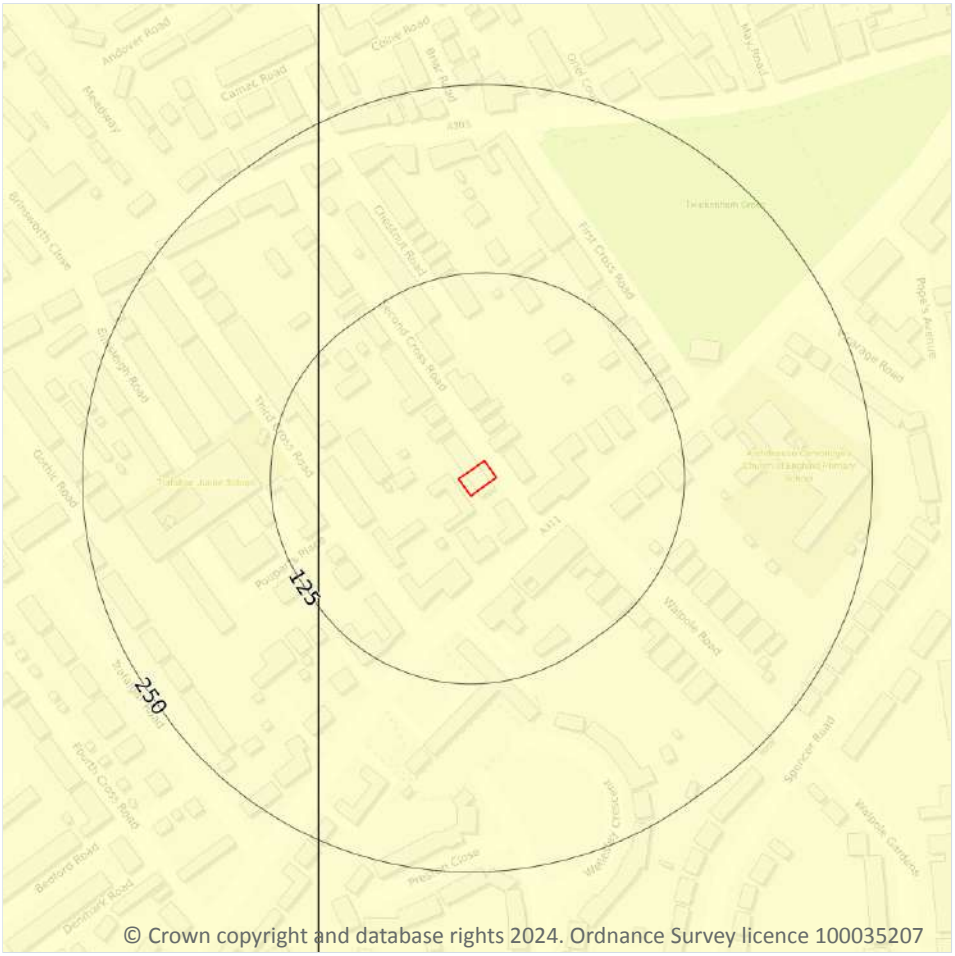
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 85 >**

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



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

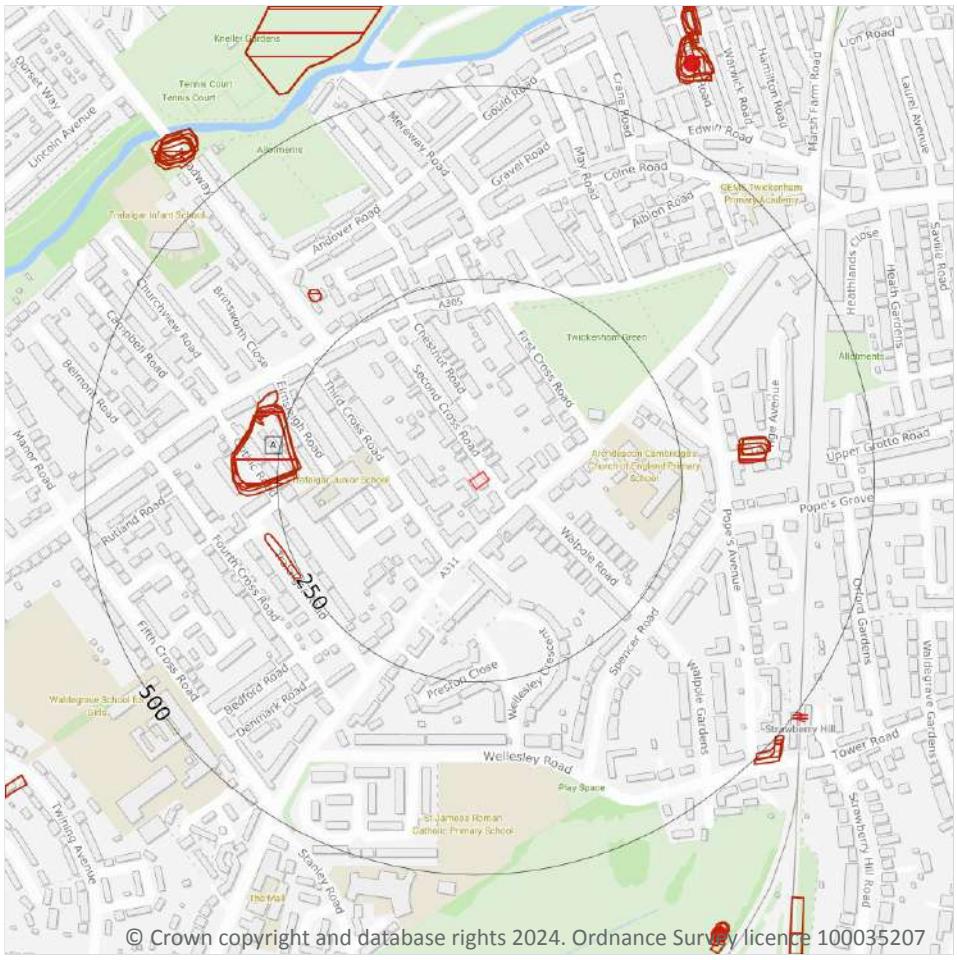
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 86 >**

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 and ground workings



18.1 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.

18.2 Surface ground workings

Records within 250m	5

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.

Features are displayed on the Mining and ground workings map on **page 88 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	220m W	Pond	1894	1:10560
A	223m W	Pond	1896	1:10560
A	223m W	Ponds	1865	1:10560
A	224m W	Pond	1894	1:10560
A	226m W	Pond	1894	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from 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 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.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 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.

18.13 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.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 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 Ground cavities and sinkholes

19.1 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.

19.2 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.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

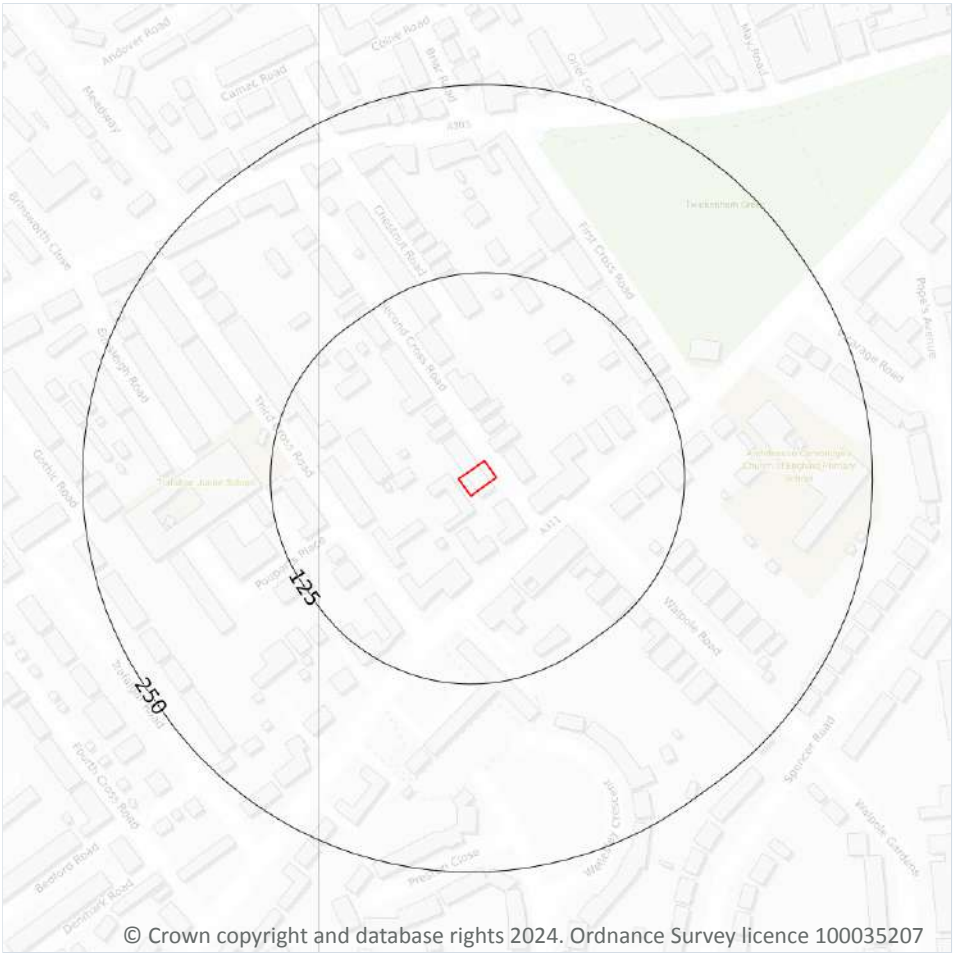
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



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%

20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 95 >**

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

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	**1**

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**

This data is sourced from the British Geological Survey.

21.2 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**	**233**	**160**	**0.6**	**60**	**82**	**20**	**19**
On site	**18**	**3.2**	**256**	**176**	**0.7**	**59**	**69**	**23**	**25**
32m N	16	2.8	210	144	0.6	58	86	21	20
34m N	18	3.2	261	179	0.7	59	69	23	25
45m S	17	3	293	201	0.6	64	76	21	19
45m S	17	3	297	204	0.7	64	63	21	20

This data is sourced from the British Geological Survey.

21.3 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.

22 Railway infrastructure and projects

22.1 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.

22.2 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.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 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.

22.5 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.

22.6 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.

22.7 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.

22.8 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.

22.9 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.

22.10 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: www.groundsure.com/terms-and-conditions-april-2023/ ↗.