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Geo-Environmental Report

115-117 Chatham Street, Reading RG1 7JX
for:

Archel Homes Limited

'Experience and expertise working in union'

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AGS Association of Geotechnical & Geoenvironmental Specialists

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Geo-Environmental Report

Project:	115-117 Chatham Street, Reading RG1 7JX
For:	Archel Homes Limited
Ref:	CRM.1265.024.GE.R.001.B.
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Author:	Steve Rhodes **Director**
Reviewer:	Richard Hamilton **Director of Geoenvironmental**

Executive Summary

Proposed Development

The site is to be developed for residential use comprising apartments and car parking.

Investigation

A ground investigation and monitoring visits were undertaken by Enzygo Geoenvironmental Ltd. in July 2020.

Ground Conditions

Ground Conditions comprise Ground Conditions comprise Made Ground over firm becoming stiff clay, medium dense gravels and Chalk. The depth of the Made Ground and firm clay varies across the site. No shallow groundwater was encountered.

Foundations

Piled foundations are recommended.

Pavement Design

An equilibrium CBR range of 2% is recommended. Soils are considered to be frost susceptible.

Buried Concrete

It is recommended that Class AC-1s conditions of Special Digest 1 are used.

Contamination

Elevated TPH was noted which should be removed as part of the site development works. Extent appears to be limited

Ground Gas and Radon

No radon risk has been identified. No significant ground gas has been measured.

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1.0 INTRODUCTION

Background

1.1 Enzygo Geoenvironmental Limited has been commissioned to prepare a Geo-Environmental Report for a site at 115-117 Chatham Street, Reading RG1 7JX.

Proposed Development

1.2 The site is to be developed for residential use comprising residential apartments over a ground floor car park. The proposed site layout is included on the site plan presented as Drawing CRM.1265.024.GE.D.001.

Objectives

1.3 The objectives of the study are to:

- Obtain desk study information, a copy of which is included in Appendix A;
- Undertake a targeted ground investigation;
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors; and
- Provide a factual and interpretative report relating to the desk study and site investigations. Provide a revised conceptual model and recommendations on any potential development issues and mitigation measures, where appropriate.
- Provide geotechnical recommendations in relation to foundations and infrastructure.

Risk Classification

1.4 Enzygo Geoenvironmental has utilised the available information, together with our experience to assess the likely risks to development from land quality issues. Definitions of the risk terms used are provided on the following table.

Risk	Description
Negligible	No contamination risk has been identified which is likely to affect development.
Low	No significant contaminated land risks have been encountered affecting development and a low risk that remediation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issue associated with the site which will adversely affect its re-development. However, minor or localised

	contamination may be present requiring remediation. Remediation should be possible under a discovery strategy and with a call out service.
Moderate	Some potential contaminated land risks have been encountered or identified which may affect re- development. The risks identified are unlikely to affect the entire site or preclude development. Remediation is considered feasible as part of the development process and no further investigation is considered necessary.
Moderate-High	Some potentially significant contaminated land risks have been identified at the property that requires remediation. It is recommended that a separate remedial methodology is prepared supported by a site-specific risk assessment
High	Significant potential contaminated land risks have been identified and remediation is required supported by further intrusive ground investigation, risk assessment and remedial design.

1.5 Where adverse risks from ground instability are identified these are discussed within the report.

2.0 SITE SETTING

Site Description

Item	Description
Site Address	115-117 Chatham Street, Reading RG1 7JX
National Grid Reference	470864 173485
Approximate Site Area	0.17 Ha

Current Site Description

2.1 The following site description has been compiled from the site inspection undertaken by Enzygo Geoenvironmental Ltd staff, together with current maps and aerial photographs.

2.2 The site comprises disused office buildings around a car park.

2.3 The car park is located within the north eastern area of the site with a two storey office of masonry construction in the south west. A separate two storey office of concrete and glass construction is present within the west of the site.

2.4 Whilst the two office buildings are of separate construction they are linked together.

2.5 A pedestrian access is present along the western boundary of the site which appears to be a fire exit to the office building.

Surrounding Area

2.6 The surrounding land uses are summarised as follows:

Direction	Land Use
South	Offices.
West	Surgery.
East	Public house and office building.
North	Chatham Street with commercial use beyond.

2.7 No significant sources of potential contamination were noted on or adjacent to the site.

3.0 SITE HISTORY

3.1 A review of historical maps has been undertaken pertinent to the site and within a 250m radius. Details are summarised below:

Potentially Contaminative Historical Land Use		
Historical Land Use		
Map Edition	On Site	Off Site
1879	Residential properties.	Chatham Street 0m N. Residential development with gardens 0m E, S, W & 10m N.
1900	No significant change.	Nursery 150m W.
1912	No significant change.	No significant change.
1931	No significant change.	No significant change.
1957	Works in S.	Warehouse 30m SE & Builders yard 30m SW.
1961	No significant change.	No significant change.
1969	Houses no longer shown.	Public house 0m E. Nursery now swimming pool. Bus depot 110m NE. Earthworks associated with demolition of residential properties 30m NE. Car park 50m E.
1986	Current layout shown.	Club and community centre 10m N. Warehouse 10m S. Club 10m SW. Commercial development 100m NE. Garage 230m NE.
1988	No significant change.	No significant change.
1993	No significant change.	Residential development 30m NE.
2003	No significant change.	No significant change.
2010	No significant change.	No significant change.
2020	No significant change.	No significant change.

3.2 There is a potential risk of hydrocarbons associated with the historic works on site but this is considered low as no tanks are identified.

3.3 Given the age of the residential properties there is a potential for previous foundations and or basements associated with these properties and therefore thicker Made Ground could be expected in this area.

3.4 No other significant potential sources identified on or near to the development site.

4.0 ENVIRONMENTAL SETTING

Ground Conditions

4.1 The British Geological Survey (BGS) indicates that the site is underlain by the following geological sequence:

Geological Unit	Type	Description	Aquifer Classification
Drift	Taplow Gravels	Sand and Gravel	Secondary A
Solid	Lewes Nodular Chalk Formations	Chalk	Principal

4.2 There are no records of Made Ground below or adjacent to the site.

4.3 No records of landslides are identified near to the site.

4.4 Published soil quality records for the site show no exceedance above GAC values for residential use.

4.5 BGS borehole records close to site show ground conditions to comprise gravelly clay over Chalk.

Groundwater

4.6 The recorded permeability of the drift geology is high to very high. The recorded permeability of the solid geology is high to very high which is based on structured chalk. Chalk weathers to a matrix dominant material near surface and as such permeability will be lower.

4.7 The site is not shown as being within a Source Protection Zone.

4.8 There are is one groundwater abstraction license within 500m of the site. This is located 310m east for potable water. Given the distance to the site this is not considered to be a significant receptor.

4.9 BGS records show that the site is not at risk of groundwater flooding.

Coal Mining

4.10 No historical or current coal mining extraction has been identified within 250m of the site.

Non Coal Mining

4.11 No other mining activity has been identified within 250m of the site.

Natural Cavities

4.12 No natural cavities or solution features are identified on or adjacent to the site.

Ground Workings

4.13 No significant ground working are identified within 250m of the site.

Hydrology

4.14 There are no surface water courses within 250m of the site.

4.15 There are no surface water abstraction within 500m of the site.

4.16 The BGS identifies that the there is a moderate risk from groundwater flooding. Groundwater will be assessed as part of the ground investigation.

Radon Risk Potential

4.17 The Groundsure GeoInsight Report indicates that the site is not within a Radon Affected Area. No radon protective measures are necessary in the construction of new dwellings.

Natural Hazards Finding

4.18 BGS information presented within the Groundsure Geoinsight report identifies the following:

Hazard	Risk Designation (Groundsure)
Coal Mining.	None Identified.
Collapsible Ground.	Very Low.
Compressible Ground.	Negligible.
Ground Dissolution.	Low.
Landslide.	Very Low.
Running Sand.	Very Low.
Swelling / Shrinking Clay.	Negligible.

4.19 No significant geotechnical risks are identified.

Sensitive Land Uses

4.20 English Heritage has not identified any listed buildings or scheduled ancient monuments on the site.

4.21 No sensitive geology has been identified at the site.

Environmental Sensitivity

4.22 Overall the site is currently considered to be of moderate/high sensitivity due to the following:

- The underlying stratum is classified as a Principal Aquifer;
- Not within a source protection zone;
- No surface water courses on and adjacent to the site; and
- Groundwater abstraction within 500m of the site.

4.23 The proposed end use of the site is residential apartments with predominantly car parking at ground level and as such future sensitivity will be low/moderate for end users.

Industrial Land Uses

4.24 Industrial land uses within 250m of the site are limited to light industrial and commercial use. None of the uses are considered to pose a significant risk.

4.25 The Groundsure EnviroInsight Report indicates that there is two obsolete fuel stations within 250m of the site. The nearest is located 126m east of the site and given the distance is not considered a significant risk.

4.26 There are no high-pressure oil pipelines within 250m of the site.

4.27 No new potential contamination risks are identified on or adjacent to the site from the register of industrial activities.

Regulatory Database

4.28 The following information has been obtained from a commercially available environmental database. The summary table only includes records not otherwise detailed in the report.

Environmental Permits, Incidents and Registers	On site	0 -250m	Details
Site determined as contaminated land.	0	0	Not Applicable.
Authorised industrial processes.	0	0	Not Applicable.
Registered radioactive substances.	0	0	Not Applicable.
Enforcements, prohibitions or prosecutions.	0	0	Not Applicable.
Consents issued under the Planning (Hazardous Substances) Act 1990.	0	0	Not Applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites.	0	0	Not Applicable.
Pollution Incidents.	0	0	Not Applicable.
Records of Licensed Discharge Consents.	0	1	Trade effluent consent 454m W. Not considered a significant risk.

4.29 No new significant risks to the site are identified.

Landfill Sites and Waste Treatment Sites

4.30 There are no active or historic landfills within 250m of the site.

4.31 There are is one waste treatment facilities within 250m of the site. This is for a civic amenity site 217m north which is not considered a significant risk.

4.32 There are no significant risks from waste activities.

5.0 PREVIOUS REPORTS

General

5.1 No previous ground investigation reports have been provided.

6.0 PRELIMINARY CONCEPTUAL MODEL

6.1 Based on the desk study information the following Preliminary Conceptual Model has been prepared:

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Hydrocarbons.	Historic Works Building.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal PPE will address risk.
		Inhalation.	Site users.	Low.	Limited spillage possible but impact mitigated through hardstanding.
		Ingestion and dermal.		Dismissed.	Use of hardstanding will break potential linkage.
Asbestos, Hydrocarbon and metals.	On-site sources.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal PPE will address risk.
			Site users.	Low.	No significant risk identified.
Hydrocarbon and metals.	Off-site sources.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Ground Gas.	Historic Landfill.	Asphyxiation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.	Asphyxiation & Explosive.	Construction Workers.	Dismissed.	No significant source identified.
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site.	Vertical Migration.	Groundwater.	Dismissed.	No significant source identified.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site.	Horizontal Migration.	River Network.	Dismissed.	No significant source or receptor.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	No sensitive receptor present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	No source identified.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed	Dismissed.	No source identified.

		Buildings.		
	Permeate into pipework.	Water Pipes.	Dismissed.	No significant source identified.

6.2 Low risk is identified associated with unforeseen contamination in potential Made Ground and from potential localised hydrocarbons from the historic works. Risks will be assessed as part of the ground investigation.

7.0 SITE INVESTIGATION

General

7.1 A ground investigation was undertaken based on the findings of the desk study and proposed development. The locations of the exploratory holes are shown on Drawing CRM.1265.024.GE.D.001.

Site Works

7.2 The site investigation works were undertaken between 21st and 22nd July 2020 and comprised window sampler holes (WS1 to WS10), cable percussive borehole (BH1) and hand pit (HP1).

7.3 Exploratory holes were located to provide coverage across the site but the following specific exploratory hole locations were chosen:

Rational	Exploratory Holes	Notes
Foundations	BH1.	Deep boreholes for potential pile design.
General coverage and foundations.	WS1 to WS10.	Site coverage.
Pavement Design.	BH1	CBR testing.
Former Works.	WS1.	Historical Maps.
Existing Office Buildings.	WS1, WS7 & WS10.	Current Layout.
Foundations to existing office.	HP1.	Current Layout.
Groundwater and ground gas monitoring.	WS2, WS4, WS5, WS6 & WS8.	Installations.

7.4 Strength of soils were assessed using Standard Penetration Tests (SPT). The results of which are included on the borehole logs presented in Appendix B.

7.5 Representative soil samples were collected for chemical and geotechnical testing. Soil samples destined for chemical analysis were collected in appropriate containers provided by the analytical laboratory. Samples were stored in cool boxes prior to dispatch to the laboratory for analysis. All samples were collected using appropriate sampling equipment that was cleaned at each sampling location.

7.6 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and materials displaying evidence of potential contamination.

7.7 In the absence of any evidence of contamination samples were collected near surface as this material is more likely to be contaminated by surface spillages and also will potentially be in contact with future residents.

Monitoring

7.8 Return visits to monitor groundwater levels were undertaken and during these visits ground gas was also measured.

Laboratory Testing

7.9 Samples for geotechnical testing were sent to the laboratories of I2, which is UKAS accredited, for the following analysis:

- California Bearing Ratio (CBR) tests undertaken on re-compacted samples
- Atterberg Limits Determinations;
- Moisture Content;
- Soluble sulphate and pH.

7.10 Samples for chemical analysis were sent to the laboratories of The I2 Ltd who are UKAS and MCERTS accredited. Samples were tested for the CLEA metal suite, pH, sulphate, cyanide, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAH), organic carbon, banded Total Petroleum Hydrocarbon (TPH), asbestos screen, and two stage WAC tests.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken by Enzygo Geoenvironmental Ltd identify the following strata below the site:

Strata	Summary Description	Thickness (m)
Made Ground	Concrete and tarmac over brick gravel and brown gravelly clay with fragments of brick, concrete and ceramics.	0.3 to 2.7
Taplow Gravels	Soft becoming firm with depth orange brown gravelly clay.	0.2 to 3.0
	Medium dense becoming dense with depth orange brown flint gravel.	1.4 to 3.6
Lewes Nodular Chalk Formations	Firm becoming stiff with depth white chalky clay. (Class Dm).	4
	Yellow white structureless Chalk composed of clayey gravel of chalk and flint. (Class Dm/Dc).	>7
Groundwater	Seepage.	8.0 bgl.

8.2 Details of the ground and groundwater conditions encountered are given on the exploratory hole records included in Appendix B and are summarised in the sections below:

Made Ground

8.3 Made Ground was encountered across the site and was noted to comprise concrete and tarmac hardstanding over brick gravel sub-base. Pavement construction was noted to be underlain by general Made Ground comprising brown gravelly clay with fragments of brick, concrete and ceramics.

8.4 Made Ground was generally less than 1m thick but deeper Made Ground was identified in Boreholes WS3 and WS5 to depths of 2.0m and 2.7m depth below ground level (bgl) respectively. Given the location of these boreholes it is considered that the deeper Made ground is associated with historic houses.

Taplow Gravels

8.5 The Taplow Gravels were generally noted to comprise medium dense becoming dense with depth orange brown flint gravel.

8.6 Within some of the boreholes The Taplow Gravels were noted to comprise soft becoming firm with depth orange brown gravelly clay.

Lewes Nodular Chalk Formations

8.7 The top of the Lewis Nodular Chalk Formation was noted to comprise firm becoming stiff with depth white chalky clay consistent with structureless Class Dm material.

8.8 Lewes Nodular Chalk, Seaford Chalk was encountered in Borehole BH1 at 8m bgl as a yellow white structureless Chalk composed of clayey gravel of chalk and flint consistent with Class Dm/Dc material.

Visual and Olfactory Evidence of Contamination

8.9 No visual or olfactory evidence of contamination was encountered during the site works.

Groundwater

8.10 Groundwater was encountered as seepages in Boreholes BH1 only at a depth of 8m bgl within the Chalk. The depth to groundwater measured during the monitoring visit is summarised on the table below:

Exploratory Hole	Depth m(bgl)					
	29.7.2020	5.8.20	12.8.20	19.8.20	26.8.20	2.9.20
WS2	Dry	Dry	Dry	Dry	Dry	Dry
WS4	Dry	Dry	Dry	Dry	Dry	Dry
WS5	Dry	Dry	Dry	Dry	Dry	Dry
WS6	Dry	Dry	Dry	Dry	Dry	Dry
WS8	Dry	Dry	Dry	Dry	Dry	Dry

Ground Gas

8.11 Ground gas was monitored during the return visit to monitor groundwater levels and the results are summarised on the table below:

Exploratory Hole	Atmos pressure (Mb)	Flow (l/hr)	CH4		CO2		O2
			Concentration (%)	GSV (l/hr)	Concentration (%)	GSV (l/hr)	Concentration (%)
31.1.20							
WS2	1015	<0.1	<0.1	<0.0001	0.7	<0.0018	19.9
WS4	1015	<0.1	<0.1	<0.0001	1.3	<0.0021	19.7
WS5	1015	<0.1	<0.1	<0.0001	2.5	<0.0025	18.7
WS6	1015	<0.1	<0.1	<0.0001	0.1	<0.0015	20.7
WS8	1015	<0.1	<0.1	<0.0001	3.7	<0.0015	17.1
5.8.20							
WS2	1007	<0.1	<0.1	<0.0001	0.7	<0.0007	19.3
WS4	1007	<0.1	<0.1	<0.0001	0.8	<0.0008	19.1
WS5	1007	<0.1	<0.1	<0.0001	2.2	<0.0022	18.7
WS6	1007	<0.1	<0.1	<0.0001	0.3	<0.0003	19.4
WS8	1007	<0.1	<0.1	<0.0001	4.4	<0.0044	15.9

12.8.20							
WS2	1007	<0.1	<0.1	<0.0001	0.7	<0.0007	19.3
WS4	1007	<0.1	<0.1	<0.0001	0.8	<0.0008	19.1
WS5	1007	<0.1	<0.1	<0.0001	2.3	<0.0023	18.6
WS6	1007	<0.1	<0.1	<0.0001	0.3	<0.0003	19.4
WS8	1007	<0.1	<0.1	<0.0001	4.4	<0.0044	15.9
19.8.20							
WS2	999	<0.1	<0.1	<0.0001	1.5	<0.0015	18.3
WS4	999	<0.1	<0.1	<0.0001	0.9	<0.0009	19.5
WS5	999	<0.1	<0.1	<0.0001	2.5	<0.0025	18.7
WS6	999	<0.1	<0.1	<0.0001	0.2	<0.0002	20.4
WS8	999	<0.1	<0.1	<0.0001	4.6	<0.0046	15.3
26.8.20							
WS2	1011	<0.1	<0.1	<0.0001	1.0	<0.0010	19.4
WS4	1011	<0.1	<0.1	<0.0001	0.7	<0.0007	19.7
WS5	1011	<0.1	<0.1	<0.0001	1.5	<0.0015	19.5
WS6	1011	<0.1	<0.1	<0.0001	0.7	<0.0003	19.7
WS8	1011	<0.1	<0.1	<0.0001	4.8	<0.0048	14.9
2.9.20							
WS2	1007	<0.1	<0.1	<0.0001	1.2	<0.0012	19.4
WS4	1007	<0.1	<0.1	<0.0001	1.3	<0.0013	18.6
WS5	1007	<0.1	<0.1	<0.0001	1.4	<0.0014	18.7
WS6	1007	<0.1	<0.1	<0.0001	0.2	<0.0002	20.6
WS8	1007	<0.1	<0.1	<0.0001	4.2	<0.0042	16.9

8.12 No significant ground gas has been measured.

9.0 CONTAMINATION ASSESSMENT

General

9.1 A Tier I risk assessment has been undertaken using available and current screening values for human health and where appropriate controlled waters. The risk assessment is undertaken based on the findings of the preliminary conceptual model presented in Section 6. Based on the contamination testing and Tier I assessment a revised Conceptual Model has been prepared, which is presented later in this section.

9.2 The assessment takes account of the proposed development which comprises hardstanding with no soft landscaping proposed. As such the development will break pollutant linkages for future end users with the exception of possible indoor inhalation risk from hydrocarbons.

Human Health

9.3 Assessment of the risks to human health has been undertaken by comparing the soil quality data with reference values obtained from the Contaminated Land Exposure Assessment (CLEA), Soil Guideline Values (SGV) and General Acceptance Criteria (GAC) published by LQM and derived in consultation with the Chartered Institute of Environmental Health. The LQM/CIEH S4ULs values are used and summary tables of the reference values are included in Appendix C.

9.4 Where an exceedance is identified the risk is assessed by considering the sensitivity of the proposed development and the potential pathway. The proposed use of the Development Site comprises conventional residential houses with domestic gardens, apartments and open space.

9.5 The GAC values for residential use without plant uptake are used as initial screening criteria and should these be exceeded then the GAC will be re-assessed using indoor vapour pathway only.

9.6 The soil quality shows exceedances of the GAC values adjusted for Total Organic Content (TOC) in the following samples:

Exploratory Hole	Determinant	Concentration (mg/kg		Indoor inhalation		Notes
		Soil	GAC	%	GAC	
WS2 @ 0.3m	Benzo(a)Anthracene	160	14	0.001	14000	No impact.
	Chrysene	130	31	0.001	31000	No impact.
	Benzo(b)fluoranthene	130	4	0.001	4000	No impact.
	Benzo(a)Pyrene	86	3.2	0	N/A	No impact.
	Indeno(1,2,3-cd)pyrene	50	46	0.001	46000	No impact.
	Dibenzo(ah)Anthracene	17	0.32	0.001	320	No impact.
	TPH Aromatic $C_{21} – C_{35}$	3000	1900	0	N/A	No impact.
WS3 @ 0.3m	Napthalene	77	5.6	64.7	8.6	Exceedance.
	Benzo(a)Anthracene	530	14	0.001	14000	No impact.
	Chrysene	420	31	0.001	31000	No impact.
	Benzo(b)fluoranthene	510	4	0.001	4000	No impact.
	Benzo(k)fluoranthene	150	110	0	N/A	No impact.
	Benzo(a)Pyrene	330	3.2	0	N/A	No impact.
	Indeno(1,2,3-cd)pyrene	190	46	0.001	46000	No impact.
	Dibenzo(ah)Anthracene	60	0.32	0.001	320	No impact.
	TPH Aromatic $C_{16} – C_{21}$	5200	1900	0.3	633333	No impact.
	TPH Aromatic $C_{21} – C_{35}$	4400	1900	0	N/A	No impact.
WS8 @ 0.3m	Benzo(b)fluoranthene	8.1	3.9	0.001	3900	No impact.
	Benzo(a)Pyrene	6.1	3.2	0	N/A	No impact.
	Dibenzo(ah)Anthracene	1.3	0.31	0.001	310	No impact.
WS9 @ 0.3m	Benzo(b)fluoranthene	8.1	11	0.001	3900	No impact.
	Benzo(a)Pyrene	6.1	9.3	0	N/A	No impact.
	Dibenzo(ah)Anthracene	1.3	1.7	0.001	310	No impact.

9.7 A double ratio plot confirms the source of the PAH within boreholes WS2 and WS3 as petroleum product which is consistent with the TPH values measured from these samples. It is recommended that the source around boreholes WS2 and WS3 are removed as part of the development works which should remove risk to controlled waters and human health. Source appears limited and is likely to be due to small spillage.

9.8 Asbestos fibres were detected in one sample (WS8 @ 0.3m). The hard landscaping of the proposed development will remove the risk to end users and management procedures are recommended for construction workers, discussed later in this Section.

Controlled Waters

9.9 Where groundwater samples have been analysed the results are compared against reference values. These reference values are summarised in Appendix C and are taken from Fresh Water Environmental Quality Standards (EQS), UK Drinking Water Standards and World Health Organisation (WHO) values for Drinking Water.

9.10 Where the controlled waters receptor is a surface water course then the EQS are used as the primary reference value. Drinking Water Standards and WHO values are used where EQS values are not available. An assessment of likely risk is then made based on a source-pathway-receptor model. Where the receptor is potable groundwater resources the Drinking Water Standards and WHO values are used.

9.11 There is a potential for TPH and PAH in Boreholes WS2 and WS3 to impact groundwater resources due to the creation of a new pathway via foundations. As the impact appears to be localised it is recommended that the area is removed as part of the site development works.

9.12 Made Ground is likely to be excavated ap part of the preparation works and construction of a construction mat, which will provide environmental betterment.

Ground Gas

9.13 Following the guidance provided in Section 3 of CIRIA C665 an initial assessment is undertaken to determine if there are any significant sources of potential ground gas. Such sources include landfills, organic clays and made ground incorporating putrescible materials such as rags, paper and wood. Where no significant source is identified no further assessment is necessary.

9.14 This approach is further supported by supplementary guidance given in RB17, published by CL:AIRE which confirms that gas monitoring is not generally required on sites where Made Ground is less than 5m thick and with low organic matter content or on natural soils such as alluvial clays and Chalk as the ground gas sources are not considered significant. The supplementary guidance given in RB17 also takes account of the current requirements for sealing of floor slabs and substructures to meet air tightness requirements under Part L of the Building Regulations which were not considered in CIRIA C665. The advice given in RB17 is consistent with CIRIA C665 and the Local Authority Guide to Ground Gas published by CIEH.

9.15 Where significant potential risk from ground gas is identified from the Initial Conceptual Model and the intrusive ground investigation works ground gas monitoring is undertaken and the results of the monitoring are compared against the Gas Screening Values given in CIRIA Report 665. From this the Characteristic Situation is identified and remedial measures proposed.

9.16 When assessing the risk and type of remedial measures appropriate consideration is given to the likely construction of the development, the nature of the gas posing a risk and the nature of the likely source. The use of engineering judgement when determining risk from ground gas is consistent with the recommendations given in CIRIA C665 using a pollutant linkage model.

9.17 Gas monitoring was undertaken during return visits which has not recorded significant elevated concentrations of Methane or Carbon Dioxide and no flow. Based on the gas monitoring undertake the Gas Screening Value is less than 0.07l/hr and therefore falls within Characteristic Situation 1 (CS1).

Revised Conceptual Model

9.18 The Initial Conceptual Model presented in Section 6 has been revised based on the findings of the ground investigation and the revised Conceptual Model is presented below:

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Napthalene.	Made Ground WS3.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No gross contamination and no confined assess expected.
		Ingestion.	Site users.	Low.	Remediation Proposed.
Asbestos.	Made Ground WS8.	Inhalation.	Construction Workers.	Moderate.	Management procedures proposed.
			Site users.	Dismissed.	Pollutant linkage broken by hardstanding.
Asbestos, Hydrocarbon and metals.	Other on-site sources.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified and no exceedance of GAC.
			Site users.		
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers.	Low.	Addressed using normal PPE and management procedures.
			Site users.	Low.	Pollutant linkage broken by hardstanding. Discovery strategy proposed.
Ground Gas.	Historic Landfill.	Asphyxiation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.	Asphyxiation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Carbon Dioxide from Chalk.	Asphyxiation.	Site users.	Dismissed.	No significant ground gas measured.
Groundwater					
Hydrocarbon.	Boreholes WS2 & WS3.	Vertical Migration.	Groundwater.	Very Low.	Localised TPH which will be removed by construction works to remove risk.
Surface Water					
Hydrocarbon.	On site contamination sources.	Horizontal Migration.	River Network.	Dismissed.	No significant source or receptor.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	No sensitive receptor present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	No source identified.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No significant source identified.

Remediation

9.19 It is recommended that the elevated TPH around Boreholes Boreholes WS2 & WS3 are removed as part of the site regrading works to provide environmental betterment and avoid risks from deeper foundations. This will also remove the Naphthene risk identified.

9.20 Asbestos contaminated material has been identified during the ground investigation and it is possible that further material could be encountered during construction works. Measures should to be incorporated in to the Contractors Construction Stage Health and Safety Plan and asbestos management plan as required under the Construction Design and Management (CDM) Regulations to mitigate risk to construction works. Measures may include:

- Designing temporary works to minimise disturbance of the Back fill material;
- Separating material and disposal of soils containing asbestos;
- Wetting down during excavation;
- Sheeting of stockpiles where asbestos is suspected;
- Testing of soils and off-site disposal of any soils found or suspected of containing asbestos;
- Preventing access to the construction site by members of the public;
- Use of good hygiene measures, including washing down of plant; and
- Use of appropriate PPE, including face masks..

9.21 No other remediation is considered necessary.

9.22 If unforeseen contamination is encountered during construction works such as localised spillage outside the areas investigated an Environmental consultant will be available on a 'call out' basis to undertake an assessment of risk. If 'unforeseen contamination' is encountered the discovery strategy will be to remove the source as it is likely to be very limited in extent and the Local Planning Authority advised.

Waste Classification

9.23 Two part WAC tests have been undertaken to define the waste class and these show the soil to generally be Stable Non Reactive Waste with elevated leachable Cadmium together with elevated PAH, TPH and TOC.

9.24 The Waste Management paper 2 has been updated to version 3 which states that sites which previously could be considered 'uncontaminated land' surplus soils if they did not exceed the GAC values now requires the landfill to make an appropriate assessment of the waste classification. As such final assessment, will be undertaken by the receiving landfill

10.0 GEOTECHNICAL ASSESSMENT

Proposed Development

10.1 The proposed development comprises residential apartments varying from three to six storeys.

10.2 Structural loadings are not known and preliminary loadings of 100kN/m for three storey and 200kN/m for six storey apartments are used for assessment purposes.

10.3 It is considered that the scheme meets the criteria of Geotechnical Category 1 of Eurocode 7.

Ground Conditions

10.4 Ground Conditions comprise Made Ground over firm becoming stiff clay, medium dense gravels and Chalk. Depth of the Made Ground and firm clay varies across the site.

10.5 Shallow groundwater was not encountered.

Site Preparation

10.6 The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Excavation of TPH hotspots around Boreholes WS2 and WS3; and
- Any redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill.

Foundations

10.7 Due to the anticipated loadings, variability of soils and depth of Made Ground it is considered that conventional foundations are unlikely to be suitable.

10.8 It is recommended that piled foundations using CFA piles are used.

10.9 For preliminary purposes and an initial pile assessment has been undertaken using the following assumptions:

- Upper 2m is ignored.
- Soil properties have been taken from the ground investigation and laboratory testing.

- A global factor of safety of 2.5 has been used. As a check factors of 1.5 on shaft resistance and 3 on base resistance have also been used.

10.10 The following preliminary pile working loads have been calculated:

Pile depth (m bgl)	Working Load kN		
	300mm	450mm	600mm
10	225	400	600
15	540	1000	1600

10.11 Final design should be undertaken by a specialist piling contractor who can use case studies to negotiate more economic pile designs.

10.12 An assessment of the soils modified plasticity index confirms that soils are of Low volume change potential varying to Non-Plastic. No evidence of desiccation was noted,

10.13 Given the variability of soils at the site it is recommended that final foundation depths take account of vegetation based on soils of Low volume change potential.

Ground Floor Slab

10.14 It is recommended that suspended floor slabs are used.

Pavement Construction

10.15 An assessment of the likely California Bearing Ratio (CBR) has been assessed from the following sources:

- Laboratory CBR testing undertaken on samples re-compacted to simulate proof rolling;
- Description of the materials encountered in the exploratory holes; and
- Guidance given in HD25/94.

10.16 Based on the above it is considered that an equilibrium CBR of less 2% is suitable for Made Ground.

10.17 Soils are considered to be frost susceptible.

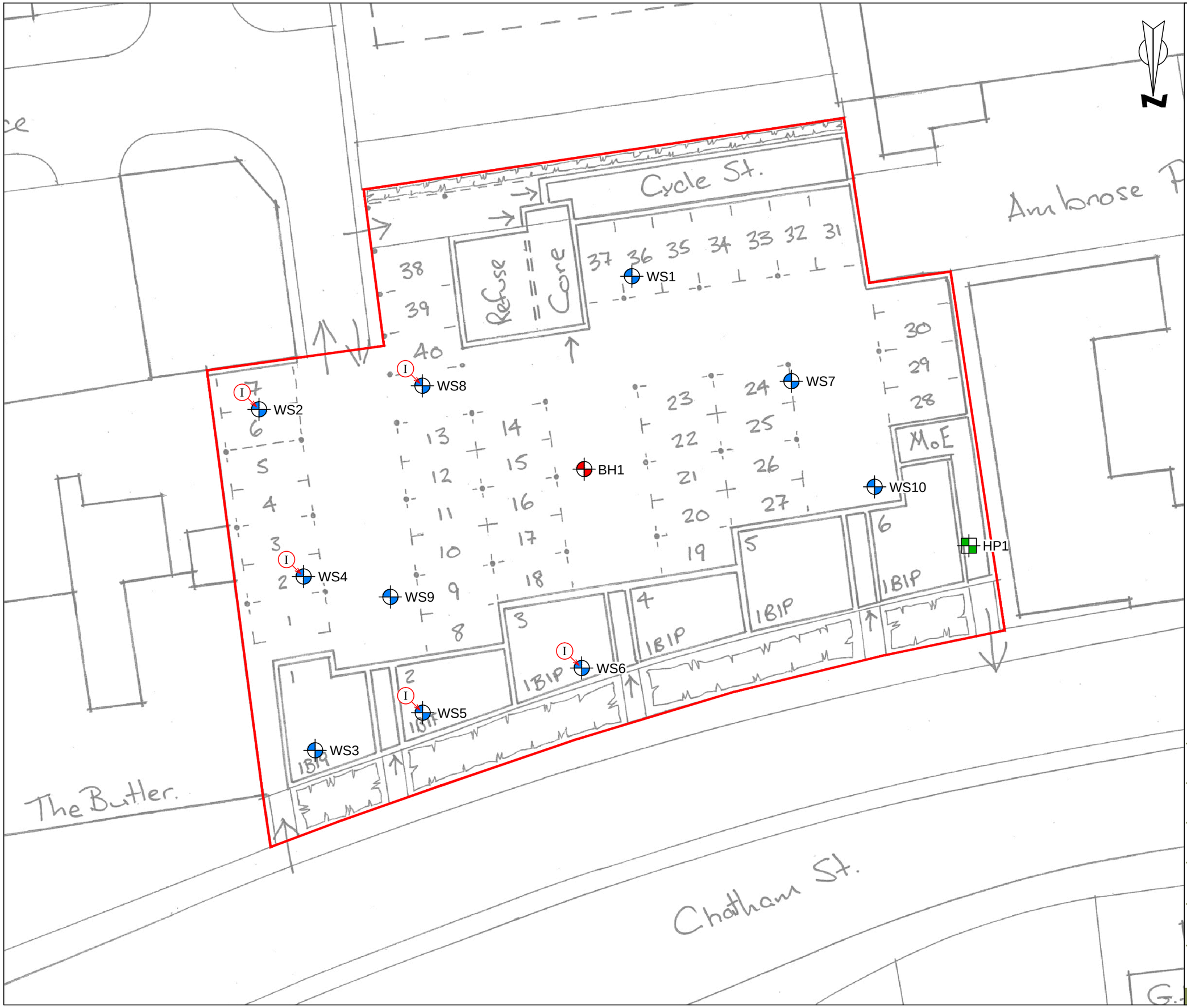
Buried Concrete

10.18 Results of the sulphate testing indicate that soils generally have soluble sulphate concentrations less than 500 mg/l consistent with class DS1. It is considered that buried concrete may be designed to Class AC1-s.

Excavation

10.19 It is considered that excavations should be feasible in the near surface with conventional plant. Where access is required the excavations should be designed in accordance with CIRIA RR97.

10.20 No significant dewatering is anticipated.



Key

- Site Boundary
- Window Sampler Locations (WS) (WS1 - WS10)
- Hand Pit Location (HP) (HP1)
- Borehole Location (BH) (BH1)
- Borehole Installation (I)

enzygo
environmental consultants

Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT:	Archel Homes Limited
SCALE:	NTS@A3
PROJECT REF:	CRM.1265.024
DRAWN:	MG
CHECKED:	SR
DATE:	Dec 2020
PROJECT:	Chatham Street, Reading
TITLE:	Site Plan
FIGURE NO:	CRM.1265.024.GE.D.001.A

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Map Name: County Series

Map date: **1879**

Scale: 1:2,500

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Map Name: County Series Town Plan

Map date: **1879-1880**

Scale: 1:500

Printed at: 1:1,000

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Map Name: County Series

Map date: **1900**

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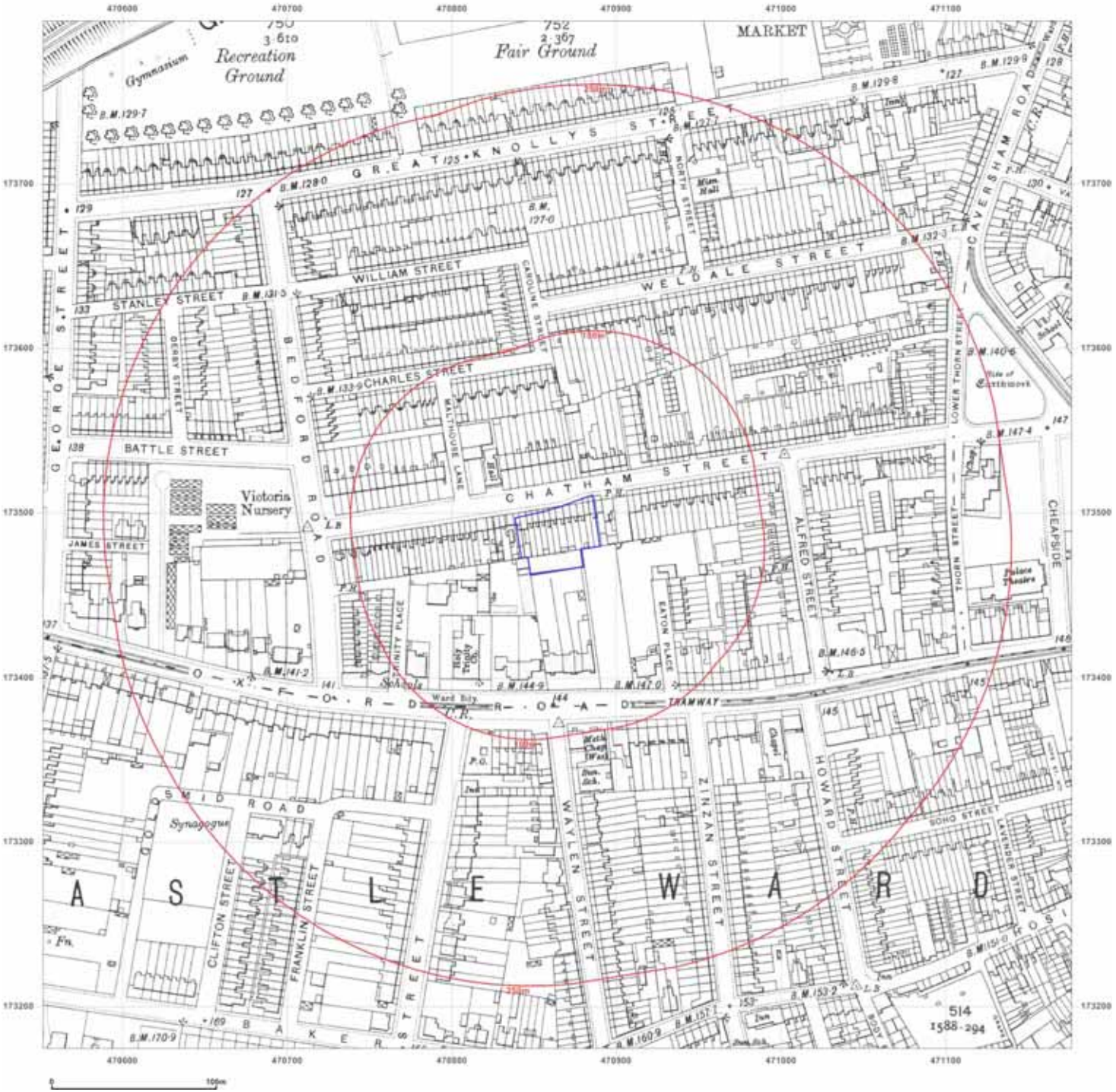

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Map Name: County Series

Map date: **1912**

Scale: 1:2,500

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Map Name: County Series

Map date: **1931**

Scale: 1:2,500

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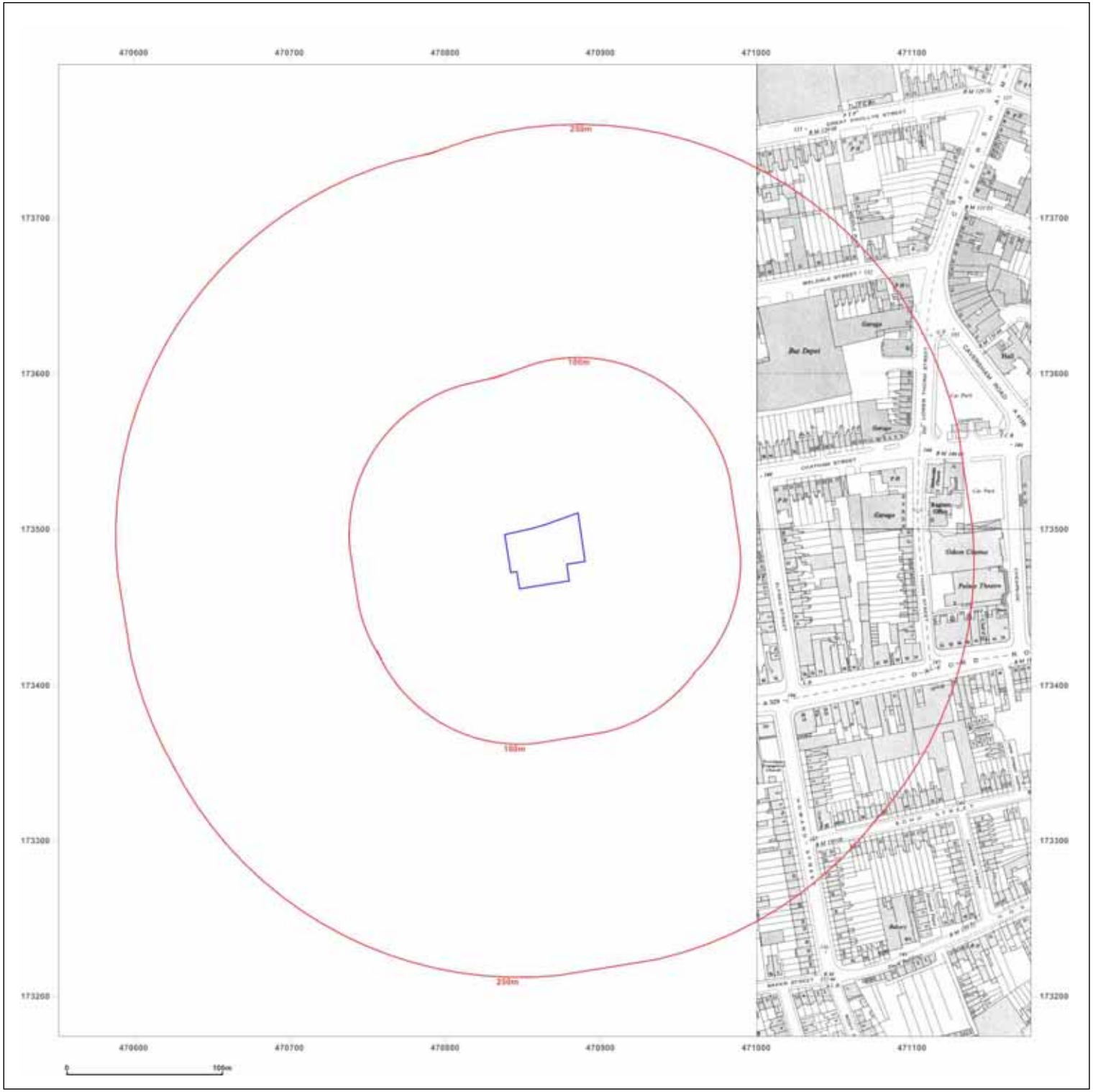

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Client Ref: EMS_620961_827355
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Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **1957**

Scale: 1:2,500

Printed at: 1:2,500

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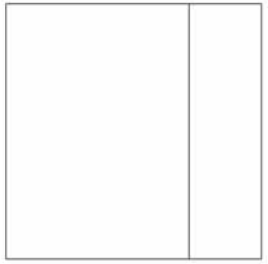

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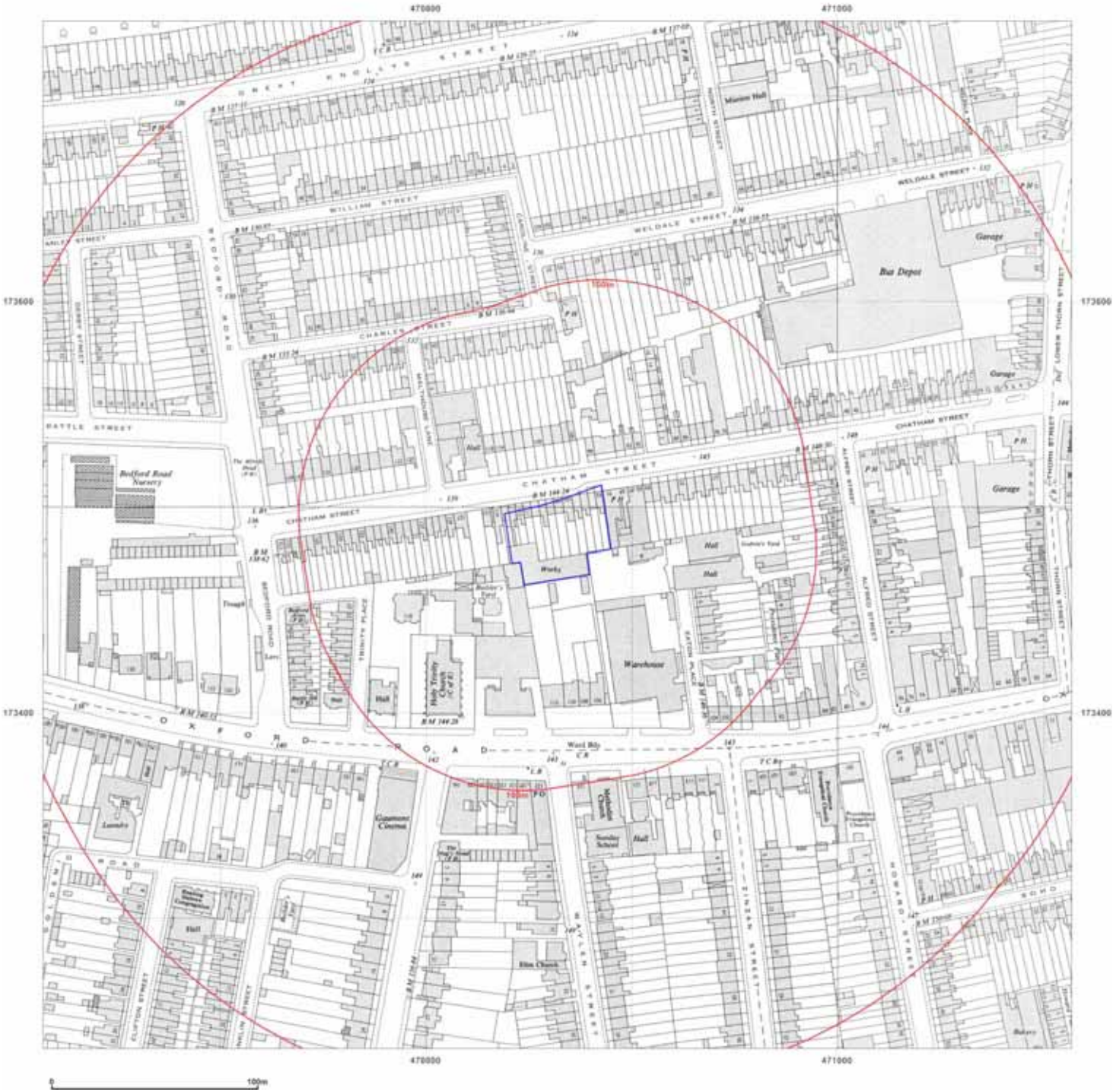

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Map Name: National Grid

Map date: **1957-1959**

Scale: 1:1,250

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Edition N/A
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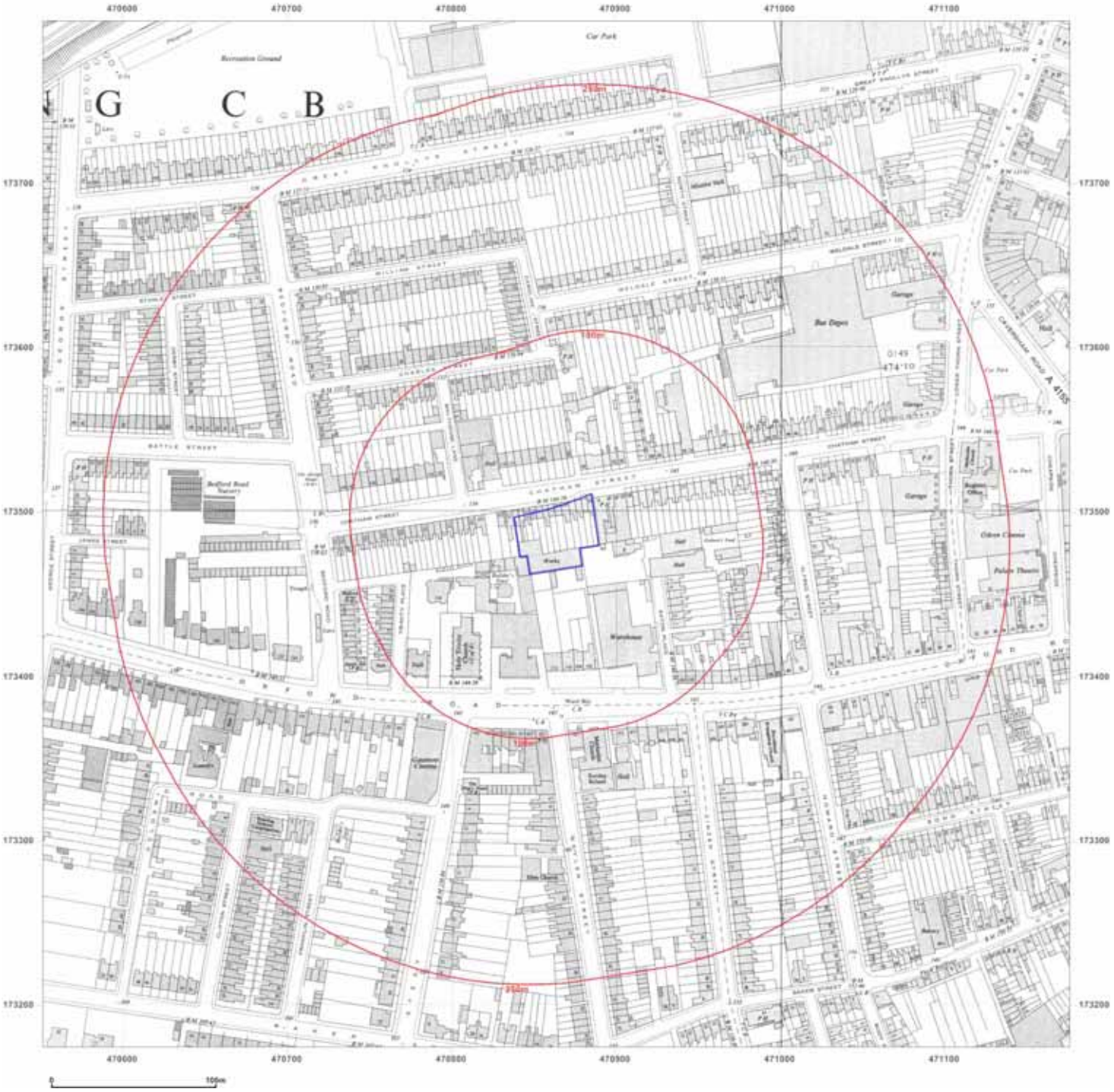

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Client Ref: EMS_620961_827355
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Map Name: National Grid

Map date: **1961**

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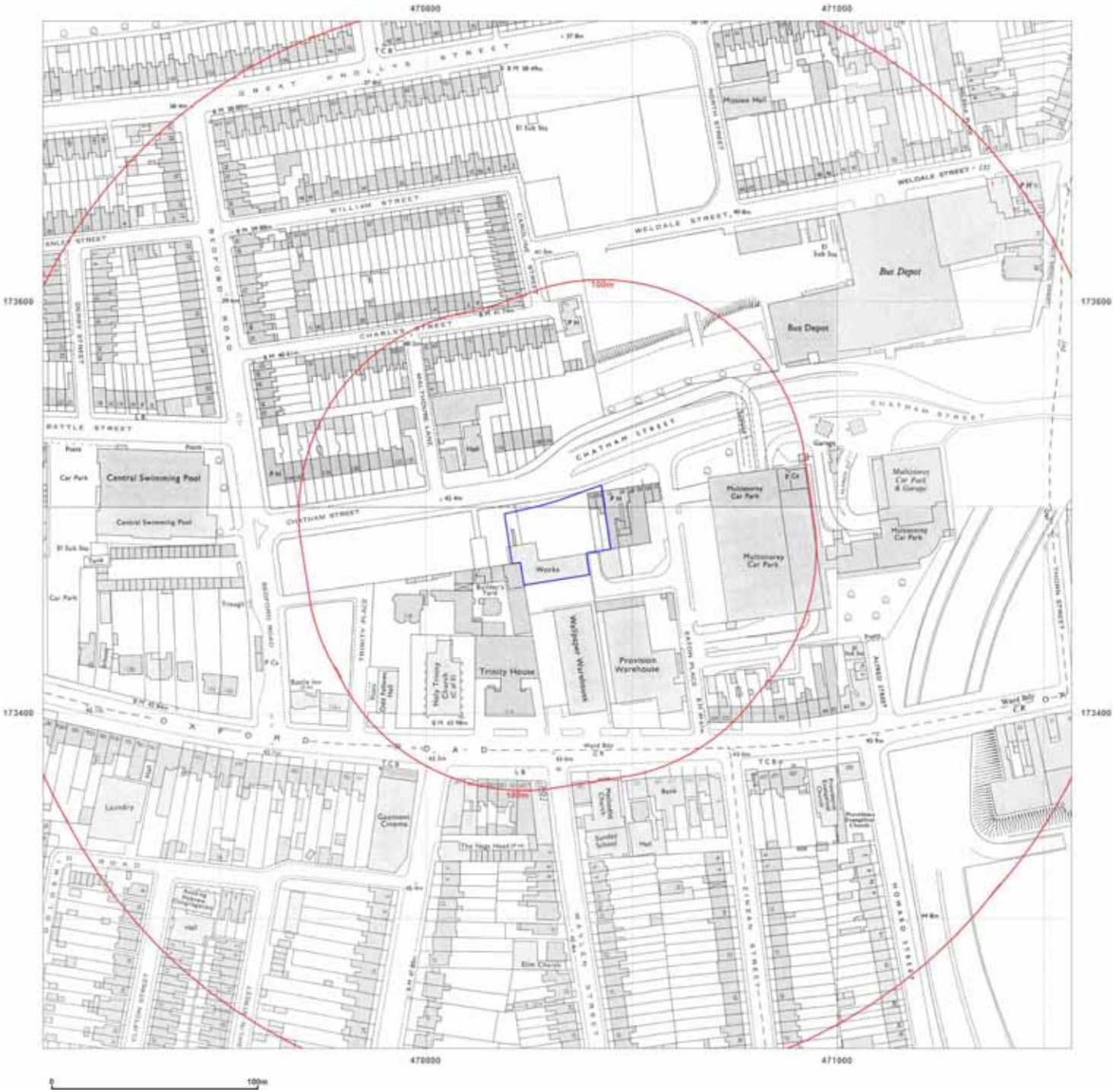

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Map Name: National Grid

Map date: **1969-1971**

Scale: 1:1,250

Printed at: 1:2,000

N
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Map Name: National Grid

Map date: **1973-1977**

Scale: 1:1,250

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Map Name: National Grid

Map date: **1986-1988**

Scale: 1:1,250

Printed at: 1:2,000

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Map Name: National Grid

Map date: **1988-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1973
Revised 1988
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Copyright 1988
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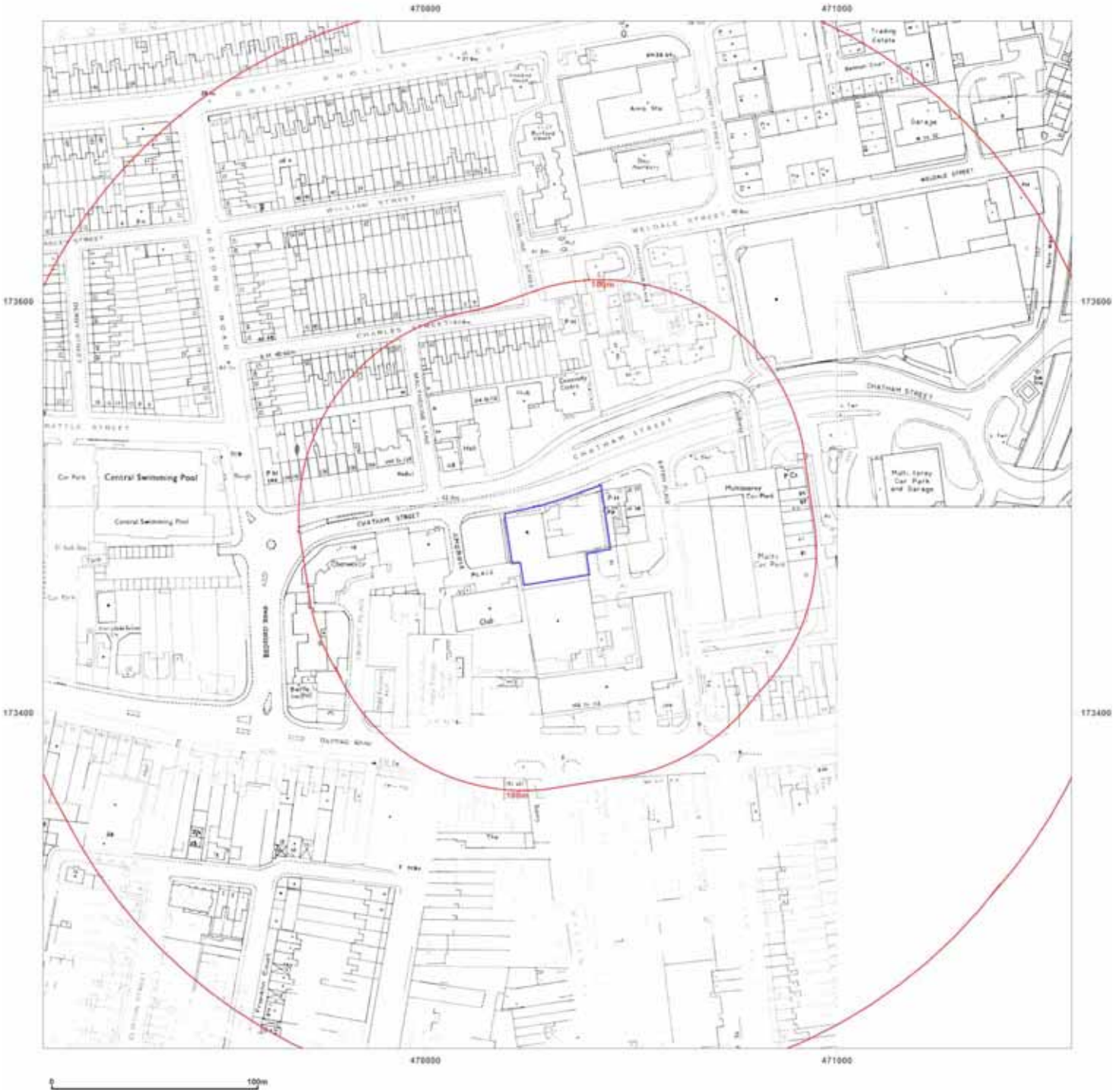

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Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

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Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: LandLine

Map date: **2003**

Scale: 1:1,250

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2003

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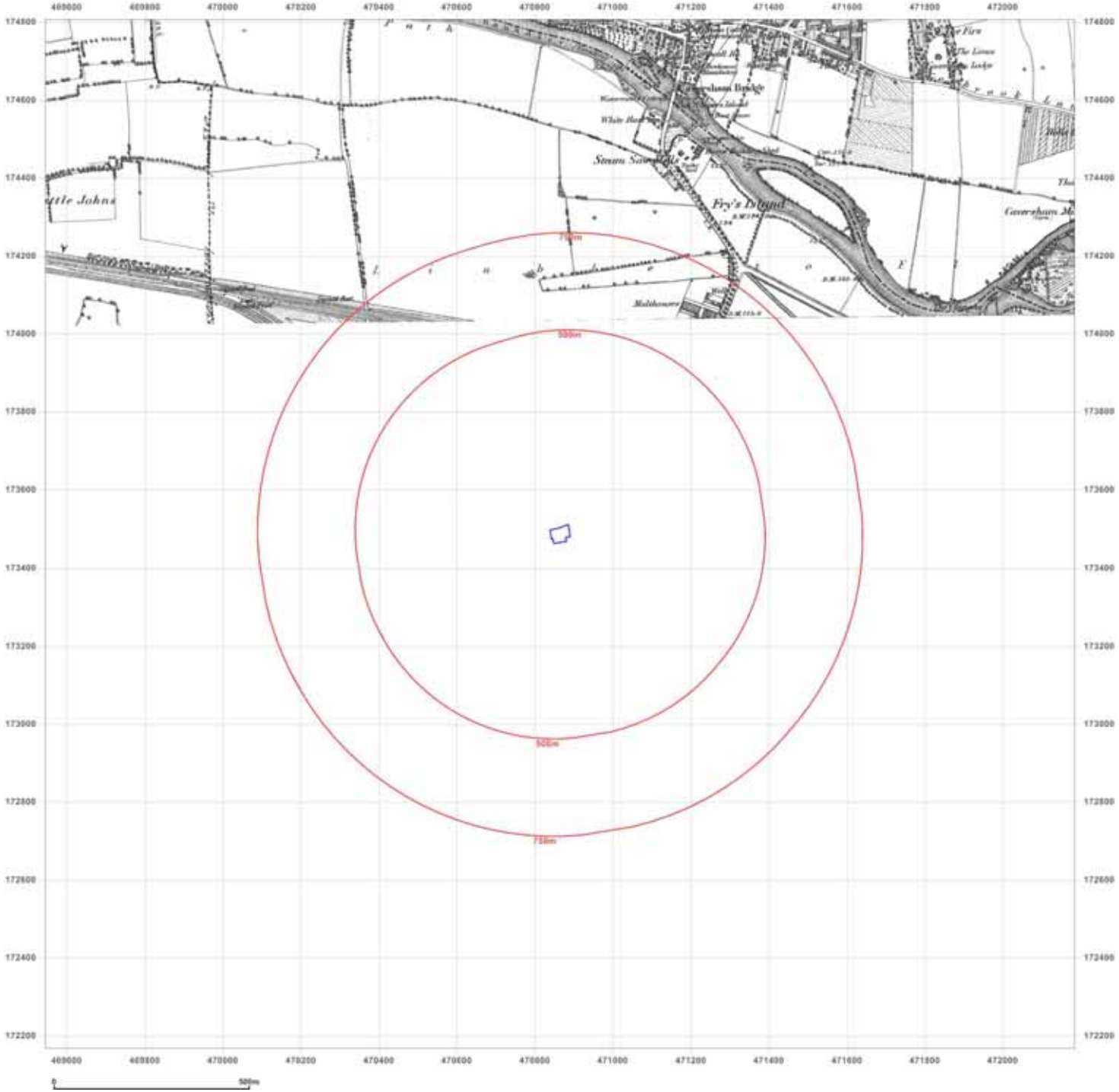

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1878**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1878
Revised 1878
Edition N/A
Copyright N/A
Levelled N/A

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Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1897-1900**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed N/A
Revised N/A
Edition 1900
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1898
Edition 1900
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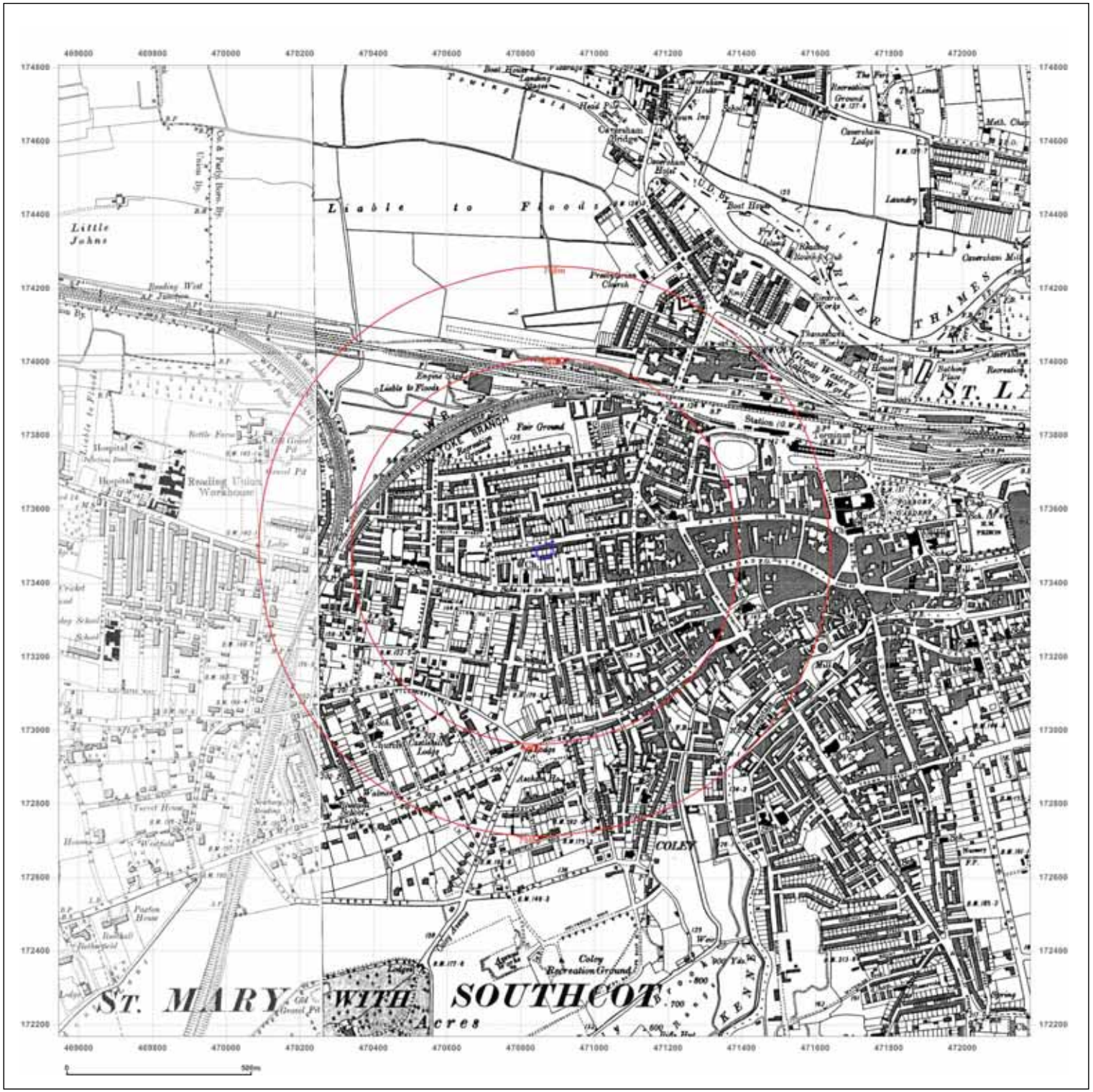

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1900**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1877
Revised 1897
Edition 1900
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1898
Edition 1900
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
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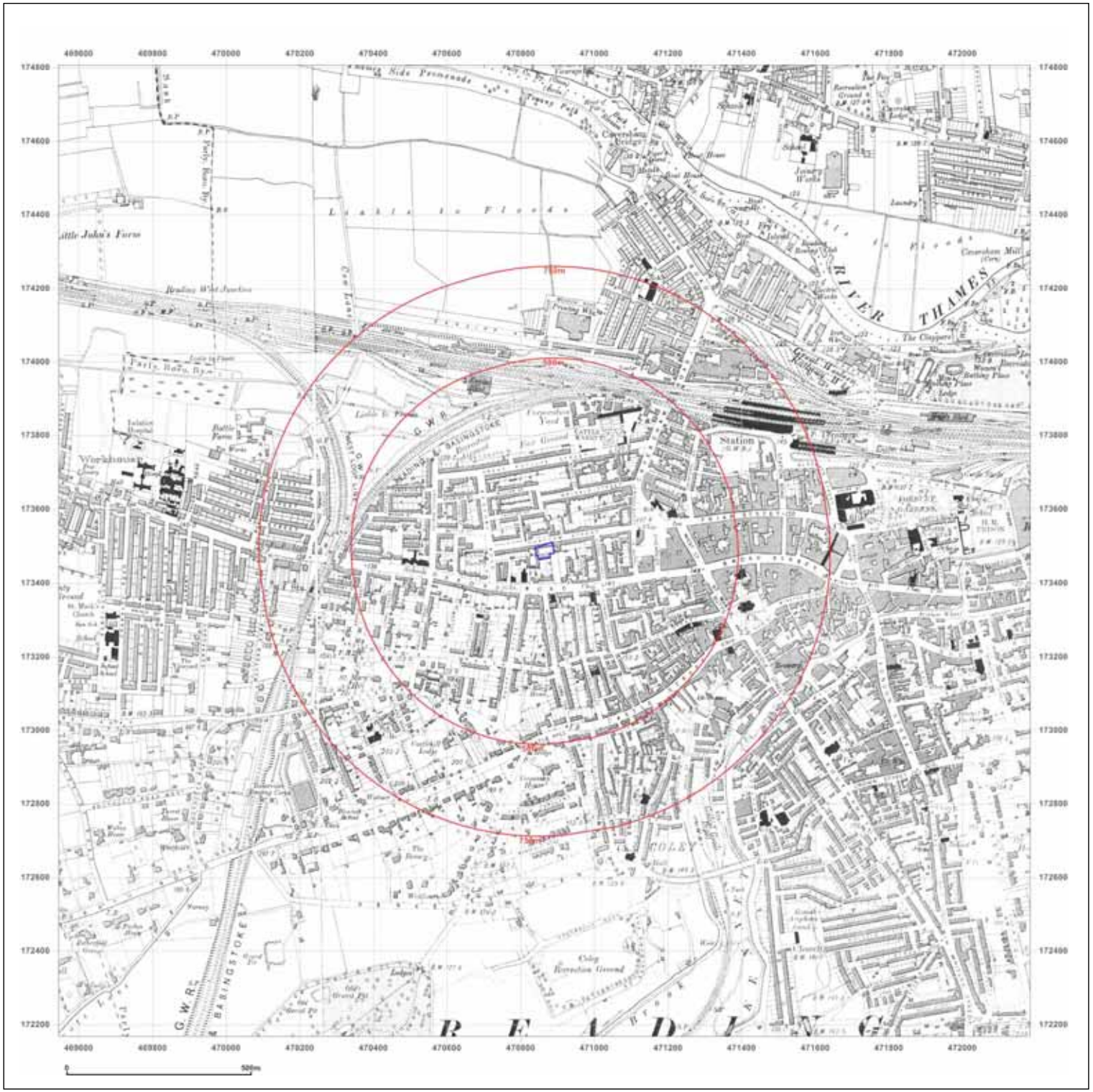

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1910-1913**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1877
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1910
Edition N/A
Copyright N/A
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Revised 1910
Edition 1913
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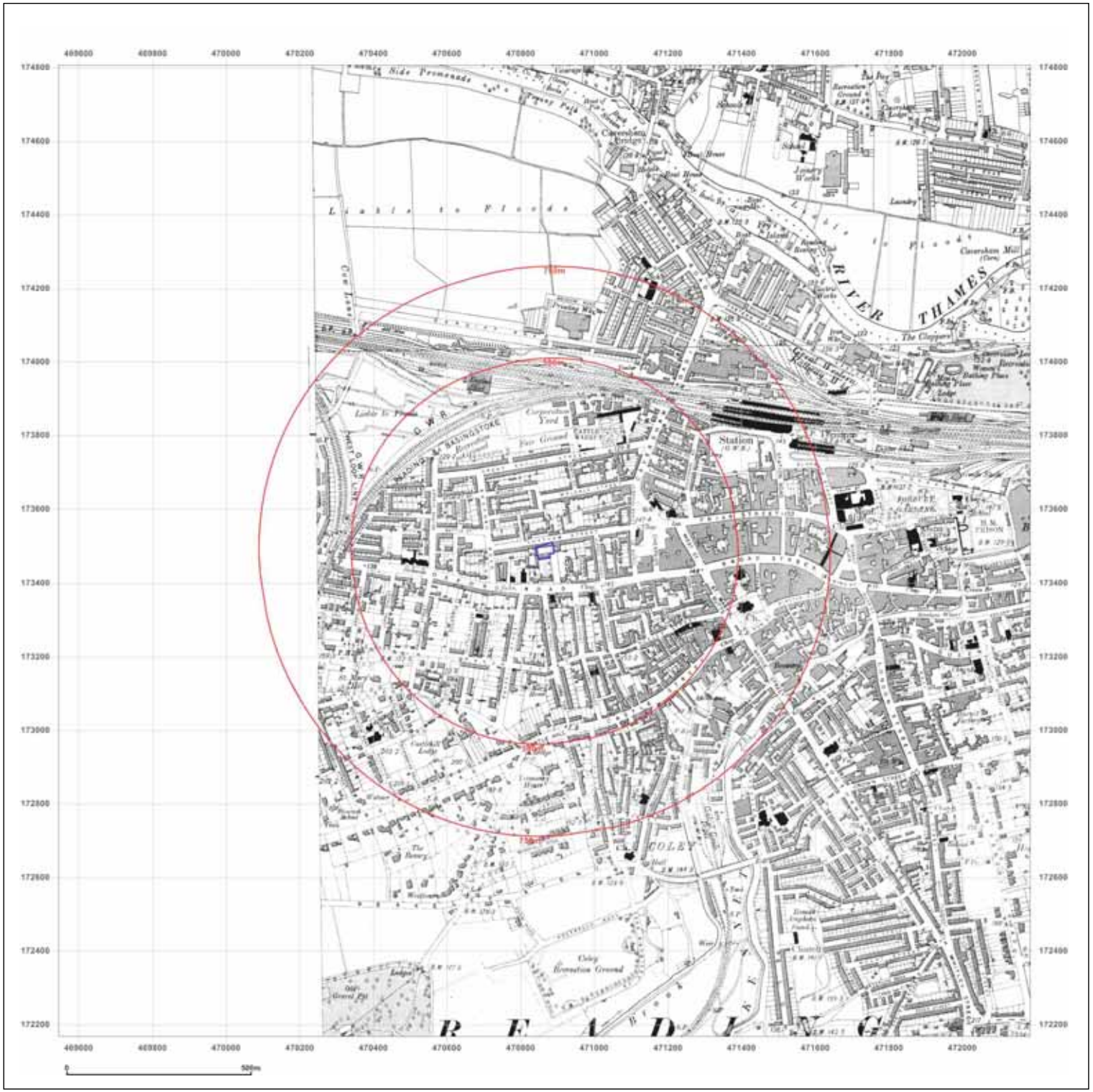

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1914**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1877
Revised 1910
Edition 1914
Copyright N/A
Levelled N/A

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Revised 1914
Edition 1913
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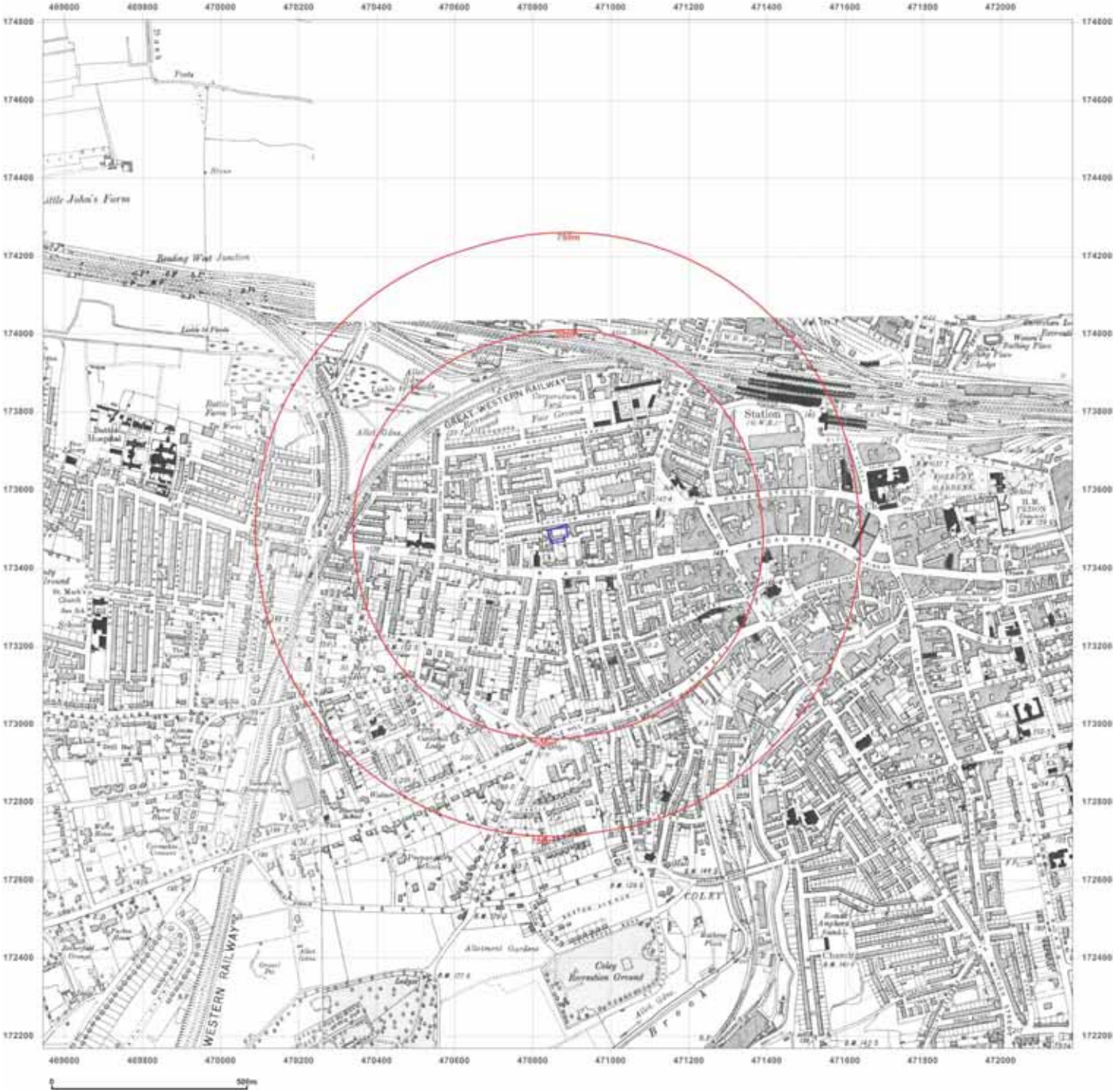

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1932-1933**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1877
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1933
Edition N/A
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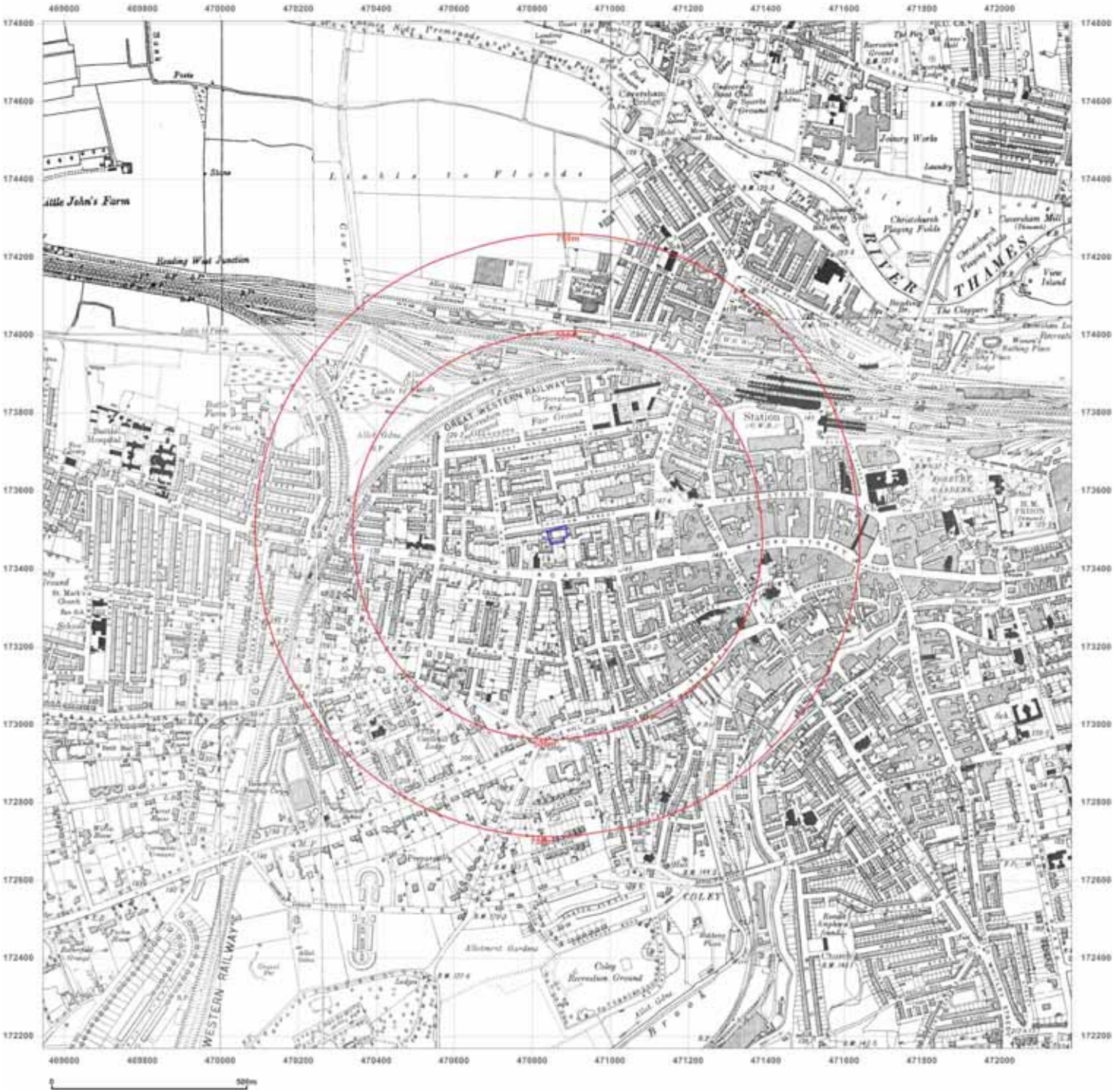

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed N/A
Revised N/A
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1938
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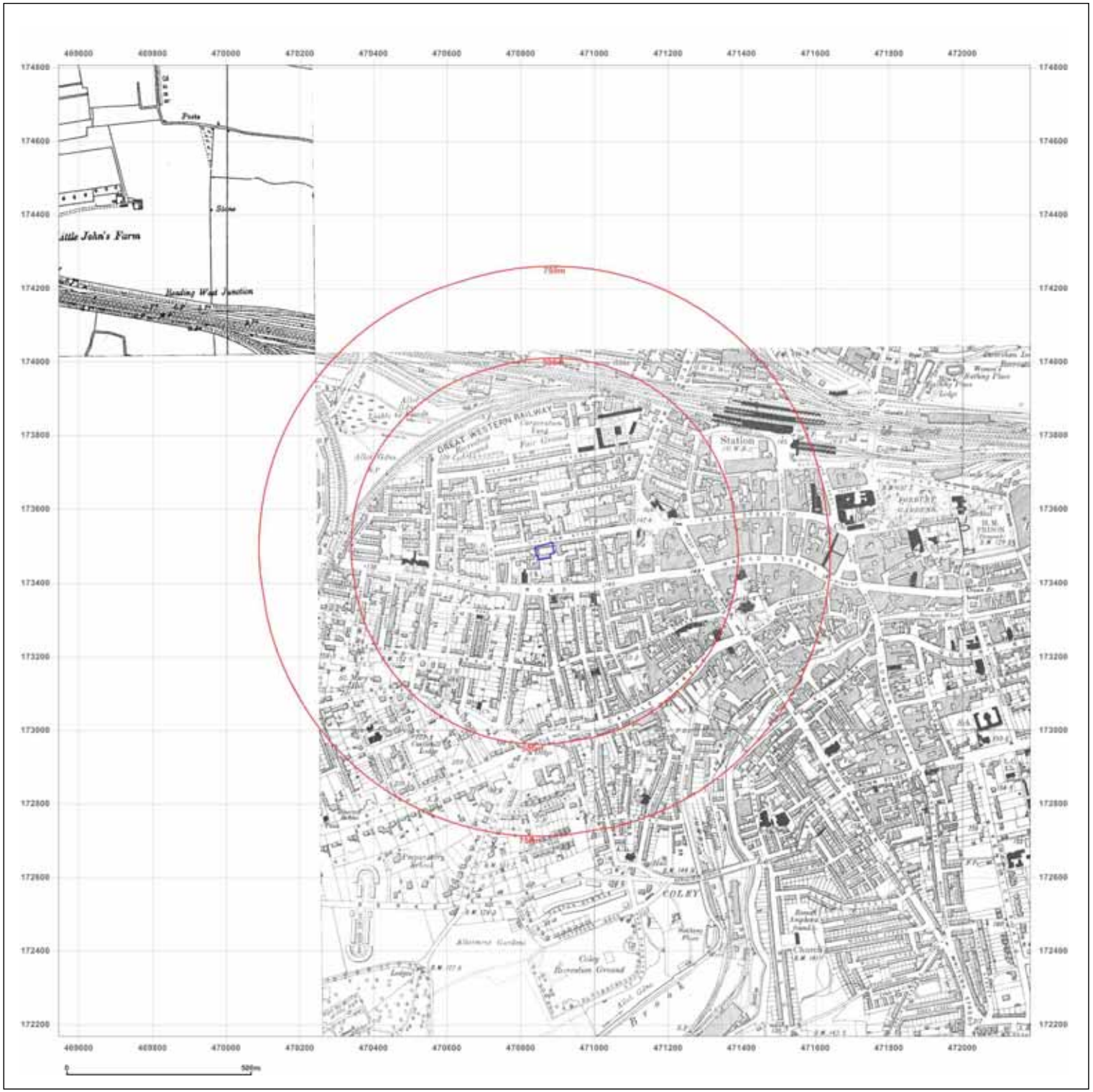

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed N/A
Revised N/A
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1938
Edition N/A
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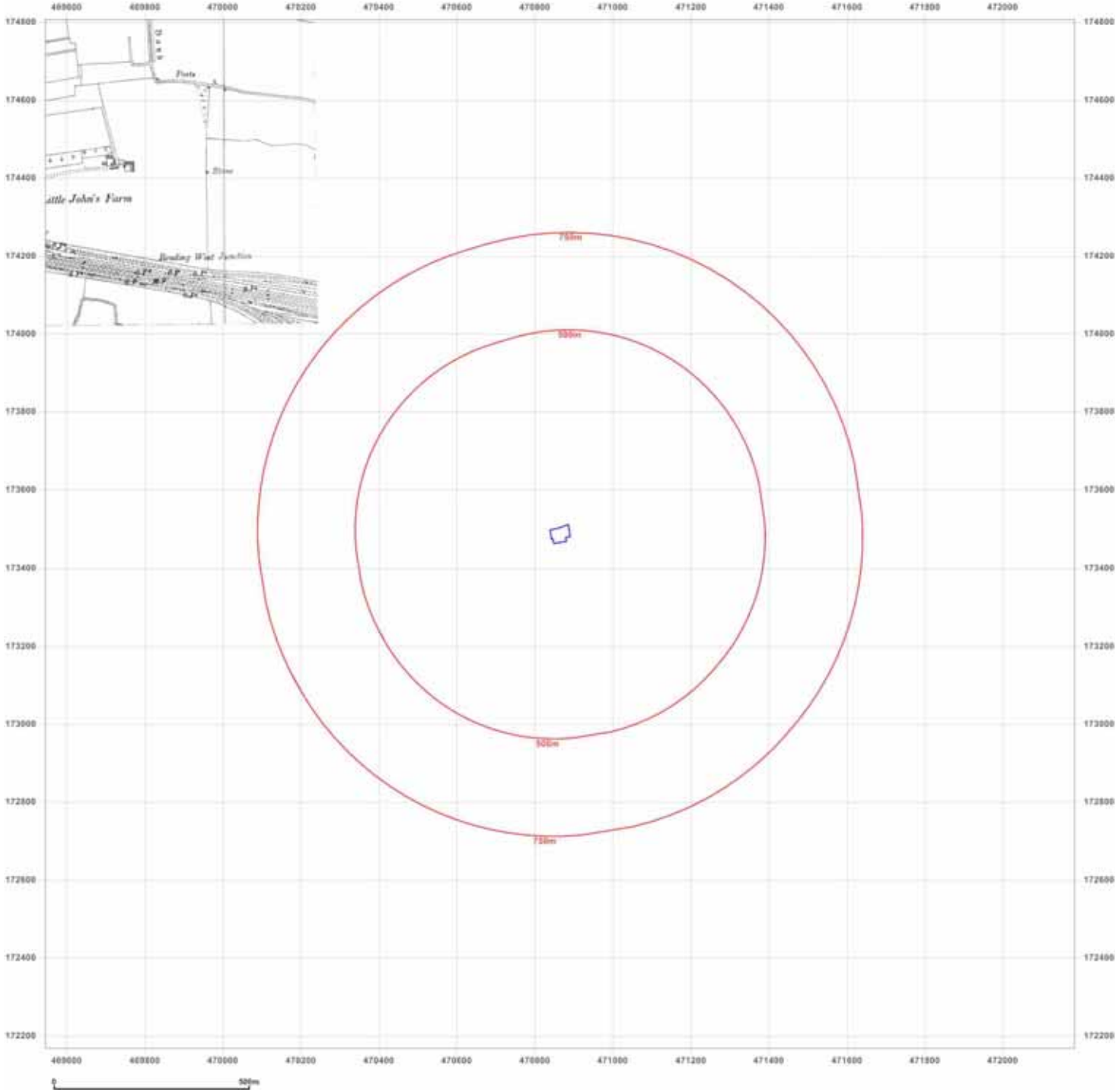

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: County Series

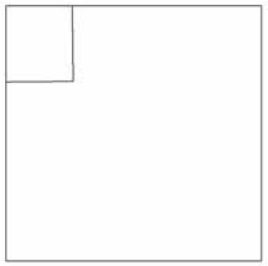
Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1877
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A



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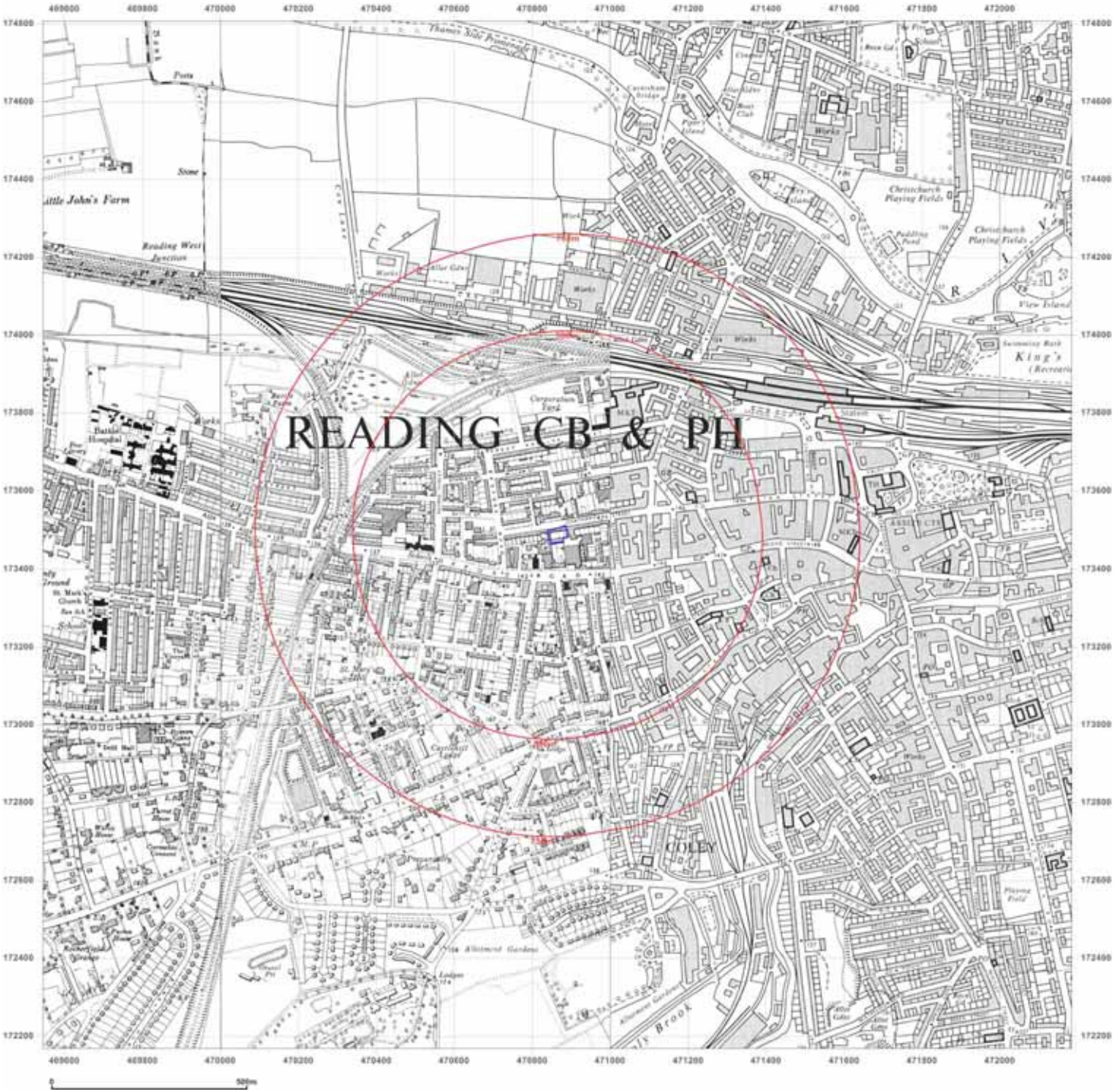

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Site Details:

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Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: Provisional

Map date: **1961-1962**

Scale: 1:10,560

Printed at: 1:10,560

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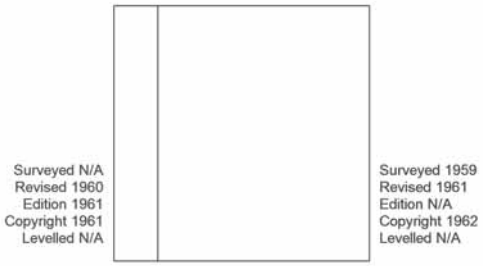

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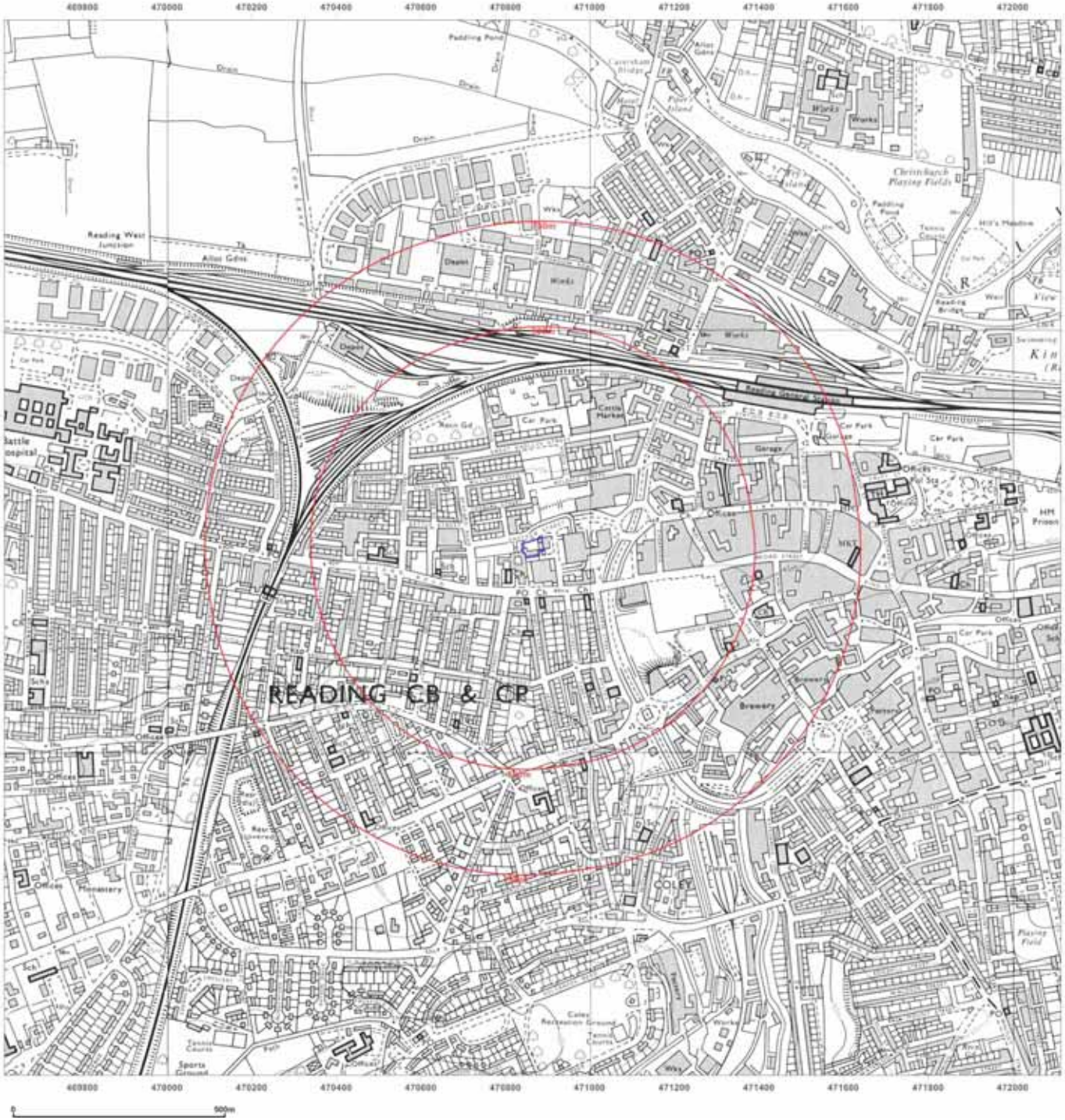

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **1973-1976**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1973
Revised 1975
Edition N/A
Copyright 1976
Levelled 1969

Surveyed 1970
Revised 1973
Edition N/A
Copyright 1973
Levelled N/A

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Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **1979-1982**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1981
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1977
Revised 1979
Edition N/A
Copyright 1979
Levelled 1969

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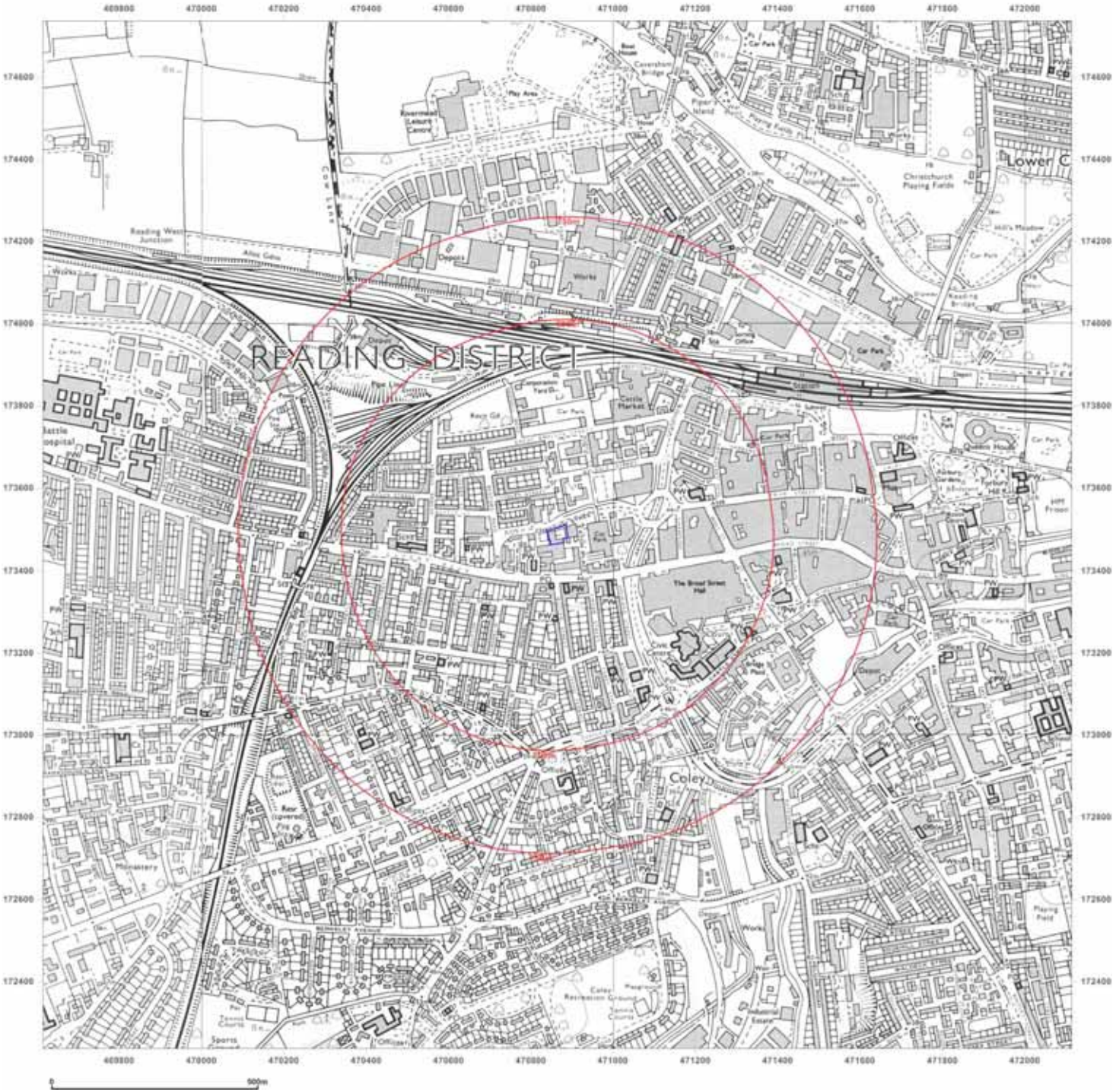

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Site Details:

115-117 Chatham Street,
Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **1989-1991**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1990
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1987
Revised 1989
Edition N/A
Copyright N/A
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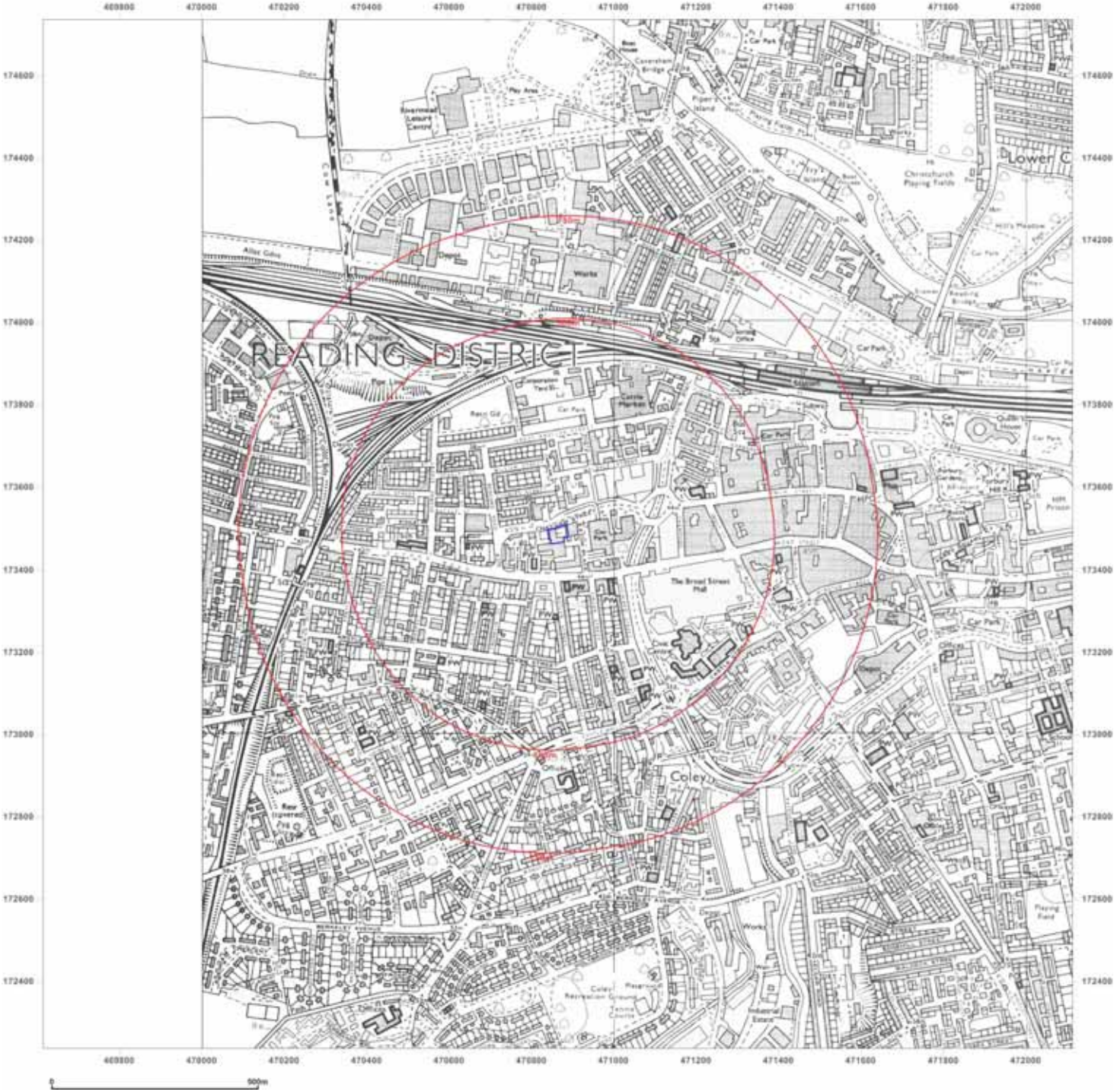

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Site Details:

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Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **1994**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1987
Revised 1994
Edition N/A
Copyright N/A
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Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

N
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2001

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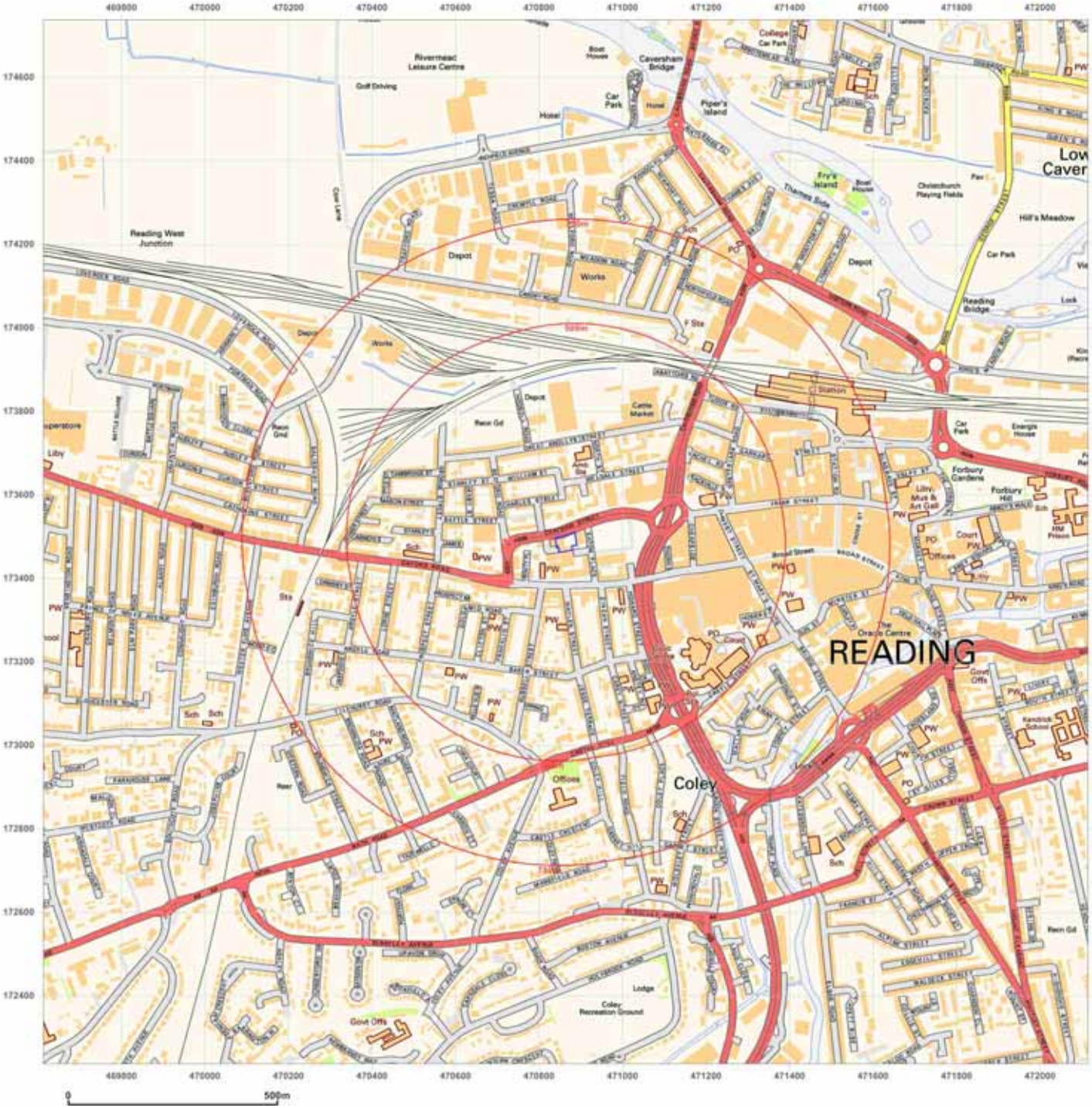

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Site Details:

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Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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2010

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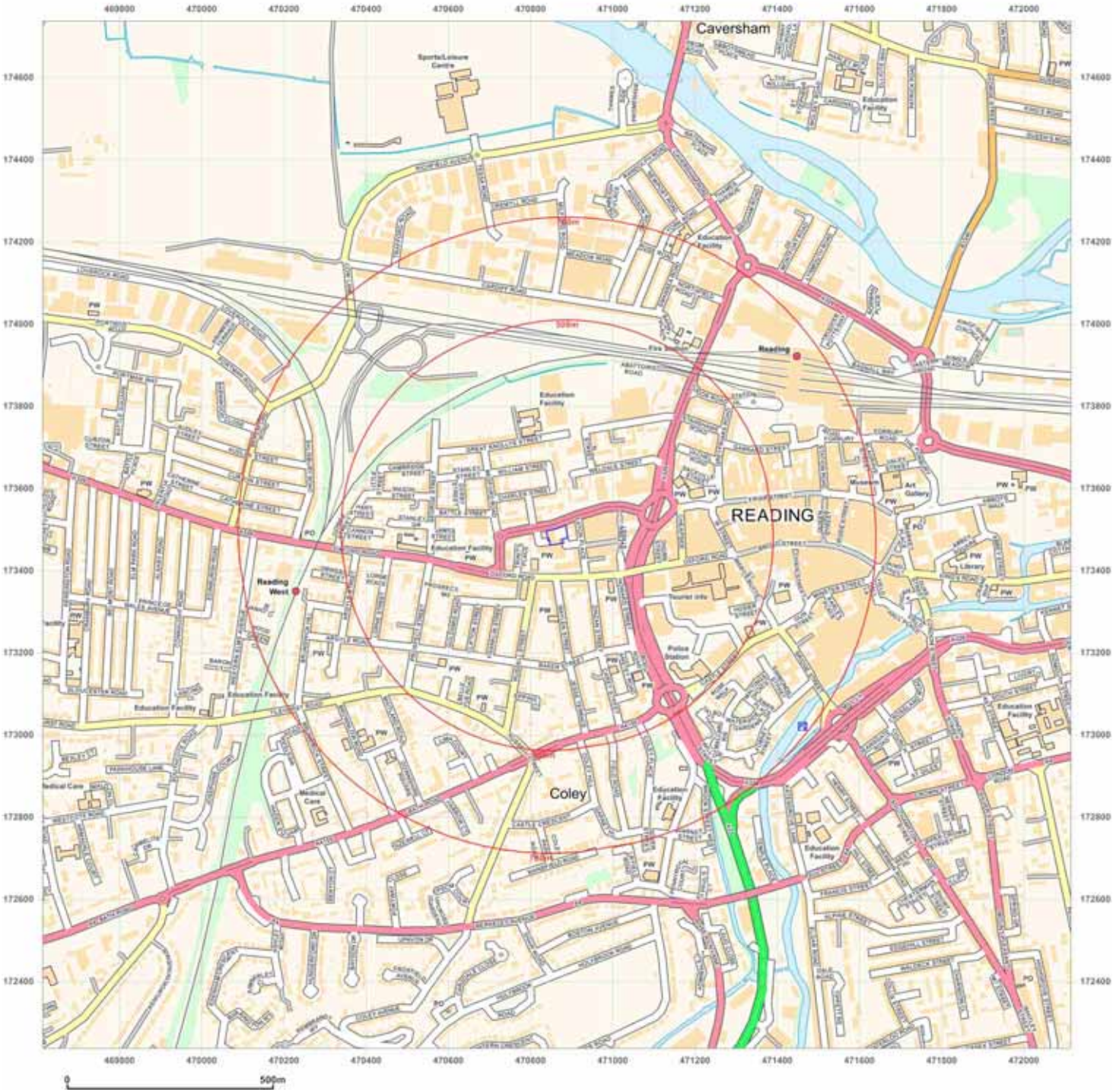

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Site Details:

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Reading,RG1 7JX

Client Ref: EMS_620961_827355
Report Ref: EMS-620961_827355
Grid Ref: 470864, 173487

Map Name: National Grid

Map date: **2020**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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2020

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LOCATION INTELLIGENCE

Enviro+Geo Insight

115-117 Chatham Street, Reading, RG1 7JX,

Order Details

Date: 13/07/2020

Your ref: EMS_620961_827356

Our Ref: EMS-620961_827356

Client: emapsite

Site Details

Location: 470864 173485

Area: 0.17 ha

Authority: Reading Borough Council

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Summary of findings p. 2

Aerial image p. 8

OS MasterMap site plan p.13

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08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	1	3	73	-
17	1.2	Historical tanks	0	0	4	34	-
19	1.3	Historical energy features	0	0	8	18	-
20	1.4	Historical petrol stations	0	0	0	2	-
21	1.5	Historical garages	0	0	17	15	-
22	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**
23	2.1	Historical industrial land uses	0	1	4	98	-
27	2.2	Historical tanks	0	0	5	46	-
29	2.3	Historical energy features	0	0	17	36	-
32	2.4	Historical petrol stations	0	0	0	3	-
32	2.5	Historical garages	0	0	25	31	-
Page	**Section**	**Waste and landfill**	**On site**	**0-50m**	**50-250m**	**250-500m**	**500-2000m**
35	3.1	Active or recent landfill	0	0	0	0	-
35	3.2	Historical landfill (BGS records)	0	0	0	0	-
36	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
36	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
36	3.5	Historical waste sites	0	0	1	1	-
37	3.6	Licensed waste sites	0	0	0	1	-
37	3.7	Waste exemptions	0	0	12	11	-
Page	**Section**	**Current industrial land use**	**On site**	**0-50m**	**50-250m**	**250-500m**	**500-2000m**
40	4.1	Recent industrial land uses	0	1	32	-	-
43	4.2	Current or recent petrol stations	0	0	2	2	-
43	4.3	Electricity cables	0	0	0	0	-
43	4.4	Gas pipelines	0	0	0	0	-
43	4.5	Sites determined as Contaminated Land	0	0	0	1	-

44	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
44	4.7	Regulated explosive sites	0	0	0	0	-
44	4.8	Hazardous substance storage/usage	0	0	0	0	-
44	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
44	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
45	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	0	3	-
45	4.12	Radioactive Substance Authorisations	0	0	0	0	-
45	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	8	-
47	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
47	4.15	Pollutant release to public sewer	0	0	0	0	-
47	4.16	List 1 Dangerous Substances	0	0	0	0	-
47	4.17	List 2 Dangerous Substances	0	0	0	0	-
48	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	0	3	-
48	4.19	Pollution inventory substances	0	0	0	0	-
48	4.20	Pollution inventory waste transfers	0	0	0	0	-
49	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
50	**5.1**	**Superficial aquifer**	Identified (within 500m)				
52	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
54	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
55	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
55	5.5	Groundwater vulnerability- local information	None (within 0m)				
56	**5.6**	**Groundwater abstractions**	0	0	0	1	15
60	**5.7**	**Surface water abstractions**	0	0	0	0	6
62	**5.8**	**Potable abstractions**	0	0	0	1	4
63	5.9	Source Protection Zones	0	0	0	0	-
63	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
64	6.1	Water Network (OS MasterMap)	0	0	0	-	-

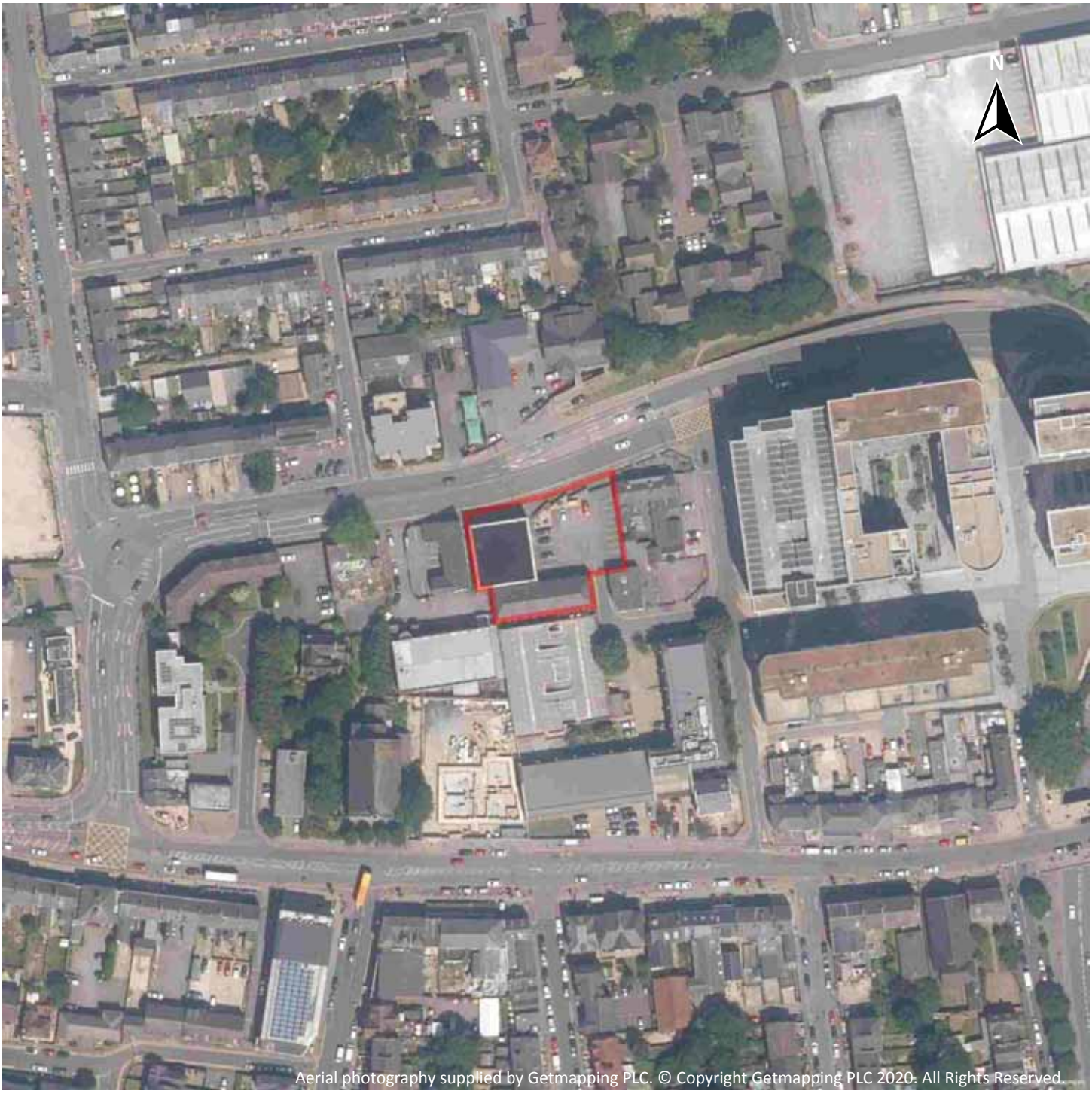
64	6.2	Surface water features	0	0	0	-	-
65	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
65	**6.4**	**WFD Surface water bodies**	0	0	0	-	-
66	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
67	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
67	7.2	Historical Flood Events	0	0	0	-	-
67	7.3	Flood Defences	0	0	0	-	-
67	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
68	7.5	Flood Storage Areas	0	0	0	-	-
69	7.6	Flood Zone 2	None (within 50m)				
69	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
70	**8.1**	**Surface water flooding**	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
72	**9.1**	**Groundwater flooding**	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
73	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
73	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
73	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
73	10.4	Special Protection Areas (SPA)	0	0	0	0	0
74	10.5	National Nature Reserves (NNR)	0	0	0	0	0
74	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
74	10.7	Designated Ancient Woodland	0	0	0	0	0
74	10.8	Biosphere Reserves	0	0	0	0	0
75	10.9	Forest Parks	0	0	0	0	0
75	10.10	Marine Conservation Zones	0	0	0	0	0
75	10.11	Green Belt	0	0	0	0	0
75	10.12	Proposed Ramsar sites	0	0	0	0	0

75	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
76	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
76	10.15	Nitrate Sensitive Areas	0	0	0	0	0
76	**10.16**	**Nitrate Vulnerable Zones**	1	0	0	0	0
77	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
78	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
79	11.1	World Heritage Sites	0	0	0	-	-
80	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
80	11.3	National Parks	0	0	0	-	-
80	**11.4**	**Listed Buildings**	0	1	15	-	-
81	**11.5**	**Conservation Areas**	0	0	1	-	-
81	11.6	Scheduled Ancient Monuments	0	0	0	-	-
82	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
83	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
84	12.2	Open Access Land	0	0	0	-	-
84	12.3	Tree Felling Licences	0	0	0	-	-
84	12.4	Environmental Stewardship Schemes	0	0	0	-	-
84	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
85	13.1	Priority Habitat Inventory	0	0	0	-	-
85	13.2	Habitat Networks	0	0	0	-	-
85	13.3	Open Mosaic Habitat	0	0	0	-	-
85	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
86	**14.1**	**10k Availability**	Identified (within 500m)				
87	**14.2**	**Artificial and made ground (10k)**	0	0	1	4	-
89	**14.3**	**Superficial geology (10k)**	1	0	2	2	-

90	14.4	Landslip (10k)	0	0	0	0	-
91	**14.5**	**Bedrock geology (10k)**	1	0	0	1	-
92	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
93	**15.1**	**50k Availability**	Identified (within 500m)				
94	15.2	Artificial and made ground (50k)	0	0	0	0	-
94	15.3	Artificial ground permeability (50k)	0	0	-	-	-
95	**15.4**	**Superficial geology (50k)**	1	0	2	2	-
96	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
96	15.6	Landslip (50k)	0	0	0	0	-
96	15.7	Landslip permeability (50k)	None (within 50m)				
97	**15.8**	**Bedrock geology (50k)**	1	0	0	1	-
98	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
98	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
99	**16.1**	**BGS Boreholes**	0	3	64	-	-
Page	Section	Natural ground subsidence					
103	**17.1**	**Shrink swell clays**	Negligible (within 50m)				
104	**17.2**	**Running sands**	Very low (within 50m)				
105	**17.3**	**Compressible deposits**	Negligible (within 50m)				
106	**17.4**	**Collapsible deposits**	Very low (within 50m)				
107	**17.5**	**Landslides**	Very low (within 50m)				
108	**17.6**	**Ground dissolution of soluble rocks**	Low (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
110	**18.1**	**Natural cavities**	0	0	1	15	-
112	**18.2**	**BritPits**	0	0	0	1	-
113	18.3	Surface ground workings	0	0	0	-	-
113	18.4	Underground workings	0	0	0	0	0
113	18.5	Historical Mineral Planning Areas	0	0	0	0	-

113	**18.6**	**Non-coal mining**	1	0	0	11	34
118	**18.7**	**Mining cavities**	0	0	0	4	17
119	**18.8**	**JPB mining areas**	Identified (within 0m)				
120	18.9	Coal mining	None (within 0m)				
120	18.10	Brine areas	None (within 0m)				
120	18.11	Gypsum areas	None (within 0m)				
120	18.12	Tin mining	None (within 0m)				
120	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
121	**19.1**	**Radon**	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
122	**20.1**	**BGS Estimated Background Soil Chemistry**	2	0	-	-	-
122	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
122	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
123	21.1	Underground railways (London)	0	0	0	-	-
123	21.2	Underground railways (Non-London)	0	0	0	-	-
123	21.3	Railway tunnels	0	0	0	-	-
123	21.4	Historical railway and tunnel features	0	0	0	-	-
123	21.5	Royal Mail tunnels	0	0	0	-	-
124	21.6	Historical railways	0	0	0	-	-
124	21.7	Railways	0	0	0	-	-
124	21.8	Crossrail 1	0	0	0	0	-
124	21.9	Crossrail 2	0	0	0	0	-
124	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 29/06/2019

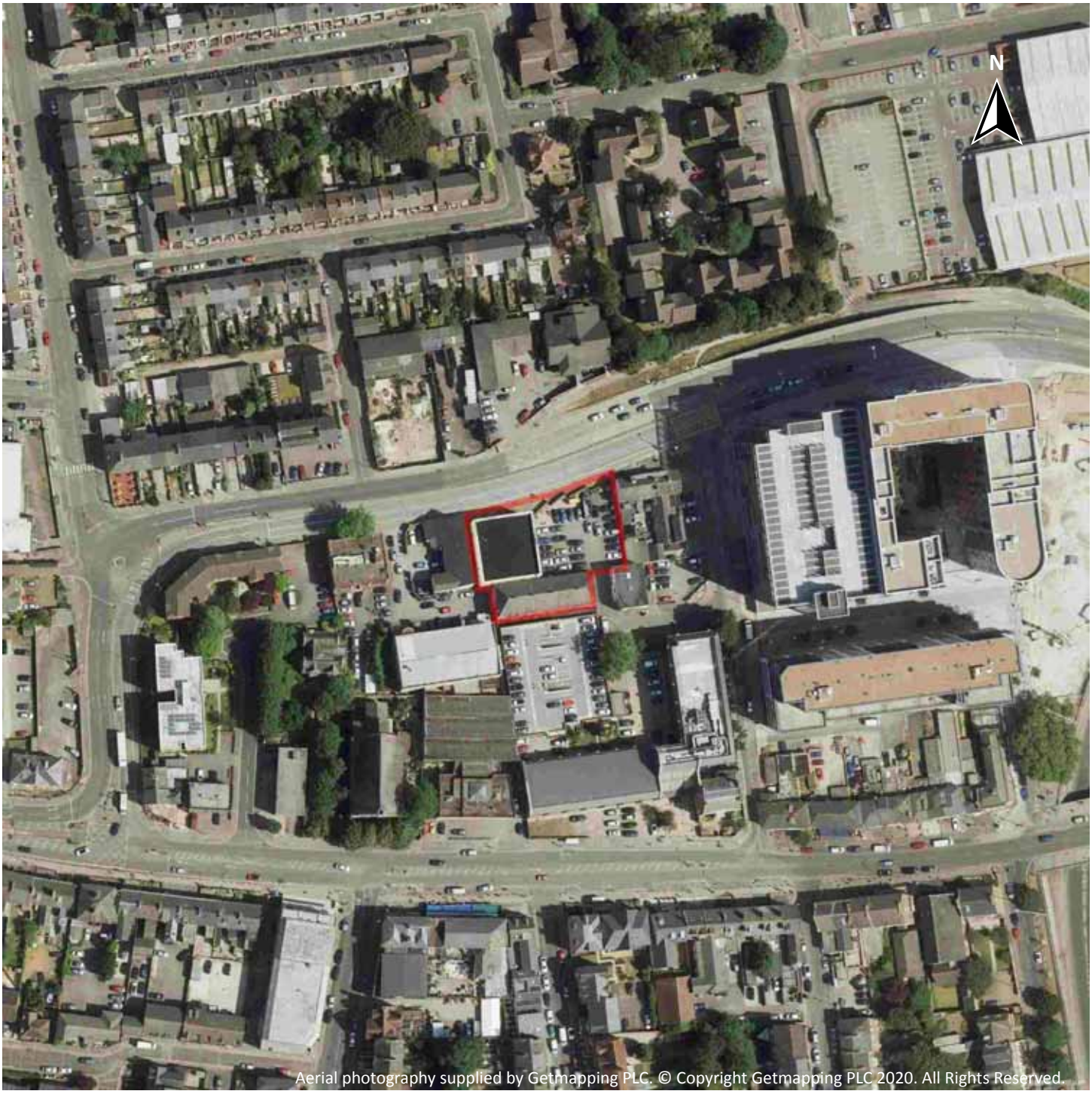
Site Area: 0.17ha

Recent site history - 2015 aerial photograph

Capture Date: 20/04/2015

Site Area: 0.17ha

Recent site history - 2013 aerial photograph



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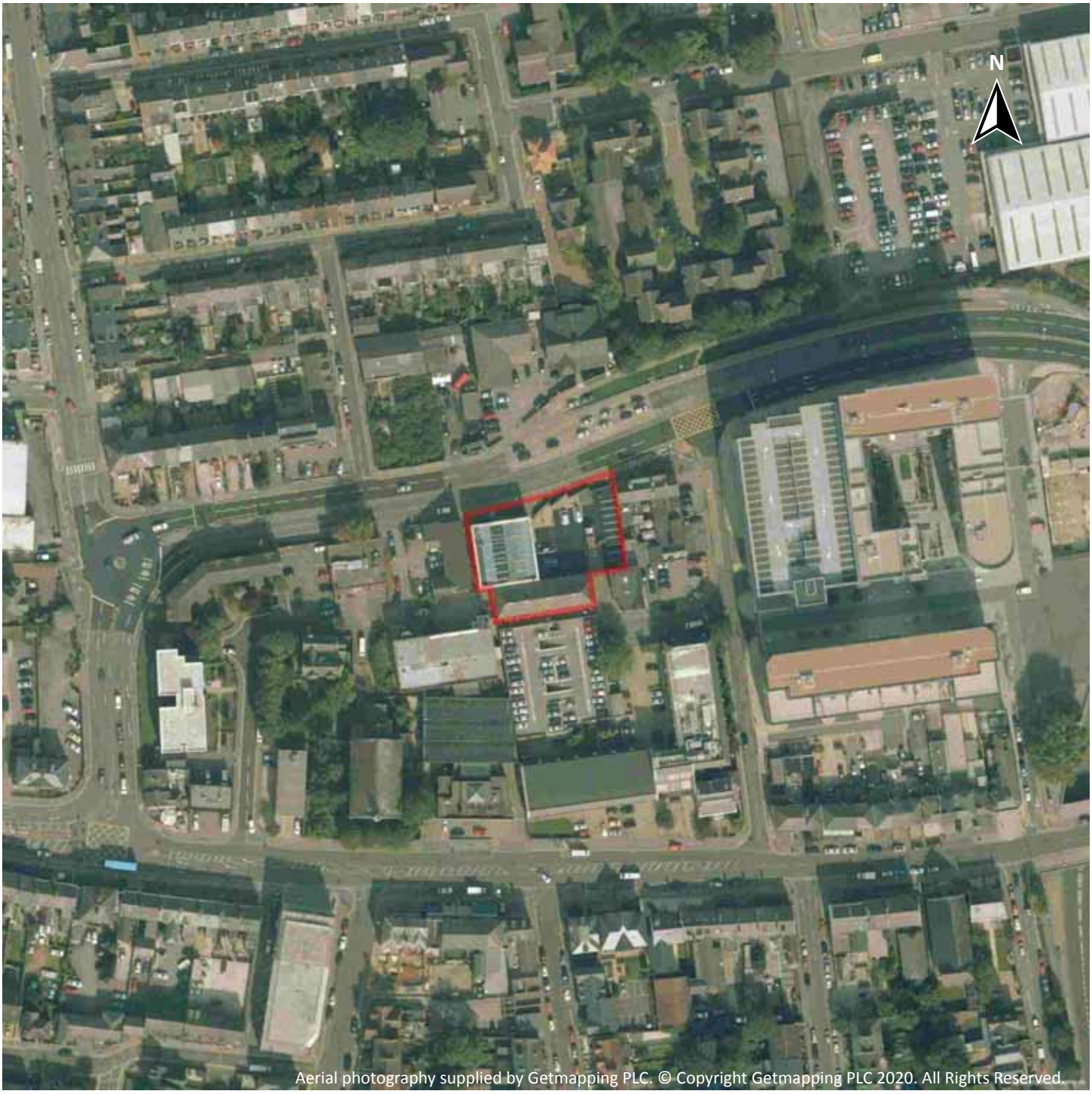
Capture Date: 08/07/2013

Site Area: 0.17ha

Recent site history - 2010 aerial photograph



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Capture Date: 22/09/2010

Site Area: 0.17ha

Recent site history - 1999 aerial photograph

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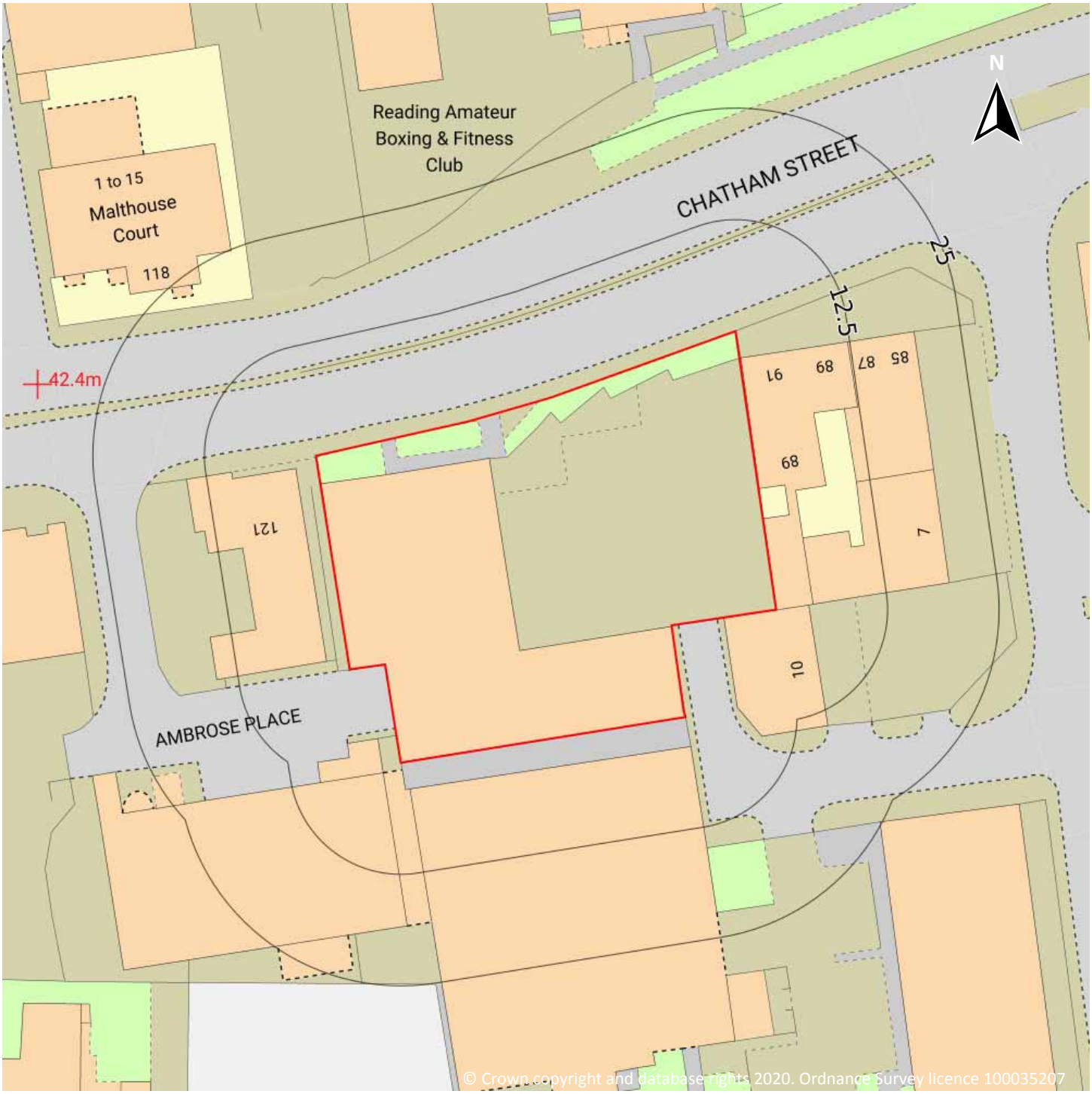
Capture Date: 04/09/1999

Site Area: 0.17ha

OS MasterMap site plan



Site Area: 0.17ha

1 Past land use

Site Outline

Search buffers in metres (m)

- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical petrol stations
- Historical garages

1.1 Historical industrial land uses

Records within 500m	77

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

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

ID	Location	Land use	Dates present	Group ID
A	29m N	Unspecified Depot	1977	1862097

ID	Location	Land use	Dates present	Group ID
D	132m W	Nursery	1913	1867818
I	250m N	Unspecified Works	1977	1860419
I	250m N	Unspecified Commercial/Industrial	1989 - 1994	1907408
J	282m E	Smithy	1913	1875838
K	289m N	Corporation Yard	1989 - 1994	1939215
K	292m N	Corporation Yard	1962	1909928
K	292m N	Corporation Yard	1938	1932614
K	292m N	Corporation Yard	1913	1962441
K	294m N	Corporation Yard	1933 - 1938	1935241
O	362m NW	Railway Sidings	1989 - 1994	1913684
O	363m NW	Railway Sidings	1932 - 1977	1908472
R	372m N	Railway Sidings	1897 - 1913	1955038
S	388m N	Railway Sidings	1933	1905455
V	396m SE	Police Station	1989 - 1994	1911315
V	396m SE	Police Station	1977	1918131
S	408m N	Railway Building	1938	1925681
S	408m N	Railway Building	1913	1955053
R	410m N	Railway Building	1898	1866758
O	415m N	Railway Building	1913	1937336
S	415m N	Railway Building	1913	1866757
3	416m N	Railway Building	1898	1866759
O	417m NW	Railway Building	1977	1935042
O	417m NW	Railway Building	1962	1941975
O	418m N	Railway Building	1938 - 1962	1953154
O	418m NW	Railway Building	1913	1894317
O	424m N	Engine Shed	1898	1956197
O	424m N	Engine Shed	1913	1969097
5	426m NW	Refuse Heap	1913	1884301

ID	Location	Land use	Dates present	Group ID
R	426m N	Railway Building	1913	1866761
O	427m NW	Railway Building	1989 - 1994	1953742
S	428m N	Railway Building	1913	1899836
S	428m N	Railway Building	1938	1968519
6	431m N	Railway Building	1898	1866762
S	431m N	Railway Building	1938	1935637
O	433m N	Engine Shed	1938	1943191
O	434m N	Engine Shed	1962	1926541
O	434m N	Engine Shed	1938	1900365
O	435m NW	Railway Building	1977	1888896
O	435m NW	Railway Building	1971	1937002
O	439m N	Engine Shed	1933	1891905
O	446m NW	Railway Building	1938 - 1962	1962000
O	448m NW	Railway Building	1938	1946191
O	448m NW	Railway Building	1913	1885372
O	453m N	Railway Building	1933 - 1938	1951325
S	455m N	Railway Building	1898	1866760
O	458m N	Railway Building	1938 - 1962	1958832
R	465m N	Railway Buildings	1898	1919877
Y	471m NE	Railway Building	1898	1866754
R	472m N	Railway Buildings	1938 - 1962	1922315
R	473m N	Railway Buildings	1938	1910814
R	473m N	Railway Buildings	1913	1946716
O	474m NW	Railway Building	1898	1927401
O	474m NW	Railway Building	1962	1866763
O	475m NW	Railway Building	1938 - 1962	1966442
AA	476m NW	Railway Buildings	1971	1856211
AA	476m NW	Unspecified Depot	1989 - 1994	1913884

ID	Location	Land use	Dates present	Group ID
AA	476m NW	Unspecified Depot	1977	1957928
R	477m N	Railway Buildings	1933	1914298
AB	477m NE	Bus Station	1994	1864796
AC	477m SW	Unspecified Pit	1977 - 1994	1909003
AC	477m SW	Unspecified Pit	1971	1950241
AC	479m SW	Unspecified Pit	1938	1918626
9	479m NE	Smithy	1913	1875839
AC	479m SW	Unspecified Ground Workings	1933	1852626
AC	481m SW	Unspecified Pit	1938	1927944
AC	481m SW	Unspecified Pit	1913	1963620
R	482m N	Railway Buildings	1977	1955184
O	482m NW	Railway Building	1913	1919802
R	484m N	Unspecified Ground Workings	1938	1928064
R	484m N	Unspecified Ground Workings	1910 - 1913	1953745
Y	493m NE	Railway Building	1913	1866755
R	494m N	Railway Buildings	1989 - 1994	1904963
R	495m N	Railway Building	1933	1866771
R	498m N	Railway Building	1989 - 1994	1908478
R	498m N	Railway Building	1977	1960184
R	498m N	Railway Building	1962 - 1971	1968211

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	38

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

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

ID	Location	Land use	Dates present	Group ID
D	193m W	Unspecified Tank	1971	324894
D	194m W	Unspecified Tank	1986 - 1993	325689
H	217m SW	Unspecified Tank	1958	313803
H	218m SW	Unspecified Tank	1959	316696
G	255m NE	Pump and Tank	1880	313632
G	255m NE	Pump and Tank	1880	317922
F	257m NE	Tank or Trough	1880	321521
F	257m NE	Tank or Trough	1880	325799
F	284m NE	Unspecified Tank	1880	321877
F	284m NE	Unspecified Tank	1880	318898
F	286m NE	Unspecified Tank	1880	314047
F	286m NE	Unspecified Tank	1880	317232
1	357m N	Tank or Trough	1879	312015
K	363m N	Tank or Trough	1879	312016
Q	368m E	Unspecified Tank	1900	322205
Q	370m E	Unspecified Tank	1912	315638
S	373m N	Tanks	1986 - 1993	326933
Q	374m E	Unspecified Tank	1879	312605
T	376m W	Unspecified Tank	1931	305868
U	376m NE	Tank or Trough	1879	316845
U	376m NE	Tank or Trough	1879	324092
U	378m NE	Tank or Trough	1879	316867
U	378m NE	Tank or Trough	1879	325471
T	383m W	Unspecified Tank	1988	305864
2	383m NW	Filter Tanks	1971 - 1993	327563
S	387m N	Unspecified Tank	1986 - 1993	318870
O	415m NW	Unspecified Tank	1900	305866
O	416m NW	Tanks	1959	318689

ID	Location	Land use	Dates present	Group ID
O	416m NW	Unspecified Tank	1912 - 1959	319576
O	417m NW	Tanks	1958	327937
O	417m NW	Tanks	1971 - 1986	316005
V	424m SE	Unspecified Tank	1879	319808
V	424m SE	Unspecified Tank	1879	327778
O	429m NW	Tanks	1959 - 1986	323854
O	429m NW	Unspecified Tank	1993	305865
O	457m NW	Unspecified Tank	1993	305867
S	459m N	Tank or Trough	1879	312017
AA	483m NW	Unspecified Tank	1971 - 1993	327758

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**26**

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

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

ID	Location	Land use	Dates present	Group ID
C	122m E	Electricity Substation	1980 - 1988	200961
C	122m E	Electricity Substation	1970	197671
A	159m NE	Electricity Substation	1971 - 1986	198242
E	179m N	Electricity Substation	1971	189829
D	194m W	Electricity Substation	1971	209325
D	195m W	Electricity Substation	1986 - 1993	201498
E	204m N	Electricity Substation	1986 - 1993	205279
B	207m E	Electricity Substation	1979 - 1996	209850

ID	Location	Land use	Dates present	Group ID
L	290m S	Electricity Substation	1971	202101
L	290m S	Electricity Substation	1986 - 1993	196544
W	404m E	Electricity Substation	1993	206172
W	405m E	Electricity Substation	1994 - 1996	200407
W	405m E	Electricity Substation	1986 - 1996	207537
W	405m E	Electricity Substation	1969	192596
W	406m E	Electricity Substation	1979 - 1993	211699
U	408m NE	Electricity Substation	1993 - 1996	203574
X	412m E	Electricity Substation	1994 - 1996	209780
X	415m E	Electricity Substation	1979 - 1993	204406
X	416m E	Electricity Substation	1986	204349
P	423m W	Electricity Substation	1993	189826
X	426m E	Electricity Substation	1969	189830
7	439m SW	Electricity Substation	1971 - 1993	200669
8	442m NE	Electricity Substation	1988 - 1996	197999
Z	463m SE	Electricity Substation	1970	196813
Z	464m SE	Electricity Substation	1980 - 1988	209601
11	499m E	Electricity Substation	1986 - 1996	204833

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	2

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'.

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

ID	Location	Land use	Dates present	Group ID
P	367m W	Filling Station	1978	3337
10	483m S	Filling Station	1976 - 1988	3565

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**32**

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 14**

ID	Location	Land use	Dates present	Group ID
B	107m E	Garage	1971	60828
B	112m E	Multistorey Garage and Car Park	1979 - 1993	64353
B	112m E	Car Park and Garage	1994	63159
B	112m E	Car Park and Garage	1986 - 1996	64617
B	117m E	Car Park and Garage	1969	62265
B	158m E	Garage	1957 - 1962	63978
B	174m E	Garage	1957 - 1958	63727
B	188m E	Garage	1957	62737
B	188m E	Garage	1962	62062
B	188m E	Garage	1957 - 1958	63801
F	196m NE	Garage	1957	62486
F	196m NE	Garage	1962	61293
F	197m NE	Garage	1957	62373
F	197m NE	Garage	1958	62286
G	210m NE	Garage	1988 - 1993	64107
G	210m NE	Garage	1994 - 1996	65332

ID	Location	Land use	Dates present	Group ID
G	211m NE	Garage	1986	62866
M	313m W	Garage	1959 - 1971	65229
M	317m W	Garage	1986	63232
N	318m NE	Garage	1957 - 1969	63644
N	318m NE	Garage	1957 - 1958	64847
M	318m W	Garage	1958	61472
J	338m E	Garage	1957 - 1962	63734
4	417m SE	Garage	1957 - 1962	64498
Y	420m NE	Garage	1969	60830
AB	479m NE	Garage	1957	61452
AD	480m SE	Garage	1957 - 1958	65147
AB	480m NE	Garage	1957 - 1958	64717
AD	480m SE	Garage	1980	63231
AD	481m SE	Garage	1957 - 1970	64972
AD	481m SE	Garage	1957 - 1968	65185
AD	482m SE	Garage	1957 - 1958	63540

This data is sourced from Ordnance Survey / Groundsure.

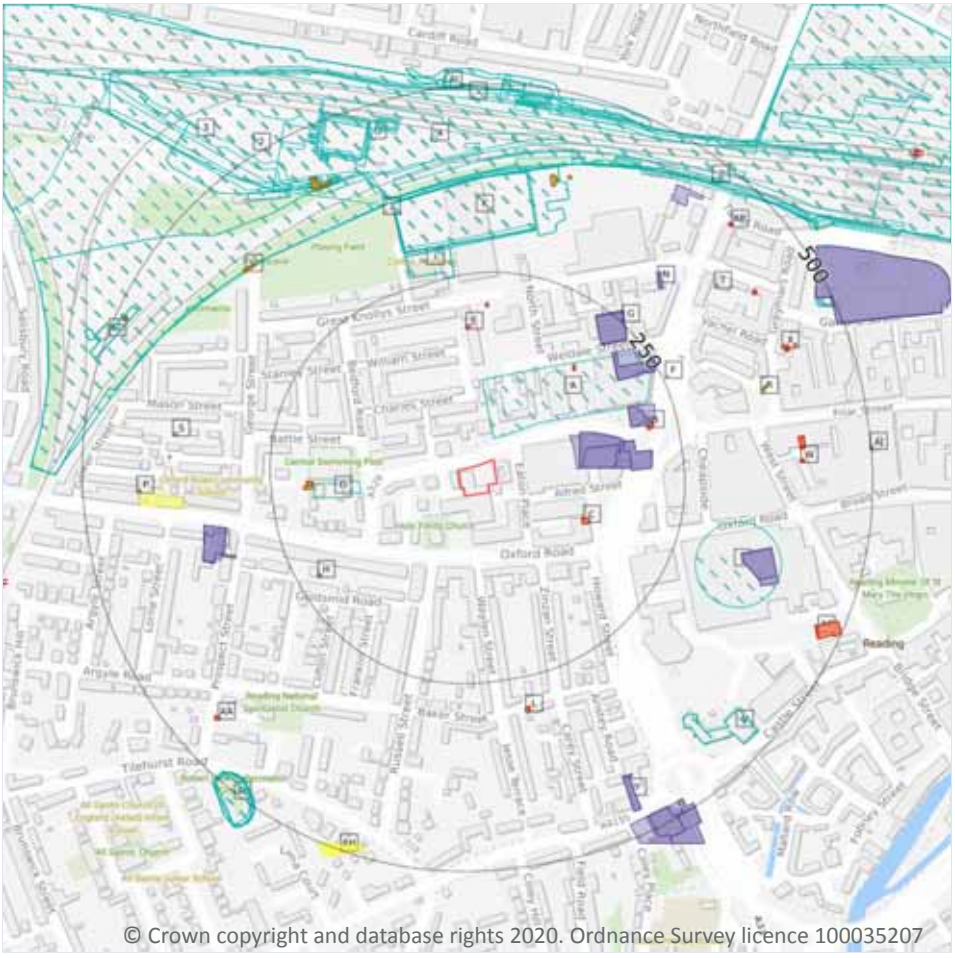
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical petrol stations
- Historical garages

2.1 Historical industrial land uses

Records within 500m	103

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 23**

ID	Location	Land Use	Date	Group ID
A	29m N	Unspecified Depot	1977	1862097
D	132m W	Nursery	1913	1867818
I	250m N	Unspecified Commercial/Industrial	1994	1907408

ID	Location	Land Use	Date	Group ID
I	250m N	Unspecified Commercial/Industrial	1989	1907408
I	250m N	Unspecified Works	1977	1860419
J	282m E	Smithy	1913	1875838
K	289m N	Corporation Yard	1994	1939215
K	289m N	Corporation Yard	1989	1939215
K	292m N	Corporation Yard	1938	1932614
K	292m N	Corporation Yard	1913	1962441
K	292m N	Corporation Yard	1962	1909928
K	294m N	Corporation Yard	1938	1935241
K	297m N	Corporation Yard	1933	1935241
O	362m NW	Railway Sidings	1994	1913684
O	362m NW	Railway Sidings	1989	1913684
O	363m NW	Railway Sidings	1977	1908472
O	363m NW	Railway Sidings	1971	1908472
Q	368m N	Railway Sidings	1962	1908472
Q	372m N	Railway Sidings	1938	1908472
Q	372m N	Railway Sidings	1913	1955038
Q	373m N	Railway Sidings	1938	1908472
Q	388m N	Railway Sidings	1933	1905455
V	396m SE	Police Station	1994	1911315
V	396m SE	Police Station	1989	1911315
V	396m SE	Police Station	1977	1918131
Q	398m N	Railway Sidings	1898	1955038
2	404m N	Railway Sidings	1933	1908472
Q	408m N	Railway Building	1913	1955053
Q	408m N	Railway Building	1938	1925681
Q	410m N	Railway Building	1898	1866758
O	415m N	Railway Building	1913	1937336

ID	Location	Land Use	Date	Group ID
Q	415m N	Railway Building	1913	1866757
Q	416m N	Railway Building	1898	1866759
O	417m NW	Railway Building	1977	1935042
O	417m NW	Railway Building	1962	1941975
O	418m N	Railway Building	1938	1953154
O	418m NW	Railway Building	1913	1894317
O	418m NW	Railway Building	1962	1953154
O	424m N	Engine Shed	1913	1969097
O	424m N	Engine Shed	1898	1956197
3	426m NW	Refuse Heap	1913	1884301
Q	426m N	Railway Building	1913	1866761
O	427m NW	Railway Building	1994	1953742
O	427m NW	Railway Building	1989	1953742
Q	428m N	Railway Building	1938	1968519
Q	428m N	Railway Building	1913	1899836
4	431m N	Railway Building	1898	1866762
Q	431m N	Railway Building	1938	1935637
O	433m N	Engine Shed	1938	1943191
O	434m N	Engine Shed	1962	1926541
O	434m N	Engine Shed	1938	1900365
O	435m NW	Railway Building	1977	1888896
O	435m NW	Railway Building	1971	1937002
O	439m N	Engine Shed	1933	1891905
O	446m NW	Railway Building	1938	1962000
O	448m NW	Railway Building	1938	1946191
O	448m NW	Railway Building	1913	1885372
O	449m NW	Railway Building	1962	1962000
O	453m N	Railway Building	1938	1951325

ID	Location	Land Use	Date	Group ID
Q	455m N	Railway Building	1898	1866760
O	458m N	Railway Building	1938	1958832
O	458m N	Railway Building	1962	1958832
5	460m N	Railway Sidings	1933	1908472
O	461m N	Railway Building	1933	1951325
Q	465m N	Railway Buildings	1898	1919877
Z	471m NE	Railway Building	1898	1866754
Q	472m N	Railway Buildings	1962	1922315
Q	472m N	Railway Buildings	1938	1922315
Q	473m N	Railway Buildings	1913	1946716
Q	473m N	Railway Buildings	1938	1910814
O	474m NW	Railway Building	1898	1927401
O	474m NW	Railway Building	1962	1866763
O	475m NW	Railway Building	1938	1966442
AD	476m NW	Unspecified Depot	1994	1913884
AD	476m NW	Unspecified Depot	1989	1913884
AD	476m NW	Unspecified Depot	1977	1957928
AD	476m NW	Railway Buildings	1971	1856211
Q	477m N	Railway Buildings	1933	1914298
AE	477m NE	Bus Station	1994	1864796
O	477m NW	Railway Building	1962	1966442
AF	477m SW	Unspecified Pit	1994	1909003
AF	477m SW	Unspecified Pit	1989	1909003
AF	477m SW	Unspecified Pit	1977	1909003
AF	477m SW	Unspecified Pit	1971	1950241
AF	479m SW	Unspecified Pit	1938	1918626
AF	479m SW	Unspecified Pit	1938	1918626
6	479m NE	Smithy	1913	1875839

ID	Location	Land Use	Date	Group ID
AF	479m SW	Unspecified Ground Workings	1933	1852626
AF	481m SW	Unspecified Pit	1938	1927944
AF	481m SW	Unspecified Pit	1913	1963620
Q	482m N	Railway Buildings	1977	1955184
O	482m NW	Railway Building	1913	1919802
Q	484m N	Unspecified Ground Workings	1938	1928064
Q	484m N	Unspecified Ground Workings	1913	1953745
Z	493m NE	Railway Building	1913	1866755
Q	494m N	Railway Buildings	1994	1904963
Q	494m N	Railway Buildings	1989	1904963
Q	495m N	Railway Building	1933	1866771
AI	498m N	Railway Building	1994	1908478
AI	498m N	Railway Building	1989	1908478
AI	498m N	Railway Building	1977	1960184
AI	498m N	Railway Building	1962	1968211
AI	498m N	Railway Building	1971	1968211

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**51**

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 23**

ID	Location	Land Use	Date	Group ID
D	193m W	Unspecified Tank	1971	324894
D	194m W	Unspecified Tank	1986	325689
D	194m W	Unspecified Tank	1993	325689
H	217m SW	Unspecified Tank	1958	313803

ID	Location	Land Use	Date	Group ID
H	218m SW	Unspecified Tank	1959	316696
G	255m NE	Pump and Tank	1880	313632
G	255m NE	Pump and Tank	1880	317922
F	257m NE	Tank or Trough	1880	321521
F	257m NE	Tank or Trough	1880	325799
F	284m NE	Unspecified Tank	1880	318898
F	284m NE	Unspecified Tank	1880	321877
F	286m NE	Unspecified Tank	1880	314047
F	286m NE	Unspecified Tank	1880	317232
1	357m N	Tank or Trough	1879	312015
K	363m N	Tank or Trough	1879	312016
R	368m E	Unspecified Tank	1900	322205
R	370m E	Unspecified Tank	1912	315638
Q	373m N	Tanks	1986	326933
Q	373m N	Tanks	1993	326933
R	374m E	Unspecified Tank	1879	312605
R	374m E	Unspecified Tank	1879	312605
S	376m W	Unspecified Tank	1931	305868
T	376m NE	Tank or Trough	1879	324092
T	376m NE	Tank or Trough	1879	316845
T	378m NE	Tank or Trough	1879	316867
T	378m NE	Tank or Trough	1879	325471
S	383m W	Unspecified Tank	1988	305864
U	383m NW	Filter Tanks	1971	327563
U	383m NW	Filter Tanks	1986	327563
U	383m NW	Filter Tanks	1993	327563
Q	387m N	Unspecified Tank	1986	318870
Q	387m N	Unspecified Tank	1993	318870

ID	Location	Land Use	Date	Group ID
O	415m NW	Unspecified Tank	1900	305866
O	416m NW	Unspecified Tank	1912	319576
O	416m NW	Unspecified Tank	1931	319576
O	416m NW	Tanks	1959	318689
O	417m NW	Tanks	1958	327937
O	417m NW	Unspecified Tank	1959	319576
O	417m NW	Tanks	1971	316005
O	417m NW	Unspecified Tank	1958	319576
O	418m NW	Tanks	1986	316005
V	424m SE	Unspecified Tank	1879	319808
V	424m SE	Unspecified Tank	1879	327778
O	429m NW	Tanks	1959	323854
O	429m NW	Tanks	1986	323854
O	429m NW	Unspecified Tank	1993	305865
O	457m NW	Unspecified Tank	1993	305867
Q	459m N	Tank or Trough	1879	312017
AD	483m NW	Unspecified Tank	1971	327758
AD	484m NW	Unspecified Tank	1993	327758
AD	485m NW	Unspecified Tank	1988	327758

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**53**

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 23**

ID	Location	Land Use	Date	Group ID
C	122m E	Electricity Substation	1988	200961

ID	Location	Land Use	Date	Group ID
C	122m E	Electricity Substation	1970	197671
C	122m E	Electricity Substation	1980	200961
A	159m NE	Electricity Substation	1986	198242
A	160m NE	Electricity Substation	1971	198242
E	179m N	Electricity Substation	1971	189829
D	194m W	Electricity Substation	1971	209325
D	195m W	Electricity Substation	1986	201498
D	195m W	Electricity Substation	1993	201498
E	204m N	Electricity Substation	1986	205279
E	204m N	Electricity Substation	1993	205279
B	207m E	Electricity Substation	1986	209850
B	207m E	Electricity Substation	1979	209850
B	207m E	Electricity Substation	1988	209850
B	207m E	Electricity Substation	1993	209850
B	208m E	Electricity Substation	1994	209850
B	208m E	Electricity Substation	1996	209850
L	290m S	Electricity Substation	1971	202101
L	290m S	Electricity Substation	1986	196544
L	290m S	Electricity Substation	1993	196544
W	404m E	Electricity Substation	1993	206172
W	405m E	Electricity Substation	1986	207537
W	405m E	Electricity Substation	1994	200407
W	405m E	Electricity Substation	1996	200407
W	405m E	Electricity Substation	1994	207537
W	405m E	Electricity Substation	1996	207537
W	405m E	Electricity Substation	1969	192596
W	406m E	Electricity Substation	1979	211699
W	406m E	Electricity Substation	1988	211699

ID	Location	Land Use	Date	Group ID
W	406m E	Electricity Substation	1993	211699
T	408m NE	Electricity Substation	1993	203574
T	411m NE	Electricity Substation	1994	203574
T	411m NE	Electricity Substation	1996	203574
X	412m E	Electricity Substation	1994	209780
X	412m E	Electricity Substation	1996	209780
X	415m E	Electricity Substation	1979	204406
X	415m E	Electricity Substation	1988	204406
X	415m E	Electricity Substation	1993	204406
X	416m E	Electricity Substation	1986	204349
P	423m W	Electricity Substation	1993	189826
X	426m E	Electricity Substation	1969	189830
AA	439m SW	Electricity Substation	1971	200669
AA	439m SW	Electricity Substation	1986	200669
AA	439m SW	Electricity Substation	1993	200669
AB	442m NE	Electricity Substation	1988	197999
AB	442m NE	Electricity Substation	1993	197999
AB	444m NE	Electricity Substation	1994	197999
AB	444m NE	Electricity Substation	1996	197999
AC	463m SE	Electricity Substation	1970	196813
AC	464m SE	Electricity Substation	1988	209601
AC	465m SE	Electricity Substation	1980	209601
AJ	499m E	Electricity Substation	1988	204833
AJ	499m E	Electricity Substation	1993	204833

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	3

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'.

Features are displayed on the Past land use - un-grouped map on **page 23**

ID	Location	Land Use	Date	Group ID
P	367m W	Filling Station	1978	3337
AH	483m S	Filling Station	1976	3565
AH	484m S	Filling Station	1988	3565

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	56

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 23**

ID	Location	Land Use	Date	Group ID
B	107m E	Garage	1971	60828
B	112m E	Multistorey Garage and Car Park	1988	64353
B	112m E	Multistorey Garage and Car Park	1993	64353
B	112m E	Multistorey Garage and Car Park	1979	64353
B	112m E	Car Park and Garage	1994	63159
B	112m E	Car Park and Garage	1996	64617
B	117m E	Car Park and Garage	1986	64617
B	117m E	Car Park and Garage	1969	62265
B	158m E	Garage	1962	63978
B	158m E	Garage	1957	63978
B	174m E	Garage	1957	63727

ID	Location	Land Use	Date	Group ID
B	174m E	Garage	1958	63727
B	188m E	Garage	1957	62737
B	188m E	Garage	1962	62062
B	188m E	Garage	1957	63801
B	188m E	Garage	1958	63801
F	196m NE	Garage	1957	62486
F	196m NE	Garage	1962	61293
F	197m NE	Garage	1957	62373
F	197m NE	Garage	1958	62286
G	210m NE	Garage	1988	64107
G	210m NE	Garage	1993	64107
G	210m NE	Garage	1994	65332
G	210m NE	Garage	1996	65332
G	211m NE	Garage	1986	62866
M	313m W	Garage	1959	65229
M	313m W	Garage	1971	65229
M	317m W	Garage	1986	63232
N	318m NE	Garage	1962	63644
N	318m NE	Garage	1957	63644
N	318m NE	Garage	1969	63644
N	318m NE	Garage	1957	64847
N	318m NE	Garage	1958	64847
M	318m W	Garage	1958	61472
J	338m E	Garage	1957	63734
J	338m E	Garage	1958	63734
J	339m E	Garage	1957	63734
J	339m E	Garage	1962	63734
Y	417m SE	Garage	1957	64498

ID	Location	Land Use	Date	Group ID
Y	417m SE	Garage	1958	64498
Z	420m NE	Garage	1969	60830
Y	422m SE	Garage	1957	64498
Y	422m SE	Garage	1962	64498
AE	479m NE	Garage	1957	61452
AG	480m SE	Garage	1957	65147
AG	480m SE	Garage	1958	65147
AE	480m NE	Garage	1957	64717
AE	480m NE	Garage	1958	64717
AG	480m SE	Garage	1980	63231
AG	481m SE	Garage	1957	64972
AG	481m SE	Garage	1970	64972
AG	481m SE	Garage	1962	64972
AG	481m SE	Garage	1962	65185
AG	482m SE	Garage	1957	63540
AG	482m SE	Garage	1958	63540
AG	497m SE	Garage	1957	65185

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

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Site Outline

Search buffers in metres (m)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

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

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

3.5 Historical waste sites

Records within 500m	2

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

Features are displayed on the Waste and landfill map on **page 35**

ID	Location	Address	Further Details	Date
1	217m N	Site Address: Great Knollys Street, Hodsoll Road, READING, Berkshire, RG1 7HP	Type of Site: Surface Car Park/Waste Station Planning application reference: 96/0097/R3/NJP Description: Relocation of a public car park and civic amenity recycling centre with associated landscaping. Relocation of a public car park and civic amenity recycling centre with associated landscaping. Detailed plans approved 29th May, 1996. An application (ref: 96/0097/R3/NJP) for Detailed Planning permission was submitted to Reading B.C. on 14th February 1996. Data source: Historic Planning Application Data Type: Point	01/09/1996
2	333m N	Site Address: N/A	Type of Site: Refuse Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1879

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

3.6 Licensed waste sites

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 35**

ID	Location	Details		
D	450m W	Site Name: E G W Carter Site Address: E.G.W Carter, 54, Gower Street, Reading, Berkshire, RG1 7PE Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CAR001 EPR reference: EA/EPR/LP3699EF/S004 Operator: E G W Carter Waste Management licence No: 86001 Annual Tonnage: 9322	Issue Date: 19/03/1996 Effective Date: - Modified:: - Surrendered Date: Jul 23 1999 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered

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

3.7 Waste exemptions

Records within 500m	23

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 35**

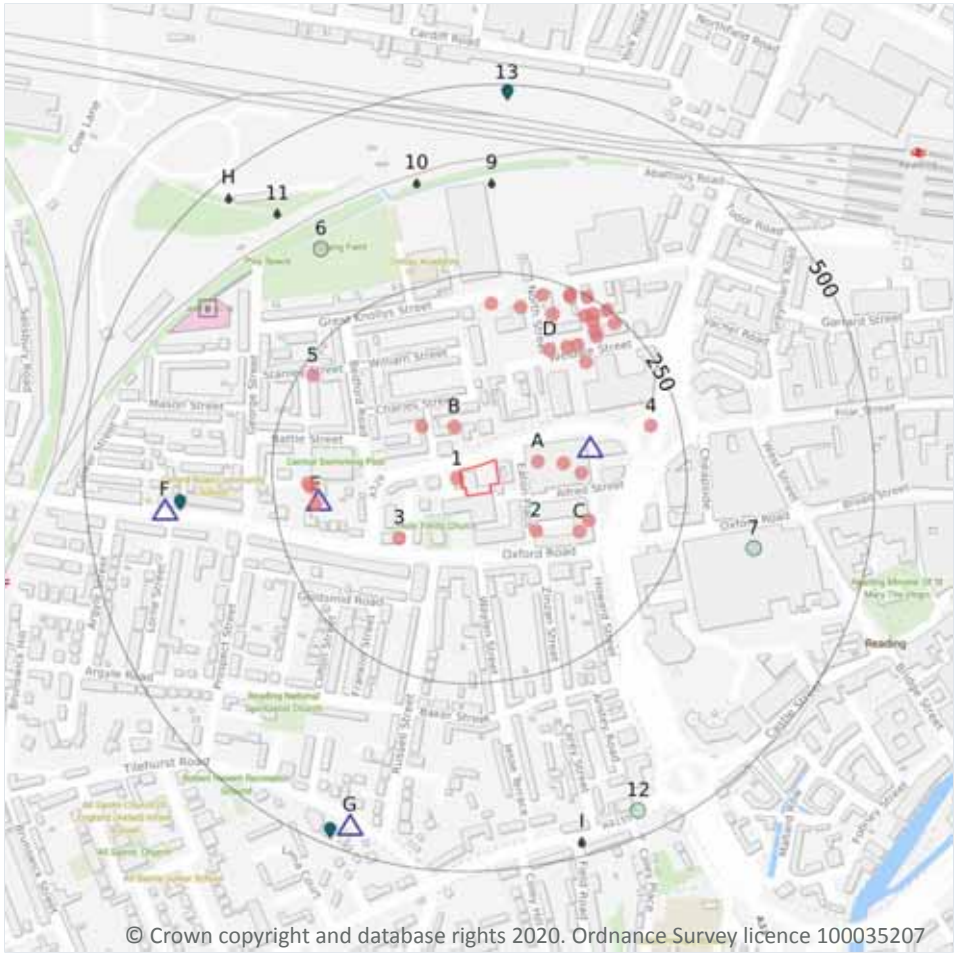
ID	Location	Site	Reference	Category	Sub-Category	Description
A	69m SE	A 104 Oxford Road Reading Berkshire RG1 7LL	EPR/QF0331NJ/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal
A	91m SE	104A, OXFORD ROAD, READING, RG1 7LL	WEX225577	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	91m SE	104A, OXFORD ROAD, READING, RG1 7LL	WEX225577	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	91m SE	104A, OXFORD ROAD, READING, RG1 7LL	WEX078879	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

ID	Location	Site	Reference	Category	Sub-Category	Description
B	158m SW	165, OXFORD ROAD, READING, RG1 7UZ	WEX123192	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	160m SW	165 Oxford Road READING RG1 7UZ	EPR/XE5541FU/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal
C	195m NE	Unit 2 Building C Weldale Street READING RG1 7BX	EPR/NH0918JR/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
C	195m NE	Unit 2 Building C Weldale Street READING RG1 7BX	EPR/NH0918JR/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting mixed waste
C	195m NE	Unit 2 Building C Weldale Street READING RG1 7BX	EPR/NH0918JR/A001	Treating waste exemption	Non-Agricultural Waste Only	Manual treatment of waste
C	195m NE	Unit 2 Building C Weldale Street READING RG1 7BX	EPR/NH0918JR/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
C	195m NE	Unit 2 Building C Weldale Street READING RG1 7BX	EPR/NH0918JR/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
C	195m NE	Unit 2 Building C Weldale Street READING RG1 7BX	EPR/NH0918JR/A001	Treating waste exemption	Non-Agricultural Waste Only	Recovery of scrap metal
3	335m E	All Roads in Berkshire	EPR/ZH0512RR/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
4	381m E	Centre Management Suite, Broad Street Mall, Broad Street, Reading, RG1 7QE	WEX157193	Treating waste exemption	Not on a Farm	Aerobic composting and associated prior treatment
5	384m W	36 Mason Street Reading Reading RG1 7PD	EPR/CF0505FT/A001	Disposing of waste exemption	Non-Agricultural Waste Only	Burning waste in the open

ID	Location	Site	Reference	Category	Sub-Category	Description
D	464m W	54, GOWER STREET, READING, RG1 7PE	WEX174013	Treating waste exemption	Not on a farm	Recovery of scrap metal
D	464m W	54, GOWER STREET, READING, RG1 7PE	WEX174013	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	464m W	54, GOWER STREET, READING, RG1 7PE	WEX014579	Treating waste exemption	Not on a farm	Recovery of scrap metal
D	464m W	54, GOWER STREET, READING, RG1 7PE	WEX015747	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	466m W	54 Gower Street READING RG1 7PE	EPR/ME5252JR/A001	Treating waste exemption	Non-Agricultural Waste Only	Recovery of scrap metal
6	467m SE	CIVIC CENTRE, CASTLE STREET, READING, RG1 7TQ	WEX236540	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	480m SW	1, TILEHURST ROAD, READING, RG1 7TW	WEX190528	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	480m SW	1, TILEHURST ROAD, READING, RG1 7TW	WEX190528	Storing waste exemption	Not on a farm	Storage of waste in a secure place

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

- Recent industrial land uses
- Current or recent petrol stations
- Sites determined as Contaminated Land
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	33

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 40**

ID	Location	Company	Address	Activity	Category
1	6m W	Zain Reading Ltd	121, Chatham Street, Reading, Berkshire, RG1 7JE	New Vehicles	Motoring
A	55m E	Enterprise Rent-A-Car	Qpark Car Park, Chatham Street, Reading, Berkshire, RG1 7DS	Vehicle Hire and Rental	Hire Services
B	59m N	Car Wash	114-116, Chatham Street, Reading, Berkshire, RG1 7HT	Vehicle Cleaning Services	Personal, Consumer and Other Services

ID	Location	Company	Address	Activity	Category
2	78m SE	Reading Carpentry Services Ltd	1a, Eaton Place, Reading, Berkshire, RG1 7LP	General Construction Supplies	Industrial Products
B	78m NW	Leadcraft Stained Glass Studio	3, Malthouse Lane, Reading, Berkshire, RG1 7JA	Glass	Industrial Products
A	88m E	Sixt	Chatham Place, Chatham Street, Reading, Berkshire, RG1 7DS	Vehicle Hire and Rental	Hire Services
3	106m SW	Richer Sounds	118a, Oxford Road, Reading, Berkshire, RG1 7NL	Electronic Equipment	Industrial Products
A	111m E	24k Gold Plated Ltd	Flat 3 Hayward, Chatham Place, Reading, Berkshire, RG1 7AZ	Jewellery, Gems, Clocks and Watches	Consumer Products
C	125m SE	Minuteman Press	82, Oxford Road, Reading, Berkshire, RG1 7LJ	Published Goods	Industrial Products
C	129m E	Electricity Sub Station	Berkshire, RG1	Electrical Features	Infrastructure and Facilities
D	164m NE	R A Engineering	Unit 12-14, North Street, Reading, Berkshire, RG1 7DA	Vehicle Repair, Testing and Servicing	Repair and Servicing
D	178m NE	Electricity Sub Station	Berkshire, RG1	Electrical Features	Infrastructure and Facilities
D	178m NE	A & M Parts Ltd	Unit 10-11 Building C, Weldale Street, Reading, Berkshire, RG1 7BX	Vehicle Parts and Accessories	Motoring
D	189m NE	Cavaliers	Unit 9 Building C, Weldale Street, Reading, Berkshire, RG1 7BX	Clothing, Components and Accessories	Consumer Products
E	197m W	Matinee	132-134, Oxford Road, Reading, Berkshire, RG1 7NL	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
E	200m W	Tank	Berkshire, RG1	Tanks (Generic)	Industrial Features
E	203m W	Electricity Sub Station	Berkshire, RG1	Electrical Features	Infrastructure and Facilities
D	206m N	Reading Ambulance Resource Centre	North Street, Reading, Berkshire, RG1 7DA	Ambulance and Medical Transportation Services	Health Support Services
D	208m N	Electricity Sub Station	Berkshire, RG1	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
D	209m N	S E A Windows & Doors	Unit 1A, North Street, Reading, Berkshire, RG1 7DA	General Construction Supplies	Industrial Products
4	212m E	Electricity Sub Station	Berkshire, RG1	Electrical Features	Infrastructure and Facilities
D	212m NE	D R W	Unit C8 Weldale Street, Reading, Berkshire, RG1 7BX	Vehicle Repair, Testing and Servicing	Repair and Servicing
D	217m NE	Aquaid	Unit 7 Building C, Weldale Street, Reading, Berkshire, RG1 7BX	Food and Beverage Industry Machinery	Industrial Products
D	226m NE	Total Sounds	Unit 5c Weldale Street, Reading, Berkshire, RG1 7BX	Electronic Equipment	Industrial Products
D	227m NE	500 Cars Ltd	Unit 2 Bellman Court, Great Knollys Street, Reading, Berkshire, RG1 7HN	Vehicle Hire and Rental	Hire Services
D	229m N	Pit Stop Tyres	Unit A1, Great Knollys Street, Reading, Berkshire, RG1 7HN	Vehicle Parts and Accessories	Motoring
5	233m NW	Mini Digger & Driver Hire	2, Derby Street, Reading, Berkshire, RG1 7NX	Construction and Tool Hire	Hire Services
D	234m NE	Biggins & Gallagher Ltd	Flat 4 Bellman Court, Great Knollys Street, Reading, Berkshire, RG1 7HN	Concrete Products	Industrial Products
D	241m NE	M & J Plant Hire	63, Great Knollys Street, Reading, Berkshire, RG1 7HN	Construction and Tool Hire	Hire Services
D	241m NE	MJ Hire Ltd	63, Great Knollys Street, Reading, Berkshire, RG1 7HN	Construction and Tool Hire	Hire Services
D	242m NE	Motest Centre	7, Weldale Street, Reading, Berkshire, RG1 7BX	Vehicle Repair, Testing and Servicing	Repair and Servicing
D	249m NE	A & M Motors	Unit B4, Great Knollys Street, Reading, Berkshire, RG1 7HN	Vehicle Repair, Testing and Servicing	Repair and Servicing
D	250m NE	Baltech Motorcycle Repairs	Unit B11, Great Knollys Street, Reading, Berkshire, RG1 7HN	Vehicle Repair, Testing and Servicing	Repair and Servicing

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	4

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 40**

ID	Location	Company	Address	LPG	Status
A	126m E	OBSOLETE	Chatham Street, Reading, Reading, RG1 7JF	Not Applicable	Obsolete
E	193m W	OBSOLETE	211-221, Oxford Road, Reading, Reading, RG1 7PX	Not Applicable	Obsolete
F	397m W	BP	150, Oxford Road, Reading, Reading, RG1 7PJ	No	Open
G	465m S	BP	Tilehurst Road, Reading, Reading, RG1 7TW	No	Open

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	1

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

Features are displayed on the Current industrial land use map on **page 40**

ID	Location	Description	Site name	Category	Year identified
8	362m NW	B(a)P in made ground and compost. Source of B(a)P probably ash added by allotment holders & adjacent railway runoff.	George Street Allotments, George Street, Reading	Potentially Contaminated Land - Remediated	2008

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	3

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 40**

ID	Location	Address	Details	
F	375m W	Texaco Service Station (Krisco Services Limited), 150 Oxford Road, Reading, RG1 7PJ	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
G	481m S	Tilehurst BP Connect Service Station, Tilehurst Road, Reading, Berkshire, RG1 7TW	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
13	489m N	Scenery Salvage, Cardiff Road, Reading, Berkshire, RG1 8ES	Process: Combustion & Incineration 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	8

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

Features are displayed on the Current industrial land use map on **page 40**

ID	Location	Address	Details	
9	369m N	GREAT KNOLLEYS STREET,READING,BERKS, GREAT KNOLLEYS STREET READING BE, RKSHIRE RG1 7HP	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CATM.3308 Permit Version: 1 Receiving Water: ABATTOIR DITCH	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 06/07/1998 Effective Date: 06/07/1998 Revocation Date: -
10	383m N	GREAT KNOLLEYS STREET,READING,BERKS, GREAT KNOLLEYS STREET READING BE, RKSHIRE RG1 7HP	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CATM.3307 Permit Version: 1 Receiving Water: ABATTOIR DITCH	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 06/07/1998 Effective Date: 06/07/1998 Revocation Date: -
11	419m NW	COW LANE BRIDGE, COW LANE, READING	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: EPRHB3597RH Permit Version: 1 Receiving Water: TRIBUTARY OF RIVER THAMES	Status: SURRENDERED UNDER EPR 2010 Issue date: 10/05/2018 Effective Date: 01/06/2018 Revocation Date: 31/07/2019
H	476m NW	PERMANENT WAY STAFF ACCOMMODATION B, PERMANENT WAY STAFF ACCOMMODATIO, N BLOCK COW LANE READING.	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CTWC.0130 Permit Version: 1 Receiving Water: MADE GROUNDOVERLYING ALLUVIUM	Status: TRANSFERRED FROM COPA 1974 Issue date: 10/07/1985 Effective Date: 10/07/1985 Revocation Date: 12/05/2007
H	476m NW	PERMANENT WAY STAFF ACCOMMODATION B, PERMANENT WAY STAFF ACCOMMODATIO, N BLOCK COW LANE READING.	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CTWC.0130 Permit Version: 2 Receiving Water: MADE GROUNDOVERLYING ALLUVIUM	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2007 Effective Date: 12/05/2007 Revocation Date: 24/05/2010
I	480m S	Reading, Vastern Road, Reading, Vastern Road	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.1779 Permit Version: 1 Receiving Water: HOLY BROOK	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 02/11/1989 Effective Date: 02/11/1989 Revocation Date: 31/03/1997
I	481m S	Reading, Bennet Road, Reading, Bennet Road	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.1767 Permit Version: 1 Receiving Water: HOLLY BROOK	Status: TEMPORARY CONSENTS (WATER ACT 1989, SECTION 113) Issue date: 02/11/1989 Effective Date: 02/11/1989 Revocation Date: 02/09/2010

ID	Location	Address	Details	
I	481m S	Reading, Bennet Road, Reading, Bennet Road	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.1767 Permit Version: 2 Receiving Water: Holly Brook	Status: SURRENDERED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 13/10/2015

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	3

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 40**

ID	Location	Details	
6	348m NW	Incident Date: 23/07/2007 Incident Identification: 516354 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)
7	349m E	Incident Date: 05/01/2002 Incident Identification: 50702 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)
12	466m SE	Incident Date: 29/08/2003 Incident Identification: 185987 Pollutant: Oils and Fuel:Other Pollutant Pollutant Description: Petrol:Other	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.

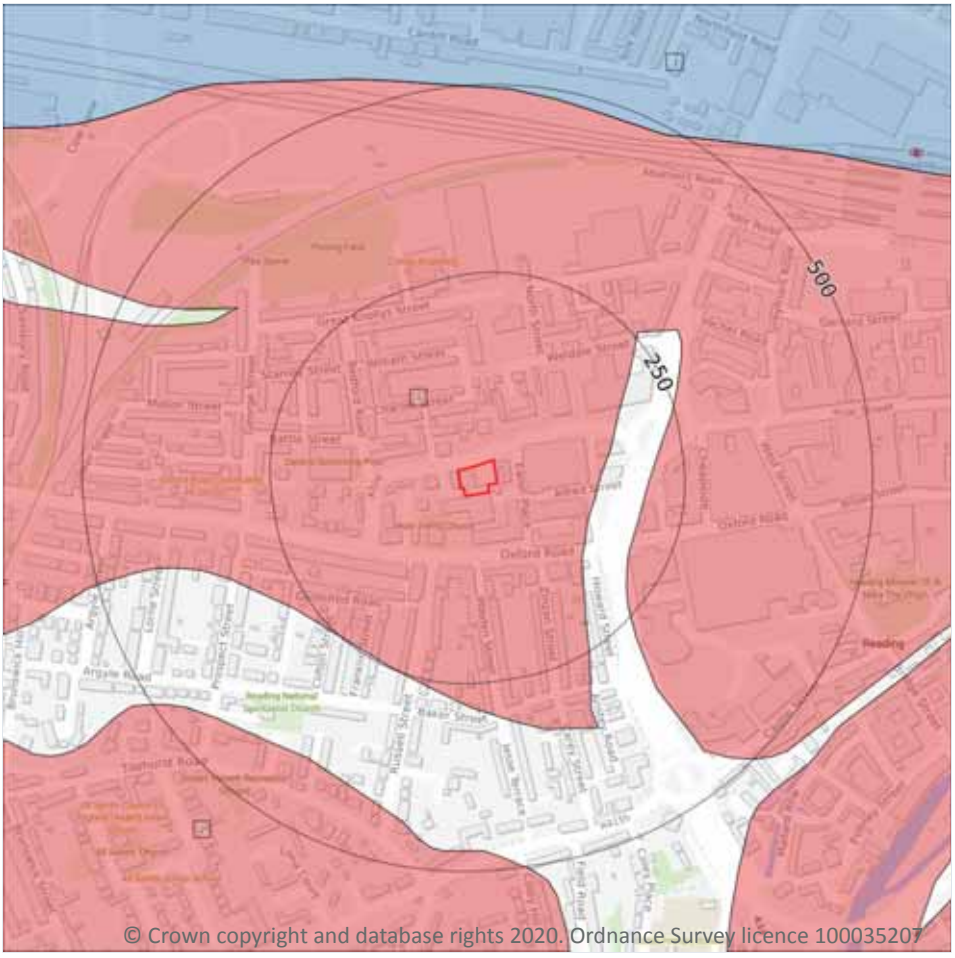
4.21 Pollution inventory radioactive waste

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	3

Aquifer status of groundwater held within superficial geology.

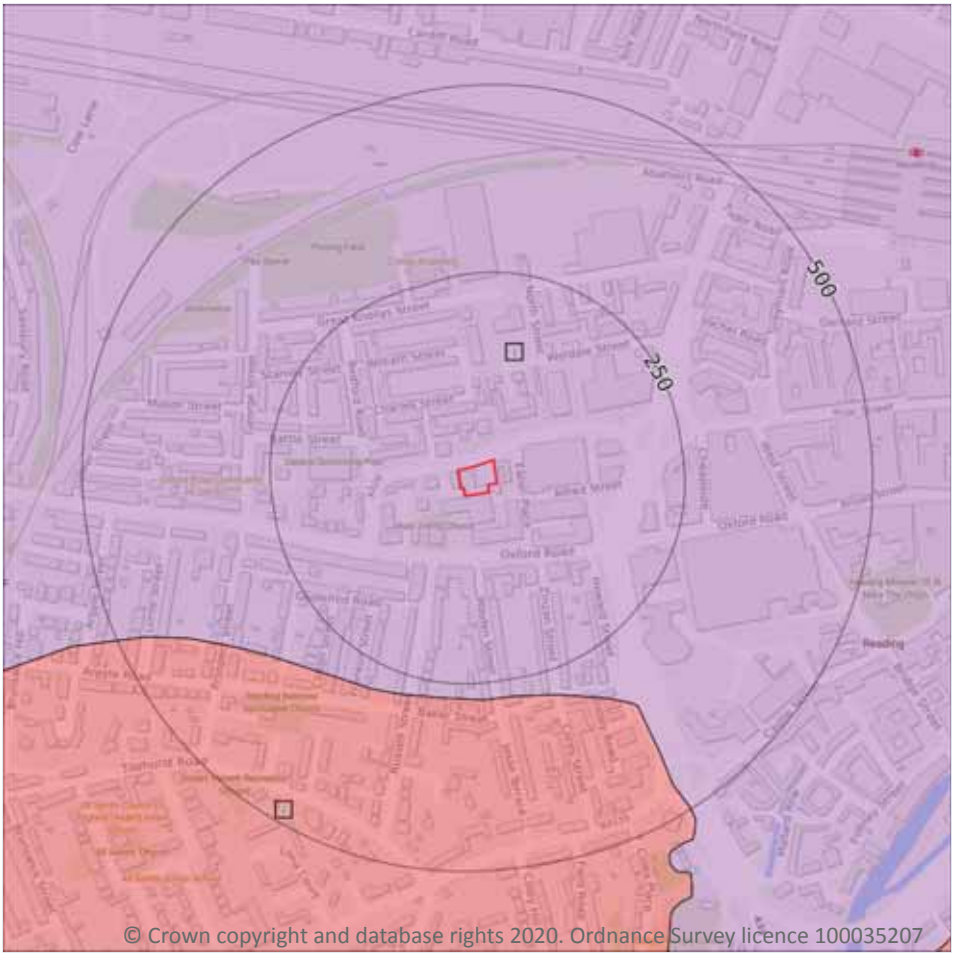
Features are displayed on the Hydrogeology map on **page 50**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	407m SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

ID	Location	Designation	Description
3	483m N	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.

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

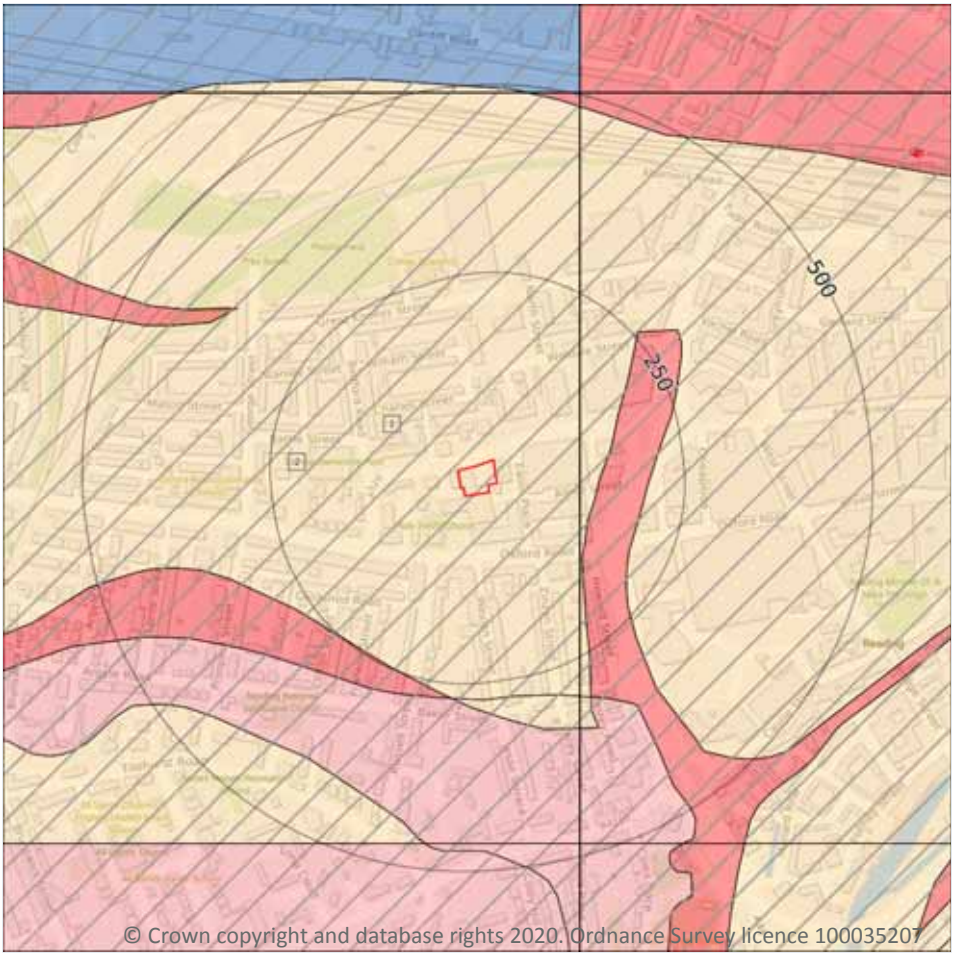
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 52**

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	270m S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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 54**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: <300mm/year**	**Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High**	**Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures**

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	**1**

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	**Very significant soluble rocks are likely to be present with a high possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, especially in adverse conditions such as concentrated surface or subsurface water flow.**	**5.0%**

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

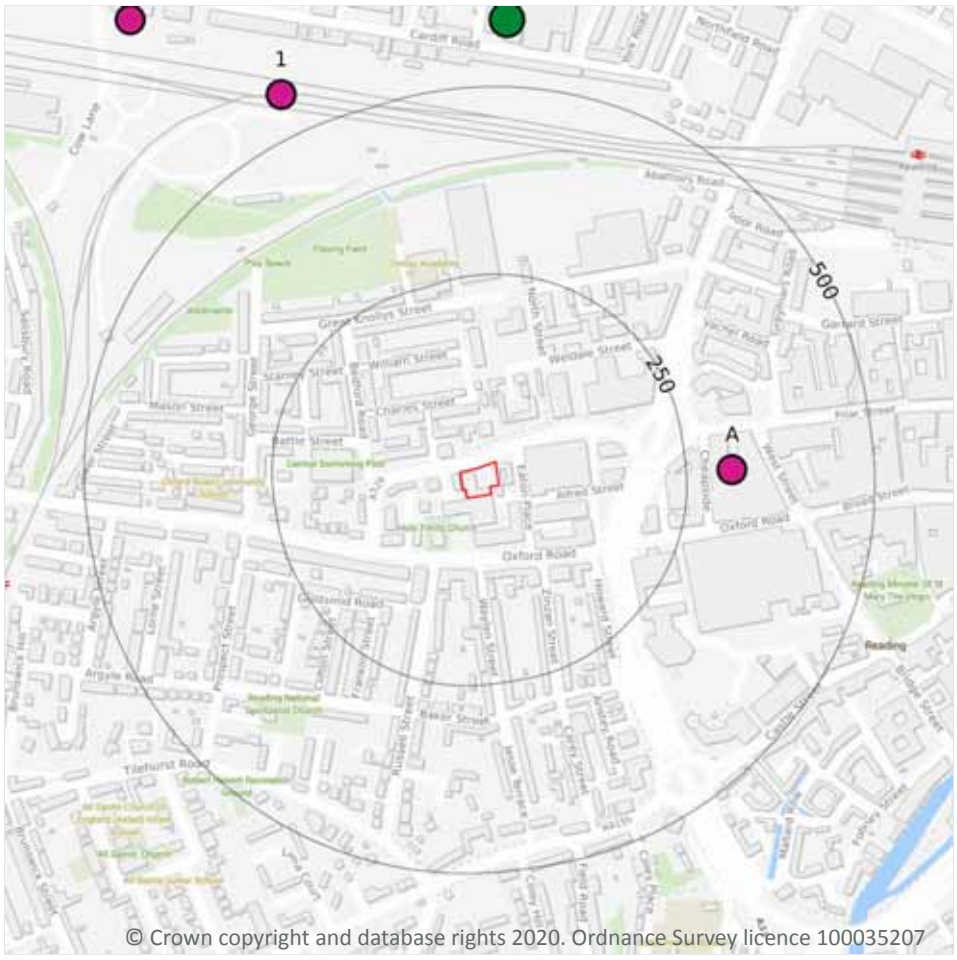
5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



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	16

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 56**

ID	Location	Details	
A	310m E	Status: Active Licence No: 28/39/23/0042 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: CHEAPSIDE, READING, BERKSHIRE Data Type: Point Name: PRIMARK STORES LIMITED Easting: 471200 Northing: 173500	Annual Volume (m^3): 14,933 Max Daily Volume (m^3): 40.91 Original Application No: - Original Start Date: 11/07/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2008 Version End Date: -
1	556m NW	Status: Active Licence No: 28/39/23/0128 Details: Process Water Direct Source: THAMES GROUNDWATER Point: CARDIFF ROAD, READING POINT B Data Type: Point Name: HILLIER GROUP OF COMPANIES Easting: 470600 Northing: 174000	Annual Volume (m^3): 6,682 Max Daily Volume (m^3): 27.28 Original Application No: - Original Start Date: 22/01/1975 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2008 Version End Date: -
B	589m N	Status: Historical Licence No: 28/39/23/0041 Details: Non-Evaporative Cooling Direct Source: THAMES GROUNDWATER Point: CARDIFF ROAD, READING, BERKSHIRE Data Type: Point Name: COX & WYMAN LTD Easting: 470900 Northing: 174100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/07/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/07/1966 Version End Date: -
B	589m N	Status: Historical Licence No: 28/39/23/0041 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: CARDIFF ROAD, READING, BERKSHIRE Data Type: Point Name: COX & WYMAN LTD Easting: 470900 Northing: 174100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/07/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/07/1966 Version End Date: -
B	589m N	Status: Active Licence No: 28/39/23/0167 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: MEADOW ROAD, READING, BERKSHIRE Data Type: Point Name: MANROSE MANUFACTURING LTD Easting: 470900 Northing: 174100	Annual Volume (m^3): 90,920 Max Daily Volume (m^3): 727.40 Original Application No: - Original Start Date: 23/01/1990 Expiry Date: - Issue No: 101 Version Start Date: 30/06/2006 Version End Date: -

ID	Location	Details	
B	589m N	Status: Active Licence No: 28/39/23/0167 Details: Non-Evaporative Cooling Direct Source: THAMES GROUNDWATER Point: MEADOW ROAD, READING, BERKSHIRE Data Type: Point Name: MANROSE MANUFACTURING LTD Easting: 470900 Northing: 174100	Annual Volume (m^3): 90,920 Max Daily Volume (m^3): 727.40 Original Application No: - Original Start Date: 23/01/1990 Expiry Date: - Issue No: 101 Version Start Date: 30/06/2006 Version End Date: -
2	745m NW	Status: Active Licence No: 28/39/23/0128 Details: Process Water Direct Source: THAMES GROUNDWATER Point: CARDIFF ROAD, READING POINT A Data Type: Point Name: HILLIER GROUP OF COMPANIES Easting: 470400 Northing: 174100	Annual Volume (m^3): 6,682 Max Daily Volume (m^3): 27.28 Original Application No: - Original Start Date: 22/01/1975 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2008 Version End Date: -
-	1090m NW	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (E) Data Type: Point Name: DRAYTON Easting: 470100 Northing: 174300	Annual Volume (m^3): 9,819 Max Daily Volume (m^3): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1113m W	Status: Historical Licence No: 28/39/23/0181 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BATTLE HOSPITAL, OXFORD ROAD, READING Data Type: Point Name: WEST BERKSHIRE HEALTH AUTHORITY Easting: 469800 Northing: 173900	Annual Volume (m^3): 136875 Max Daily Volume (m^3): 400 Original Application No: - Original Start Date: 17/01/1992 Expiry Date: - Issue No: 100 Version Start Date: 07/01/1999 Version End Date: -
-	1327m NW	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (D) Data Type: Point Name: DRAYTON Easting: 470100 Northing: 174600	Annual Volume (m^3): 9,819 Max Daily Volume (m^3): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -

ID	Location	Details	
-	1349m NE	Status: Active Licence No: 28/39/23/0020 Details: Laundry Use Direct Source: THAMES GROUNDWATER Point: 72 GEORGE STREET, CAVERSHAM, - BOREHOLE 'A' Data Type: Point Name: Berendsen UK Limited Easting: 471900 Northing: 174400	Annual Volume (m^3): 68,190 Max Daily Volume (m^3): 300.04 Original Application No: - Original Start Date: 09/05/1966 Expiry Date: - Issue No: 102 Version Start Date: 12/01/2016 Version End Date: -
-	1453m NW	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHM'S FARM, READING (B) Data Type: Point Name: DRAYTON Easting: 469700 Northing: 174400	Annual Volume (m^3): 9,819 Max Daily Volume (m^3): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1453m NW	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (C) Data Type: Point Name: DRAYTON Easting: 469700 Northing: 174400	Annual Volume (m^3): 9,819 Max Daily Volume (m^3): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1511m NW	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (A) Data Type: Point Name: DRAYTON Easting: 469500 Northing: 174200	Annual Volume (m^3): 9,819 Max Daily Volume (m^3): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1656m SE	Status: Active Licence No: 28/39/22/0521 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: ROYAL BERKSHIRE HOSPITAL Data Type: Point Name: ROYAL BERKSHIRE HOSPITAL Easting: 472400 Northing: 172800	Annual Volume (m^3): 127,750 Max Daily Volume (m^3): 350 Original Application No: - Original Start Date: 17/01/1992 Expiry Date: - Issue No: 100 Version Start Date: 17/01/1992 Version End Date: -

ID	Location	Details	
-	1814m E	Status: Historical Licence No: 28/39/22/0600 Details: Pollution Remediation Direct Source: THAMES GROUNDWATER Point: FORMER GASWORKS, KENAVON DRIVE, READING (5 BOREHOLES) Data Type: Point Name: M J GLEESON GROUP PLC Easting: 472700 Northing: 173600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/07/2000 Expiry Date: 31/08/2001 Issue No: 1 Version Start Date: 31/07/2000 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	6

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Details	
-	773m SE	Status: Historical Licence No: 28/39/22/0594 Details: Lake & Pond Throughflow Direct Source: THAMES SURFACE WATER - NON TIDAL Point: THE ORACLE CENTRE, READING Data Type: Point Name: ORACLE SHOPPING CENTRE LTD Easting: 471590 Northing: 173150	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/02/2000 Expiry Date: - Issue No: 1 Version Start Date: 16/02/2000 Version End Date: -
-	773m SE	Status: Active Licence No: 28/39/22/0594 Details: Lake & Pond Throughflow Direct Source: THAMES SURFACE WATER - NON TIDAL Point: ST.GILES STREAM AT THE ORACLE CENTRE, READING Data Type: Point Name: ORACLE SHOPPING CENTRE LTD Easting: 471590 Northing: 173150	Annual Volume (m^3): 737,856 Max Daily Volume (m^3): 2,016 Original Application No: - Original Start Date: 16/02/2000 Expiry Date: - Issue No: 2 Version Start Date: 09/03/2020 Version End Date: -

ID	Location	Details	
-	1090m NE	Status: Historical Licence No: 28/39/23/0196 Details: Transfer between sources Direct Source: THAMES SURFACE WATER - NON TIDAL Point: THAMES AT CHRISTCHURCH MEADOW Data Type: Point Name: READING BOROUGH COUNCIL Easting: 471440 Northing: 174450	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 12/05/2003 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 12/05/2003 Version End Date: -
-	1090m NE	Status: Historical Licence No: 28/39/23/0196 Details: Lake & Pond Throughflow Direct Source: THAMES SURFACE WATER - NON TIDAL Point: THAMES AT CHRISTCHURCH MEADOW Data Type: Point Name: READING BOROUGH COUNCIL Easting: 471440 Northing: 174450	Annual Volume (m^3): 31536 Max Daily Volume (m^3): 86.4 Original Application No: - Original Start Date: 12/05/2003 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 01/04/2006 Version End Date: -
-	1090m NE	Status: Historical Licence No: 28/39/23/0199/TR Details: Transfer Between Sources (Post Water Act 2003) Direct Source: THAMES SURFACE WATER - NON TIDAL Point: RIVER THAMES - CHRISTCHURCH MEADOWS Data Type: Point Name: READING BOROUGH COUNCIL Easting: 471440 Northing: 174450	Annual Volume (m^3): 1,752,000 Max Daily Volume (m^3): 4800 Original Application No: - Original Start Date: 10/09/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/09/2008 Version End Date: -
-	1364m NE	Status: Active Licence No: TH/039/0023/022 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: THAMES SURFACE WATER - NON TIDAL Point: RIVER THAMES AT CAVERSHAM WEIR Data Type: Point Name: The Reading Sustainability Centre CIC Easting: 472072 Northing: 174185	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/02/2016 Expiry Date: 31/03/2028 Issue No: 3 Version Start Date: 19/02/2020 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	5

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Details	
A	310m E	Status: Active Licence No: 28/39/23/0042 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: CHEAPSIDE, READING, BERKSHIRE Data Type: Point Name: PRIMARK STORES LIMITED Easting: 471200 Northing: 173500	Annual Volume (m^3): 14,933 Max Daily Volume (m^3): 40.91 Original Application No: - Original Start Date: 11/07/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2008 Version End Date: -
B	589m N	Status: Historical Licence No: 28/39/23/0041 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: CARDIFF ROAD, READING, BERKSHIRE Data Type: Point Name: COX & WYMAN LTD Easting: 470900 Northing: 174100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/07/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/07/1966 Version End Date: -
B	589m N	Status: Active Licence No: 28/39/23/0167 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: MEADOW ROAD, READING, BERKSHIRE Data Type: Point Name: MANROSE MANUFACTURING LTD Easting: 470900 Northing: 174100	Annual Volume (m^3): 90,920 Max Daily Volume (m^3): 727.40 Original Application No: - Original Start Date: 23/01/1990 Expiry Date: - Issue No: 101 Version Start Date: 30/06/2006 Version End Date: -

ID	Location	Details	
-	1113m W	Status: Historical Licence No: 28/39/23/0181 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BATTLE HOSPITAL, OXFORD ROAD, READING Data Type: Point Name: WEST BERKSHIRE HEALTH AUTHORITY Easting: 469800 Northing: 173900	Annual Volume (m^3): 136875 Max Daily Volume (m^3): 400 Original Application No: - Original Start Date: 17/01/1992 Expiry Date: - Issue No: 100 Version Start Date: 07/01/1999 Version End Date: -
-	1656m SE	Status: Active Licence No: 28/39/22/0521 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: ROYAL BERKSHIRE HOSPITAL Data Type: Point Name: ROYAL BERKSHIRE HOSPITAL Easting: 472400 Northing: 172800	Annual Volume (m^3): 127,750 Max Daily Volume (m^3): 350 Original Application No: - Original Start Date: 17/01/1992 Expiry Date: - Issue No: 100 Version Start Date: 17/01/1992 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	0

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

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	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 64**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**Thames Wallingford to Caversham**	**GB106039030331**	**South Chilterns**	**Thames and South Chilterns**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 64**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	978m NE	River	Thames Wallingford to Caversham	GB106039030331	Moderate	Good	Moderate	2016

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 64**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Berkshire Downs Chalk**	**GB40601G600900**	**Poor**	**Poor**	**Poor**	**2015**

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 Sea (RoFRaS)

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; 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).

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.

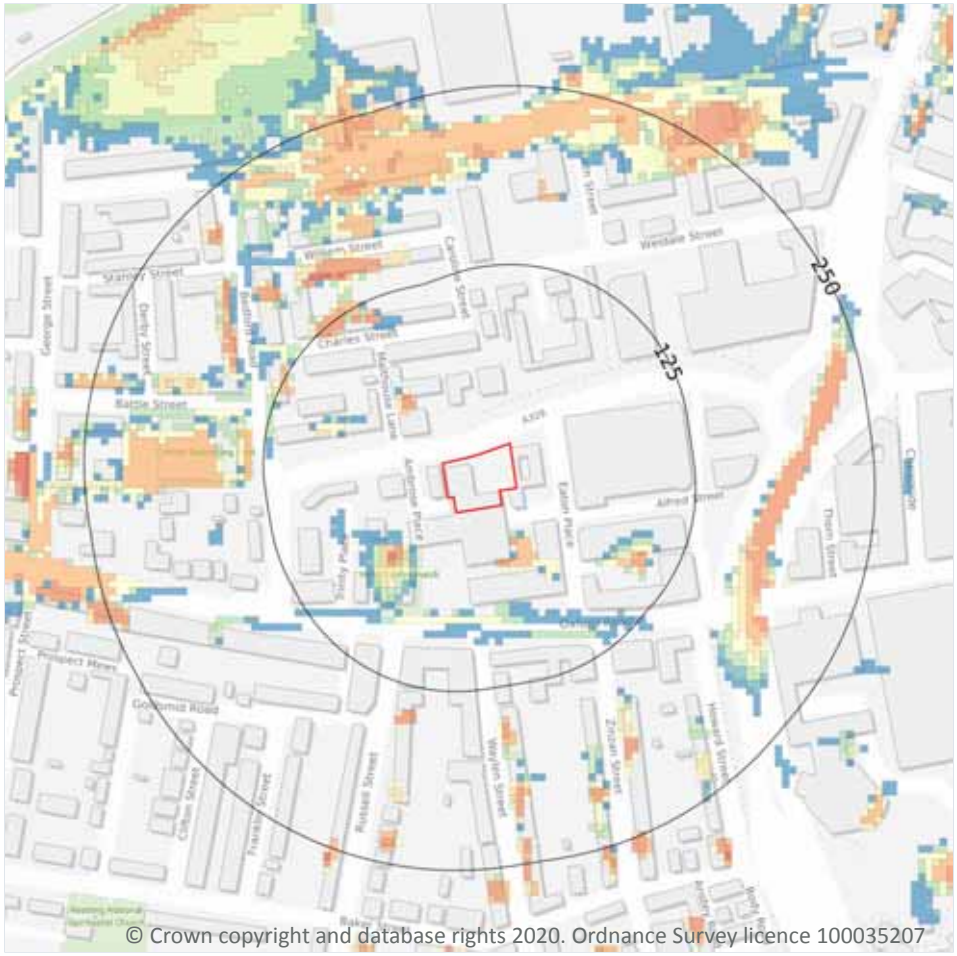
7.7 Flood Zone 3

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	**Negligible**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 70**

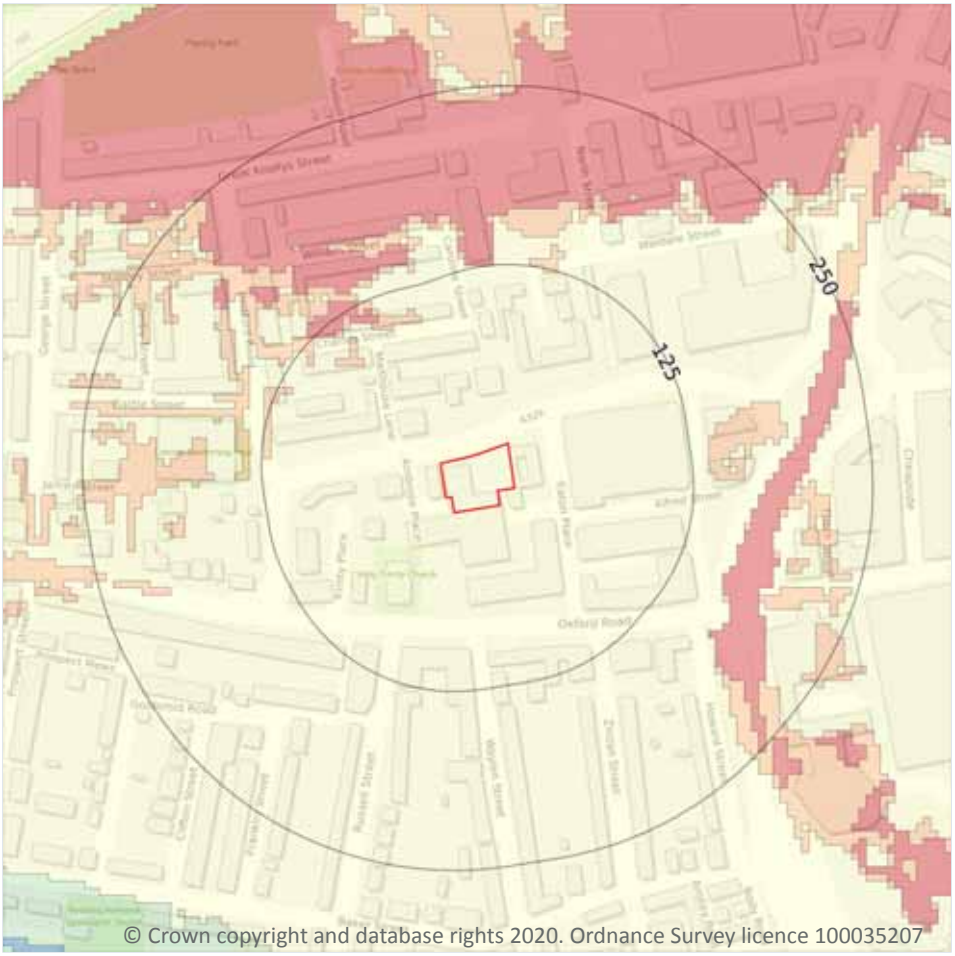
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



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Site Outline

Search buffers in metres (m)

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

9.1 Groundwater flooding

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

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 72**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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.

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	0

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.

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

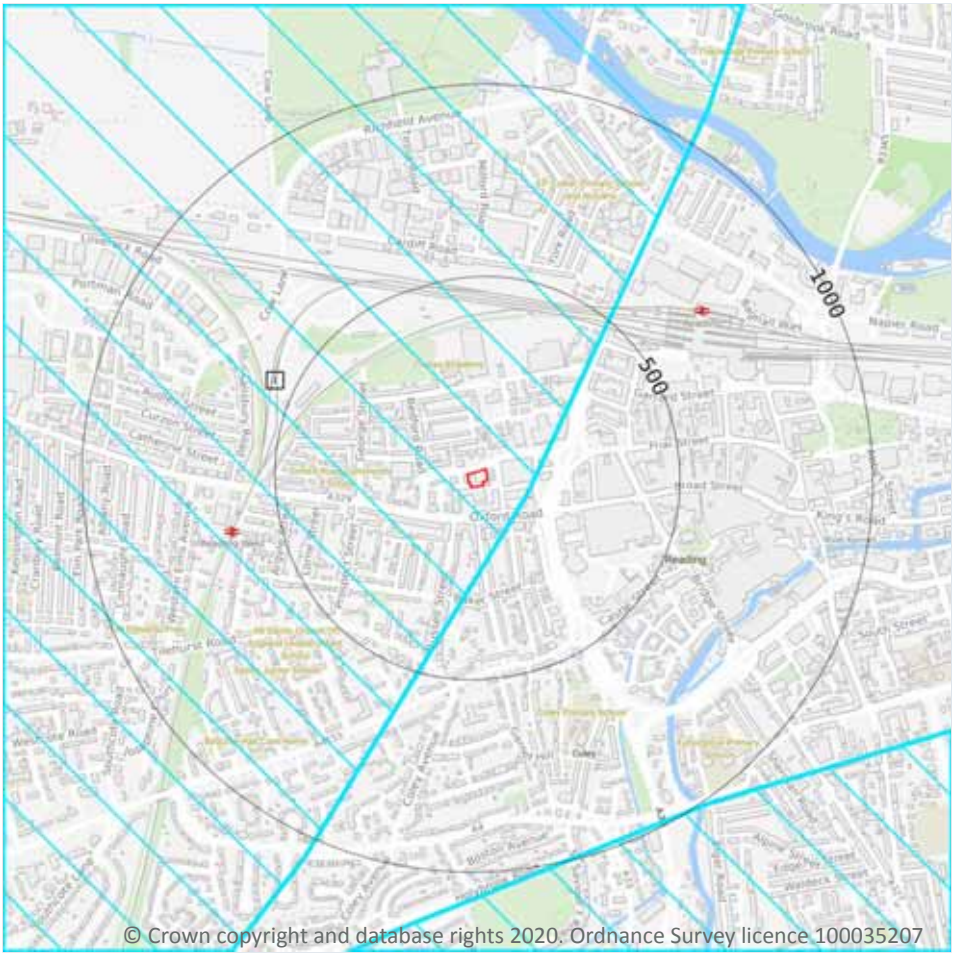
Records within 2000m	1

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.

Location	Name	Type	NVZ ID	Status
On site	**Thames Wallingford to Caversham NVZ**	**Surface Water**	**S481**	**Existing**

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 77**

ID	Location	Type of developments requiring consultation
1	**On site**	**Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

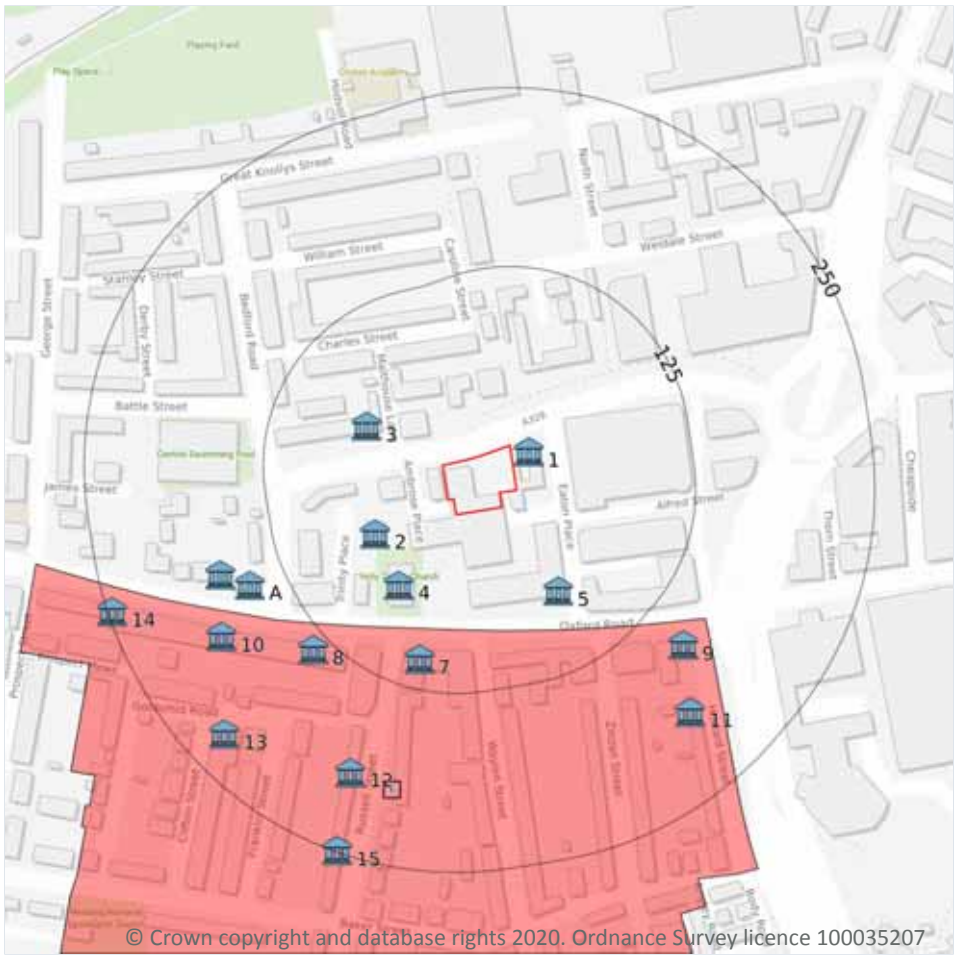
10.18 SSSI Units

Records within 2000m	0

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.

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	16

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 79**

ID	Location	Name	Grade	Reference Number	Listed date
1	12m E	Butler's Wine Vaults, Reading, RG1	II	1113435	14/12/1978
2	56m SW	118, Oxford Road, Reading, RG1	II	1113551	14/12/1978
3	60m NW	122 And 124, Chatham Street, Reading, RG1	II	1154847	14/12/1978
4	63m SW	Church Of The Holy Trinity, Reading, RG1	II	1113550	14/12/1978
5	70m SE	Mannson House, Reading, RG1	II	1113549	14/12/1978
7	104m S	139 And 141, Oxford Road, Reading, RG1	II	1321910	14/12/1978

ID	Location	Name	Grade	Reference Number	Listed date
8	137m SW	149-169, Oxford Road, Reading, RG1	II	1113546	14/12/1978
A	150m SW	120 And 122, Oxford Road, Reading, RG1	II	1302871	14/12/1978
9	159m SE	Rox Borough House, Reading, RG1	II	1113545	14/12/1978
A	167m W	124, Oxford Road, Reading, RG1	II	1321913	14/12/1978
10	185m SW	171-177, Oxford Road, Reading, RG1	II	1156337	14/12/1978
11	194m SE	Kent House, Reading, RG1	II	1113495	14/12/1978
12	195m S	6-22, Russell Street, Reading, RG1	II	1321882	14/12/1978
13	223m SW	Reading Synagogue, Reading, RG1	II	1277762	03/04/1995
14	247m W	187-193, Oxford Road, Reading, RG1	II	1113547	14/12/1978
15	249m S	24-34, Russell Street, Reading, RG1	II	1113568	14/12/1978

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

11.5 Conservation Areas

Records within 250m	1

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

Features are displayed on the Visual and cultural designations map on **page 79**

ID	Location	Name	District	Date of designation
6	80m S	Russell Street and Castle Hill, Reading	Reading	1972

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

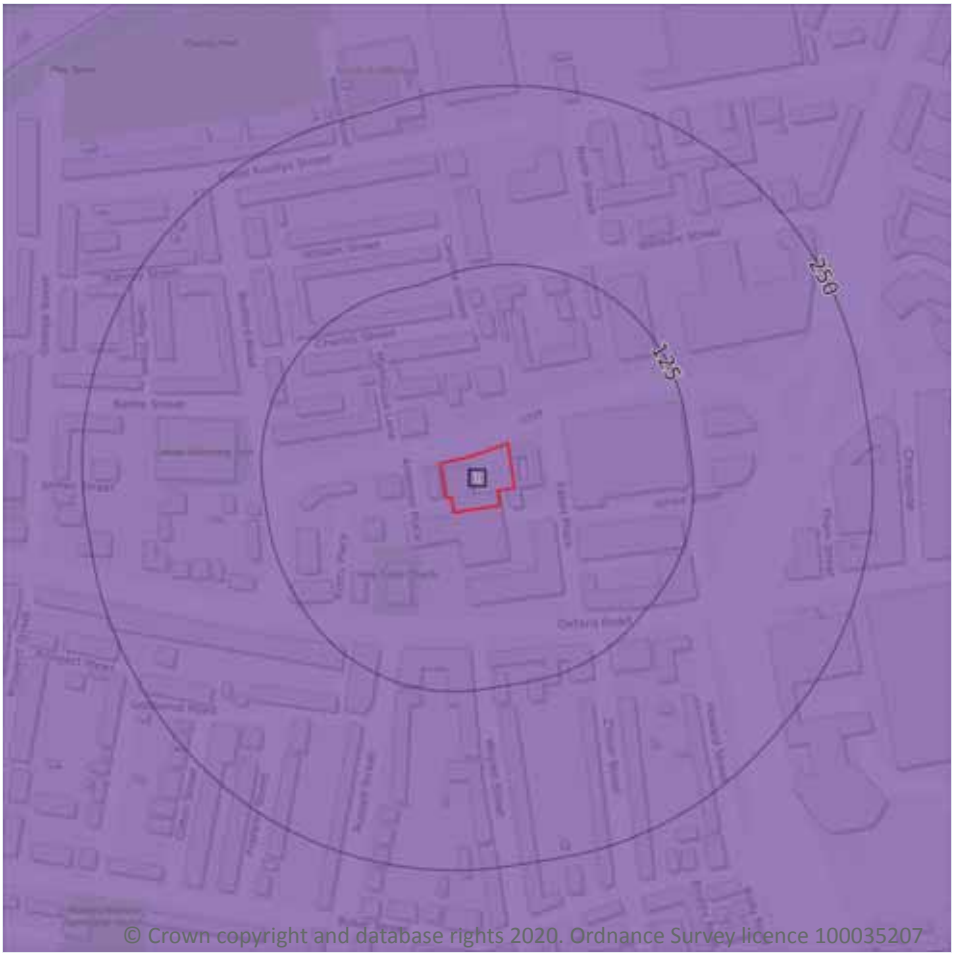
11.7 Registered Parks and Gardens

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 English Heritage, 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 83**

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.

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.

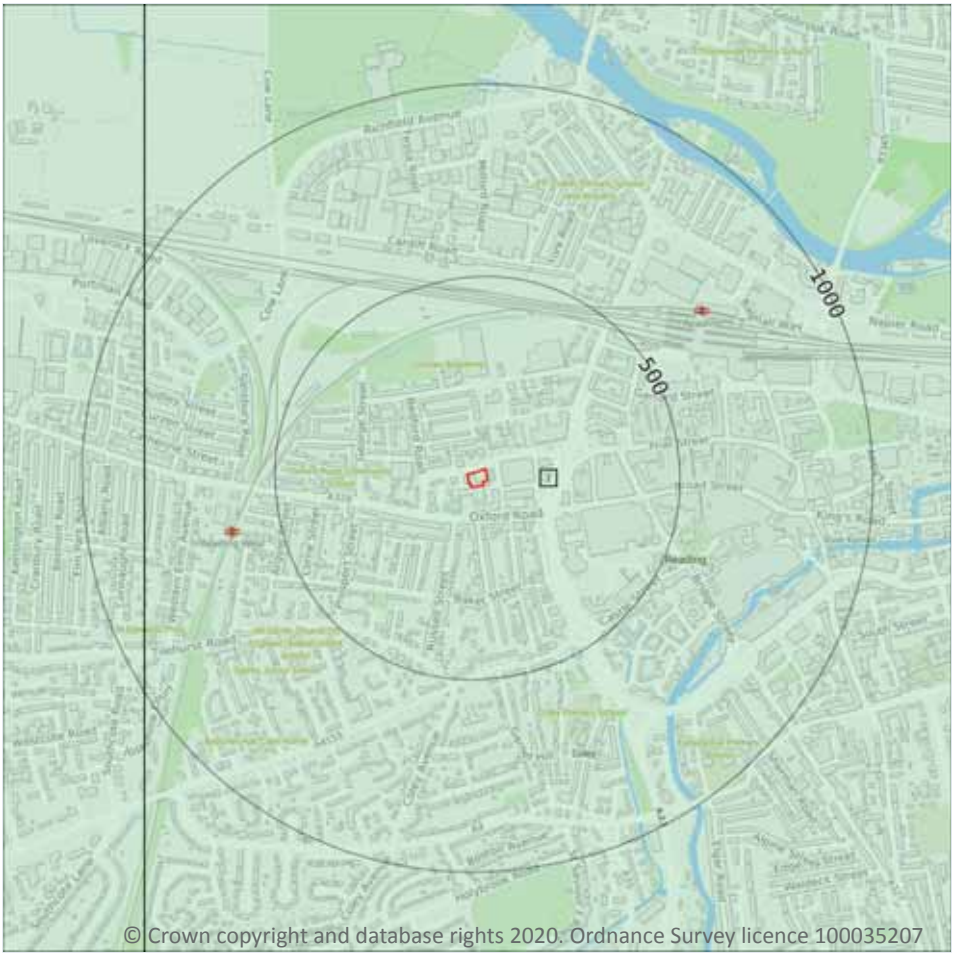
13.4 Limestone Pavement Orders

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	1

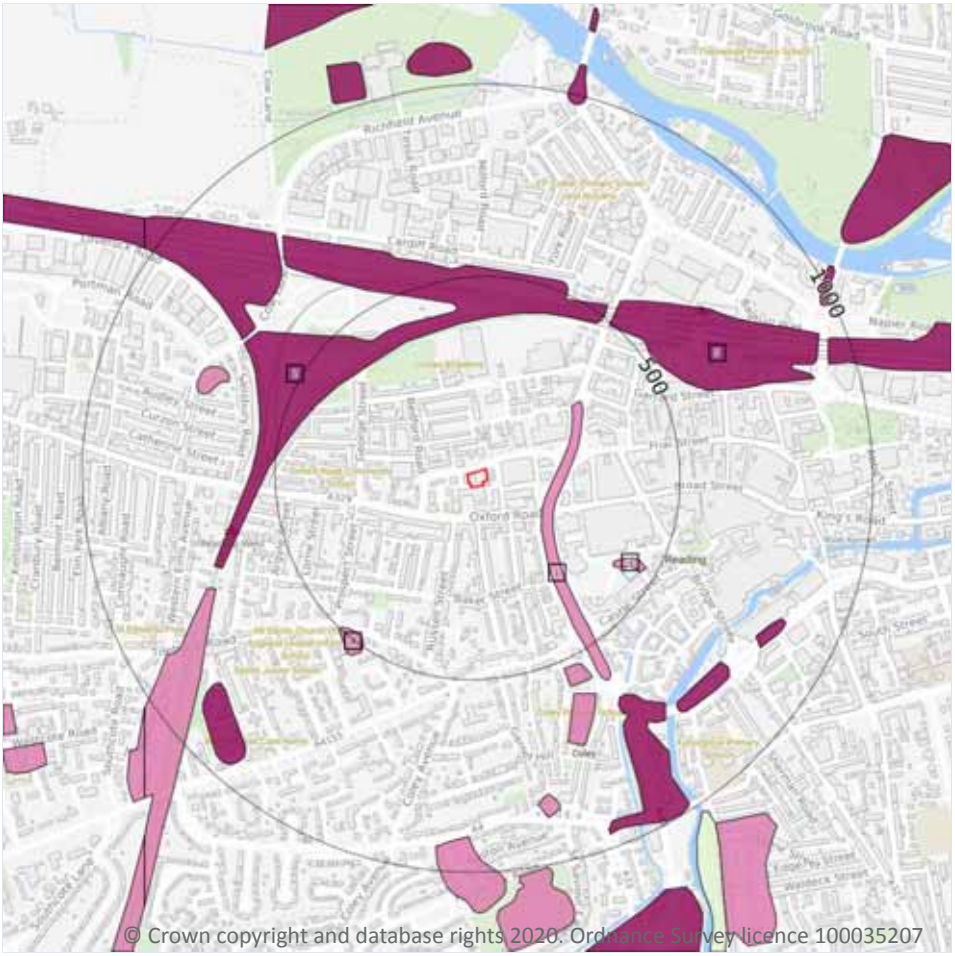
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 86**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SU77SW**

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	5

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.

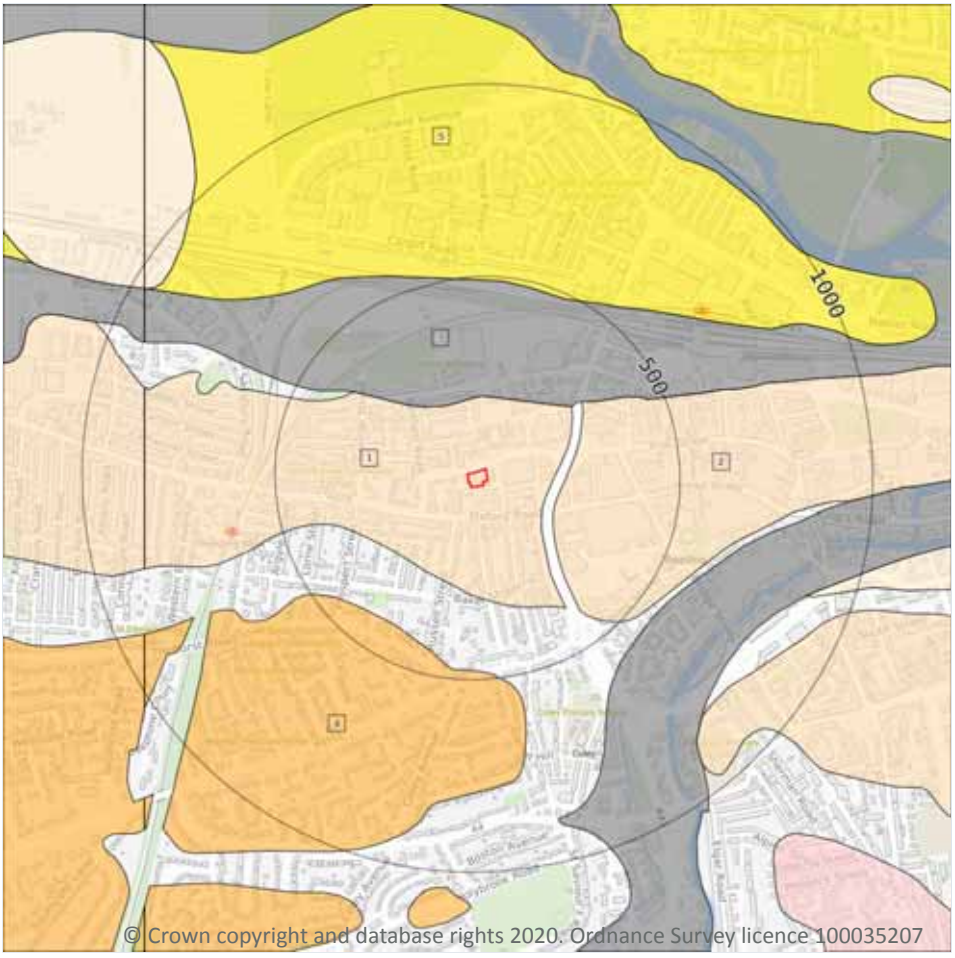
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 87**

ID	Location	LEX Code	Description	Rock description
1	157m E	WGR-VOID	Worked Ground (Undivided)	Void
2	376m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	390m SE	WGR-VOID	Worked Ground (Undivided)	Void
4	480m SW	WGR-VOID	Worked Ground (Undivided)	Void

ID	Location	LEX Code	Description	Rock description
5	492m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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	5

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 89**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TPGR-XSV**	**Taplow Gravel Formation - Sand And Gravel**	**Sand And Gravel**
2	185m E	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
3	186m N	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
4	408m SW	LHGR-XSV	Lynch Hill Gravel Member - Sand And Gravel	Sand And Gravel

ID	Location	LEX Code	Description	Rock description
5	483m N	LASI-XCZ	Langley Silt Member - Clay And Silt	Clay And Silt

This data is sourced from the British Geological Survey.

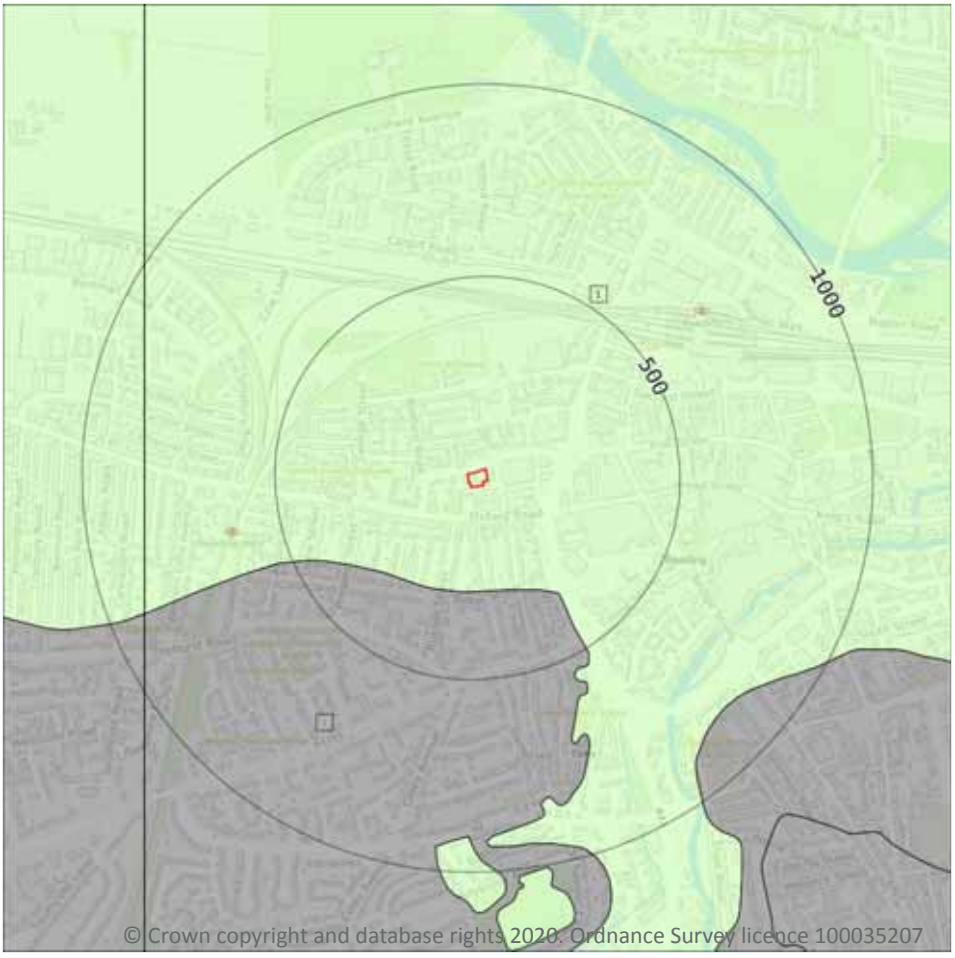
14.4 Landslip (10k)

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 91**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LSNCK-CHLK**	**Lewes Nodular Chalk Formation, Seaford Chalk Formation And Newhaven Chalk Formation (undifferentiated) - Chalk**	**Campanian Age - Turonian Age**
2	271m S	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch

This data is sourced from the British Geological Survey.

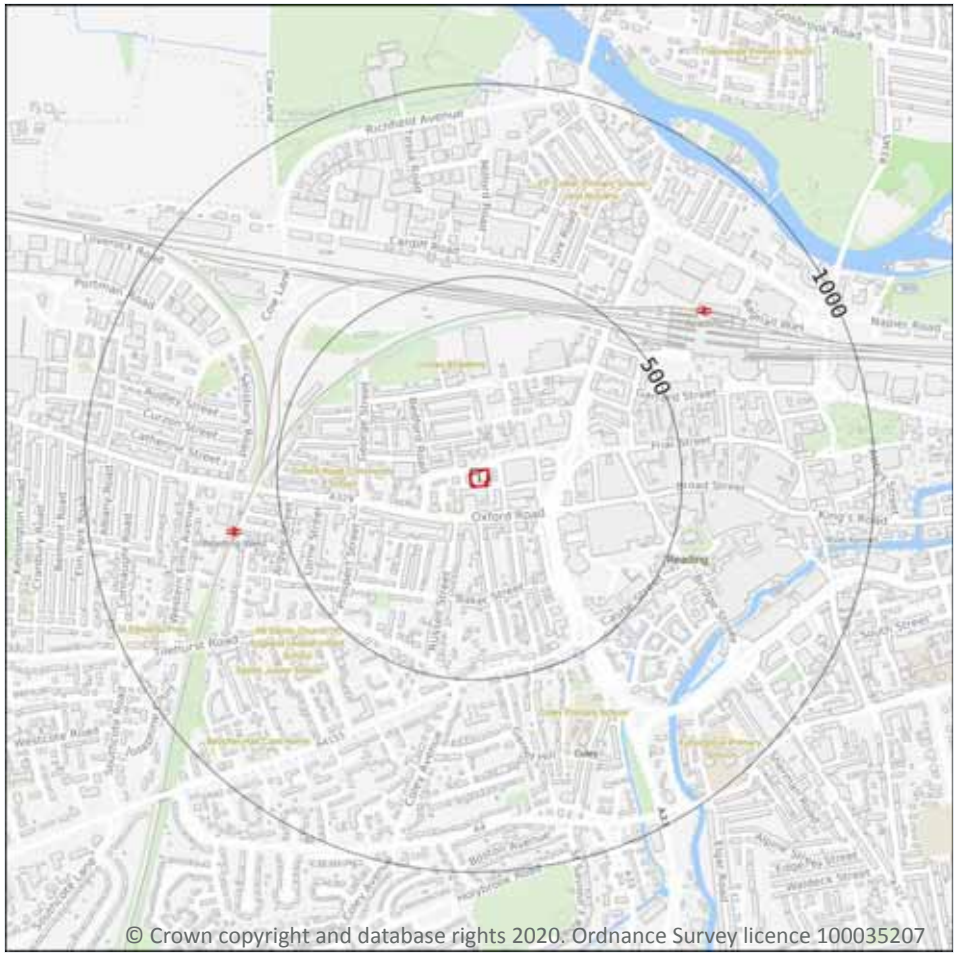
14.6 Bedrock faults and other linear features (10k)

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 93**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**EW268_reading_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

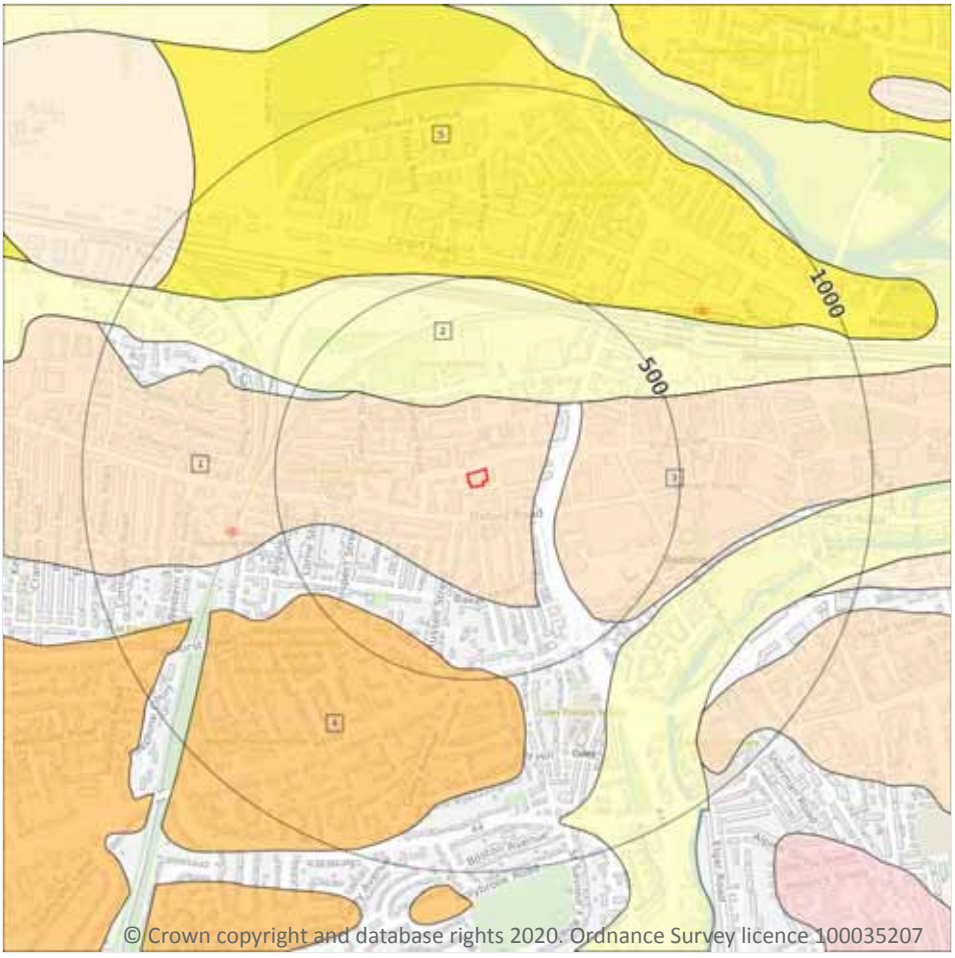
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



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	5

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 95**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TPGR-XSV**	**TAPLOW GRAVEL MEMBER**	**SAND AND GRAVEL**
2	187m N	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	194m E	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL
4	407m SW	LHGR-XSV	LYNCH HILL GRAVEL MEMBER	SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
5	483m N	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT

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.

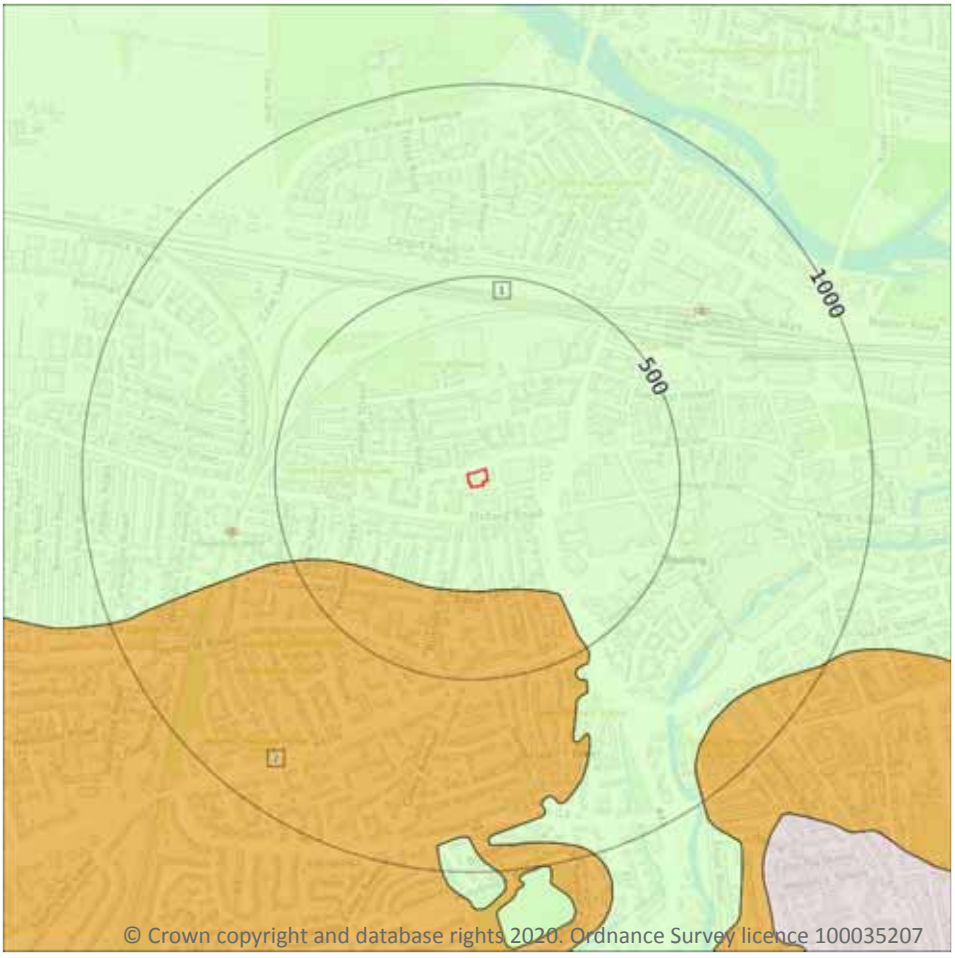
15.7 Landslip permeability (50k)

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	2

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 97**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**SNCK-CHLK**	**SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK**	**CONIACIAN**
2	270m S	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN

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	**Fracture**	**Very High**	**Very High**

This data is sourced from the British Geological Survey.

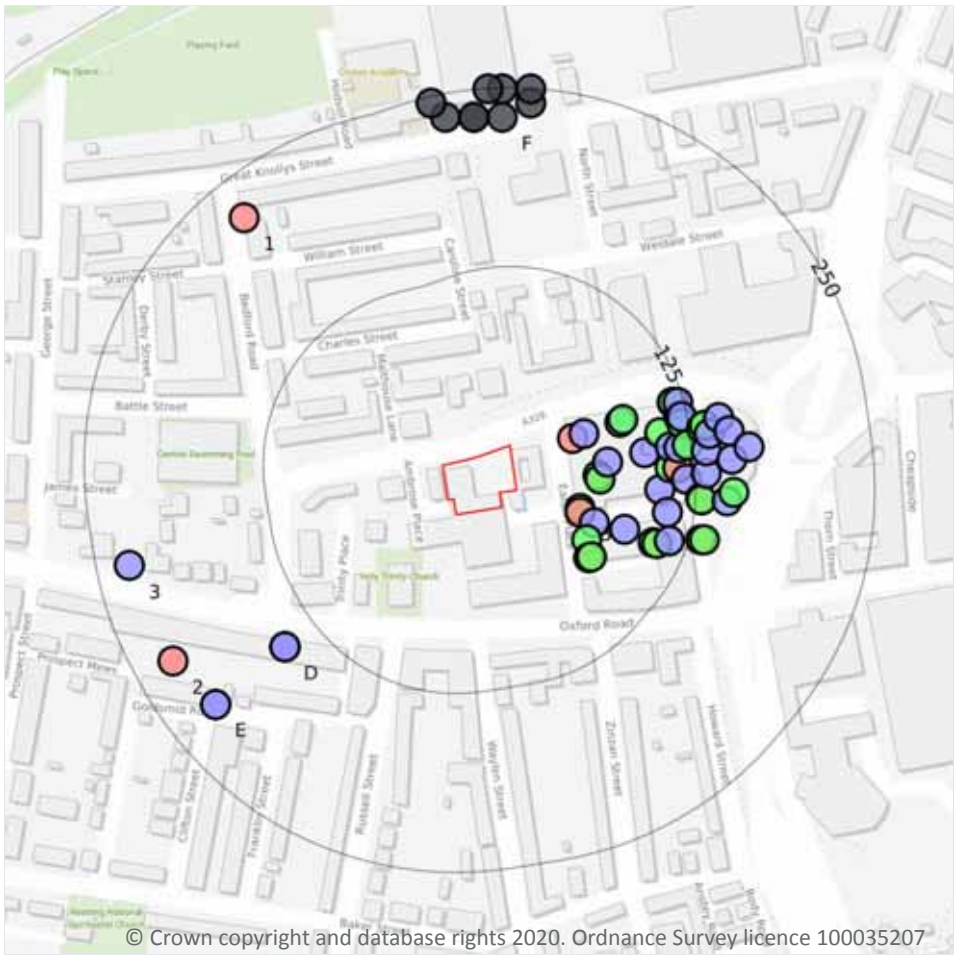
15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m	67

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

Features are displayed on the Boreholes map on **page 99**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	44m E	470929 173516	CHATHAM PLACE READING 3R	47.5	N	18382123
B	46m E	470934 173467	CHATHAM PLACE READING 7	10.45	N	18381993
B	47m E	470934 173464	CHATHAM PLACE READING 7R	37.5	N	18382965

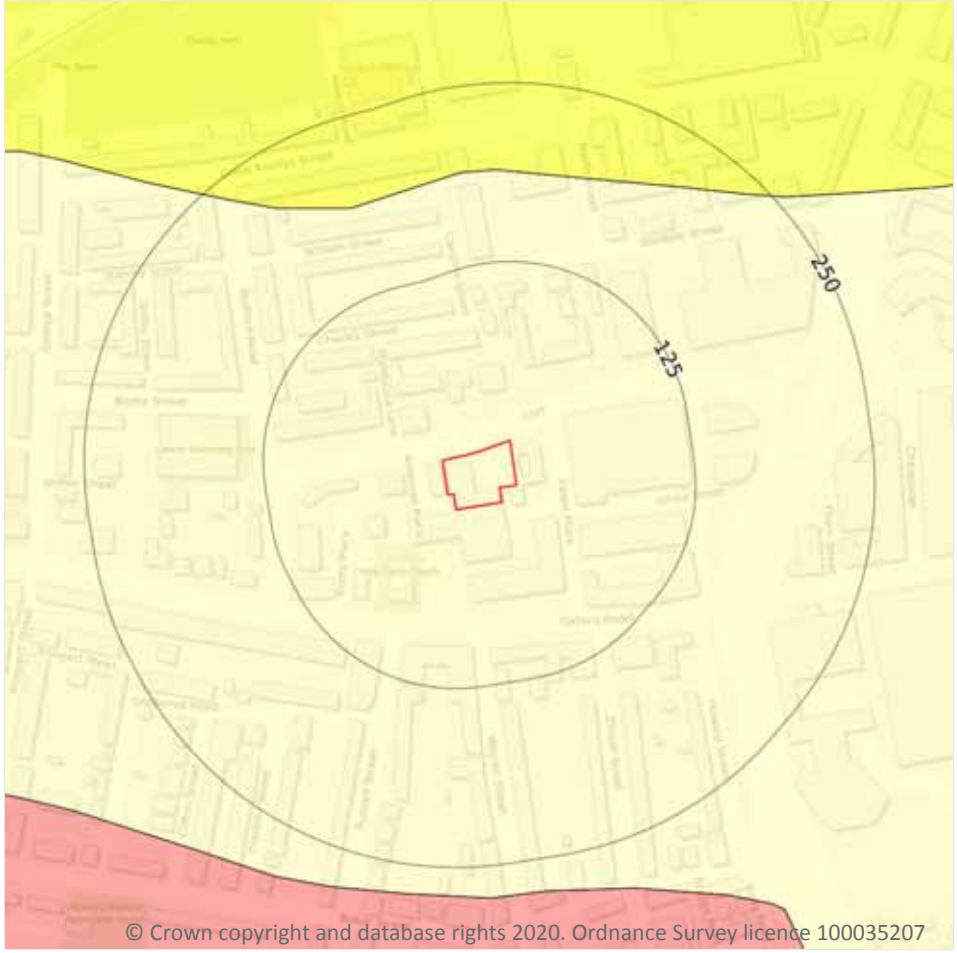
ID	Location	Grid reference	Name	Length	Confidential	Web link
A	53m E	470937 173519	CHATHAM PLACE READING 3	3.2	N	18381989
B	58m E	470947 173490	CHATHAM PLACE READING 5R	41.5	N	18382962
B	59m E	470948 173487	CHATHAM PLACE READING 5	10.5	N	18381991
B	59m SE	470944 173457	CHATHAM PLACE READING TP18A	1.9	N	18383046
B	60m SE	470939 173445	CHATHAM STREET - READING 3	29.95	N	15616943
B	65m E	470953 173499	CHATHAM PLACE READING TP17	3.0	N	18383045
B	69m SE	470940 173432	CHATHAM PLACE READING 10R	30.5	N	18382978
B	70m SE	470942 173433	CHATHAM PLACE READING 10	10.45	N	18381996
C	79m E	470962 173527	CHATHAM PLACE READING 2	3.45	N	18381988
B	80m E	470965 173452	CHATHAM PLACE READING TP09	1.7	N	18382991
C	81m E	470964 173529	CHATHAM PLACE READING 2R	30.0	N	18382009
B	92m E	470979 173506	CHATHAM PLACE READING TP20	1.2	N	18383048
B	100m E	470990 173480	CHATHAM PLACE READING TP21	1.0	N	18383049
B	102m E	470985 173443	CHATHAM PLACE READING 9R	30.4	N	18382969
B	105m E	470990 173520	CHATHAM PLACE READING 11	10.5	N	18381997
B	105m E	470988 173442	CHATHAM PLACE READING 9	10.5	N	18381995
B	106m E	470995 173464	CHATHAM PLACE READING TP19	1.2	N	18383047
B	108m E	470997 173495	CHATHAM PLACE READING 4	10.5	N	18381990
B	111m E	470997 173510	CHATHAM PLACE READING TP06	2.0	N	18382987
B	112m E	470996 173444	CHATHAM PLACE READING TP08	2.7	N	18382990
B	113m E	471002 173495	CHATHAM PLACE READING 4R	50.0	N	18382594
B	116m E	471003 173509	CHATHAM PLACE READING TP13	1.3	N	18383005
B	117m E	470998 173541	CHATHAM PLACE READING 1R	60.0	N	18382007
B	118m E	470999 173541	CHATHAM PLACE READING 1	11.5	N	18381987
B	119m E	471008 173487	CHATHAM PLACE READING TP16	2.0	N	18383044
B	120m E	471003 173531	CHATHAM PLACE READING TP03	3.5	N	18382982
B	120m E	471003 173531	CHATHAM PLACE READING TP02	1.21	N	18382981
B	121m E	471002 173541	CHATHAM PLACE READING TP01	3.4	N	18382980

ID	Location	Grid reference	Name	Length	Confidential	Web link
B	121m E	471005 173526	CHATHAM PLACE READING 13A	11.0	N	18382003
B	122m E	471005 173531	CHATHAM PLACE READING 13	3.7	N	18382001
B	123m E	471009 173511	CHATHAM STREET - READING 2	29.95	N	15616939
B	128m E	471018 173474	CHATHAM PLACE READING 6R	40.0	N	18382963
B	129m E	471019 173473	CHATHAM PLACE READING 6	10.5	N	18381992
B	133m E	471022 173491	CHATHAM PLACE READING TP15	1.3	N	18383043
B	133m E	471018 173445	CHATHAM PLACE READING 8R	30.45	N	18382966
B	134m E	471019 173523	CHATHAM PLACE READING 12A	11.0	N	18381999
B	135m E	471022 173507	CHATHAM PLACE READING TP14	1.4	N	18383042
B	136m E	471021 173445	CHATHAM PLACE READING 8	10.5	N	18381994
B	136m E	471021 173525	CHATHAM PLACE READING 12	10.5	N	18381998
B	139m E	471024 173519	CHATHAM PLACE READING TP04	1.9	N	18382983
B	147m E	471031 173530	CHATHAM PLACE READING TP10	2.7	N	18382993
B	147m E	471037 173472	CHATHAM PLACE READING TP07	2.1	N	18382989
D	151m SW	470728 173370	GOLDSMID ROAD READING TP 1	2.1	N	15615013
D	151m SW	470728 173370	GOLDSMID ROAD READING TP 2	2.2	N	15615015
D	151m SW	470728 173370	GOLDSMID ROAD READING TP 4	2.5	N	15615017
D	151m SW	470728 173370	GOLDSMID ROAD READING TP 3	3.0	N	15615016
B	151m E	471041 173478	CHATHAM PLACE READING 14	11.5	N	18382006
B	152m E	471040 173501	CHATHAM PLACE READING TP12	1.0	N	18383004
B	153m E	471038 173521	CHATHAM PLACE READING TP11	1.2	N	18383002
B	165m E	471052 173510	CHATHAM PLACE READING TP05	1.5	N	18382984
E	214m SW	470680 173330	26-28 GOLDSMITH ROAD-READING TP 1	3.1	N	15618023
E	214m SW	470680 173330	26-28 GOLDSMITH ROAD-READING TP 2	3.1	N	15618026
1	222m NW	470700 173670	179 GT KNOLLYS STREET READING	30.48	N	428833
2	223m SW	470650 173360	GOLDSMID RD READING	45.72	N	428819
3	227m W	470620 173427	CHATHAM STREET - READING 1	9.95	N	15616909
F	229m N	470880 173740	GREAT KNOLLYS STREET READING BERKSHIRE TP 11	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
F	231m N	470860 173740	GREAT KNOLLYS STREET READING BERKSHIRE TP 12	-	Y	N/A
F	231m N	470860 173740	GREAT KNOLLYS STREET READING TP96/5	-	Y	N/A
F	234m N	470840 173740	GREAT KNOLLYS STREET READING BERKSHIRE TP 9	-	Y	N/A
F	240m N	470900 173750	GREAT KNOLLYS STREET READING TP96/11	-	Y	N/A
F	246m N	470830 173750	GREAT KNOLLYS STREET READING BERKSHIRE TP 13	-	Y	N/A
F	249m N	470880 173760	GREAT KNOLLYS STREET READING BERKSHIRE TP 11	-	Y	N/A
F	250m N	470900 173760	GREAT KNOLLYS STREET READING BERKSHIRE 5	-	Y	N/A
F	250m N	470870 173760	GREAT KNOLLYS STREET READING BERKSHIRE TP 2	-	Y	N/A

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

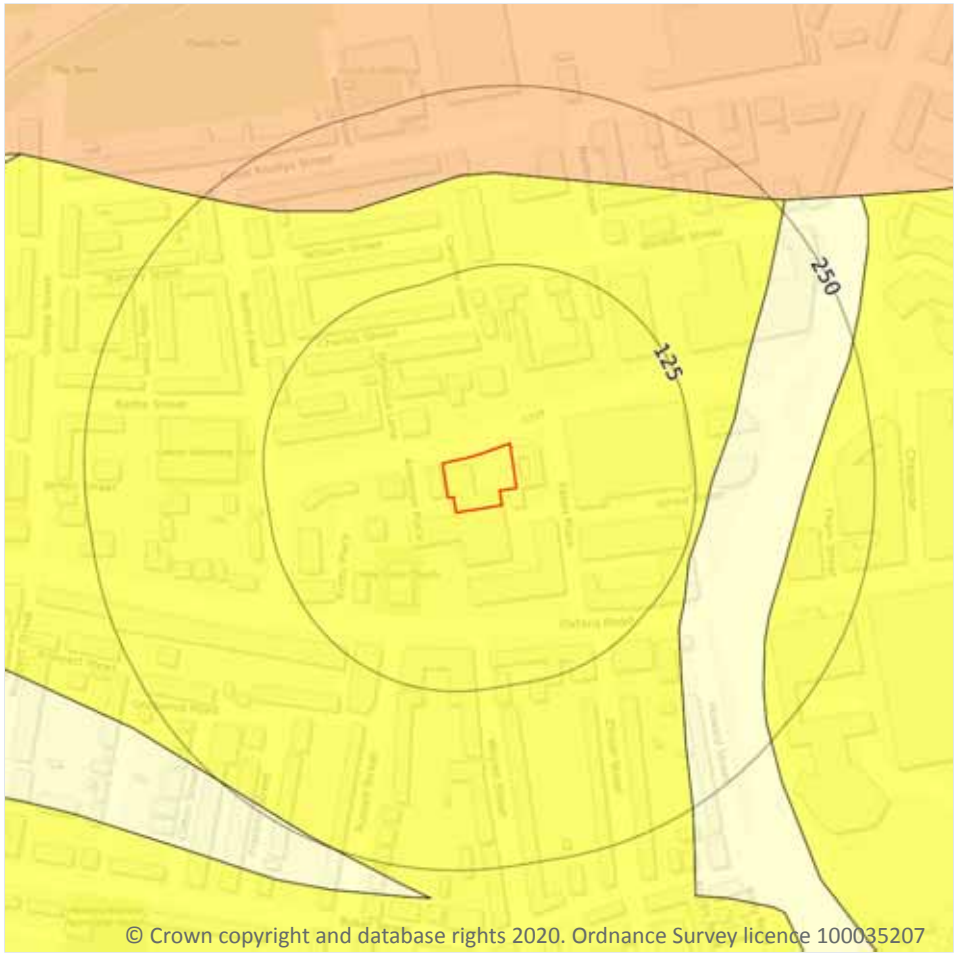
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 103**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**

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

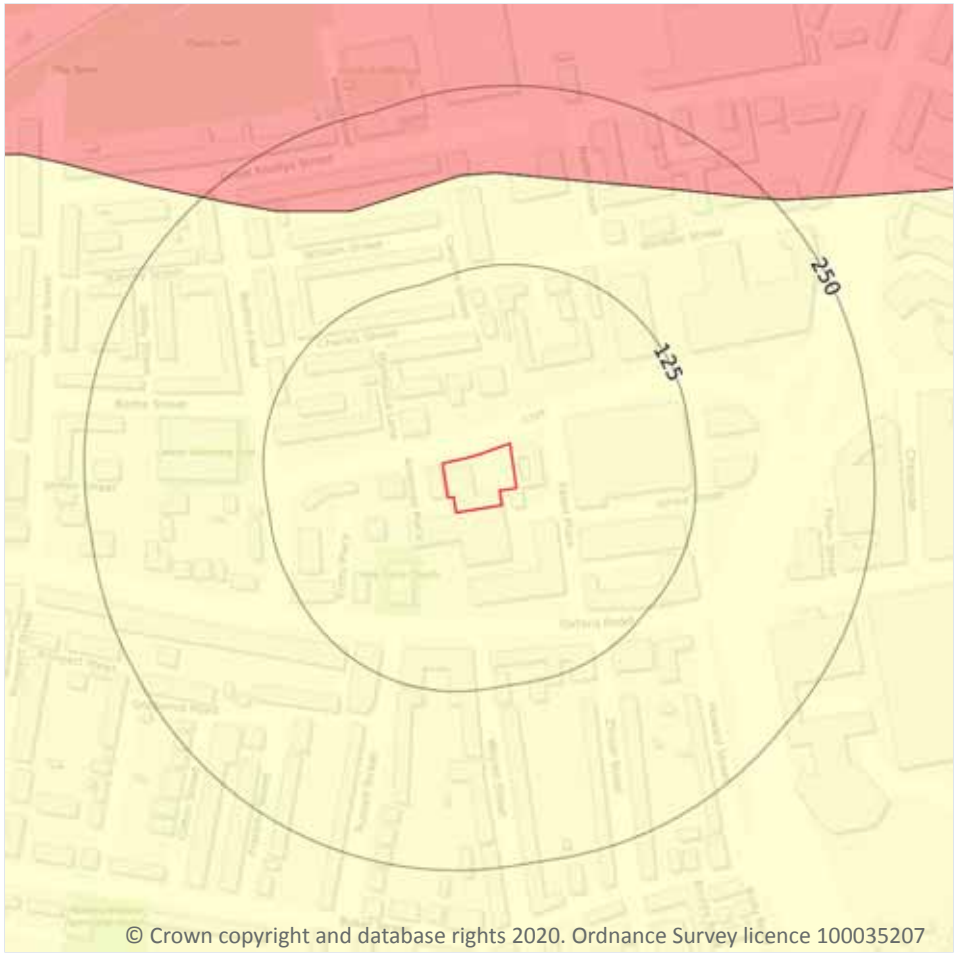
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 104**

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

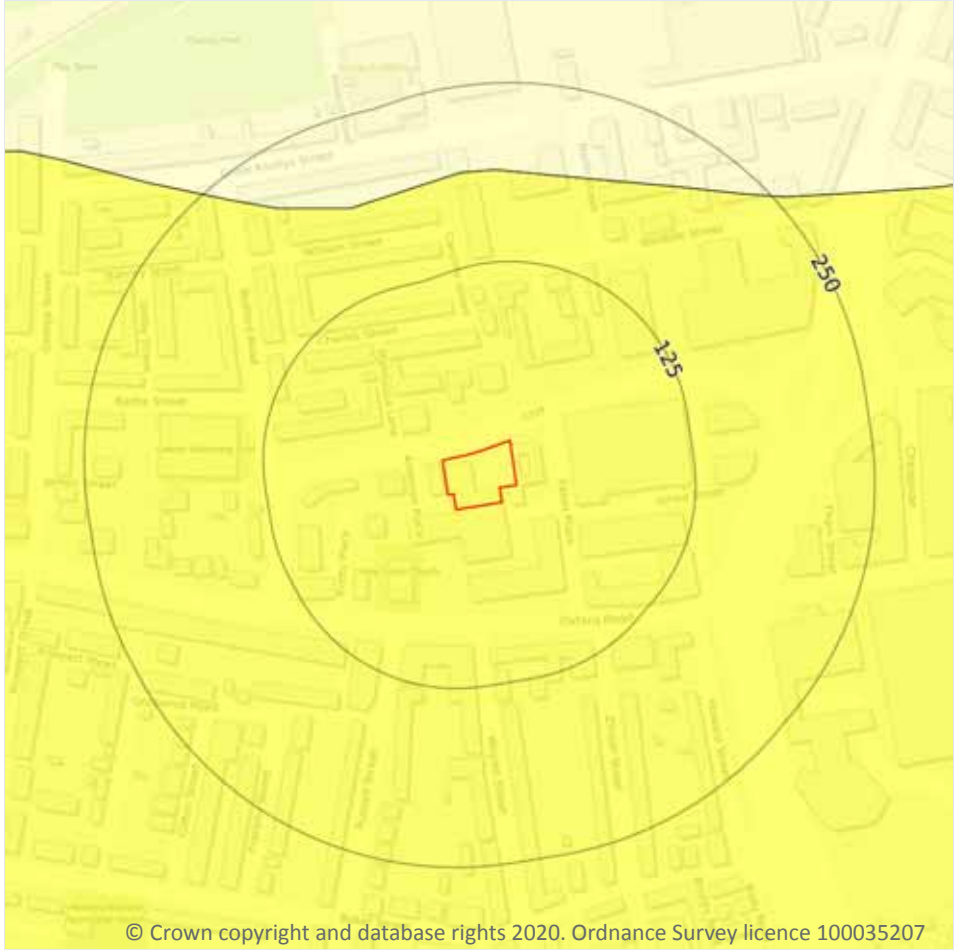
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 105**

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

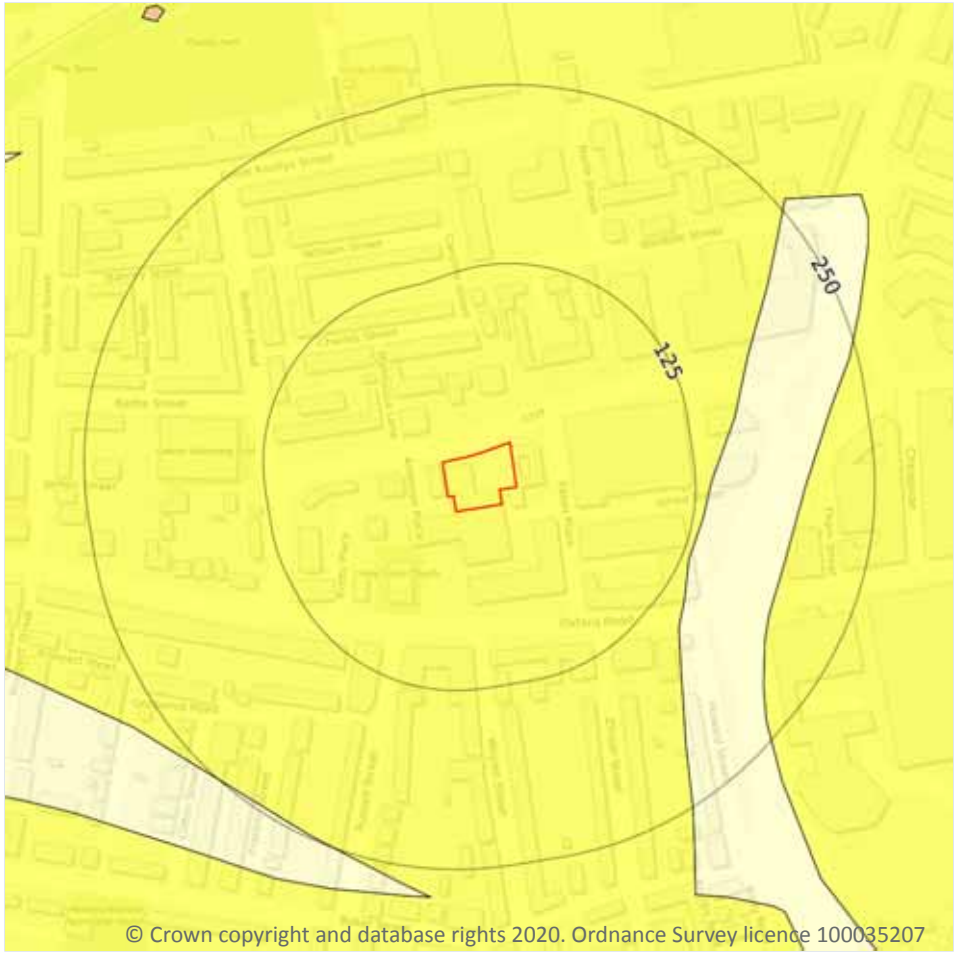
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 106**

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

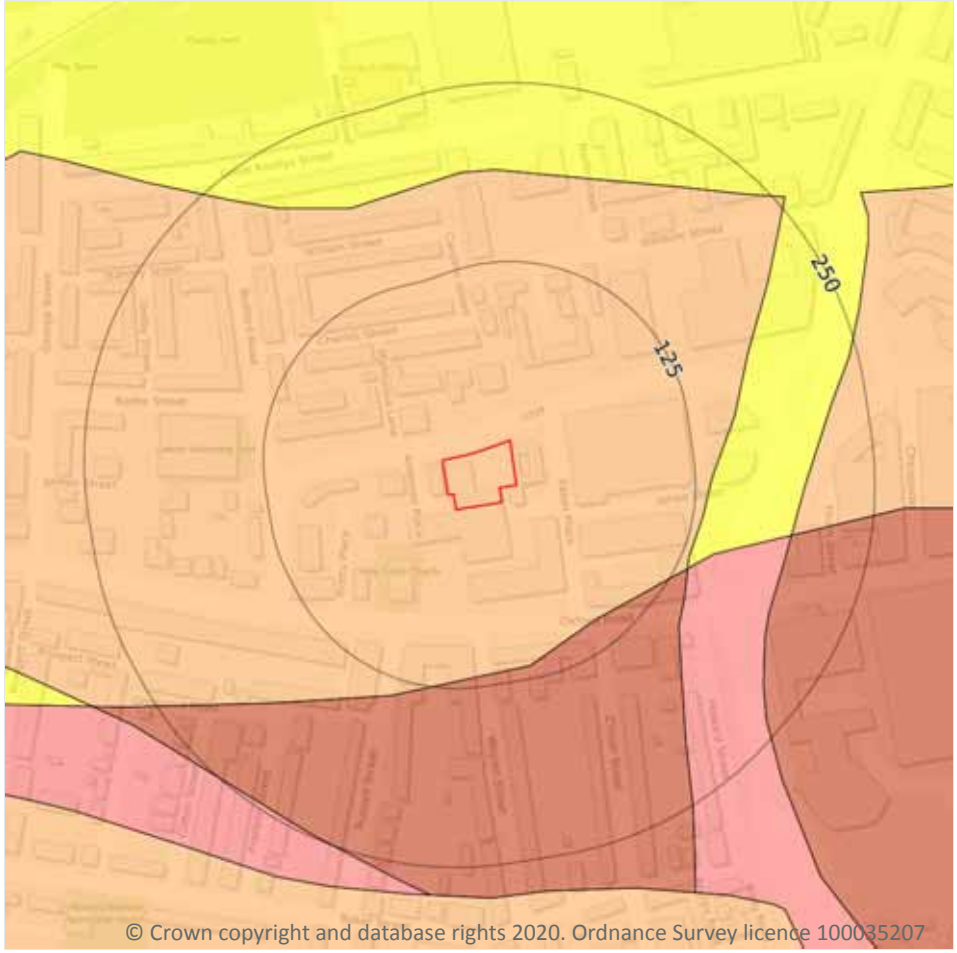
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 107**

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

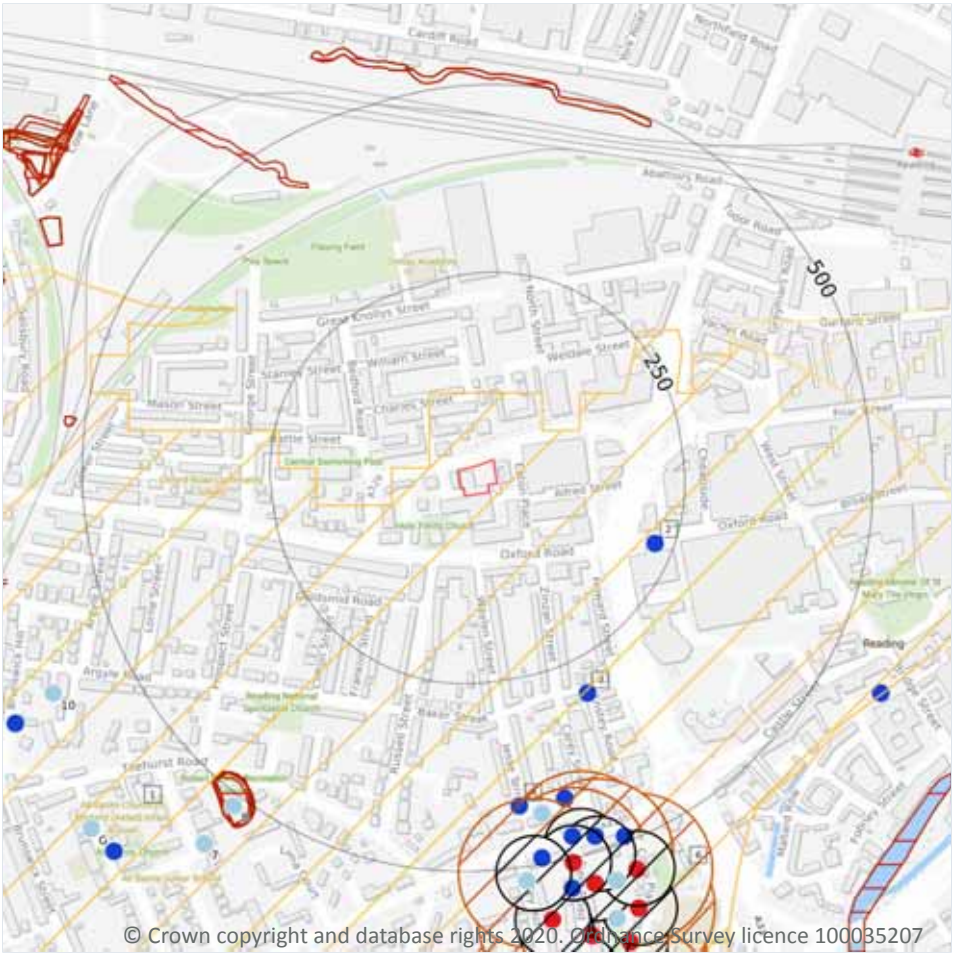
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 108**

Location	Hazard rating	Details
On site	**Low**	**Soluble rocks are present within the ground. Some dissolution features may be present. Potential for difficult ground conditions are at a level where they may be considered, localised subsidence need not be considered except in exceptional circumstances.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

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

Non Coal Mining

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

18.1 Natural cavities

Records within 500m	16

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 110**

ID	Location	Details	Source
2	224m E	Type: Solution Pipe x 3 Superficial Geology: Taplow Gravel Bedrock Geology: Chalk Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely

ID	Location	Details	Source
3	297m SE	Type: Solution Widened Joint or Fissure x 3 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	418m S	Type: Solution Pipe x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	419m S	Type: Solution Pipe x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	441m S	Type: Solution Pipe x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	470m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	473m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	473m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	473m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	475m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	475m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates LLP Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely

ID	Location	Details	Source
A	478m S	Type: Solution Pipe x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: PBA Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	484m S	Type: Solution Pipe x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	486m S	Type: Solution Pipe x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	491m S	Type: Solution Widened Joint or Fissure x 1 Superficial Geology: - Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: PBA Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
A	492m S	Type: Solution Pipe x 2 Superficial Geology: Lynch Hill Gravel Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Peter Brett Associates Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely

This data is sourced from Peter Brett Associates (PBA).

18.2 BritPits

Records within 500m	**1**

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 110**

ID	Location	Details	Description
A	487m S	Name: Reading Chalk Mine Address: READING, Berkshire Commodity: Chalk Status: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Type: Ceased Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	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.

18.5 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	46

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).

Features are displayed on the Mining, ground workings and natural cavities map on **page 110**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Chalk**	**B**	**Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered**

ID	Location	Name	Commodity	Class	Likelihood
4	352m NE	Not available	Chalk	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
A	387m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	403m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	406m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	410m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	437m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
6	450m SE	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	453m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	456m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	461m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

ID	Location	Name	Commodity	Class	Likelihood
A	489m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	549m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	551m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	570m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	577m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	577m SE	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	587m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	591m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	592m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	599m SE	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

ID	Location	Name	Commodity	Class	Likelihood
A	601m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
9	601m NW	Not available	Chalk	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
A	603m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	605m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	623m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	623m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	630m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	637m SE	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	653m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
A	654m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

ID	Location	Name	Commodity	Class	Likelihood
A	666m SE	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
A	669m SE	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	690m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	693m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	705m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	706m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	719m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	748m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	748m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	766m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

ID	Location	Name	Commodity	Class	Likelihood
-	787m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	838m W	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	857m W	Not available	Chalk	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
-	875m SE	Not available	Chalk	C	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered
-	985m SE	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	21

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 110**

ID	Location	Mine Address	Mineral	Data source	Publisher
A	422m S	Reading (Coley), Berkshire	Chalk	-	-
A	423m S	Reading (Coley), Berkshire	Chalk	-	-
A	433m S	Reading (Coley), Berkshire	Chalk	-	-
A	435m S	Reading (Coley), Berkshire	Chalk	-	-
B	515m SW	Reading, Berkshire	Chalk	-	-
A	519m S	Reading (Coley), Berkshire	Chalk	-	-

ID	Location	Mine Address	Mineral	Data source	Publisher
A	531m S	Reading (Coley), Berkshire	Chalk	-	-
A	545m S	Reading (Coley), Berkshire	Chalk	-	-
7	579m SW	Reading (West), Berkshire	Chalk	-	-
A	580m S	Reading (Coley), Berkshire	Chalk	-	-
A	593m S	Reading (Coley), Berkshire	Chalk	-	-
10	607m SW	'Cooper's Brick & Lime Manufactory', Reading (West), Berkshire	Chalk	-	-
-	644m S	Reading (Coley), Berkshire	Chalk	-	-
G	666m SW	Reading (West), Berkshire	Chalk	-	-
-	670m S	Reading (Coley), Berkshire	Chalk	-	-
-	678m S	'Castle Hill Kiln', Reading (Coley), Berkshire	Chalk	-	-
-	734m S	Reading (Coley), Berkshire	Chalk	-	-
-	763m S	Reading (Coley), Berkshire	Chalk	-	-
-	799m S	'Coley Potteries', Reading (Coley), Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
-	832m SW	Reading, Berkshire	Chalk	-	-
-	996m SE	Reading, Berkshire	Chalk	-	-

This data is sourced from Peter Brett Associates (PBA).

18.8 JPB mining areas

Records on site	1

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

Location	Details
On site	**Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.**

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

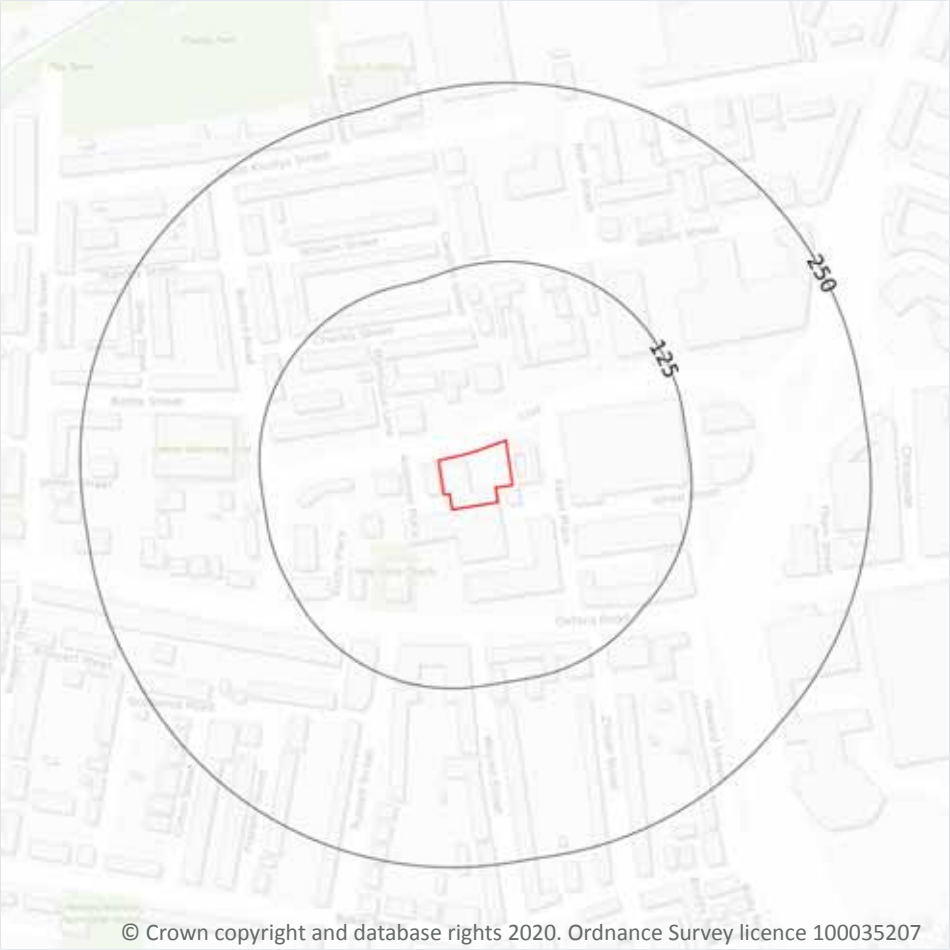
18.13 Clay mining

Records on site	0

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

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

19 Radon



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Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	1

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

Features are displayed on the Radon map on **page 121**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

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

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Site				BH1
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 22-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet 1 of 2

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	B		0.30			MADE GROUND: Tarmack over loose angular and subangular fine to coarse brick and concrete GRAVEL.
					0.80			MADE GROUND: Brick GRAVEL.
		1.00	B		1.00			Soft brown slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of flint.
		1.20 - 1.65	SPT	S 31				Dense becoming medium dense slightly sandy fine to coarse flint GRAVEL.
		2.00 - 2.45	SPT	S 10				2.00 Medium dense.
		3.00 - 3.45	SPT	S 9				
		4.00 - 4.45	SPT	S 10	4.00			Firm white chalky CLAY. Note: Soft to firm at 8.0 m bgl. Note: Groundwater encountered at 8.0 m bgl.
		5.00 - 5.45	SPT	S 14				
		6.50 - 6.95	SPT	S 26				
		8.00 - 8.45	SPT	S 8	8.00 {8.00}			

Continued next sheet

General Remarks

Cable percussive borehole advanced from groundlevel to 13.45 m bgl. No services encountered. Groundwater encountered at 8.0 m bgl. Backfilled with arisings upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:50

Logged By

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3 1 ENZYGO.GPJ 3/12/20

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Site				BH1
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 22-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet 2 of 2

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description	
								Chalk recovered as firm becoming stiff creamish white CLAY.	8
		9.50 - 9.95	SPT	S 18					9
									10
		11.00 - 11.45	SPT	S>50					11
									12
		12.50 - 12.88	SPT	S>50					13
									14
		15.00 - 15.27	SPT	S>50					15
					15.27			Borehole completed at 15.27m.	
					{16.00}				16

General Remarks

Cable percussive borehole advanced from groundlevel to 13.45 m bgl. No services encountered. Groundwater encountered at 8.0 m bgl. Backfilled with arisings upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50		Logged By

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				WS1
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 22-07-20, Finish 22-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.40			MAADE GROUND: Carpet covering over CONCRETE.
					0.80			MADE GROUND: CONCRETE recovered as loose angular and subangular fine to coarse concrete and flint with rare brick GRAVEL.
		1.00 1.00 - 1.45	D SPT	9	1.00			MADE GROUND: Firm brown slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of brick and flint.
		2.00 2.00 - 2.40	D SPT	50	2.40			Dense angular and subangular fine to coarse flint GRAVEL.
					{8.00}			Borehole completed at 2.40m.

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8

General Remarks

Window sample borehole advanced from groundlevel to 2.4 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:50

Logged By: GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				WS2
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.30			MADE GROUND: Tarmac over loose angular and subangular fine to coarse limestone, brick and concrete GRAVEL.
		1.00 1.00 - 1.45	D SPT	2	1.00			Soft brown slightly silty slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of flint.
		2.00 2.00 - 2.45	D SPT	14	2.20			Firm brown slightly silty, slightly sandy, slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of flint.
		3.00 3.00 - 3.45	D SPT	19	3.00			Medium dense brown slightly clayey flint and mudstone GRAVEL.
		4.00 4.00 - 4.45	D SPT	34	4.20			Medium dense to dense angular and subangular fine to coarse flint GRAVEL.
		5.00 5.00 - 5.45	D SPT	50	5.45			Very stiff white chalky CLAY.
					{8.00}			Borehole completed at 5.45m.

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50		Logged By GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				
Catham Street, Reading.				**WS3**
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.30			MADE GROUND: Tarmac over ;oose angular and subangular fine to coarse concrete and brick gravel.
		1.00 1.00 - 1.45	D SPT	2				MADE GROUND: Loose angular and subangular fine to coarse brick and limestone gravel with local coarse gravel sized pockets of brown and black clay.
		2.00 2.00 - 2.45	D SPT	4	2.00			Dense brown slightly gravelly fine to coarse SAND. Gravel is angular and subangular fine to coarse of flint. Note: Borehole collapse back to 2.0 m bgl.
		3.00 3.00 - 3.40	D SPT	50				
					3.40			Borehole completed at 3.40m.
					{8.00}			

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8

General Remarks

Window sample borehole advanced from groundlevel to 3.4 m bgl. No services encountered. No groundwater encountered. Backfilled with arrisings upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:50

Logged By: GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				WS4
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.30			MADE GROUND: Tarmac over loose angular and subangular fine to coarse limestone, brick and concrete GRAVEL.
		1.00 1.00 - 1.45	D SPT	29	1.00			MADE GROUND: Firm brown slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of flint.
		2.00 2.00 - 2.45	D SPT	27	2.00			Medium dense orangish brown slightly clayey, slightly sandy angular and subangular fine to coarse flint GRAVEL.
		3.00 3.00 - 3.45	D SPT	33				Medium dense orangish brown slightly clayey slightly sandy angular and subangular flint GRAVEL with occasional coarse gravel sized pockets of firm clay.
		4.00 4.00 - 4.45	D SPT	16	4.60			
		5.00 5.00 - 5.45	D SPT	20	5.45			Stiff white chalky CLAY.
					{8.00}			Borehole completed at 5.45m.

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upon compleation.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50		Logged By GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				WS5
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.30			MADE GROUND: Tarmac over loose angular and subangular fine to coarse concrete and brick GRAVEL.
		1.00 1.00 - 1.45	D SPT	2	1.00			MADE GROUND: Loose angular and subangular fine to coarse brick and limestone GRAVEL.
		2.00 2.00 - 2.45	D SPT	4	2.70			MADE GROUND: Loose angular and subangular fine to coarse brick, concrete and ceramic tile GRAVEL.
		3.00 3.00 - 3.40	D SPT	50	3.40			Dense angular and subangular very sandy fine to coarse flint GRAVEL.
					{8.00}			Borehole completed at 3.40m.

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 3.4 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50		Logged By GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				
Catham Street, Reading.				**WS6**
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet: 1 of 1

Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Stratum Description
0.30	ES		0.30	MADE GROUND: Tarmac over loose angular and subangular fine to coarse concrete and brick GRAVEL.
				MADE GROUND: Loose angular and subangular fine to coarse cement and brick GRAVEL.
1.00	D	4	1.00	Note: Faint hydrocarbon odour.
1.00 - 1.45	SPT			Soft to firm brown slightly sandy CLAY.
2.00	D	10	2.00	
2.00 - 2.45	SPT			Soft brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of flint.
3.00	D	7		
3.00 - 3.45	SPT			
			3.50	Firm to stiff white chalky CLAY.
4.00	D	26	4.00	
4.00 - 4.45	SPT			Firm white slightly gravelly CLAY gravel is angular and subangular fine to coarse of chalk and flint.
5.00	D	40		
5.00 - 5.45	SPT			
			5.45	Borehole completed at 5.45m.
			{8.00}	

Well: 0 – 5.45 m

Legend: MADE GROUND; Soft to firm brown slightly sandy CLAY; Soft brown slightly sandy slightly gravelly CLAY; Firm to stiff white chalky CLAY; Firm white slightly gravelly CLAY

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:50

Logged By: GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				WS8
Catham Street, Reading.				
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.30			MADE GROUND: Tarmac over loose angular and subangular fine to coarse brick GRAVEL.
		1.00 1.00 - 1.45	D SPT	1	1.00			MADE GROUND: Very soft brown slightly gravelly CLAY. Gravel is subangular and subrounded fine to coarse of brick.
		2.00 2.00 - 2.45	D SPT	30	2.00			Firm brown slightly sandy slightly gravellyn CLAY. Gravel is angular and subangular fine to coarse of flint.
		3.00 3.00 - 3.30	D SPT	50	3.30			Dense angular and subangular fine to coarse flint GRAVEL.
					{8.00}			Borehole completed at 3.30m.

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 3.3 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50		Logged By GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				
Catham Street, Reading.				**WS9**
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.50			MADE GROUND: Tarmac over loose angular and subangular fine to coarse brick GRAVEL.
		1.00 1.00 - 1.45	D SPT	12	1.00			Firm brown slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of flint.
		2.00 2.00 - 2.40	D SPT	50	2.40			Dense brown very sandy fine to coarse angular and subangular flint GRAVEL.
					{8.00}			Borehole completed at 2.40m.

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8

General Remarks

Window sample borehole advanced from groundlevel to 2.4 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:50

Logged By: GH

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

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Site				
Catham Street, Reading.				**WS10**
Job No: CRM.1265.024	Dates: Start 22-07-20, Finish 22-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.30			MADE GROUND: Carpet covering over CONCRETE.
					0.80			MADE GROUND: Concrete recovered as loose angular and subangular flint and concrete GRAVEL.
		1.00 1.00 - 1.45	D SPT	8	1.00			MADE GROUND: Firm brown slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of brick.
		2.00 2.00 - 2.30	D SPT	50	2.30			Dense angular and subangular fine to coarse slightly sandy flint GRAVEL.
					{8.00}			Borehole completed at 2.30m.

General Remarks

Window sample borehole advanced from groundlevel to 2.3 m bgl. No services encountered. No groundwater encountered. backfilled with arisings uponcompletion.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:50

Logged By

1.0 ENZYGO WS LOG CRM.1265.024 CATHAM ROAD, READING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 3/12/20

Enzygo Ltd
Tel: 01454 269237
Fax: 01454 269760
Web: www.enzygo.com

Site				
Catham Street, Reading.				**HP1**
Job No: CRM.1265.024	Dates: Start 21-07-20, Finish 21-07-20	Ground Level (m)	Co-Ordinates	
Client: Archel Homes Limited.				Sheet: 1 of 1

Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
	0.30	ES		0.30			MADE GROUND: Grass over soft brown slightly gravelly CLAY. Gravel is subrounded and rounded fine to coarse of sandstone and brick.
				0.90			MADE GROUND: Soft brown slightly gravelly CLAY. Gravel is subrounded and rounded fine to coarse of flint and brick.
				1.00			Firm brown slightly gravelly CLAY. Gravel is subangular and subrounded fine to coarse of flint.
							Trial Pit completed at 1.00m.
				{4.00}			

0 1 2 3 4

General Remarks

Dimensions: 0.70x0.50x1.00
Hand dug trial pit advanced from groundlevel to 1.0 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

All dimensions in metres
Scale 1:25

Logged By: GH

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Analytical Report Number : 20-20898

Project / Site name:	Reading	**Samples received on:**	23/07/2020
Your job number:	CRM.1265.024	**Sample instructed/ Analysis started on:**	23/07/2020
Your order number:		**Analysis completed by:**	30/07/2020
Report Issue Number:	1	**Report issued on:**	30/07/2020
Samples Analysed:	13 soil samples		

Signed: _____

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570363	1570364	1570365	1570366	1570367
Sample Reference				WS1	WS1	WS2	WS3	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.00	0.30	0.30	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	-
Moisture Content	%	N/A	NONE	0.30	-	0.38	0.22	-
Total mass of sample received	kg	0.001	NONE	1.0	-	0.80	0.90	-
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.7	-	8.4	8.5	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	< 0.1	-	2.9	4.5	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	4.1	77	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	2.2	6.1	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	52	310	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	65	260	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	440	1400	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	80	310	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	400	1300	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	280	910	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	160	530	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	130	420	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	130	510	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	66	150	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	86	330	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	50	190	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	17	60	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	49	190	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	2010	6910	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	-	6.6	6.8	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	-	< 0.2	0.4	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	0.6	0.5	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	11	5.0	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.0	-	7.9	5.4	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.6	-	16	25	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	-	14	2.2	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	28	-	78	56	-

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570363	1570364	1570365	1570366	1570367
Sample Reference				WS1	WS1	WS2	WS3	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.00	0.30	0.30	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	2.4	3.1	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	12	8.8	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	59	24	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	1200	33	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	500	19	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	1300	69	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	-	1800	88	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	6.3	120	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	140	1400	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	1200	5200	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	3000	4400	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	1400	400	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	4400	11000	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	-	5800	12000	-
TPH (>C5 - C7)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPH (>C7 - C8)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	-	8.7	120	-
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	-	150	1400	-
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	-	1300	5200	-
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	-	4200	4500	-
TPH (C35 - C44)	mg/kg	10	NONE	< 10	-	1900	420	-
TPH Total C5 - C44	mg/kg	10	NONE	< 10	-	7600	12000	-

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570368	1570369	1570370	1570371	1570372
Sample Reference				WS4	WS5	WS6	WS6	WS8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.30	0.30	1.00	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	3.8	-	5.4	14
Total mass of sample received	kg	0.001	NONE	0.70	0.90	-	0.50	1.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile - Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	9.2	-	-	8.6
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	< 0.1	-	-	0.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	2.0
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	1.6
Phenanthrene	mg/kg	0.05	MCERTS	-	0.83	-	-	13
Anthracene	mg/kg	0.05	MCERTS	-	0.20	-	-	3.3
Fluoranthene	mg/kg	0.05	MCERTS	-	2.9	-	-	19
Pyrene	mg/kg	0.05	MCERTS	-	2.5	-	-	14
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.9	-	-	8.3
Chrysene	mg/kg	0.05	MCERTS	-	1.2	-	-	5.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	2.3	-	-	8.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	1.0	-	-	3.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1.6	-	-	6.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	1.1	-	-	4.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.31	-	-	1.3
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	1.0	-	-	4.7
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	16.9	-	-	95.7
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	27	-	-	8.6
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.2	-	-	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.6	-	-	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	26	-	-	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	11	-	-	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	35	-	-	77
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.3	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	23	-	-	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	100	-	-	140

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570368	1570369	1570370	1570371	1570372
Sample Reference				WS4	WS5	WS6	WS6	WS8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.30	0.30	1.00	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	3.4	-	< 1.0	1.3
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.8	-	< 2.0	3.4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	16	-	< 8.0	14
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	79	-	< 8.0	45
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	17	-	-	23
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	100	-	< 10	64
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	120	-	-	86
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	-	5.7	7.3
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	13	20	-	53	42
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	45	75	-	130	120
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	34	-	-	72
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	58	95	-	190	170
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	130	-	-	240
TPH (>C5 - C7)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPH (>C7 - C8)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPH (C8 - C10)	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	-	3.4	-	-	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	-	5.8	-	-	11
TPH (C16 - C21)	mg/kg	1	MCERTS	-	36	-	-	56
TPH (C21 - C35)	mg/kg	1	MCERTS	-	150	-	-	160
TPH (C35 - C44)	mg/kg	10	NONE	-	51	-	-	95
TPH Total C5 - C44	mg/kg	10	NONE	-	250	-	-	330

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570373	1570374	1570375		
Sample Reference				WS9	WS10	HP1		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.30	0.30	0.30		
Date Sampled				22/07/2020	22/07/2020	22/07/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	2.1	0.86	7.2		
Total mass of sample received	kg	0.001	NONE	1.3	1.0	1.0		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	9.9	12.1	7.7		
Total Organic Carbon (TOC)	%	0.1	MCERTS	< 0.1	< 0.1	1.9		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	2.7	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	2.6	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	22	0.29	0.49		
Anthracene	mg/kg	0.05	MCERTS	4.9	< 0.05	0.11		
Fluoranthene	mg/kg	0.05	MCERTS	31	0.47	1.4		
Pyrene	mg/kg	0.05	MCERTS	23	0.48	1.3		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	15	0.25	0.96		
Chrysene	mg/kg	0.05	MCERTS	8.6	0.15	0.52		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	11	< 0.05	0.80		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	8.0	< 0.05	0.45		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	9.3	< 0.05	0.64		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	5.5	< 0.05	0.37		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.7	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.2	< 0.05	0.41		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	150	1.64	7.48		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	39	14	11		
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	1.1	1.2		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	4.2	< 0.2	0.9		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.3	27	21		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3.4	7.6	35		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	11	120		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.7		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.0	17	17		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	480	43	190		

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570373	1570374	1570375		
Sample Reference				WS9	WS10	HP1		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.30	0.30	0.30		
Date Sampled				22/07/2020	22/07/2020	22/07/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-		
Toluene	µg/kg	1	MCERTS	-	-	-		
Ethylbenzene	µg/kg	1	MCERTS	-	-	-		
p & m-xylene	µg/kg	1	MCERTS	-	-	-		
o-xylene	µg/kg	1	MCERTS	-	-	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	15	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	110	< 10	12		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	150	< 10	27		
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	30	< 8.4	< 8.4		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	280	< 10	39		
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	310	< 10	39		
TPH (>C5 - C7)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH (>C7 - C8)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH (C12 - C16)	mg/kg	4	MCERTS	15	< 4.0	< 4.0		
TPH (C16 - C21)	mg/kg	1	MCERTS	110	< 1.0	12		
TPH (C21 - C35)	mg/kg	1	MCERTS	150	< 1.0	27		
TPH (C35 - C44)	mg/kg	10	NONE	30	< 10	< 10		
TPH Total C5 - C44	mg/kg	10	NONE	310	< 10	39		

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Analytical Report Number : 20-20898

Project / Site name: Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1570363	WS1	None Supplied	0.30	Light brown clay and sand with gravel.
1570364	WS1	None Supplied	1.00	-
1570365	WS2	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1570366	WS3	None Supplied	0.30	Brown clay and sand with tar.
1570367	WS4	None Supplied	0.30	-
1570368	WS4	None Supplied	1.00	Brown clay and loam with gravel and vegetation.
1570369	WS5	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1570370	WS6	None Supplied	0.30	-
1570371	WS6	None Supplied	1.00	Brown clay and sand with gravel.
1570372	WS8	None Supplied	0.30	Brown loam and clay with gravel and brick.
1570373	WS9	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1570374	WS10	None Supplied	0.30	Light brown clay and sand with gravel.
1570375	HP1	None Supplied	0.30	Brown loam and clay with gravel and vegetation.

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Analytical Report Number : 20-20898

Project / Site name: Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 20-20898

Replaces Analytical Report Number : 20-20898, issue no. 1

Additional analysis undertaken.

Project / Site name:	Reading	**Samples received on:**	23/07/2020
Your job number:	CRM.1265.024	**Sample instructed/ Analysis started on:**	23/07/2020
Your order number:		**Analysis completed by:**	12/08/2020
Report Issue Number:	2	**Report issued on:**	13/08/2020
Samples Analysed:	13 soil samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570363	1570364	1570365	1570366	1570367
Sample Reference				WS1	WS1	WS2	WS3	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.00	0.30	0.30	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	0.30	-	0.38	0.22	2.1
Total mass of sample received	kg	0.001	NONE	1.0	-	0.80	0.90	0.90
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.7	-	8.4	8.5	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	< 0.1	-	2.9	4.5	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	4.1	77	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	2.2	6.1	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	52	310	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	65	260	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	440	1400	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	80	310	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	400	1300	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	280	910	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	160	530	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	130	420	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	130	510	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	66	150	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	86	330	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	50	190	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	17	60	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	49	190	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	2010	6910	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	-	6.6	6.8	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	-	< 0.2	0.4	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	0.6	0.5	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	11	5.0	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.0	-	7.9	5.4	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.6	-	16	25	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	-	14	2.2	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	28	-	78	56	-

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570363	1570364	1570365	1570366	1570367
Sample Reference				WS1	WS1	WS2	WS3	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.00	0.30	0.30	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	2.4	3.1	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	12	8.8	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	59	24	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	1200	33	41
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	500	19	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	1300	69	49
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	-	1800	88	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	6.3	120	11
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	140	1400	63
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	1200	5200	360
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	3000	4400	460
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	1400	400	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	4400	11000	900
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	-	5800	12000	-
TPH (>C5 - C7)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPH (>C7 - C8)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	-	8.7	120	-
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	-	150	1400	-
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	-	1300	5200	-
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	-	4200	4500	-
TPH (C35 - C44)	mg/kg	10	NONE	< 10	-	1900	420	-
TPH Total C5 - C44	mg/kg	10	NONE	< 10	-	7600	12000	-

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570368	1570369	1570370	1570371	1570372
Sample Reference				WS4	WS5	WS6	WS6	WS8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.30	0.30	1.00	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	3.8	-	5.4	14
Total mass of sample received	kg	0.001	NONE	0.70	0.90	-	0.50	1.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	0.003
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	0.003
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	9.2	-	-	8.6
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	< 0.1	-	-	0.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	2.0
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	1.6
Phenanthrene	mg/kg	0.05	MCERTS	-	0.83	-	-	13
Anthracene	mg/kg	0.05	MCERTS	-	0.20	-	-	3.3
Fluoranthene	mg/kg	0.05	MCERTS	-	2.9	-	-	19
Pyrene	mg/kg	0.05	MCERTS	-	2.5	-	-	14
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.9	-	-	8.3
Chrysene	mg/kg	0.05	MCERTS	-	1.2	-	-	5.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	2.3	-	-	8.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	1.0	-	-	3.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1.6	-	-	6.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	1.1	-	-	4.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.31	-	-	1.3
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	1.0	-	-	4.7
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	16.9	-	-	95.7
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	27	-	-	8.6
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.2	-	-	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.6	-	-	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	26	-	-	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	11	-	-	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	35	-	-	77
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.3	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	23	-	-	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	100	-	-	140

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570368	1570369	1570370	1570371	1570372
Sample Reference				WS4	WS5	WS6	WS6	WS8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.30	0.30	1.00	0.30
Date Sampled				22/07/2020	22/07/2020	22/07/2020	22/07/2020	22/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	3.4	-	< 1.0	1.3
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.8	-	< 2.0	3.4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	16	-	< 8.0	14
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	79	-	< 8.0	45
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	17	-	-	23
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	100	-	< 10	64
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	120	-	-	86

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	-	5.7	7.3
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	13	20	-	53	42
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	45	75	-	130	120
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	34	-	-	72
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	58	95	-	190	170
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	130	-	-	240

TPH (>C5 - C7)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPH (>C7 - C8)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPH (C8 - C10)	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	-	3.4	-	-	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	-	5.8	-	-	11
TPH (C16 - C21)	mg/kg	1	MCERTS	-	36	-	-	56
TPH (C21 - C35)	mg/kg	1	MCERTS	-	150	-	-	160
TPH (C35 - C44)	mg/kg	10	NONE	-	51	-	-	95
TPH Total C5 - C44	mg/kg	10	NONE	-	250	-	-	330

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570373	1570374	1570375		
Sample Reference				WS9	WS10	HP1		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.30	0.30	0.30		
Date Sampled				22/07/2020	22/07/2020	22/07/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	2.1	0.86	7.2		
Total mass of sample received	kg	0.001	NONE	1.3	1.0	1.0		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-		
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	9.9	12.1	7.7		
Total Organic Carbon (TOC)	%	0.1	MCERTS	< 0.1	< 0.1	1.9		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	2.7	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	2.6	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	22	0.29	0.49		
Anthracene	mg/kg	0.05	MCERTS	4.9	< 0.05	0.11		
Fluoranthene	mg/kg	0.05	MCERTS	31	0.47	1.4		
Pyrene	mg/kg	0.05	MCERTS	23	0.48	1.3		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	15	0.25	0.96		
Chrysene	mg/kg	0.05	MCERTS	8.6	0.15	0.52		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	11	< 0.05	0.80		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	8.0	< 0.05	0.45		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	9.3	< 0.05	0.64		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	5.5	< 0.05	0.37		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.7	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.2	< 0.05	0.41		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	150	1.64	7.48		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	39	14	11		
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	1.1	1.2		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	4.2	< 0.2	0.9		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.3	27	21		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3.4	7.6	35		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	11	120		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.7		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.0	17	17		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	480	43	190		

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Analytical Report Number: 20-20898

Project / Site name: Reading

Lab Sample Number				1570373	1570374	1570375		
Sample Reference				WS9	WS10	HP1		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.30	0.30	0.30		
Date Sampled				22/07/2020	22/07/2020	22/07/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-		
Toluene	µg/kg	1	MCERTS	-	-	-		
Ethylbenzene	µg/kg	1	MCERTS	-	-	-		
p & m-xylene	µg/kg	1	MCERTS	-	-	-		
o-xylene	µg/kg	1	MCERTS	-	-	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	15	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	110	< 10	12		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	150	< 10	27		
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	30	< 8.4	< 8.4		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	280	< 10	39		
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	310	< 10	39		

TPH (>C5 - C7)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH (>C7 - C8)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH (C12 - C16)	mg/kg	4	MCERTS	15	< 4.0	< 4.0		
TPH (C16 - C21)	mg/kg	1	MCERTS	110	< 1.0	12		
TPH (C21 - C35)	mg/kg	1	MCERTS	150	< 1.0	27		
TPH (C35 - C44)	mg/kg	10	NONE	30	< 10	< 10		
TPH Total C5 - C44	mg/kg	10	NONE	310	< 10	39		

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Analytical Report Number: 20-20898
Project / Site name: Reading
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1570372	WS8	0.30	105	Loose Fibres	**Chrysotile**	0.003	**0.003**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 20-20898

Project / Site name: Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1570363	WS1	None Supplied	0.30	Light brown clay and sand with gravel.
1570364	WS1	None Supplied	1.00	-
1570365	WS2	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1570366	WS3	None Supplied	0.30	Brown clay and sand with tar.
1570367	WS4	None Supplied	0.30	Light brown sand with gravel.
1570368	WS4	None Supplied	1.00	Brown clay and loam with gravel and vegetation.
1570369	WS5	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1570370	WS6	None Supplied	0.30	-
1570371	WS6	None Supplied	1.00	Brown clay and sand with gravel.
1570372	WS8	None Supplied	0.30	Brown loam and clay with gravel and brick.
1570373	WS9	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1570374	WS10	None Supplied	0.30	Light brown clay and sand with gravel.
1570375	HP1	None Supplied	0.30	Brown loam and clay with gravel and vegetation.

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Analytical Report Number : 20-20898

Project / Site name: Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 20-20899

Project / Site name:	Reading	**Samples received on:**	23/07/2020
Your job number:	CRM.1265.024	**Sample instructed/ Analysis started on:**	23/07/2020
Your order number:		**Analysis completed by:**	31/07/2020
Report Issue Number:	1	**Report issued on:**	03/08/2020
Samples Analysed:	3 wac multi samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results

Report No:	**20-20899**						
					Client:	**ENZYGOGEO**	
Location	**Reading**						
Lab Reference (Sample Number)	1570376				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/07/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS4						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	< 0.1				3%	5%	6%
Loss on Ignition (%) **	1.3				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	123				100	--	--
pH (units)**	7.9				--	>6	--
Acid Neutralisation Capacity (mol / kg)	23				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg			
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.40	0.59		5.7	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	< 0.0010		< 0.0050	0.5	10	70
Copper *	0.0018	< 0.0030		< 0.020	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	< 0.0010	< 0.0010		0.0050	0.4	10	40
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *	< 0.0050	< 0.0050		0.026	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0083	0.0031		0.036	4	50	200
Chloride *	4.5	< 4.0		17	800	15000	25000
Fluoride	0.25	0.29		2.9	10	150	500
Sulphate *	6.3	3.9		41	1000	20000	50000
TDS*	54	37		390	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	4.0	4.6		45	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.90						
Dry Matter (%)	98						
Moisture (%)	2.1						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.19						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited

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Waste Acceptance Criteria Analytical Results

Report No:	**20-20899**						
					Client:	**ENZYGOGEO**	
Location	**Reading**						
Lab Reference (Sample Number)	1570377				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/07/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS6						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	< 0.1				3%	5%	6%
Loss on Ignition (%) **	3.2				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	10.8				--	>6	--
Acid Neutralisation Capacity (mol / kg)	37				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg			
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.014	0.013		0.13	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.16	0.054		0.68	0.5	10	70
Copper *	0.0033	< 0.0030		0.021	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	< 0.0010	< 0.0010		< 0.0050	0.4	10	40
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	< 0.0010	< 0.0010		< 0.020	4	50	200
Chloride *	16	4.5		61	800	15000	25000
Fluoride	0.10	0.14		1.4	10	150	500
Sulphate *	42	38		380	1000	20000	50000
TDS*	150	250		2400	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	4.6	4.4		45	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.90						
Dry Matter (%)	96						
Moisture (%)	3.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.24						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

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Waste Acceptance Criteria Analytical Results

Report No:	**20-20899**						
					Client:	**ENZYGOGEO**	
Location	**Reading**						
Lab Reference (Sample Number)	1570378				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/07/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS10						
Depth (m)	1.00						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	4.3				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	25				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.8				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.5				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg			
Arsenic *	< 0.010	< 0.010		0.086	0.5	2	25
Barium *	0.023	0.0060		0.080	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0039	0.0020		0.023	0.5	10	70
Copper *	0.0064	0.0059		0.060	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.019	0.011		0.12	0.5	10	30
Nickel *	0.0012	0.0014		0.014	0.4	10	40
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.017	0.0115		0.12	4	50	200
Chloride *	7.3	4.3		46	800	15000	25000
Fluoride	< 0.050	0.079		0.75	10	150	500
Sulphate *	68	7.8		150	1000	20000	50000
TDS*	370	71		1100	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	6.4	8.7		84	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.40						
Dry Matter (%)	91						
Moisture (%)	9.1						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.21						

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Analytical Report Number : 20-20899

Project / Site name: Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1570376	WS4	None Supplied	0.30	Light brown sand with gravel.
1570377	WS6	None Supplied	0.30	Light grey sand with rubble.
1570378	WS10	None Supplied	1.00	Brown clay and sand with gravel and brick.

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Analytical Report Number : 20-20899

Project / Site name: Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS

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Analytical Report Number : 20-20899

Project / Site name: Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Determinant	Units	GAC Value Residential					
		With Plant Uptake			Without Plant Uptake		
Arsenic	mg/kg	37			40		
Cadmium	mg/kg	11			85		
Chromium	mg/kg	910			910		
Chromium VI	mg/kg	6			6		
Lead	mg/kg	200			310		
Mercury	mg/kg	40			56		
Nickel	mg/kg	180			180		
Selenium	mg/kg	250			430		
Copper	mg/kg	2400			7100		
Zinc	mg/kg	3700			40000		
Cyanide	mg/kg	791			800		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	120	200	380	440	690	1200
Napthalene	mg/kg	2.3	5.6	13	2.3	5.6	13
Acenaphtylene	mg/kg	170	420	920	2900	4600	6000
Acenaphthene	mg/kg	210	510	1100	3000	4700	6000
Flourene	mg/kg	170	400	860	2800	3800	4500
Phenanthrene	mg/kg	95	220	440	1300	1500	1500
Anthracene	mg/kg	2400	5400	11000	31000	35000	37000
Fluoranthene	mg/kg	280	560	890	1500	1600	1600
Pyrene	mg/kg	620	1200	2000	3700	3800	3800
Benzo(a)Anthracene	mg/kg	7.2	11	13	11	14	15
Chrysene	mg/kg	15	22	27	30	31	32
Benzo(b)Flouranthene	mg/kg	2.6	3.3	3.7	3.9	4.0	4.0
Benzo(k)Flouranthene	mg/kg	77	93	100	110	110	110
Benzo(a)Pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2
Indeno(123-cd)Pyrene	mg/kg	27	36	41	45	46	46
Dibenzo(a,h)Anthracene	mg/kg	0.24	0.28	0.3	0.31	0.32	0.32
Benzo(ghi)Perylene	mg/kg	320	340	350	360	360	360
TPH C_5-C_6 Aliphatic	mg/kg	**42**	**78**	**160**	**42**	**78**	**160**
TPH C_6-C_8 Aliphatic	mg/kg	**100**	**230**	**530**	**100**	**230**	**530**
TPH C_8-C_{10} Aliphatic	mg/kg	**27**	**65**	**150**	**27**	**65**	**150**
TPH C_{10}-C_{12} Aliphatic	mg/kg	130	330	760	**130**	**330**	**770**
TPH C_{12}-C_{16} Aliphatic	mg/kg	1100	2400	4300	**1100**	2400	4400
TPH C_{16}-C_{35} Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C_{35}-C_{44} Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C_5-C_7 Aromatic	mg/kg	70	140	300	370	690	1400
TPH C_7-C_8 Aromatic	mg/kg	130	290	660	860	1800	3900
TPH C_8-C_{10} Aromatic	mg/kg	34	83	190	47	110	270
TPH C_{10}-C_{12} Aromatic	mg/kg	**74**	**180**	**380**	250	590	1200
TPH C_{12}-C_{16} Aromatic	mg/kg	**140**	**330**	**660**	1800	**2300**	**2500**
TPH C_{16}-C_{21} Aromatic	mg/kg	**260**	**540**	**930**	**1900**	**1900**	**1900**
TPH C_{21}-C_{35} Aromatic	mg/kg	**1100**	**1500**	**1700**	**1900**	**1900**	**1900**
TPH C_{35}-C_{44} Aromatic	mg/kg	**1100**	**1500**	**1700**	**1900**	**1900**	**1900**
Benzene	mg/kg	0.087	0.17	0.37	0.38	0.70	1.4
Toluene	mg/kg	130	290	660	880	1900	3900
Ethylebenzene	mg/kg	47	110	260	83	190	440
Xylene	mg/kg	56	130	310	79	180	430

Determinant	Units	GAC Value					
		Residential POS			Commercial		
Arsenic	mg/kg	79			640		
Cadmium	mg/kg	120			190		
Chromium	mg/kg	1500			8600		
Chromium VI	mg/kg	7.7			33		
Lead	mg/kg	630			2330		
Mercury	mg/kg	120			1100		
Nickel	mg/kg	230			980		
Selenium	mg/kg	1100			12000		
Copper	mg/kg	12000			68000		
Zinc	mg/kg	81000			730000		
Cyanide	mg/kg	N/A			16200		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	690	1300	440	690	1300
Napthalene	mg/kg	4900	4900	4900	190	460	1100
Acenaphtylene	mg/kg	15000	15000	15000	83000	97000	100000
Acenaphthene	mg/kg	15000	15000	15000	84000	97000	100000
Flourene	mg/kg	9900	9900	9900	63000	68000	71000
Phenanthrene	mg/kg	3100	3100	3100	22000	22000	23000
Anthracene	mg/kg	74000	74000	74000	520000	540000	540000
Fluoranthene	mg/kg	3100	3100	3100	23000	23000	23000
Pyrene	mg/kg	7400	7400	7400	54000	54000	54000
Benzo(a)Anthracene	mg/kg	29	29	29	170	170	180
Chrysene	mg/kg	57	57	57	350	350	350
Benzo(b)Flouranthene	mg/kg	7.1	7.2	7.2	44	44	45
Benzo(k)Flouranthene	mg/kg	190	190	190	1200	1200	1200
Benzo(a)Pyrene	mg/kg	5.7	5.7	5.7	35	35	36
Indeno(123-cd)Pyrene	mg/kg	82	82	82	500	510	510
Dibenzo(a,h)Anthracene	mg/kg	0.57	0.57	0.58	3.5	3.6	3.6
Benzo(ghi)Perylene	mg/kg	640	640	640	3900	4000	4000
TPH C_5-C_6 Aliphatic	mg/kg	570000	590000	600000	**3200**	**5900**	**12000**
TPH C_6-C_8 Aliphatic	mg/kg	600000	610000	620000	**7800**	**17000**	**40000**
TPH C_8-C_{10} Aliphatic	mg/kg	13000	13000	13000	**2000**	**4800**	**11000**
TPH C_{10}-C_{12} Aliphatic	mg/kg	13000	13000	13000	**9700**	**23000**	47000
TPH C_{12}-C_{16} Aliphatic	mg/kg	13000	13000	13000	59000	82000	90000
TPH C_{16}-C_{35} Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C_{35}-C_{44} Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C_5-C_7 Aromatic	mg/kg	**56000**	**56000**	**56000**	26000	46000	86000
TPH C_7-C_8 Aromatic	mg/kg	**56000**	**56000**	**56000**	56000	110000	180000
TPH C_8-C_{10} Aromatic	mg/kg	**5000**	**5000**	**5000**	3500	8100	17000
TPH C_{10}-C_{12} Aromatic	mg/kg	**5000**	**5000**	**5000**	16000	28000	**34000**
TPH C_{12}-C_{16} Aromatic	mg/kg	**5100**	**5100**	**5000**	**36000**	**37000**	**38000**
TPH C_{16}-C_{21} Aromatic	mg/kg	**3800**	**3800**	**3800**	**28000**	**28000**	**28000**
TPH C_{21}-C_{35} Aromatic	mg/kg	**3800**	**3800**	**3800**	**28000**	**28000**	**28000**
TPH C_{35}-C_{44} Aromatic	mg/kg	**3800**	**3800**	**3800**	**28000**	**28000**	**28000**
Benzene	mg/kg	72	72	73	27	47	90
Toluene	mg/kg	56000	56000	56000	56000	110000	180000
Ethylebenzene	mg/kg	24000	24000	25000	5700	13000	27000
Xylene	mg/kg	41000	42000	43000	5900	14000	30000

Determinant	Units	GAC Value					
		Park POS			Allotments		
Arsenic	mg/kg	170			43		
Cadmium	mg/kg	532			1.9		
Chromium	mg/kg	33000			18000		
Chromium VI	mg/kg	220			1.8		
Lead	mg/kg	1300			80		
Mercury	mg/kg	240			19		
Nickel	mg/kg	3400			230		
Selenium	mg/kg	1800			88		
Copper	mg/kg	44000			520		
Zinc	mg/kg	170000			620		
Cyanide	mg/kg						
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	690	1300	23	42	83
Napthalene	mg/kg	1200	1900	3000	4.1	10	24
Acenaphtylene	mg/kg	29000	30000	30000	28	69	160
Acenaphthene	mg/kg	29000	30000	30000	34	85	200
Flourene	mg/kg	20000	20000	20000	27	67	160
Phenanthrene	mg/kg	6200	6200	6300	15	38	90
Anthracene	mg/kg	150000	150000	150000	380	950	2200
Fluoranthene	mg/kg	6300	6300	6400	52	130	290
Pyrene	mg/kg	15000	15000	15000	110	270	620
Benzo(a)Anthracene	mg/kg	49	56	62	2.9	6.5	13
Chrysene	mg/kg	93	110	120	4.1	9.4	19
Benzo(b)Flouranthene	mg/kg	13	15	16	0.99	2.1	3.9
Benzo(k)Flouranthene	mg/kg	370	410	440	37	75	130
Benzo(a)Pyrene	mg/kg	11	12	13	0.97	2.0	3.5
Indeno(123-cd)Pyrene	mg/kg	150	170	180	9.5	21	39
Dibenzo(a,h)Anthracene	mg/kg	1.1	1.3	1.4	0.14	0.27	0.43
Benzo(ghi)Perylene	mg/kg	1400	1500	1600	290	470	640
TPH C_5-C_6 Aliphatic	mg/kg	95000	130000	180000	730	1700	3900
TPH C_6-C_8 Aliphatic	mg/kg	150000	220000	320000	2300	5600	13000
TPH C_8-C_{10} Aliphatic	mg/kg	14000	18000	21000	320	770	1700
TPH C_{10}-C_{12} Aliphatic	mg/kg	21000	23000	24000	2200	4400	7300
TPH C_{12}-C_{16} Aliphatic	mg/kg	25000	25000	26000	11000	13000	13000
TPH C_{16}-C_{35} Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C_{35}-C_{44} Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C_5-C_7 Aromatic	mg/kg	**76000**	**84000**	**92000**	**13**	**27**	**57**
TPH C_7-C_8 Aromatic	mg/kg	**87000**	**95000**	**100000**	**22**	**51**	**120**
TPH C_8-C_{10} Aromatic	mg/kg	**7200**	**8500**	**9300**	**8.6**	**21**	**51**
TPH C_{10}-C_{12} Aromatic	mg/kg	**9200**	**9700**	**10000**	**13**	**31**	**74**
TPH C_{12}-C_{16} Aromatic	mg/kg	**10000**	**10000**	**10000**	**23**	**57**	**130**
TPH C_{16}-C_{21} Aromatic	mg/kg	**7600**	**7700**	**7800**	**46**	**110**	**260**
TPH C_{21}-C_{35} Aromatic	mg/kg	**7800**	**7800**	**7900**	**370**	**820**	**1600**
TPH C_{35}-C_{44} Aromatic	mg/kg	**7800**	**7800**	**7900**	**370**	**820**	**1600**
Benzene	mg/kg	90	100	110	0.017	0.034	0.075
Toluene	mg/kg	87000	95000	100000	22	51	120
Ethylebenzene	mg/kg	17000	22000	27000	16	39	91
Xylene	mg/kg	17000	23000	31000	28	67	160

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Controlled Waters Assessment Reference Values

Determinant	Unit	EQS Freshwater						UK DWS	WHO
Hardness	mg/l	0-50	50-100	100-150	150-200	200-250	>250		
Arsenic	ug/l	50						10	10
Boron	ug/l	2000						1000	0.3
Cadmium	ug/l	5						5	3
Chromium	ug/l	2	10	10	20	20	20	50	50
Lead	ug/l	4	10	10	20	20	20	10	10
Mercury	ug/l	1						1	1
Selenium	ug/l							10	10
Copper	ug/l	0.5	3	3	3	8	12	20000	2000
Nickel	ug/l	8	20	20	40	40	40	20	70
Zinc	ug/l	8	15	15	50	50	50	5000	3000
Sulphate	mg/l	400						250	250
PAH	ug/l							0.1	
Anthracene	ug/l	0.02							
Naphthalene	ug/l	10							
Benzo(a)Pyrene	ug/l	0.03							0.01
Fluoranthene	ug/l	0.02							
Benzene	ug/l	30						1	10
Toluene	ug/l	50							
Ethylebenzene	ug/l	20							
Xylene	ug/l	30							
$C_5 – C_6$ Aliphatic	ug/l								15000
$C_6 – C_8$ Aliphatic	ug/l								15000
$C_8 – C_{10}$ Aliphatic	ug/l								300
$C_{10} – C_{12}$ Aliphatic	ug/l								300
$C_{12} – C_{16}$ Aliphatic	ug/l								300
$C_{16} – C_{36}$ Aliphatic	ug/l								N/A
$C_6 – C_7$ Aromatic	ug/l								10
$C_7 – C_8$ Aromatic	ug/l	50							10
$C_8 – C_{10}$ Aromatic	ug/l	20							300
$C_{10} – C_{12}$ Aromatic	ug/l								1000
$C_{12} – C_{16}$ Aromatic	ug/l								1000
$C_{16} – C_{21}$ Aromatic	ug/l								90
$C_{21} – C_{35}$ Aromatic	ug/l								90

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

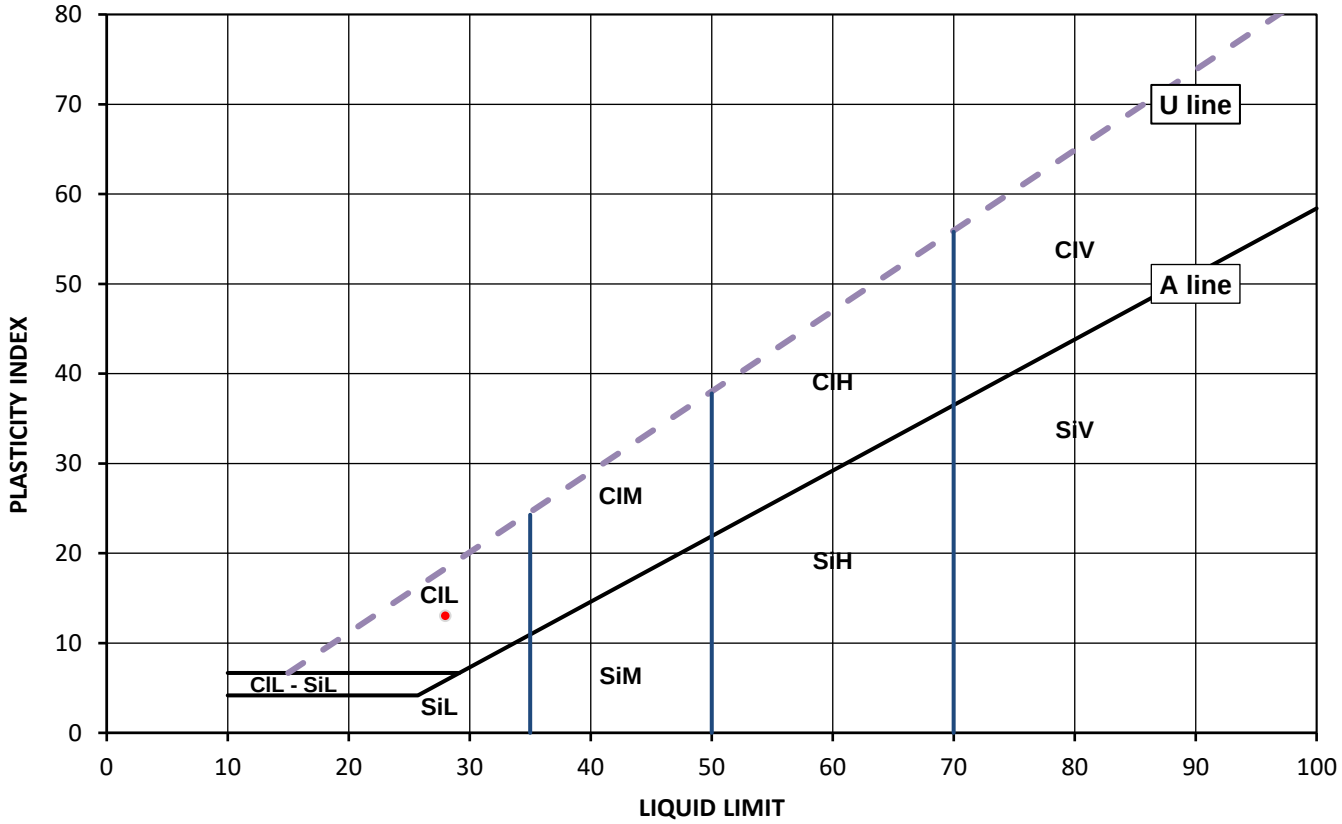
Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.1265.024
Client Address:	The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA	Job Number:	20-21791
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575783	Depth Top [m]:	1.00
Hole No.:	WS2	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	28	15	13	71



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2020

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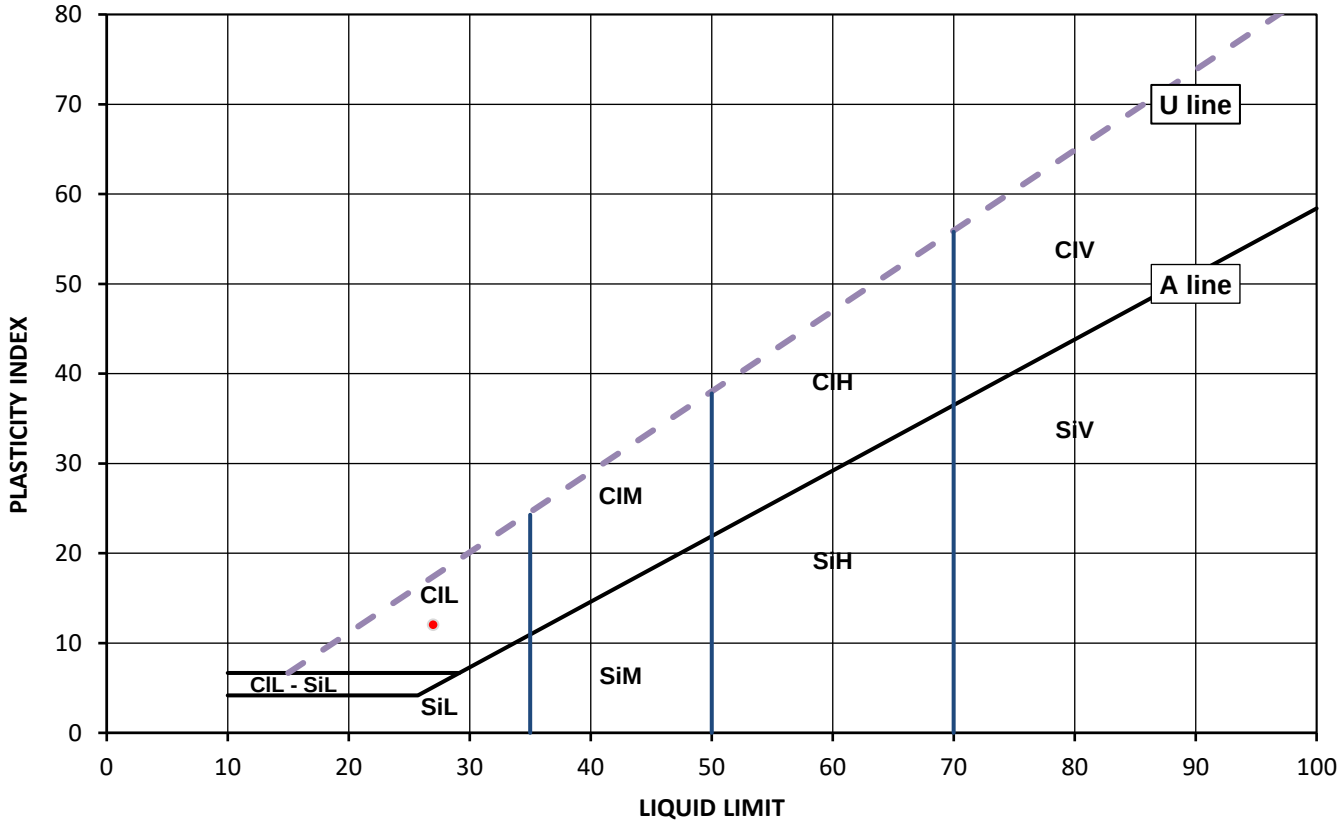
Client Address:	The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA	Job Number:	20-21791
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575784	Depth Top [m]:	2.00
Hole No.:	WS2	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	27	15	12	76



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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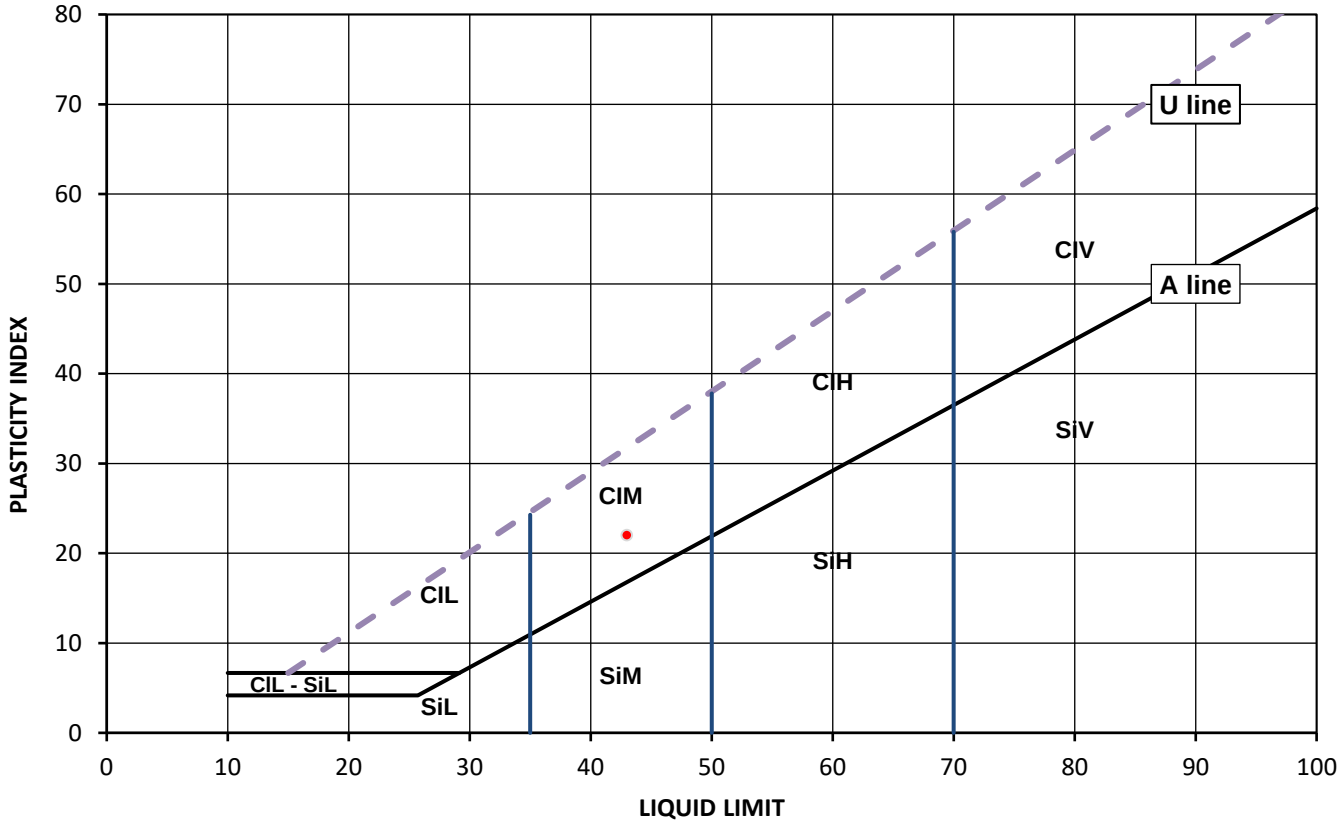
Client Address:	The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA	Job Number:	20-21791
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575789	Depth Top [m]:	2.00
Hole No.:	WS4	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown sandy very gravelly CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
7.2	43	21	22	20



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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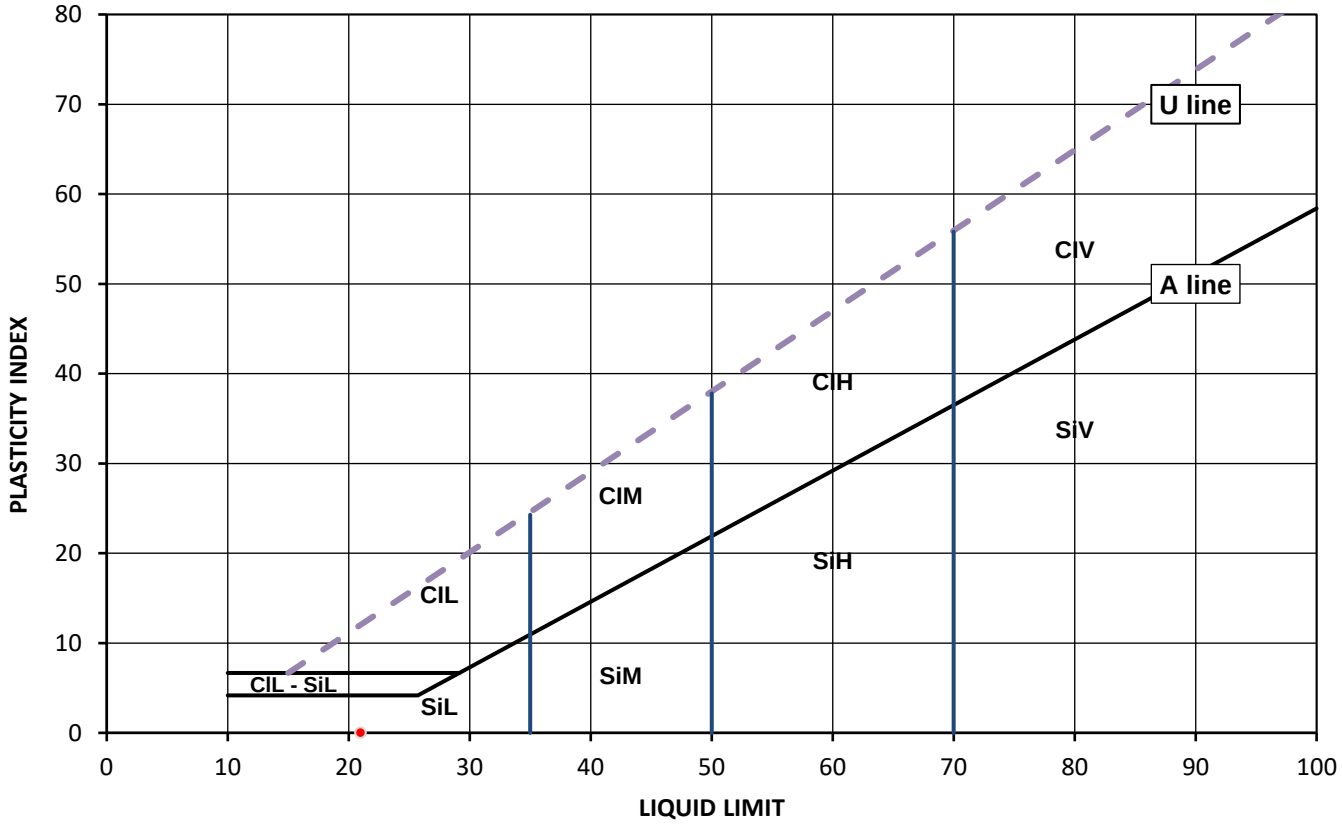
Client Address:	The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA	Job Number:	20-21791
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575794	Depth Top [m]:	2.00
Hole No.:	WS6	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly slightly clayey SAND		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	21	NP	NP	93



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

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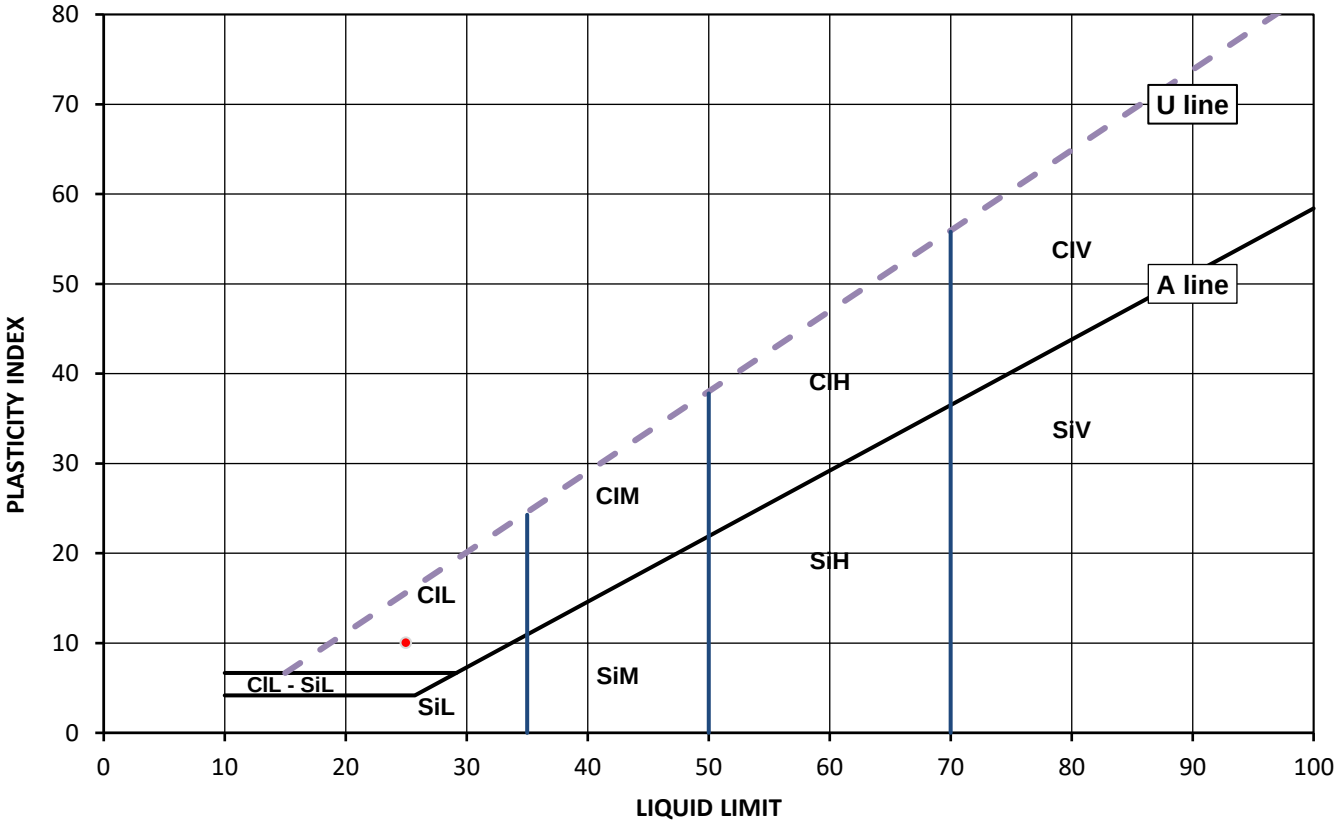
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575795	Depth Top [m]:	3.00
Hole No.:	WS6	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	25	15	10	84



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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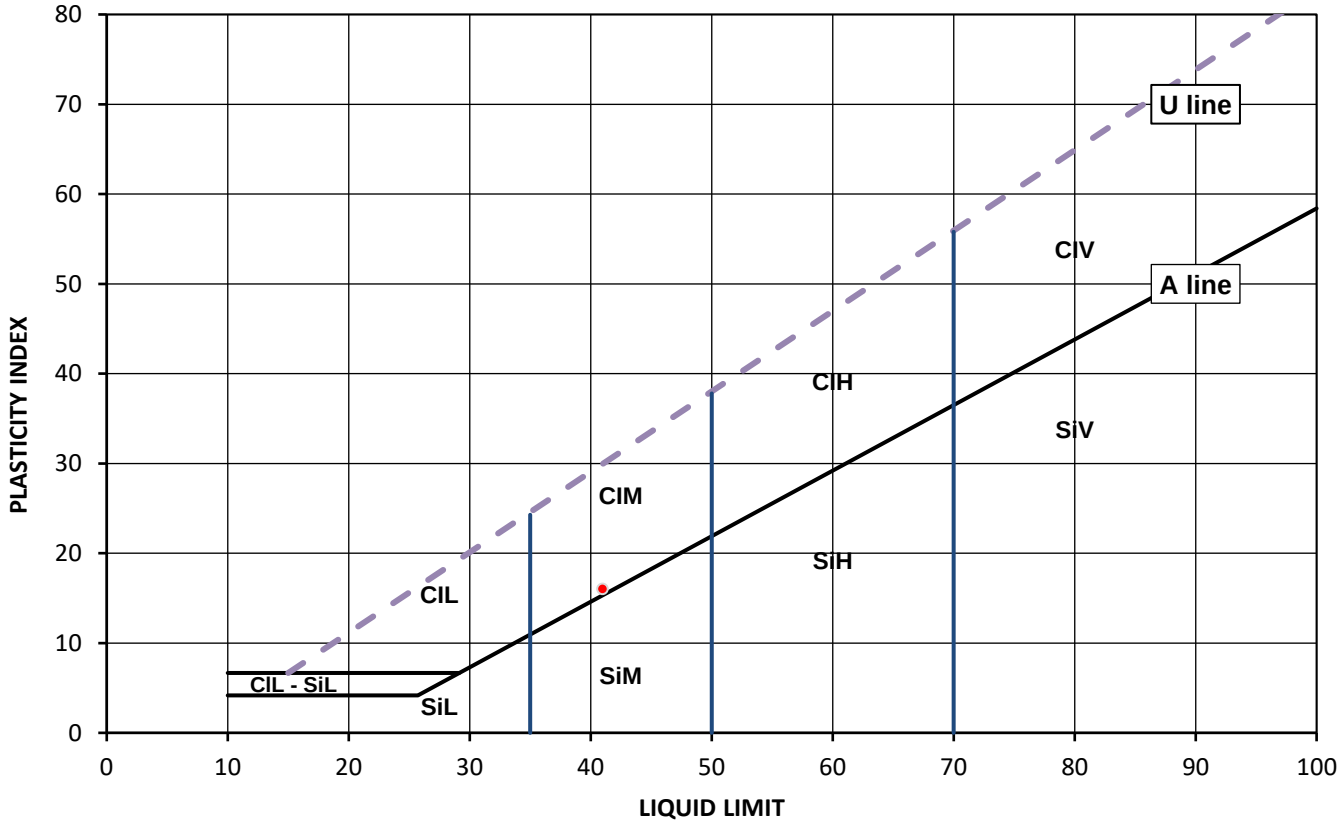
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575796	Depth Top [m]:	1.00
Hole No.:	WS8	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Dark brown gravelly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	41	25	16	63



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

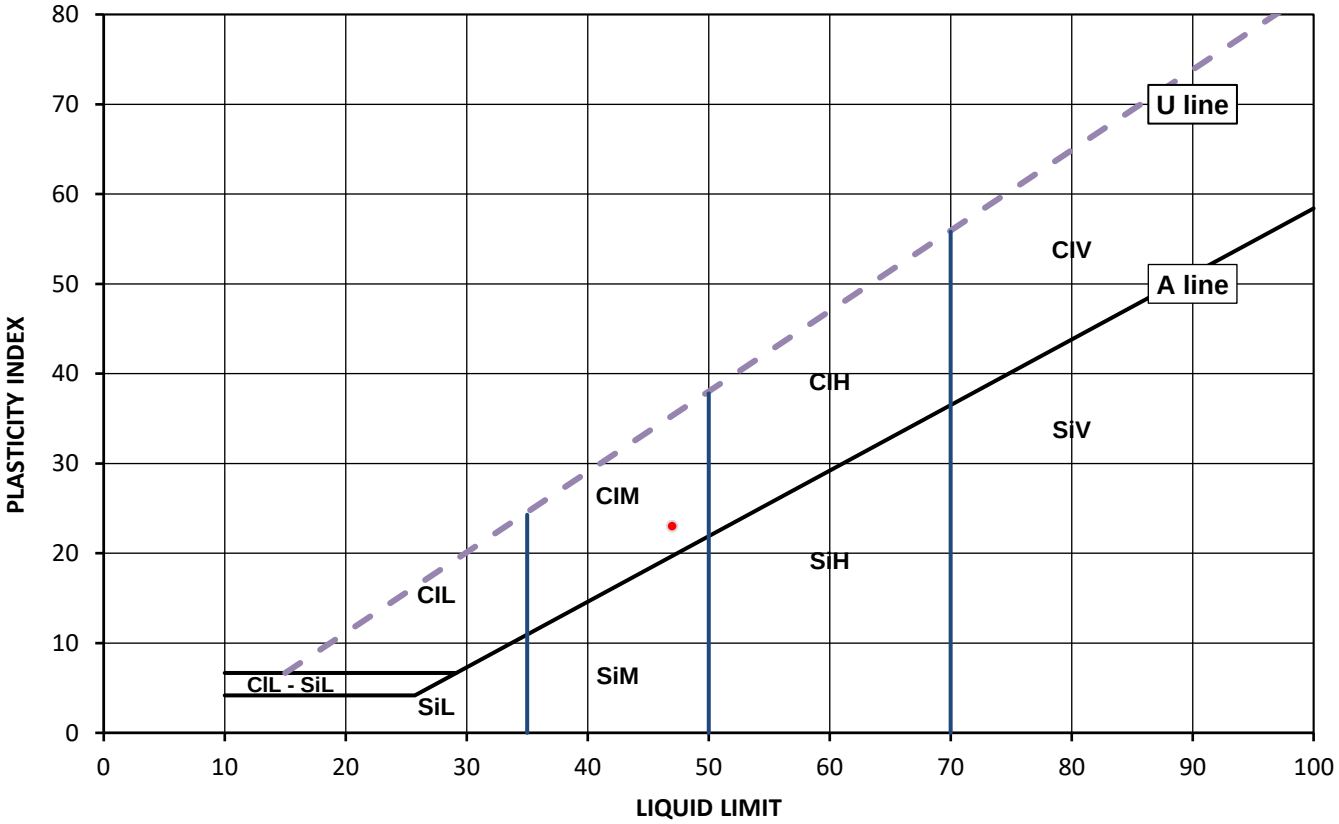
Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.1265.024
Client Address:	The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA	Job Number:	20-21791
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	30/07/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1575797	Depth Top [m]:	2.00
Hole No.:	WS8	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly sandy very gravelly CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	47	24	23	28



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Date Reported: 03/08/2020

GF 232.10

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

4041

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Enzygo Geoenvironmental Ltd

Client Address: The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA

Contact: Steve Rhodes

Site Address: Reading

Client Reference: CRM.1265.024
Job Number: 20-21791
Date Sampled: 22/07/2020
Date Received: 24/07/2020
Date Tested: 30/07/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Moisture Content [W]	Water Content [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1575781	BH1	Not Given	0.30	Not Given	B	Brown gravelly CLAY		14											
1575782	WS1	Not Given	2.00	Not Given	D	Brown slightly clayey very sandy GRAVEL		4.0											
1575798	WS10	Not Given	2.00	Not Given	D	Brown slightly clayey sandy GRAVEL		4.4											
1575783	WS2	Not Given	1.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	16		71	28	15	13						
1575784	WS2	Not Given	2.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	16		76	27	15	12						
1575785	WS2	Not Given	3.00	Not Given	D	Brown very gravelly sandy CLAY		7.9											
1575786	WS3	Not Given	1.00	Not Given	D	Multicolour slightly clayey GRAVEL		14											
1575787	WS3	Not Given	2.00	Not Given	D	Multicolour slightly clayey very sandy GRAVEL with fragments of brick		21											
1575788	WS3	Not Given	3.00	Not Given	D	Brown slightly clayey very sandy GRAVEL		3.2											
1575789	WS4	Not Given	2.00	Not Given	D	Brown sandy very gravelly CLAY	Atterberg 1 Point	7.2		20	43	21	22						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

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PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Date Reported: 03/08/2020

GF 234.12

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Enzygo Geoenvironmental Ltd

Client Address: The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA

Contact: Steve Rhodes

Site Address: Reading

Client Reference: CRM.1265.024
Job Number: 20-21791
Date Sampled: 22/07/2020
Date Received: 24/07/2020
Date Tested: 30/07/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Moisture Content [W]	Water Content [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1575790	WS4	Not Given	3.00	Not Given	D	Brown slightly clayey GRAVEL		7.1											
1575792	WS5	Not Given	1.00	Not Given	D	Brown slightly clayey very sandy GRAVEL		11											
1575793	WS5	Not Given	2.00	Not Given	D	Brown slightly clayey sandy GRAVEL with fragments of brick		12											
1575791	WS5	Not Given	3.00	Not Given	D	Brown slightly clayey sandy GRAVEL		7.8											
1575794	WS6	Not Given	2.00	Not Given	D	Brown slightly gravelly slightly clayey SAND	Atterberg 1 Point	12		93	21	NP	NP						
1575795	WS6	Not Given	3.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	12		84	25	15	10						
1575796	WS8	Not Given	1.00	Not Given	D	Dark brown gravelly sandy CLAY	Atterberg 1 Point	21		63	41	25	16						
1575797	WS8	Not Given	2.00	Not Given	D	Brown slightly sandy very gravelly CLAY	Atterberg 1 Point	12		28	47	24	23						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 03/08/2020

GF 234.12

TEST CERTIFICATE

California Bearing Ratio Top Only

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-4: 1990: Clause 7

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.1265.024
Client Address:	The Byre, Woodend Lane, Cromhall, Gloucestershire, GL12 8AA	Job Number:	20-21791
		Date Sampled:	22/07/2020
		Date Received:	24/07/2020
Contact:	Steve Rhodes	Date Tested:	01/08/2020
Site Address:	Reading	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

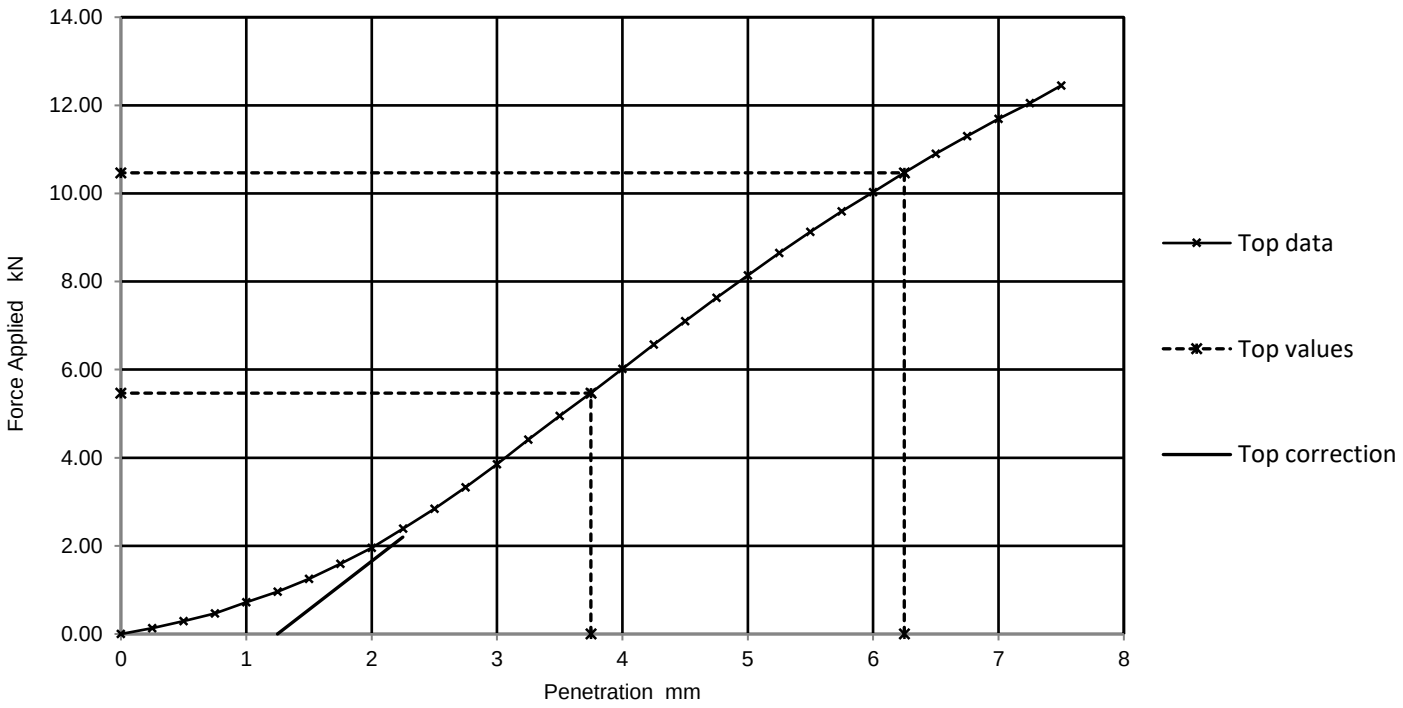
Laboratory Reference:	1575781	Depth Top [m]:	0.30
Hole No.:	BH1	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly CLAY		

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	24 %	Dry density after soaking	Mg/m3

Initial Specimen details	Bulk density	1.85	Mg/m3	Surcharge applied	8	kg
	Dry density	1.62	Mg/m3		4.8	kPa
	Moisture content	14	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	41.0	52.0	52.0	N/A	13

Remarks:

Test/ Specimen specific remarks:

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Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2020

GF 277.8

Steve Rhodes
Enzygo Geoenvironmental Ltd
The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

e: steve.rhodes@enzygo.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-22701

Project / Site name:	Reading	**Samples received on:**	23/07/2020
Your job number:	CRM.1265.024	**Sample instructed/ Analysis started on:**	04/08/2020
Your order number:		**Analysis completed by:**	10/08/2020
Report Issue Number:	1	**Report issued on:**	10/08/2020
Samples Analysed:	5 soil samples		

Signed: A. Czerwińska

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 20-22701

Project / Site name: Reading

Lab Sample Number				1580879	1580880	1580882	1580883	
Sample Reference				WS2	WS2	WS2	WS2	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				1.00	2.00	4.00	5.00	
Date Sampled				Deviating	Deviating	Deviating	Deviating	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	7.1	9.9	7.2	17	
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.80	0.80	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.1	7.9	9.1	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0094	0.0083	0.012	0.014	

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Analytical Report Number : 20-22701

Project / Site name: Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1580879	WS2	None Supplied	1.00	Brown loam and clay with gravel and vegetation.
1580880	WS2	None Supplied	2.00	Brown clay and sand with gravel and vegetation.
1580882	WS2	None Supplied	4.00	Brown clay and sand with gravel and vegetation.
1580883	WS2	None Supplied	5.00	Beige clay and sand with gravel and chalk.

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Analytical Report Number : 20-22701

Project / Site name: Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Standard Terms and Conditions of Appointment

The following standard conditions of contract apply to all work carried out by Enzygo Limited and/or Enzygo Geo-environmental Limited [“**Enzygo**”].

1. Unless specifically agreed in writing to the contrary, the Client is the person, company, authority or other body to whom our proposal /fee quotation is addressed [“**the Client**”]. The parties to the contract are the Client and Enzygo.
2. These terms shall not be treated as varied or waived unless expressly agreed in writing by the parties that these terms are to be varied or waived. Subject to any such agreement, these terms have precedence over any others contained in other documents or letters.
3. The proposed services will be as detailed in the proposal/fee quotation [“**Services**”]. If, following receipt of a proposal/fee quotation, the Client instructs Enzygo to proceed or to continue with the Services, Enzygo shall be entitled to assume the Client’s acceptance of the proposal/fee quotation and these terms.
4. Any subsequent variation to the Services [from those set out in Enzygo’s proposal/fee quotation] must be agreed between the parties. Any additional or alternative work arising from such an agreed variation or undertaken as additional Services as set out in the proposal/fee quotation as requested by the Client, or arising from compliance with the Client’s instructions or factors outside Enzygo’s control, shall be subject to additional or alternative charges, which shall either [in so far as the basis is not set out in our proposal/fee quotation] be agreed between the parties or shall be charged at our standard hourly/daily fee rates pertaining at the time and which are reviewed annually on 1st January.
5. VAT will be applied to qualifying Services and items at the standard rate on all invoices rendered.
6. Any mileage undertaken in undertaking the work will be charged at 58p per mile. All other expenses for travel, accommodation, and subsistence will be charged at cost. Charges for printing, and any other reasonable expenses will be charged at rates to be agreed.
7. Invoices will be rendered monthly from the start of the Services based on the Services undertaken or at agreed project milestones, unless otherwise stated in the proposal/fee quotation. Payment in full is due on receipt of the invoice with the final date for payment being 28 days thereafter or as otherwise agreed. Without prejudice to any other rights Enzygo has the right to add interest and compensation at the statutory rate as set from time to time for the purposes of the Late Payment of Commercial Debts [Interest] Act 1998 from the final date for payment until payment is made in full.
8. Unless otherwise agreed in writing in advance, the Client by whom we are retained is responsible for payment of our fees and VAT and for reimbursing any expenses we incur on behalf of the Client. Payment of an invoice by a third party [including any parent company] on the behalf of the Client, where permitted and agreed in writing in advance, shall not in any way, expressly or impliedly assign, transfer, novate to or otherwise give to that third party any rights or obligations under or in connection with these terms and the Client shall remain fully responsible for its obligations under these terms notwithstanding any payment that may be made on its behalf by any third party [unless otherwise agreed in writing].
9. In the event that it is considered that the client does not have sufficient credit worthiness in respect of the level of fees for the Services to be provided, in consideration of Enzygo entering into these terms, the Client may be required to provide a personal or third party guarantee of payment from a credit worthy party as agreed with Enzygo [**"the Guarantor"**] and/or an advance payment as required or agreed otherwise with Enzygo.
10. Where a payment on account of Enzygo's fees is required in advance of the Services commencing, Enzygo shall not be obliged to commence the Services until the payment on account is received in full by Enzygo in cleared funds. The payment on account shall be credited against invoices rendered in accordance with these terms.

11. Where Enzygo requires the Guarantor to guarantee the Client's payment obligations under these terms, the Guarantor guarantees and undertakes to Enzygo that whenever the Client fails to make any payment of fees as and when they fall due and in accordance with these terms the Guarantor shall make due and punctual payment of such fees on demand.
12. If monies owing are not paid in full by the date for payment, Enzygo reserves the right to either not commence the Services [if the Services have not yet commenced], terminate its engagement [and claim damages on the basis of such termination having arisen as a result of your breach] or suspend the Services until the outstanding amount, together with interest, has been received. In addition to the above, if payment is not received within 90 day of the date of invoice, Enzygo will be entitled to make an additional charge of 1.5% of the invoice value.
13. External costs to be incurred on behalf of the Client, such as planning application or other statutory fees and Counsel's costs are payable in advance. Enzygo reserves the right not to proceed in this respect until such time as payment has been made in full.
14. During the contract, and for six months after its termination, neither the Client nor any of its associated companies shall offer employment to any Enzygo staff involved in performing the Services without the prior agreement of Enzygo.
15. When Enzygo is required to act on the Client's behalf or as the Client's agent, the Client will indemnify Enzygo against all claims against which may result, except to the extent that any liability arises as a result of any breach of Clause 20.
16. Enzygo shall not be liable for any breach of this contract if the relevant action in respect of that breach is commenced more than 6 years after completion of the Services in respect of this commission.
17. This contract is personal to the Client and the Services and all written reports or other communications shall be for the Client's benefit only and shall not be passed to any other person without Enzygo's consent.
18. The Client will have the full right and licence to use copies of materials and reports prepared by Enzygo under the contract for the particular purpose for which they were prepared. However, all copyright and other intellectual property rights in all documents, reports, written advice or other materials provided by Enzygo remain with Enzygo. If the Client wishes to use copies of these materials for the purposes other than those for which they were prepared, this will require Enzygo's permission.
19. In the event of the client being in default in the payment of fees, or other amounts due, Enzygo may suspend use of the Licence on giving 7 days' notice of the intention of doing so. For the avoidance of doubt, this may include the withdrawal of a report and/or its reliance by third parties. Use of the Licence may be resumed upon receipt of its outstanding amounts.
20. For the avoidance of doubt, the following provisions set out the entire financial liability of Enzygo [including any liability for the acts or omissions of its employees, agents and sub-contractors] to the Client. Enzygo shall not be liable to the Client, whether in contract, tort [including negligence], breach of statutory duty, or otherwise, for any loss of profit or other indirect or other consequential loss arising under or in connection with the Services. Subject to the foregoing, Enzygo's total liability to the Client in respect of all losses arising under or in connection with the Services, shall under no circumstances exceed £2,000,000 [two million pounds] per claim being that amount of professional indemnity insurance held by Enzygo PROVIDED THAT any claim is covered by such professional indemnity insurance policy [which the Client has the right to inspect] and that the Services so supplied by Enzygo are limited to the following insured professional and assessment services: environmental; waste management; mineral; planning; hydrology; flood risk; permitting; landscape; noise; transport; ecology. The Client acknowledges that for any claim relating to seepage, pollution or contamination, Enzygo is insured on an 'aggregate' basis in any insurance year. Accordingly, for claims relating to seepage, pollution or contamination, the liability of Enzygo is limited to lesser of £2,000,000 [two

million pounds] or that level of available insurance based on any other claims which may have arisen. Enzygo's total liability to the Client in respect of all other losses arising under or in connection with the Services, whether in contract, tort [including negligence], breach of statutory duty, or otherwise, shall under no circumstances exceed the Charges paid to Enzygo by the Client.

21. Enzygo shall not be under any liability if it is unable to carry out any of the services for any reason beyond its control including [without limiting the foregoing]: act of God, acts of terrorism, legislation, war, fire, flood, drought, failure of power supply, lock-out, strike or any other action taken by employees in contemplation or furtherance of dispute. During the continuance of such a contingency either party may by written notice to the other elect to terminate the Services and the Client shall pay for work done and disbursements incurred up to that time.
22. Nothing in these terms and conditions confers or purports to confer any rights on any person pursuant to the Contracts [Rights of Third Parties] Act 1999.
23. If requested by the Client at the time of commencement of the Services Enzygo will enter in a letter of reliance or collateral warranty, as agreed by Enzygo with a third party, on Enzygo's standard terms [which can be supplied on request].
24. If a letter of reliance or collateral warranty is:
    a. requested after the commencement of the Services and/or
    b. is requested on terms which are different to Enzygo's standard terms,

    Enzygo will consider and accept such requests at its sole discretion and Enzygo reserves the right to charge for its reasonable professional [legal] costs incurred in [i] preparing and providing an executed letter of reliance or collateral warranty and/or [ii] reviewing any terms which are contrary to its standard terms.
25. Notwithstanding any legal charges in Clauses 23 and 24, in addition Enzygo will charge an administration fee for entering into a Collateral Warranty of £450 [four hundred and fifty pounds] plus VAT and/or for providing a letter of reliance of £250 [two hundred and fifty pounds] plus VAT, in relation to the Services, unless the provision of these documents is otherwise agreed between the parties prior to completion of the Services.
26. The law of England and Wales is the law of the contract.

August 2019

Enzygo specialise in a wide range of technical services:

Property and Sites
Waste and Mineral Planning
Waste Technologies and Renewables
Landscape and Visual Impact
Environmental Assessment Co-ordination
Hydrology and Flood Risk
Waste Contract Procurement
Noise and Vibration
Environmental Permitting and Regulation
Development Planning & Policy
Ecology Services
Contaminated Land and Geotechnical
Traffic and Transportation
Planning Services

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The Byre, Woodend Lane, Cromhall, Gloucestershire GL12 8AA Tel: 01454 269 237	Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield S36 2AA Tel: 0114 321 5151	76 King Street, Manchester, M2 4NH Tel: 0161 413 6444

Please visit our website for more information.

enzygo.com