



Thomas Homes Ltd

Land at Newark Street, Reading, Berkshire RG1 2SR

Preliminary risk assessment

Project Ref. 29651 R01 (00)

DECEMBER 2017





RSK GENERAL NOTES

Project No.: 29651 R01 (00)

Title: Preliminary risk assessment, Land at Newark Street, Reading, Berkshire RG1 2SR

Client: Thomas Homes Ltd

Date: 19th December 2017

Office: RSK Environment Limited, 18 Frogmore Road, Hemel Hempstead, Herts, HP3
Tel: 01442 437500, contact: John R Pulsford

Status: Final

Author	<u>Sylvia Mianowska</u>	Technical reviewer	<u>John R Pulsford</u>
Signature		Signature	
Date:	<u>20 December 2017</u>	Date:	<u>20 December 2017</u>
Project manager	<u>John R Pulsford</u>	Quality reviewer	<u>Thomas Payne</u>
Signature		Signature	
Date:	<u>20 December 2017</u>	Date:	<u>20 December 2017</u>

RSK Environment Limited (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of RSK and the party for whom it was prepared.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	3
1.1 Objective	3
1.2 Scope	3
1.3 Limitations	4
2 THE SITE	5
2.1 Site location and description	5
2.2 Proposed development	5
3 PRELIMINARY RISK ASSESSMENT (PRA).....	6
3.1 Site walkover	6
3.2 Ground conditions	6
3.2.1 Geology	6
3.2.2 Radon	7
3.2.3 Mining and quarrying	7
3.2.4 Landfilling and land reclamation	8
3.3 Hydrogeology	8
3.3.1 Aquifer characteristics	8
3.3.2 Vulnerability of groundwater resources	9
3.3.3 Licensed groundwater abstraction	9
3.4 Hydrology	10
3.4.1 Surface watercourses	10
3.4.2 Surface water abstractions	11
3.4.3 Site drainage	11
3.4.4 Preliminary flood risk assessment	11
3.5 History of site and surrounding area	11
3.6 Sensitive land uses	14
3.7 Local authority environmental health department information	14
3.8 Petroleum licensing information	15
3.9 Initial conceptual model	15
3.9.1 Summary of potential contaminant sources	15
3.9.2 Sensitive receptors	16
3.9.3 Summary of plausible pathways	16
3.9.4 Data gaps and uncertainties	16
3.9.5 Potentially complete pollutant linkages	16
3.9.6 Conclusions and Recommendations	18
BIBLIOGRAPHY	19

TABLES

Table 1: Site setting	5
Table 2: Geology at the site.....	6
Table 5: General succession of strata encountered on adjacent site	7
Table 5: Summary of historical development	12
Table 7: Risk estimation for potentially complete pollutant linkages	17

FIGURES

Figure 1	Site location plan
Figure 2	Site layout plan
Figure 3a and 3b	Proposed development plans

APPENDICES

Appendix A	Service constraints
Appendix B	Summary of legislation and policy relating to contaminated land
Appendix C	Site photographs and walkover checklist
Appendix D	Risk assessment methodology
Appendix E	Groundsure report

EXECUTIVE SUMMARY

Site description and proposed development	The site of about 0.04 ha is located on the corner of Crown Street and Newark Street, Reading, Berkshire. The site is being considered for a 3 and 4 storey high residential apartment block.
Purpose of assessment	In accordance with the tender documentation, this assessment was undertaken to support an outline planning application.
PRELIMINARY RISK ASSESSMENT	
Site walkover	The site is sensibly level of scrub vegetation. No structures were noted on site (when viewed from site boundaries) although a small area of hardstanding was noted.
History of site and surrounding area	In the 1870's the site comprised a number of buildings labelled as 'Inn', replaced by 'Public House' around 1956, when the land was designated as No 23 and the building located in the southern part of the site appear to have been demolished. There are no significant changes on the available historic maps, dated 1959-1993. Satellite images reveal the site was undeveloped land in 2003 and remained unchanged until the site reconnaissance in 2017. The wider area generally comprises residential properties with associated private gardens and orchards, along with undeveloped land further to the south in the 1870's. The Great Western Railway located to the north has undergone no major alterations since the earliest map, dated 1897. The undeveloped land and orchards become residential housing and retail/commercial properties over the years. There are a number of garages, unspecified tanks, Kilns Works and a potentially infilled pit, breweries, warehouses, electricity substations, gas works, depots, factories, Reading Tin Works, Militia Stores, Printing Works, Metal Box Works, Slaughter House, Engineering Works, and other unspecified works, most of which are no longer present on the latest maps. A large area is designated as 'Industrial Estate' on maps from 1989-2002 approximately 500 m to the west and southwest. A 'Gas Holder', constructed before 1897 to the north of the site, remains still present.
Geology, hydrogeology and hydrology	The site is underlain by the River Terrace Deposits over the Chalk, secondary and principal aquifers, respectively. Made ground is anticipated to overlie these natural deposits. The anticipated soils beneath the site are classified as having a high (Urban) leaching potential. There are 10 current licensed groundwater abstractions, 3 of which are

	public water supply boreholes within a 2-km radius of the site. The nearest is located approximately 600m to the east. The nearest identified surface water feature to the site is the River Kennet, located approximately 350 m to the northwest. The site does not lie within a designated floodplain.
Potentially contaminative uses on site and in surrounding area	The primary source of contamination on the site would be associated with unknown historical made ground. The historical contaminative activities carried out in the vicinity of the site including: unspecified tanks, garages, depots, warehouses, electricity substations, gas works, Sewage Pumping, Smithy, Biscuit Factory, Engineering Works, Slaughter House, Metal Box Works, Furniture Factory, together with Waterloo Kiln, located within a pit, possibly infilled. The current potentially contaminative activities in the vicinity of the site are warehouses and an Industrial Estate, located 750 m to the southwest and unspecified works and warehouses to the south, southeast and east. In conclusion, potential current and historical contamination sources are located in the vicinity of the site although given their distance, these are unlikely to have contributed to significant contamination of the site.
Conceptual model	Potentially complete pollutant linkages identified with a risk estimate of moderate or above have not been identified.
Conclusion and recommendations	In the absence of soft landscaping, the site is considered to be at low risk from contamination. Whilst the site is considered to be at low risk, it is recommended that an intrusive investigation is carried out to confirm no unacceptable risk and to provide information for foundation design and associated works. Given the proposal for a 3 or 4 storey structure, it is likely that piled foundations will be required, especially if deep made ground is present associated with any former cellar that might be present. The scope of works for environmental assessment should include a deep borehole for pile design.

1 INTRODUCTION

RSK Environment Limited (RSK) was commissioned by Thomas Homes Ltd (the 'Client') to carry out a Preliminary Risk Assessment (PRA) of the land at the corner of Newark Street and Crown Street, Reading, Berkshire RG1 2SR hereafter referred to as 'the Site'. It is understood the Site is being considered redevelopment with a 3 and 4 storey apartment block.

This report is subject to the RSK service constraints given in **Appendix A**.

A summary of legislation and policy relating to contaminated land is given in **Appendix B**.

The adjacent site to the east, on the corner of Crown Street and Silver Street (the A327 road), was the subject of previous investigations by Haigh Huddleston & Associates and RSK for Thomas Homes and Montpelier Estates as detailed as follows:

- Phase 1 geo-environmental report by Haigh Huddleston & Associates, ref. E14/6083/R001 dated April 2014; and
- Geo-environmental site assessment report by RSK, ref. 28957R01(00) dated January 2017.

1.1 Objective

The objective of the PRA is to evaluate environmental liabilities with site development as part of a Phase 1 due diligence planning condition.

1.2 Scope

The scope of the investigation and layout of this report has been designed with consideration of CLR11 (Environment Agency, 2014) and BS 10175: 2013 (BSI, 2013) and guidance on land contamination reports issued by the Environment Agency (EA) (2010a).

The project was carried out to an agreed brief as set out in RSK's email proposal dated 27 November 2017. The scope of works for the assessment included:

- The history of development and industry on the site comprising archival Ordnance Survey;
- A study of local geology, hydrogeology and surface water setting;
- The identification of potential geological hazards, including radon;
- A review of relevant environmental data held by appropriate statutory authorities, e.g. the local Environmental Health Department and the Environment Agency, obtained in the form of an environmental database report (GroundSure) and, where appropriate, through direct contact;
- A site walkover survey;
- Liaison where possible with current/previous owners/occupiers of the site;

- A preliminary conceptual site model of contamination identifying possible pollutant linkages;
- An assessment of the environmental risks and liabilities associated with site ownership; and
- Recommendations for further investigations, if required.

1.3 Limitations

The study aims principally to identify and assess the potential risks and liabilities associated with contamination of the ground, on and in the vicinity of the site. While this includes consideration of current operations and housekeeping on the site, the report does not constitute a comprehensive environmental audit of the site, as covered under ISO 14001.

The study was designed generally to meet the objectives of a preliminary (Phase 1) investigation, as defined by BS 10175:2011 "Code of Practice for the Investigation of Potentially Contaminated Sites.

This report should be considered in the light of any changes in legislation, statutory requirement or industry practices that have occurred subsequent to the date of issue.

The "vicinity" of the site for the purposes of this report is defined as locations situated within an approximate 250 m radius of the site, although certain sources and/or sensitive targets further than 250 m may also have been considered.

The opinions expressed in this report, and the comments and recommendations given, are based on the information obtained from the desk assessment and the site reconnaissance survey. No intrusive investigations have been undertaken to confirm the actual ground conditions and hence the environmental status of the site.

2 THE SITE

2.1 Site location and description

The site is located on the corner of Crown Street and Newark Street, Reading, Berkshire RG1 2SR at National Grid reference 471823, 172846, as shown on **Figures 1** and **2**.

The site setting is mainly residential as detailed in **Table 1**.

Table 1: Site setting

To the north:	Crown Street, the A4 road with student accommodation beyond.
To the east:	Land on the corner of Crown and Silver Street that recently received planning permission for 80 dwellings. Beyond is a block of flats.
To the south:	Residential properties with associated gardens
To the west:	Newark Street. Beyond is a block of flats and the 'Spire Healthcare' centre.

The site is 0.04 hectares at an elevation of approximately 45.5m above Ordnance Datum (AOD). It is sensibly level throughout and comprises the following main attributes:

- Vegetated undeveloped land; and
- A rectangular hardstanding comprising gravelly asphalt.

No structures or buried services were noted on the site (viewed from site boundaries only) although their presence may have been masked by the presence of dense scrub vegetation at the time of the walkover survey.

2.2 Proposed development

The planned layout of the site is shown on **Figures 3a** and **3b**.

3 PRELIMINARY RISK ASSESSMENT (PRA)

3.1 Site walkover

RSK undertook a site walkover on the 1 December 2017. A photographic record and a site walkover checklist are provided in **Appendix C**. No potentially significant ground contamination or geotechnical issues were identified during the site walkover. No potential off-site sources of ground contamination were identified.

The site comprises a fenced heavily vegetated, undeveloped land on the corner of Crown Street and Newark Street. A small rectangular area of asphalt with gravel was identified in the southern part of the site.

Japanese knotweed is a non-native, highly invasive species and spreads via rhizomes (underground 'stems') rather than seeds in the UK. It is found in a range of habitats across the UK including roadsides, riverbanks and derelict land. Japanese knotweed was not identified during the site visit. However, Japanese knotweed is difficult to identify outside the growing season (March to September/October). As the site visit was conducted in December, it is unlikely that any Japanese knotweed present could be identified accurately and, as such, we recommend that the site be resurveyed during the growing season.

3.2 Ground conditions

3.2.1 Geology

Published geological maps (British Geological Survey, Map Sheet 268, Reading, Scale 1:50 000 dated 2000) for the area indicates the geology of the site to be characterised by the succession recorded in **Table 2**.

Table 2: Geology at the site

Geological unit	Description	Estimated thickness (m)
Taplow Gravel Formation	Sand and gravel, potentially sandy clay	~0.5 -4
Lambeth Group	Clay, silt and sand	up to 39
Seaford Chalk and Newhaven Chalk Formations	Hard and soft chalk with flints and marl seams in places	~ 50-90
Source: Groundsure Report (November, 2017) British Geological Survey (BGS) 'Geology of Britain' maps and boreholes web portal 268, 1:50 000, Geological Survey of Great Britain (England and Wales, 2000)		

The ground conditions revealed by RSK on the adjoining site is at variance to the anticipated ground conditions revealed by the published geological records in that there

is an absence of the Lambeth Group. The exploratory holes revealed that the adjacent site is underlain by a variable thickness of made ground over the Taplow Gravel Formation (TGF) with the Seaford Chalk Formation and Newhaven Chalk Formation (Chalk) encountered at depth.

The general succession of strata encountered on the adjacent site is detailed in **Table 3**.

Table 3: General succession of strata encountered on adjacent site

Strata	Exploratory holes encountered	Depth to top of stratum m bgl	Thickness (m)
Made ground	All locations	0	1.1 – 2.8
Taplow Gravel Formation	All locations	1.1 – 2.8	0.6 – 3.6
Seaford Chalk Formation and Newhaven Chalk Formation	BH1 and BH2	5.2 – 5.3	10.25 – 19.7

The site was previously occupied by a Public House that was demolished circa 1950. The presence of a backfilled cellar cannot be discounted.

3.2.2 Radon

The Groundsure report provides an assessment of radon risk equivalent to a Stage 2 assessment undertaken by the British Geological Survey. This indicates that less than 1% of homes in the area are above the Action Level as defined by the Documents of the National Radiological Protection Board (Radon Atlas of England and Wales, NRPB-W26-2002) and that no radon protective measures are required within new dwellings at the site.

3.2.3 Mining and quarrying

Evidence has been sought to identify any mining and quarrying operations, which have taken place on and in the vicinity of the site in the past. The sources of information referenced in this element of the desk study include:

- the Groundsure report
- records held by local authority/EA
- old Ordnance Survey maps and plans
- geological maps

Whilst the Groundsure report has identified the presence of chalk mines and clay pits within a 1 km radius of the site, there is no evidence of such activities occurring on the site in the past.

3.2.4 Landfilling and land reclamation

Evidence has been sought to identify any landfilling or land reclamation operations, past and present, which have taken place in the vicinity of the site. The sources of information referenced in this element of the desk study include:

- the Groundsure report
- records held by local authority/EA
- old Ordnance Survey maps and plans
- geological maps

There are no records of landfill sites (former or current) within 250 m of the site (i.e. within the planning consultation zone). Furthermore, there are no records of current landfills between 250 m and 1 km from the site. However, there is one historic landfill located within 1 km of the site and two located within 1.5 km of the site:

- 807 m south-west of the site at Waterloo Meadows (accepting inert and industrial waste, operational time unknown)
- 1271 m south of the site at Craddock Road (accepting inert and industrial waste, operational time unknown)
- 1326 m north-east of the site at Napier Road (accepting inert and industrial waste, operational time unknown).

Given the distance from the site and the underlying geology, these landfills are not considered as representing a significant potential risk to the site from landfill gases and/or leachates.

3.3 Hydrogeology

3.3.1 Aquifer characteristics

Based on the published geological map referred to above, the hydrogeology of the site is likely to be characterised by the presence of an unconfined shallow aquifer comprising the Taplow Gravel Formation. Such formations are generally regarded as permeable layers, the presence of which increases the potential for migration of shallow groundwater and therefore mobile contamination, if present.

The depth to the groundwater in nearby boreholes was noted at 10-11 m, recorded within the Seaford Chalk Formation and Newhaven Chalk Formation encountered at about 5 m bgl.

Shallow groundwater in the site area is anticipated to flow in a northwest direction, i.e. towards and in the direction of flow of the River Kennet.

It is also possible that localised perched water may also be present in any superficial deposits including made ground.

3.3.2 Vulnerability of groundwater resources

The site has been classified by the EA to overlie a Principal chalk aquifer: permeable layers capable of supporting water supplies on a strategic scale and forming an important source of base flow to rivers

The soils beneath the site are classified as having HIGH URBAN (HU) leaching potential.

HU - soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere, so a worst-case vulnerability classification is assumed until proven otherwise.

3.3.3 Licensed groundwater abstraction

The Groundsure report indicates that there are 10 current licensed groundwater abstractions, 3 of which are public water supply boreholes within a 2-km radius of the site. These are summarised in **Table 4**. The nearest is located approximately 600m to the east.

Table 4: Groundwater abstractions

Reference	Distance and orientation from site	Comment
Royal Berkshire Hospital	568 m east	Drinking, cooking, sanitary, washing Direct Source: Thames Groundwater Royal Berkshire Hospital
Primark Stores Ltd	886 m northwest	Drinking, cooking, sanitary, washing Direct Source: Thames Groundwater Cheapside, Reading
M J Gleeson Group PLC	1539 m north	Landry use Direct Source: Thames Groundwater 72 George Street, Caversham, - Borehole 'a'
Manrose Manufacturing Ltd	1539 m northwest	Non-evaporative cooling, drinking, cooking, sanitary, washing Direct Source: Thames Groundwater Cardiff Road, Reading
Hiller Group of companies	1664 m northwest	Process water Direct Source: Thames Groundwater Cardiff Road, Reading Point B
Thames Water Utilities Ltd	1872 m southwest	Potable water supply Direct Source: Thames Groundwater Fobney Pumping Station Bh 'd'

Reference	Distance and orientation from site	Comment
Hiller Group of companies	1879 m northwest	Process water Direct Source: Thames Groundwater Cardiff Road, Reading Point A
Thames Water Utilities Ltd	1917 m southwest	Potable water supply Direct Source: Thames Groundwater Fobney Pumping Station Bh 'a'
Thames Water Utilities Ltd	1954 m southwest	Potable water supply Direct Source: Thames Groundwater Fobney Pumping Station Bh 'b'
Thames Water Utilities Ltd	1963 m southwest	General use Direct Source: Thames Groundwater Fobney Pumping Station Bh 'c'

In terms of aquifer protection, the EA generally adopts a three-fold classification of source protection zones (SPZ) for public supply abstraction wells. These are:

- Zone 1 or 'inner protection zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source
- Zone 2 or 'outer protection zone' is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants.
- Zone 3 or 'total catchment' is the area around the source within which all groundwater recharge is presumed to be discharged at the source.

Information available on the EA website indicates that the site does not lie within a currently designated groundwater SPZ.

3.4 Hydrology

3.4.1 Surface watercourses

There are no ponds, streams or drainage ditches on or adjacent to the site. The nearest identified surface water feature is the River Kennet located approximately 350 m to the northwest.

The EA classification of the chemical water quality in the stretch of the River Kennet nearest to the site is grade A (very good).

The Groundsure report indicates that there are two currently licensed surface water abstractions within a 2-km radius of the site. The nearest is located 365 m to the northwest of the site (i.e. upstream of the site) and is operated by Oracle Shopping Centre Ltd.

The base flow of the River Kennet is likely to be recharged by groundwater in the shallow aquifer in the site area. A linkage between the river and any ground or groundwater contamination beneath the site may therefore exist.

There are eight discharge consents within a 500-m radius of the site. The nearest is located approximately 400 m to the northwest.

3.4.2 Surface water abstractions

Surface water abstractions identified within a 2-km radius of the site are detailed in **Table 5**.

Table 5: Surface water abstractions

Reference	Distance and orientation from site	Comment
Oracle Shopping Centre Ltd	365 m northwest	Lake & Pond Throughflow Direct Source: Thames Surface Water
The Reading Sustainability Centre CIC	1345 m north	Transfer between sources (Post Water Act 2003) Direct Source: Thames Surface Water

The Groundsure report indicates that there are seven potable water abstraction licences within a 1-km radius of the site. The nearest is located 568 m to the east.

3.4.3 Site drainage

As the site comprises mainly soft standing and is underlain by the permeable Taplow Gravel Formation, surface water run-off is likely to be discharged by natural infiltration, therefore potential pathways for migration of contamination in the sub-surface may exist beneath the site.

3.4.4 Preliminary flood risk assessment

The indicative floodplain map for the area, published by the EA, shows that the site is not situated in a designated floodplain.

3.5 History of site and surrounding area

The history of the land-use and development of the site and surrounding area has been assessed based on the following sources:

- historical maps within the Groundsure report from 1879 to 2014
- internet search
- information from the local planning authority
- aerial photography

Copies of OS and County Series maps are included in the Groundsure report in **Appendix E**. Reference to historical maps provides invaluable information regarding the

land use history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive maps.

There are no planning records held by the Reading Borough Council pertaining to the site.

The development history of the site and surrounding area from the above sources is detailed in **Table 6** and summarised below.

Two roads define the northern and western boundary of the site (Crown Street and Newark, respectively). Originally, in 1879 the site comprised a number of buildings, labelled as an 'Inn'. Except for minor alterations, the site's layout did not change until 1956 when one of the buildings, located in the south of the site appears to have been demolished. The 'Inn' was designated as No 23 Newark Street. Latest available historic maps, dated 1993 indicate the site remained unchanged. Satellite images reveal the site was undeveloped land in 2003, and photographs from the following years show a gradual covering of vegetation. The 2017 site reconnaissance does not indicate any changes since then and the site remains overgrown by vegetation.

In the late 1800s the area surrounding the site was mainly residential with associated private gardens. This expanded over the years to replace the majority of orchards present on earlier maps. A railway with sidings were present approximately 1 km to the north of the site. Schools and grave-yards were present in the vicinity of the site. There were a number of garages, unspecified tanks, electricity substations, gas works, a sewage pumping station, Reading Tin Works, Militia Stores, Metal Box Works, Printing Works Engineering Works, and other unspecified 'works', Slaughter House, Waterloo Kilns, Brewery, warehouses, nurseries, depots and factories developed over the years, however most are not present on the latest maps. Maps from 1989-2002 indicate an 'Industrial Estate' located to the west and southwest of the site comprising warehouses and unspecified works. A 'Gas Holder' constructed to the northeast of the site is still present along with the Great Western Railway located to the north of the site.

Table 6: Summary of historical development

Date	Land use/features on site	Land use/features in vicinity of site (of relevance to the assessment)
1879	A building marked as 'Inn' in the north of the site. Two more buildings present in the middle and south of the site.	Two roads define the northern and western boundary of the study site (Crown Street and Newark Street, respectively). The surrounding area is mainly residential with associated private gardens. There are orchards scattered around the site. There is an area of rough pasture approximately 250 m to the southwest of the site. There are a number of schools in the immediate proximity of the site. There are grave yards together with a vicarage and the St Giles's Church approximately 150-250 m to the west and northwest of the site. Reading Tin

Date	Land use/features on site	Land use/features in vicinity of site (of relevance to the assessment)
		Works is approximately 100m to the northwest of the site. 'Militia Stores' and 'Old Water Works' are present approximately 250 m and 300 m, respectively to the northwest of the site. Great Western Railway is present 1km to the north. 'Gas Works' is approximately 1 km to the northeast of the site.
1897-1898	N/A	'Gas Works' and 'Sewage Pumping Station' develop approximately 800-900 m to the northeast of the site, along with 'Smithy'. 'Waterloo Kilns' develop 750 m to the southwest and a hospital is present approximately 750 m to the east of the site.
1900	The buildings undergo a minor alteration.	Most of the orchards are no longer present, replaced by residential properties to the southeast of the site. 'Biscuit Factory' appears 250 m to the north-east of the site. The rough pasture is no longer present.
1912	No significant changes	A possible tramway appears along the London Street approximately 80 m to the northeast of the site.
1931	No significant changes	'Engineering Works' develop approximately 100 m to the south of the site.
1956-1957	The land designated as No 23 The building in the north of the site is marked 'Public House'. A small building, adjacent to the public house becomes with a glazed roof. The large building within the south part of the site appears to be demolished.	A number of unspecified 'Works' appear in the vicinity of the site: approximately 80 m to the north, 100 m to the south, and 200m to the northwest of the site. There are garages, one located approximately 130 m to the east and one 130 m to the southeast of the site. 'Slaughter House' appears approximately 130 m to the northeast and a warehouse 130 m to the northwest of the site.
1959-1961	No significant changes	No significant changes
1968-1971	No significant changes	A number of tanks appear in the vicinity of the site: approximately 80 m to the southwest, 100 m south, 120 m to the northeast and 150 m to the north of the site. 'Works' appears to the north of the site labelled as 'Metal Box Works'. 'Furniture Factory' replaces the garage, located 130 m to the east of the site. 'Printing Works'

Date	Land use/features on site	Land use/features in vicinity of site (of relevance to the assessment)
		develop approximately 200 m to the northwest of the site. 'Engineering Works' develop 130 m to the south and 100 m to the southeast of the site. There are three electricity substations located approximately 100 m to the southwest and east and one 120 m to the east of the site. The Groundsure report also indicates a filling station 154 m to the west of the site.
1973	N/A	Brewery develop approximately 500 m to the northwest of the site.
1979	N/A	'Furniture Factory' is replaced by a warehouse and 'Metal Box Works' are no longer present together with a number of unspecified tanks.
1982 -1983	No significant changes	Engineering Works are no longer present, replaced by 'Works'. Another 'Works' develop approximately 100 m to the southeast of the site, along with a warehouse and a depot further to the southeast. 'Government Offices' develop approximately 100 m to the east and southeast of the site.
1988-1993	No significant changes	'Industrial Estate' develops to the west and southwest of the site.
1994	N/A	No significant changes
2002		
2010		
2014		

3.6 Sensitive land uses

No national or internationally designated sensitive land uses such as sites of special scientific interest (SSSI) were identified in the vicinity of the site. The site is not designated as a part of Nitrate Vulnerable Zone.

3.7 Local authority environmental health department information

The environmental health department (EHD) of Reading Borough Council has been contacted for information regarding records relating to contamination in connection with the site. RSK is awaiting the response. Comments once received will be reported under separate cover.

3.8 Petroleum licensing information

The Trading Standards Department of Reading Borough Council has no records of current or former below ground petroleum storage tanks at the site.

3.9 Initial conceptual model

The information presented in **Sections 2** and **3.1 to 3.8**, has been used to compile an initial conceptual site model. The identified potential sources of contamination, associated contaminants and receptors have been considered with plausible pathways that may link them. The resulting potential pollutant linkages are considered in **Section 3.9.5**. The risk classification has been estimated in accordance with information in **Appendix D**.

3.9.1 Summary of potential contaminant sources

Potential sources and contaminants of concern are summarised in 7.

Table 7: Potential sources and types of contamination

Potential sources	Contaminants of concern
On-site present day	
Unknown made ground	Potentially impacted with unknown contaminants that could include amongst others, heavy metals, ash, clinker, sulphates, polycyclic aromatic hydrocarbons (PAHs), asbestos etc.
Off-site with 250m radius	
A number of garages within the vicinity of the site, the nearest located 150 m to the east (c. 1950s to 1960s)	Hydrocarbons, petroleum spirit, ethylene glycol, methyl tertiary butyl ether (MTBE), oil and waste oil, chlorinated and non-chlorinated solvents, asbestos, sulphuric acid, metal and metal compounds
Electricity substations, the nearest located 75 m to the southwest (c. 1960s to 1970s)	Polychlorinated biphenyl (PCBs), sulphates, heavy metals, gases (hydrogen/metal fluoride)
A number of various industrial land uses including.	Fuel oils, lubricating oils, heavy metals, polychlorinated biphenyls (PCBs), PAHs, solvents and other common industrial contaminants
Gas sources and gas generation potential in line with BS8576	
Chalk (very low gas generation potential)	Carbon dioxide

The review of the historical information indicates the presence of potentially contaminative activities carried out in the vicinity of the site. These potential sources could have resulted in migration of contaminants including leachates onto the subject site although given their distances, it is considered that there is a low likelihood of significant contamination.

Whilst the historic on site public house is considered not to be a significant source of contamination, there is the potential for contamination associated with demolition materials including asbestos and the backfilling of a former cellar if present.

3.9.2 Sensitive receptors

Sensitive receptors that might be impacted by potential contamination if present at this site include:

- future site occupants;
- adjacent site users;
- vegetation;
- potable water supply pipes;
- groundwater beneath the site; and
- groundwater in the principal aquifer.

The River Kennet at 350 m distance is considered to be too remote to be of concern from potential contaminants at the subject site if present.

Please note that construction workers have not been identified in the conceptual site model as receptors because risks are considered to be managed through health and safety procedures including CDM regulations.

3.9.3 Summary of plausible pathways

The plausible pathways that might link potential contaminants and sensitive receptors are summarised below:

- direct contact (soil, dust and vegetable ingestion, dermal contact, dust and fibre inhalation);
- ground gas and soil gas inhalation;
- vertical and lateral migration including leaching;
- root uptake; and
- chemical attack of infrastructure (including water supply pipes) and buildings.

3.9.4 Data gaps and uncertainties

Historical maps provide only a snapshot of the site at sporadic points in time and may not record all historic activities.

3.9.5 Potentially complete pollutant linkages

The outline conceptual site model is shown schematically in **Figure 5** and an estimate of the risk associated with each linkage is summarised in **8**. The risk classification has been undertaken in accordance with CIRIA C552 (Rudland et al., 2001), a summary of which is included in **Appendix D**.

Table 8: Risk estimation for potentially complete pollutant linkages

Potential Contaminant	Potential receptor	Possible pathway	Likelihood	Severity	Risk and justification
On site contamination associated with any made ground if present	Future site occupants	Direct contact (soil, dust and vegetable ingestion, dermal contact, dust and fibre inhalation)	Low	Severe	Moderate – Development does not include areas of soft landscaping or private gardens, therefore the pollutant linkage does not exist.
	Adjacent site users		Low	Mild	Low – The potential exists for this pollutant linkage to be complete as there are occupied residential and commercial/retail properties adjacent to the site. However, standard dust suppression measures would mitigate any risk.
	Vegetation	Root uptake	Low	Mild	Low – significant phytotoxic contamination is unlikely
	Groundwater	Vertical and lateral migration including leaching	High	Minor	Low –significant leachate contamination is unlikely
	Potable water supply pipes	Chemical attack of infrastructure (including water supply pipes) and buildings	Unlikely	Medium	Low – significant organic contamination that could permeate plastic pipe is unlikely.
	Buildings and infrastructure (e.g. foundations)		Low	Mild	Low – significant contamination that could pose a risk to buried concrete is unlikely. Also, the naturally occurring ground conditions are not known to contain sulphates.
Off-site sources – historic and current	Future site residents/users	Direct contact with soil (ingestion, dermal contact, dust inhalation)	Low	Mild	Low – Ingestion and direct contact with contaminated off-site soils is unlikely. Redevelopment/remediation works in the surrounding area of the site may generate dust, however, this aspect would be addressed by adequate construction practices to minimise dust generation.
		Inhalation of vapours/ground gases in indoor air	Unlikely	Medium	Low – a significant source of ground gases is unlikely to be present.

3.9.6 Conclusions and Recommendations

Although linkages between the site and potentially sensitive receptors have been identified, the study has identified a low likelihood of significant contamination on the site.

The preliminary findings suggest that the site is unlikely to be classified by the local authority as 'Contaminated Land' under the current contaminated land regime (Environmental Protection Act 1990: Part IIA).

The overall environmental liability associated with the site and the risks associated with site ownership/usage is therefore considered to be **low** assuming no soft landscaping areas..

The potential pollutant linkages with a risk of moderate is considered to be associated with any made ground in soft landscaping areas if present.

To demonstrate no unacceptable risk to sensitive receptors, it is recommended that an intrusive investigation be undertaken to identify the possible presence, nature and extent of any contamination within the ground. The investigation should also be conducted to provide information for foundation design and associated works.

BIBLIOGRAPHY

British Geological Survey (2000), Sheet Number 268, Reading, Solid & Drift, 1:50 000

British Standards Institution (2015), 'BS 5930:2015. Code of practice for ground investigations'.

British Standards Institution (2013), 'BS 10175:2013. Investigation of potentially contaminated sites: Code of practice'.

Environment Agency (2004), *Model Procedures for the Management of Contaminated Land. Contaminated Land Report Number 11 (CLR11)*, September (Bristol: Environment Agency).

Environment Agency (2009b), *Human health toxicological assessment of contaminants in soil. Science Report – Final SC050021/SR2*, January (Bristol: Environment Agency).

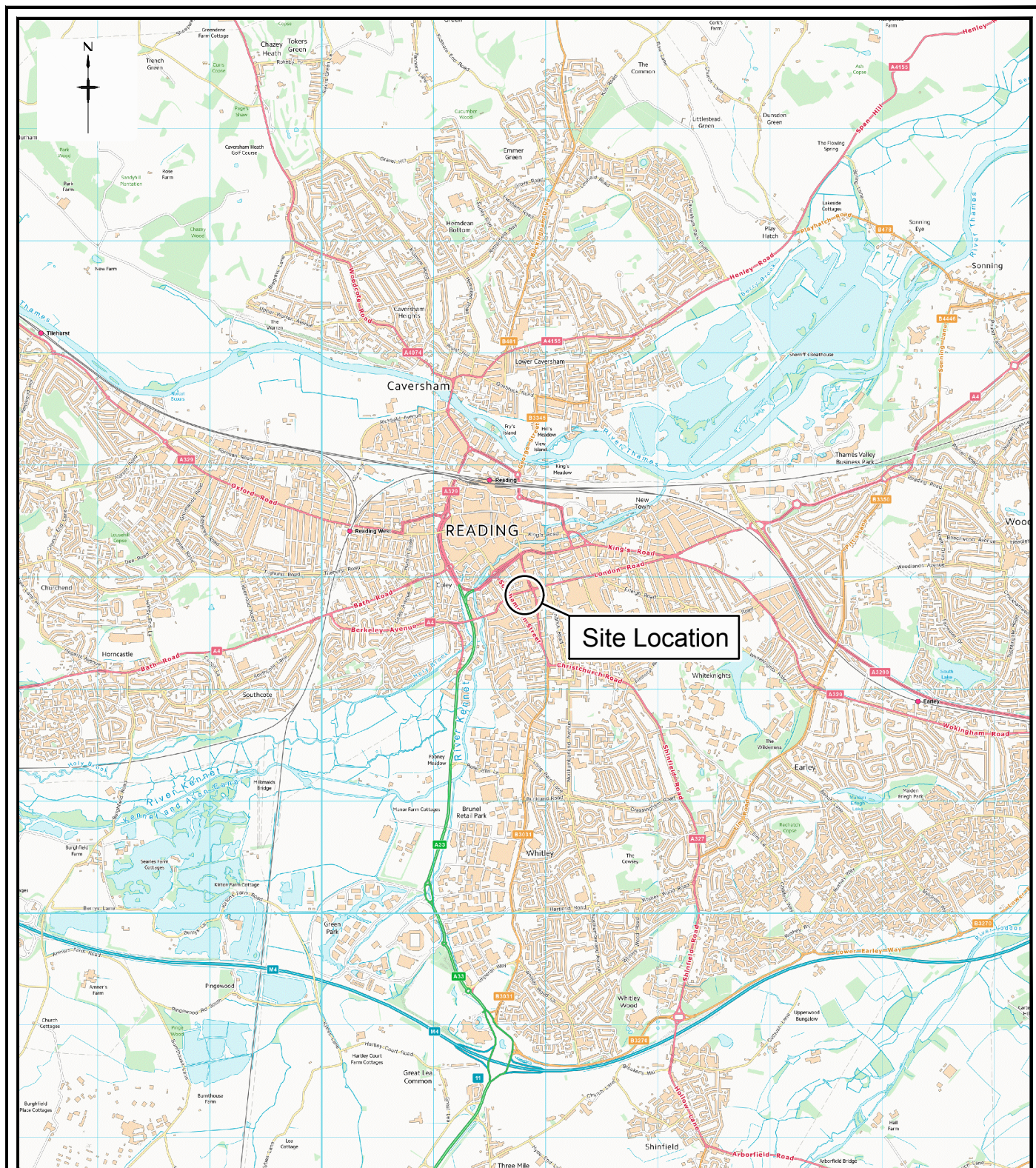
Environment Agency www.environment-agency.gov.uk/.

GroundSure (2017), dated 28 November

Rudland, D. J., Lancefield, R. M. and Mayell, P. N. (2001), *CIRIA C552. Contaminated Land Risk Assessment: A Guide to Good Practice* (London: CIRIA).

UK Water Industry Research (2010) *UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (London: UKWIR).

FIGURES



Contains Ordnance Survey data © Crown copyright and database right 2013



18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
United Kingdom

Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info@rsk.co.uk
Web: www.rsk.co.uk

Client

THOMAS HOMES LTD & MONTPELIER ESTATES

Project Title

LAND AT NEWARD STREET,
READING

Drawing Title

SITE LOCATION PLAN

Rev	Drawn	Date	Checked	Date	Approved	Date
01	ASC	01.12.17	SM	01.12.17	SM	01.12.17
Dimensions		Scale		Original Size		
m		1:50,000		A4		

Project Number

29651 - R01 (00)

Drawing File

29651 - SLP.dwg

Drawing Number

FIGURE 1



LEGEND

— Site Boundary

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
United Kingdom

Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info@rsk.co.uk
Web: www.rsk.co.uk

Client

**THOMAS HOMES LTD
& MONTPELIER ESTATES**

Project Title

**LAND AT
NEWARK STREET,
READING**

Drawing Title

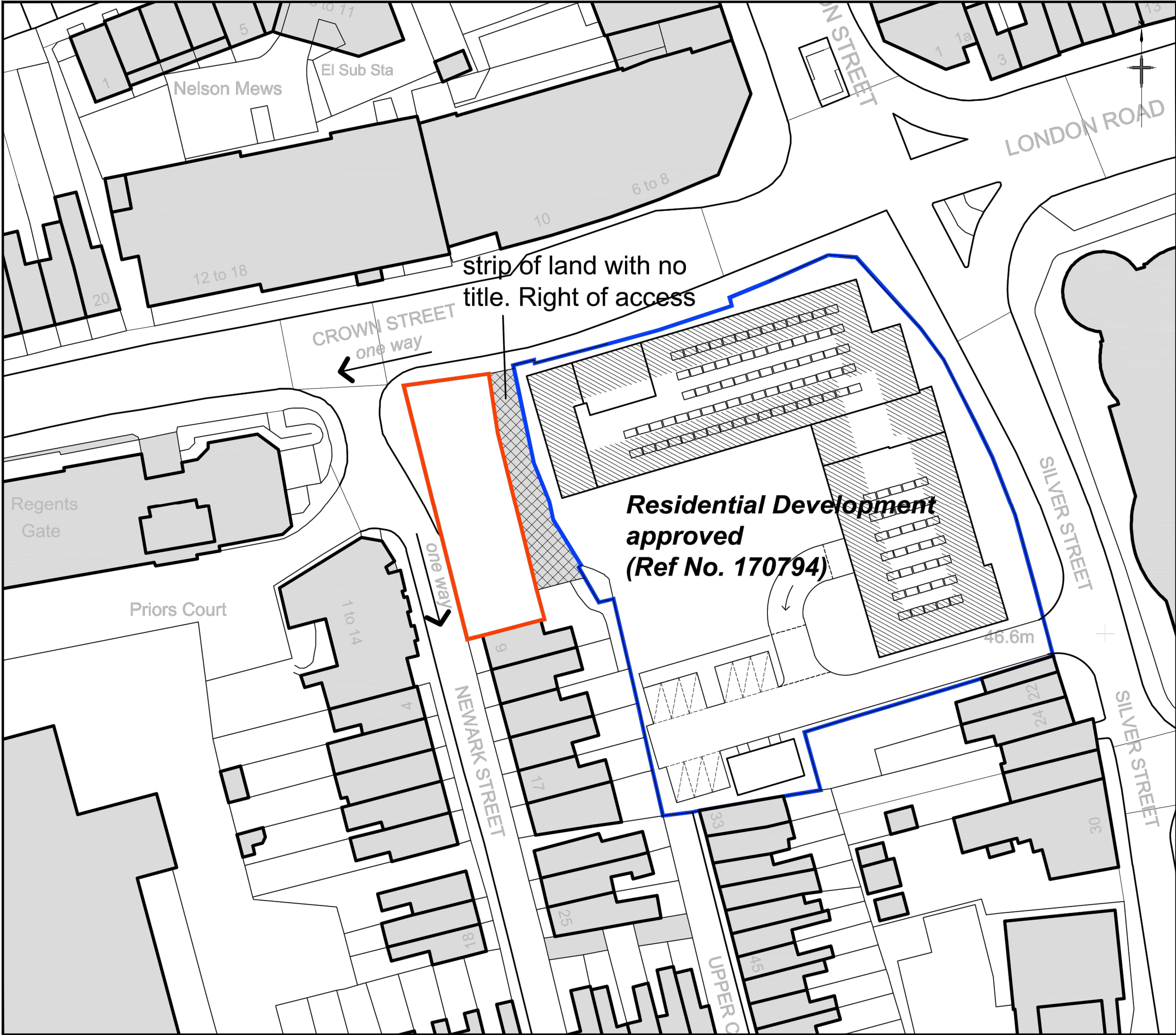
**SITE LAYOUT
PLAN**

Drawn ASC	Date 01.12.17	Checked SM	Date 01.12.17	Approved SM	Date 01.12.17
Scale 1:500		Orig Size A3		Dimensions m	

Project No. 29651 - R01 (00)	Drawing File 29651 (R01-00) Fig 2.dwg
Drawing No. FIGURE 2	Rev. P1

Scale 1 : 500

0 5 10 15 20 25m



LEGEND

Site Boundary

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
United Kingdom

Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info@rsk.co.uk
Web: www.rsk.co.uk

Client

THOMAS HOMES LTD
& MONTPELIER ESTATES

Project Title

LAND AT
NEWARK STREET,
READING

Drawing Title

PROPOSED
DEVELOPMENT
PLAN

Drawn	Date	Checked	Date	Approved	Date
ASC	01.12.17	SM	01.12.17	SM	01.12.17

Scale	Orig Size	Dimensions
1:500	A3	m

Project No.	Drawing File
29651 - R01 (00)	29651 (R01-00) Fig 3.dwg

Drawing No.	Rev.
FIGURE 3A	P1

0510152025m

Scale 1 : 500



LEGEND

Rev.	Date	Amendment	Drawn	Chkd.	Appd.



18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
United Kingdom

Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info@rsk.co.uk
Web: www.rsk.co.uk

Client

THOMAS HOMES LTD
& MONTPELIER ESTATES

Project Title

LAND AT
NEWARK STREET,
READING

Drawing Title

AERIAL VIEWS OF
PROPOSED DEVELOPMENT
PLAN

Drawn	Date	Checked	Date	Approved	Date
ASC	01.12.17	SM	01.12.17	SM	01.12.17

Scale	Orig Size	Dimensions
NTS	A3	m

Project No.	Drawing File
29651 - R01 (00)	29651 (R01-00) Fig 3.dwg

Drawing No.	Rev.
FIGURE 3B	P1



Aerial view from northwest



Aerial view from southeast



Aerial view from southwest



Aerial view from northeast

APPENDIX A

SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Thomas Homes Ltd (the "Client") in accordance with the terms of a contract between RSK and the "Client", dated 27 November 2017. The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.
2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.**
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.
8. The intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (boreholes, trial pits etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.

APPENDIX B

SUMMARY OF LEGISLATION AND POLICY RELATING TO CONTAMINATED LAND

Part IIA of the Environmental Protection Act 1990 (EPA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered to include all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA of the EPA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances
- ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2010 provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2010 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

Planning Policy

Contaminated land is often dealt with through planning because of land redevelopment. This approach was documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use. PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF).

The new framework has only limited guidance on contaminated land, as follows:

- *"planning policies and decisions should also ensure that:*
 - o *the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;*

- o *after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
- o *adequate site investigation information, prepared by a competent person, is presented”.*

APPENDIX C

SITE PHOTOGRAPHS AND WALKOVER CHECKLIST

PHOTOGRAPHIC LOG		
Photo no. 1	Date: 01/12/2017	
Direction photo taken: South		
Description: The western boundary		

Photo No. 2	Date: 01/12/2017	
Direction photo taken: East		
Description: The northern boundary		

Photo No. 3	Date: 01/12/2017
Direction Photo Taken: South	
Description: The eastern boundary of the site, located along the strip of land with no title	

A photograph showing a gravel path or driveway. On the left is a tall, dark metal fence. On the right is a wooden fence with a 'No Parking' sign. In the background, a red building is visible under a bright sky with some trees.

Photo No. 4	Date: 01/12/2017	
Direction Photo Taken: West		
Description: Typical vegetation		

Photo No. 5	Date: 01/12/2017
Direction Photo Taken: West	
Description: Photograph shows a small area of asphalt with gravel identified.	

A photograph taken through a chain-link fence. The fence's diamond pattern is prominent in the foreground. Behind the fence, there is a dense thicket of green bushes and trees. In the upper portion of the image, a red brick building with several windows is visible through the foliage. The ground in the immediate foreground appears to be a mix of asphalt and gravel, as mentioned in the description.

Photo No. 6	Date: 01/12/2017
Direction Photo Taken: North	
Description: Dense buddleia identified on the site	

A photograph showing a multi-story building with a brick and white facade, partially obscured by a wooden fence and trees with autumn foliage. The sky is clear blue. The building has several windows and a central entrance. The fence is made of vertical wooden slats. The trees in the foreground have green and brown leaves. The sky is a clear, bright blue.

WALKOVER SURVEY CHECKLIST: GEOSCIENCES

SITE NAME **Land at Newark Street, Reading, Berkshire RG1**

SITE REFERENCE **29651**

NGR **471823, 172845**

These inspections can provide useful information on:

- Potential geotechnical hazards
- Suitable and appropriate locations for investigation
- The groundwater and surface water environments
- Potentially sensitive receptors (targets) including issues that require further investigation, e.g. ecology surveys
- Potential sources of contaminants
- Nature of contamination
- Potential migration routes (pathways)

Mark locations of features described on a map and give them a reference number.

Describe features in as much detail as possible. Continue on the back of the checklist if necessary, using the feature letter for reference. Take photos of site and relevant features in immediate surrounding area.

The walkover survey can also provide information for the environmental consultant in planning the site investigation.

Points that should be addressed in a walkover survey are as follows:

Features	Description	Photo no.
a) Describe materials exposed in nearby road or railway cuttings, in pits and quarries and natural exposures of soils and rocks near to the site. <i>This will give an indication of the geology beneath the site</i>	N/A	
b) Describe surrounding properties/land use and name occupiers. Type of boundary demarcation (if any) on each side. <i>This will identify any potential sources of contamination from adjacent sites and any sensitive receptors</i>	The site is bordered on the west and north side by the Newark Street and Crown Street respectively. The eastern boundary of the site comprises a strip of land with no title. Directly east of this land there is a site (Land on the corner of Crown and Silver Street) that recently received planning permission for 80 dwellings. Directly north of the site are residential properties. Surrounding properties are mainly residential, private and university.	1, 2, 3

c) Describe present land use. Are there areas of hardstanding (if yes describe location, types and condition)? <i>Especially crops, for consideration of appropriate timing for further investigation, compensation and reinstatement. Also note hardstanding, obstructions etc. Note any old buildings/ivy covered trees as these may be used by owls or bats</i>	The site comprises vegetated fenced land with no public access. There was a small area of hardstanding identified to the rear of the site (see Figure 3), comprising possibly asphalt with gravel.	4, 5
--	---	-------------

WALKOVER SURVEY CHECKLIST Continued

Features	Description	Photo no.
d) Describe the site in terms of ground slopes and changes in slope. Is there any evidence of subsidence or landslip/slope erosion? <i>Old scarps or hummocky ground may be evidence of previous landslips that could be reactivated. A terraced appearance may be indicative of superficial solifluction movement or cambering. Trees that are leaning may indicate instability or general slope movement.</i>	The ground remained fairly level throughout the site. No evidence of subsidence or landslip was observed.	
e) Describe the types and condition of surface vegetation. <i>Nettles may indicate an old cesspit for example or unhealthy vegetation may indicate the presence of phytotoxic fill or landfill gas. Note invasive weeds, e.g. Japanese knotweed.</i>	Dense vegetation, with abundant buddleia, identified throughout the site; was observed to be healthy. The eastern boundary of the site comprised dense nettles.	6
f) Note the number, location, height and species of trees and hedges. <i>This is important in terms of shrinking and swelling ground. Trees and hedgerows may be protected; their condition should be noted along with any restrictions they will impose for site access. It is important to note any areas with the potential for nesting birds, roosting bats, water voles and badger setts.</i>	No trees were identified on the site or potentially within influencing distance of site boundaries.	
g) Describe any evidence of animal activity. <i>For example obvious animal paths or areas of excavations and burrows.</i>	No evidence of animal activity was observed.	
h) Describe any damage to existing structures on site or adjacent to the site <i>For example, cracks in buildings both on the site and in the neighbourhood, and other evidence of settlement or differential settlement. Note presence of any suspected asbestos-containing materials (ACM)</i>	No damage to existing structures adjacent to the site were observed.	
i) Note the remains of structures that have been demolished. Look for evidence of remnants of any historical structures. <i>This will provide valuable information on the location of previous foundations, processes etc. Note presence of any suspected asbestos-containing materials (ACM)</i>	Except for a small area of asphalt with gravel, there was no evidence of historical structures on site.	

WALKOVER SURVEY CHECKLIST Continued

Features	Description	Photo no.
j) Note any abrupt changes in ground level. Is there evidence of Made Ground/fill on site <i>May indicate that minerals have been worked in surface excavations. May indicate cut and fill.</i>	No abrupt changes in ground level were observed on site.	
k) Note any surface hollows. <i>Which may indicate the presence of solution features or swallow holes in rocks such as chalk limestone, gypsum and salt, or collapsed underground workings in these materials. May also indicate badger setts or other wildlife activity.</i>	No surface hollows were observed on site.	
l) In areas of country underlain by coal or other minerals note any hummocky ground. <i>Which may be the remnants of spoil tips and surface depressions that may indicate collapsed shallow workings. Areas of general unevenness may be evidence of waste disposal activities.</i>	N/A	
m) Note any evidence of gas from nearby landfill sites <i>Can be indicated for example by poor vegetation or gas bubbles in water-filled trenches.</i>	No evidence of gas was observed.	
n) Are there any evidence of gas protection measures (gas membrane, gravel filled trenches, venting pipes, cowls etc)	N/A	
o) Note the location of streams, culverts, ponds, seepages and sinks and signs of previous flooding. Note direction of flow. Note where the stream is accessible for sampling. May need to take dimensions of stream. <i>If ponds are present on site they may contain great crested newts. Ditches, streams and rivers that border or run through a site may contain water voles, otters or white-clawed crayfish. Presence of water features on site may prompt the need for a survey during a site investigation.</i>	N/A	
p) All surface waters should be examined for evidence of contamination. <i>For example, oil sheen, silt, solid matter, discoloured sediment.</i>	N/A	

Features	Description	Photo no.
q) Note site drainage. Are there any drain covers/soakaways (if yes describe locations). Are there any outfalls to surface watercourses? Are there any interceptors/lagoons/effluent treatment plants?	Surface water runoff will most likely infiltrate into the ground as the site comprises mainly soft standing.	
r) Describe storage of fuels and chemicals. Are there any drums/containers (if yes, describe quantity, full/empty, stored on hardstanding/softstanding, banded)? <i>Is there evidence of underground fuel tanks (if yes, describe locations, how many, volumes, bunding, used/disused, condition)?</i>	None observed.	
s) Note any discoloured ground. <i>This may provide evidence of contamination.</i>	None observed.	
t) Accidents: In the event of a large spillage would runoff affect any vulnerable watercourses/culverts? <i>Are emergency procedures/equipment in place?</i>	As the site comprises mainly softstanding any runoff would infiltrate into the ground.	
u) Waste: Are there any waste skips on site? Are waste storage facilities adequate? Is there any litter/fly-tipped material?	None observed	
v) Are there any electricity substations on or adjacent to site?	N/A	
w) Identify any old structures, pipework etc. wherever possible and, if safe, inspect for evidence of stored waste. <i>Old tanks may contain oil. Old electricity transformers should be noted. Asbestos risk should be assessed together with the need for a specialist hazardous materials survey.</i>	None observed.	
x) Examine surrounding areas for evidence of contamination which could migrate onto the site. <i>For example a leaking oil tank on an adjacent site.</i>	N/A	
y) Note the presence of any underground structures, services, mine workings, tunnels etc <i>From a safety point of view for development of the site and also as they may provide contaminant migration routes.</i>	N/A	
z) Note any anecdotal information in past uses of the site. <i>Local street names etc. can provide indicators of past industry or ground problems</i>	N/A	

WALKOVER SURVEY CHECKLIST Continued

Features	Description	Photo no.
aa) Description of buildings on site. Is there any evidence of asbestos construction materials, e.g. roofing, insulation materials. Do any of the buildings have basements? Do any of the buildings have a boiler room? (if yes describe fuel type and storage arrangements)	N/A	
bb) Identify potential access routes to the site for plant for the site investigation <i>Excavators and drilling rigs may be required for the next stage of the investigation, or if the access is limited window sampling techniques may need to be specified. Note any specific obstructions such as unsafe/unstable ground, protected trees or hedgerows, or protected buildings.</i>	The site is currently fenced along the west, east and north boundary with no gate identified. Once the wooden fence is removed access would be on Crown and Newark Street, as well as along the eastern boundary, on the strip of land. No unsafe or unstable ground was observed.	
cc) Evidence of buried services (water, gas, electricity, telephone, cable, television, pipelines) <i>Both for safety considerations and in the case of water as supply for further investigation. As well as danger, there is the question of considerable expense, which can arise from an inadequate knowledge of the location of buried services. The locations and heights of overhead cables may be important when considering the movement of site equipment.</i>	None observed.	

Walkover survey completed	Sylvia Mianowska
Approved:	Signature  _____
	01/12/2017

Notes:

APPENDIX D

RISK ASSESSMENT METHODOLOGY

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. Under CLR11, three stages of risk assessment exist: preliminary, generic quantitative and detailed quantitative. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) pollutant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term
- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000)
- medium: chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem
- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment

- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- Very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required.
- High: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term.
- Moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.
- Low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild.
- Very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.

APPENDIX E

GROUNDSURE REPORT

Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series

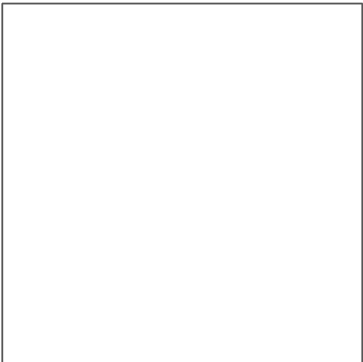
Map date: 1879

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1879
Revised 1879
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series Town Plan

Map date: 1879

Scale: 1:500

Printed at: 1:1,000



Surveyed 1879
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series

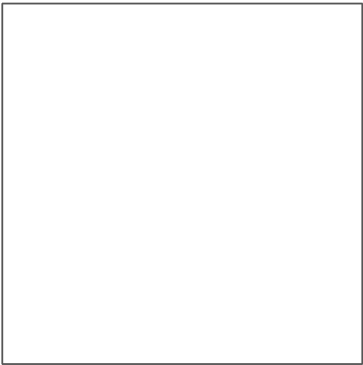
Map date: 1900

Scale: 1:2,500

Printed at: 1:2,500



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



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series

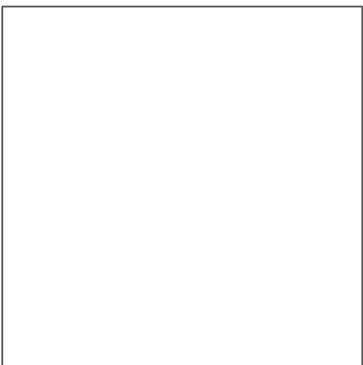
Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



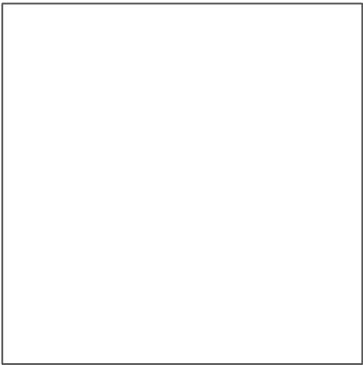
Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series
Map date: 1931
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1931
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1956-1957
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1951

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1951

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1951

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1951



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1956-1957
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1957
Revised 1957
Edition 1958
Copyright N/A
Levelled 1951

Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1951

Surveyed 1957
Revised 1957
Edition 1958
Copyright N/A
Levelled 1951

Surveyed 1957
Revised 1957
Edition 1959
Copyright 1959
Levelled 1951



Produced by
Groundsure Insights
www.groundsure.com

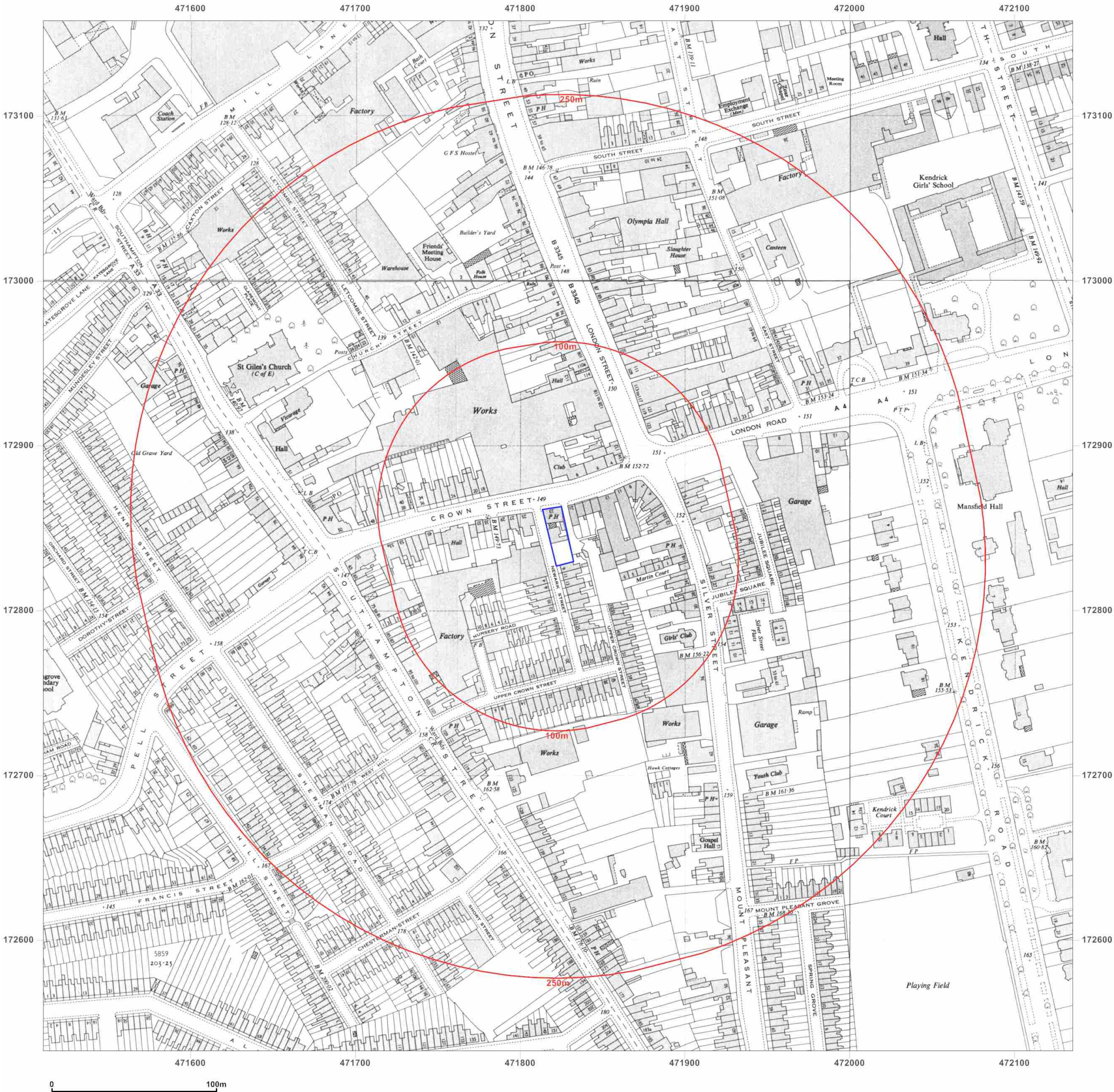


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



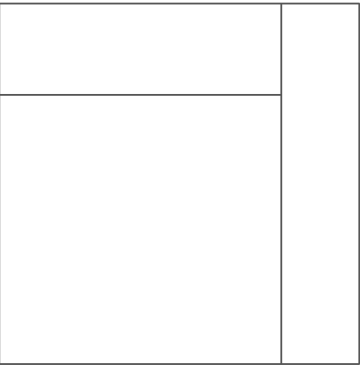
Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1959-1961
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition 1961
Copyright 1961
Levelled 1951



Surveyed 1959
Revised 1959
Edition 1961
Copyright 1961
Levelled 1951



Produced by
Groundsure Insights
www.groundsure.com

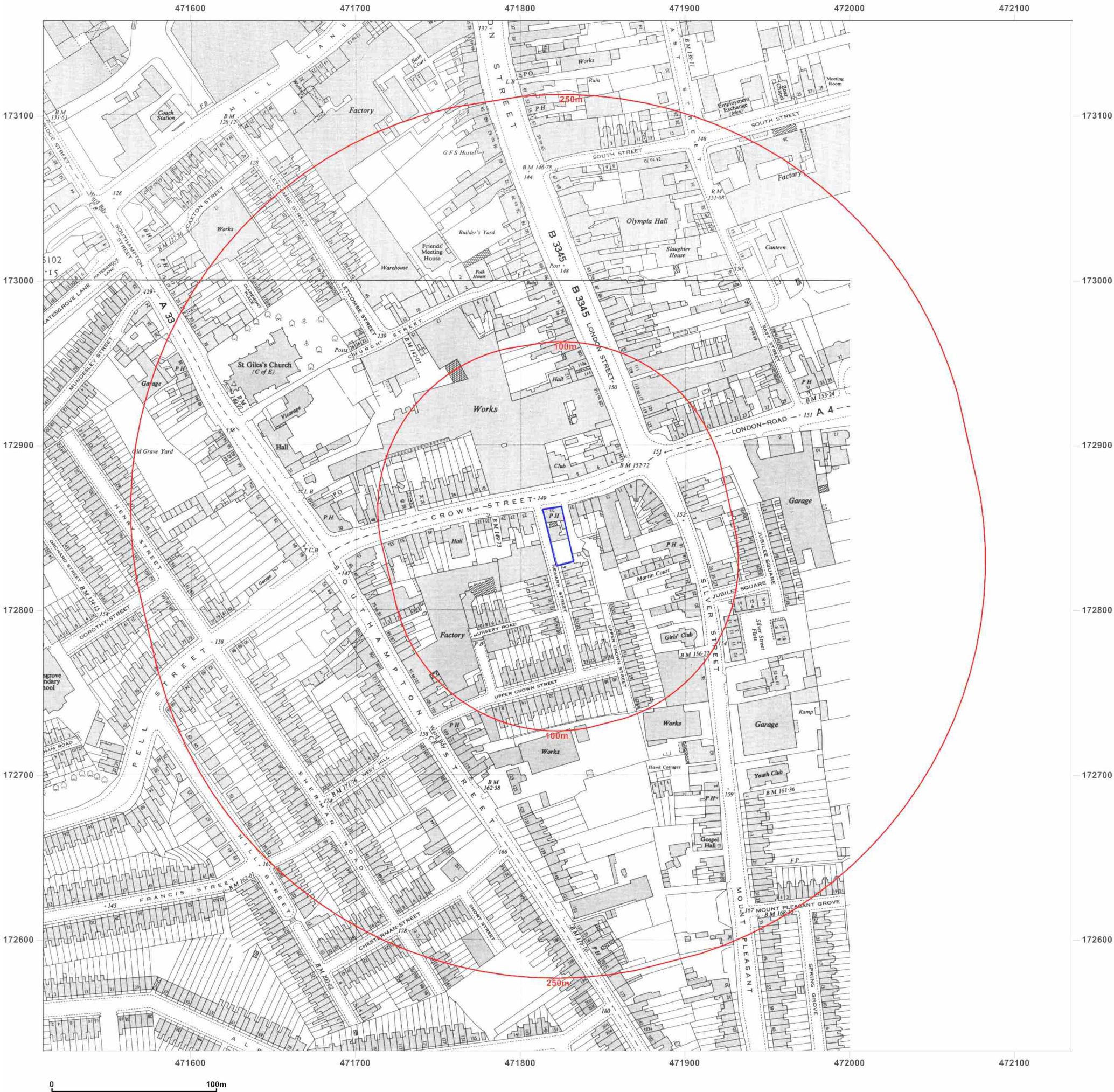


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1968
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1968
Revised 1968
Edition N/A
Copyright 1971
Levelled 1951



Produced by
Groundsure Insights
www.groundsure.com

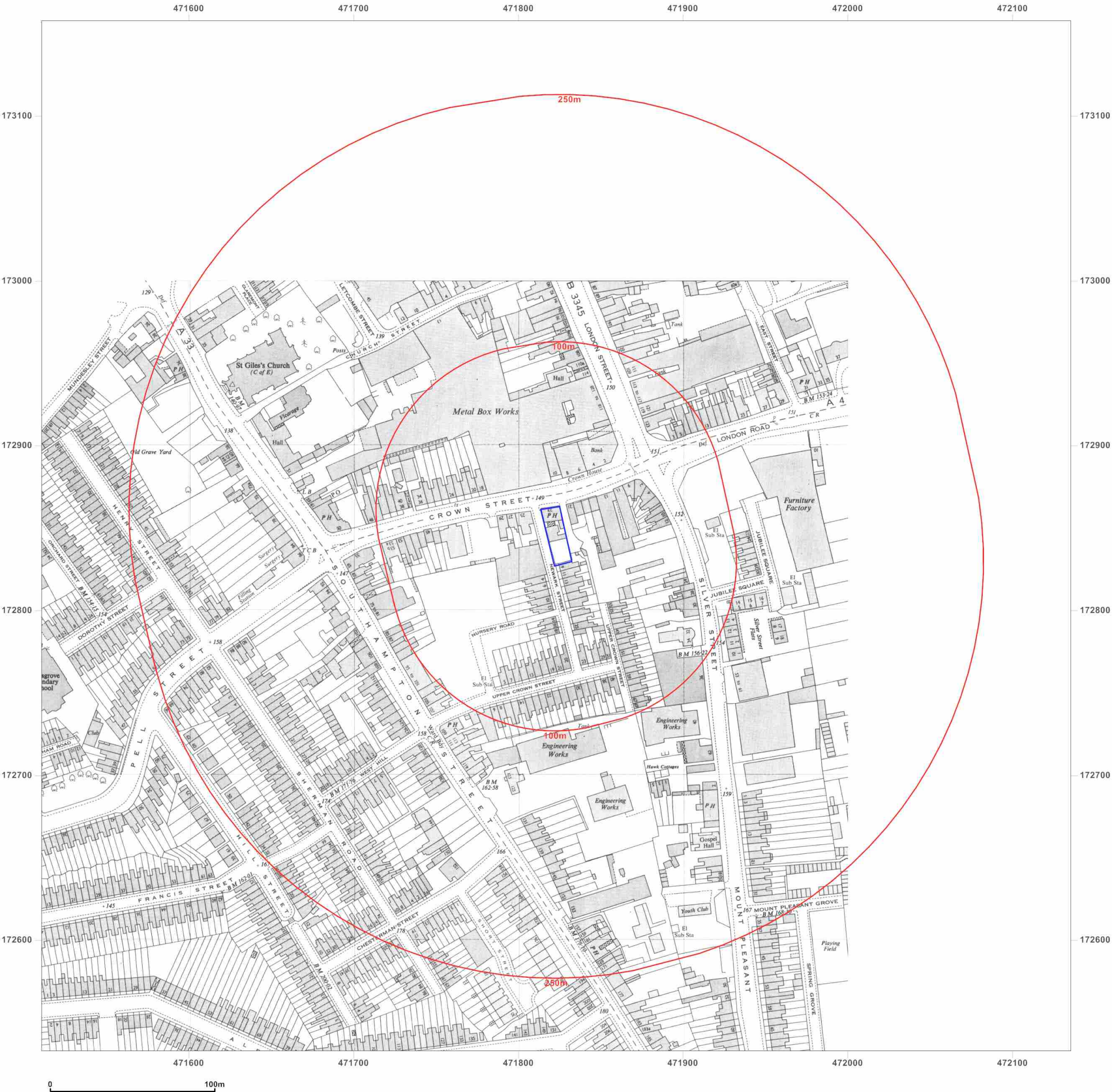


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1968-1971
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1956
Revised 1967
Edition N/A
Copyright 1968
Levelled 1951

Surveyed 1956
Revised 1970
Edition N/A
Copyright 1971
Levelled 1951

Surveyed 1957
Revised 1968
Edition N/A
Copyright 1969
Levelled 1951

Surveyed 1957
Revised 1967
Edition N/A
Copyright 1968
Levelled 1951



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207
Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1979
Scale: 1:1,250
Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1973

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1972



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207
Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid

Map date: 1982

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1957
Revised 1982
Edition N/A
Copyright 1982
Levelled 1972



Produced by
Groundsure Insights
www.groundsure.com

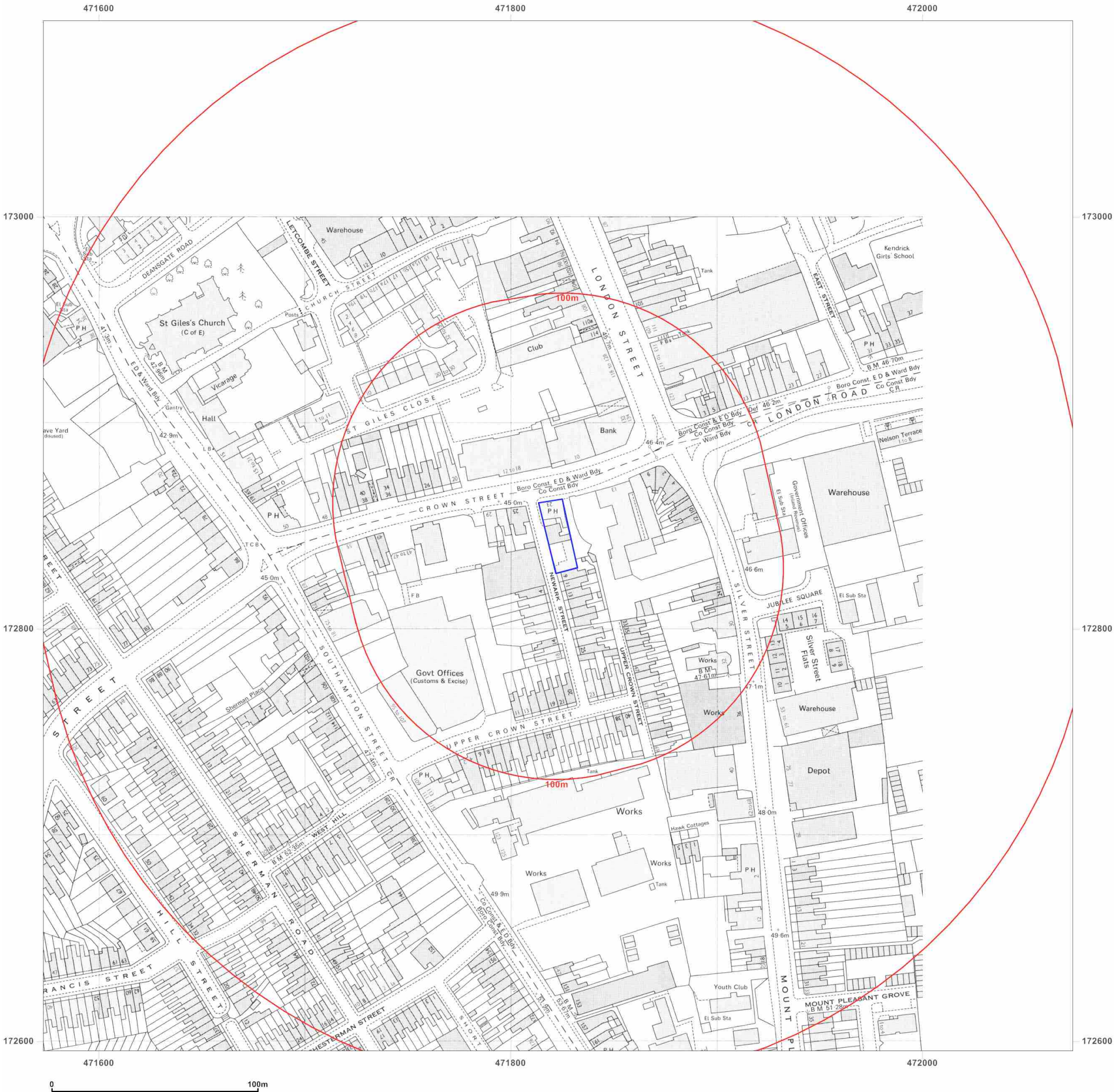


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid
Map date: 1988-1993
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1958
Revised 1987
Edition N/A
Copyright 1988
Levelled 1973

Surveyed 1972
Revised 1989
Edition N/A
Copyright 1989
Levelled 1972

Surveyed 1993
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1993
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com

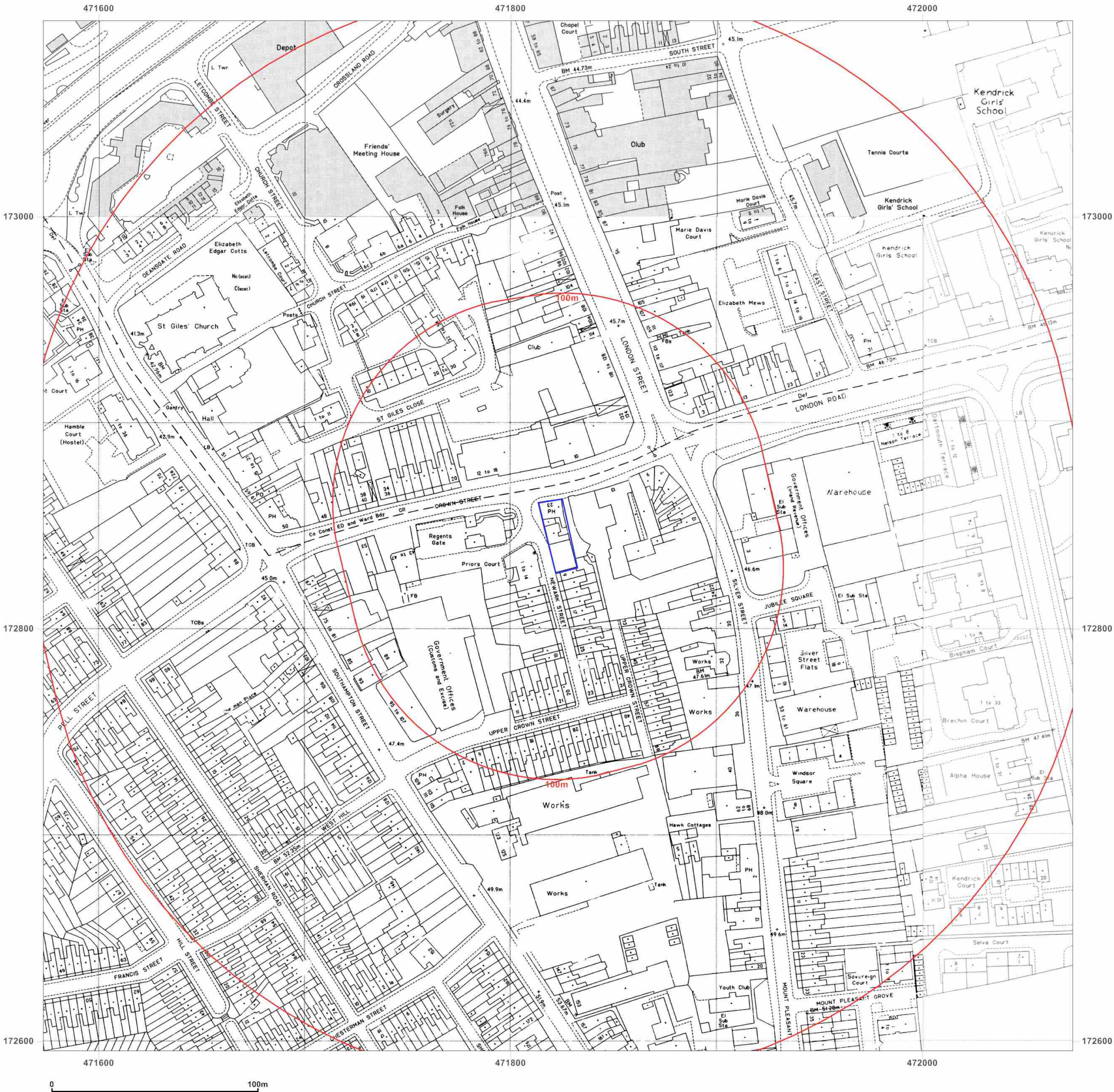


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series

Map date: 1897-1898

Scale: 1:10,560

Printed at: 1:10,560



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

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



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series

Map date: 1900

Scale: 1:10,560

Printed at: 1:10,560



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

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



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: County Series

Map date: 1914

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed N/A
Revised 1914
Edition 1913
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: Provisional

Map date: 1962

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1959
Revised 1961
Edition N/A
Copyright 1962
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com

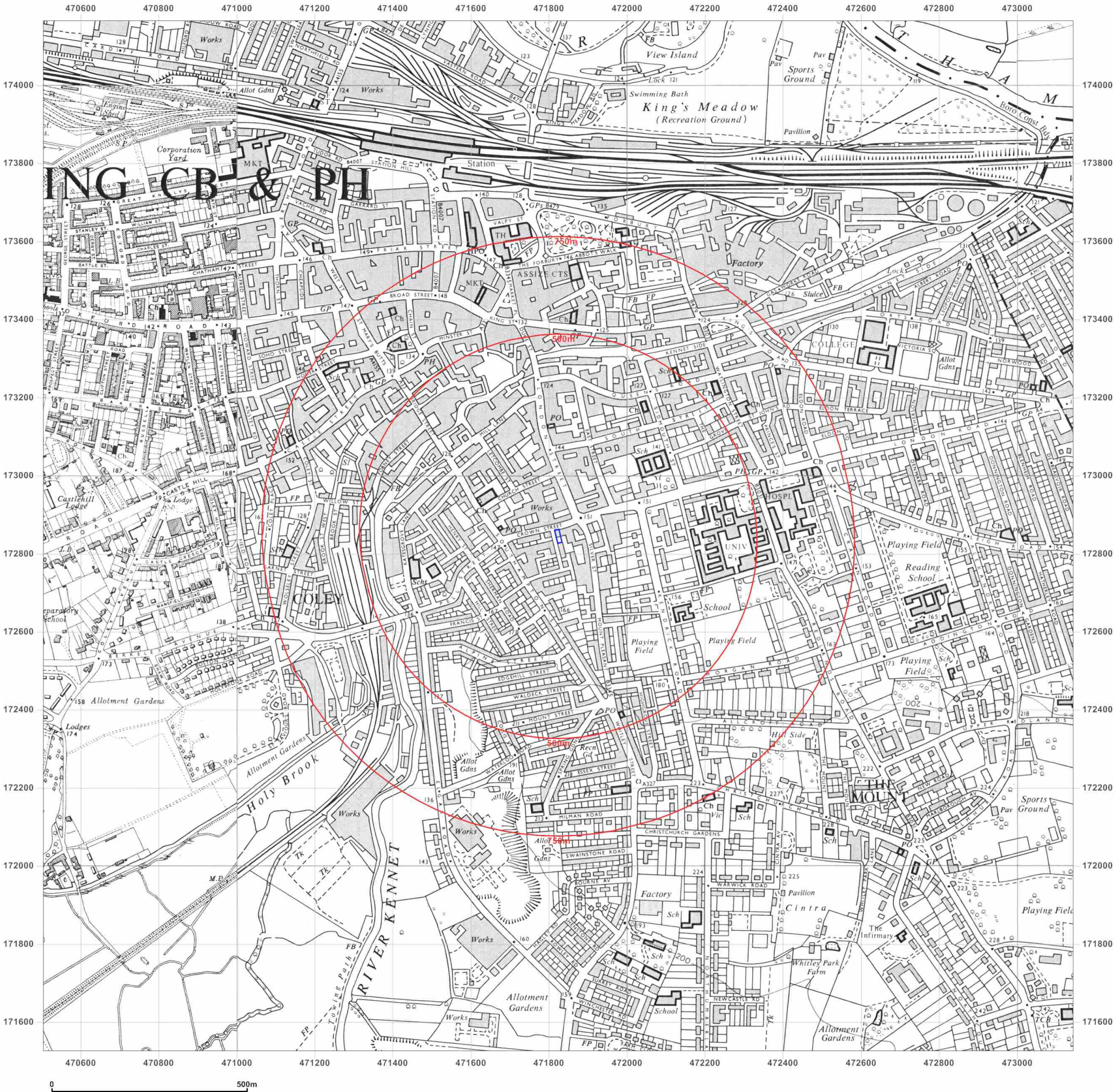


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

Printed at: 1:10,000



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



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid

Map date: 1989

Scale: 1:10,000

Printed at: 1:10,000



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



Produced by
Groundsure Insights
www.groundsure.com

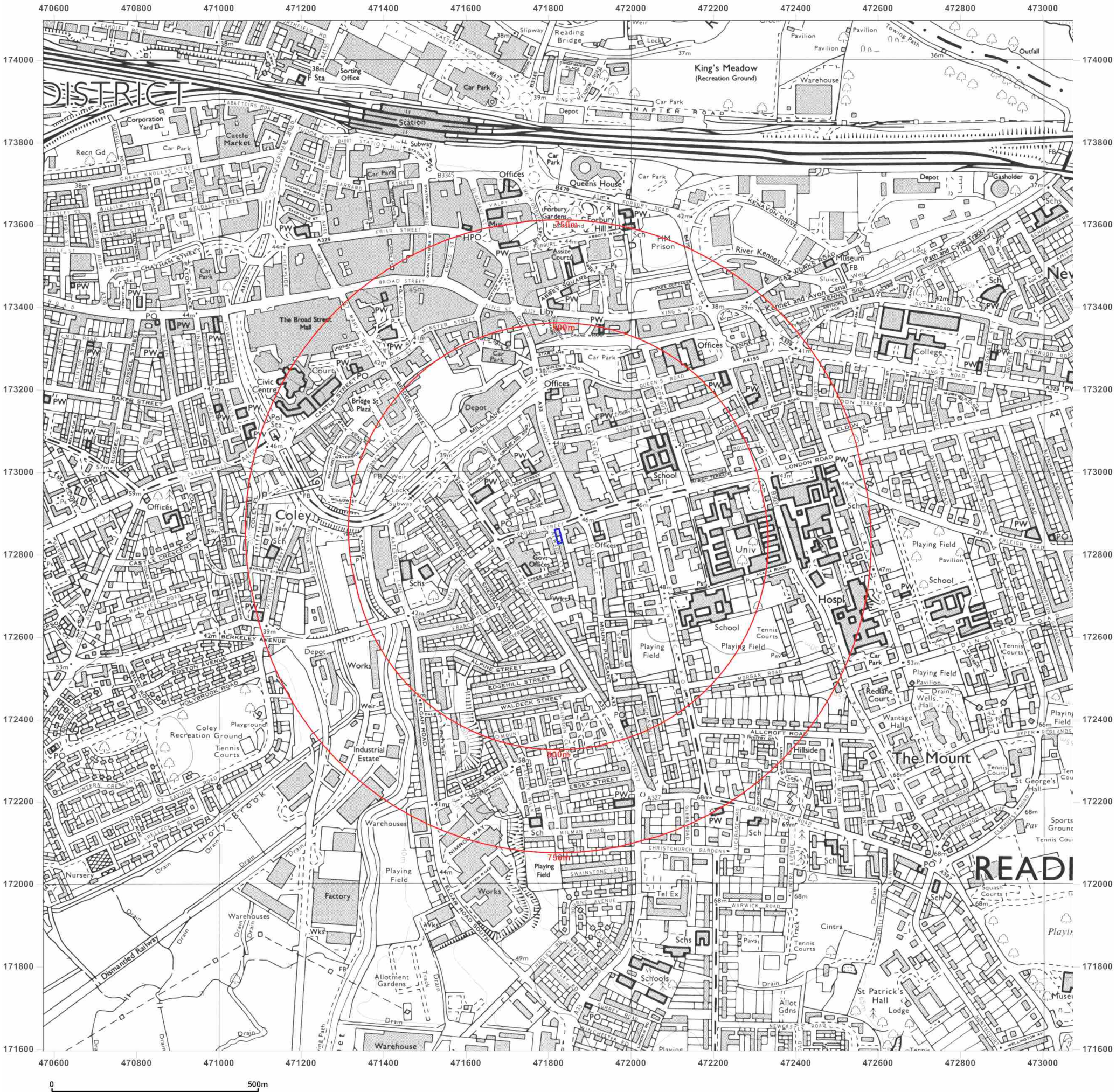


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

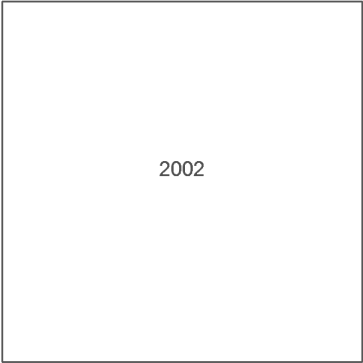
Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

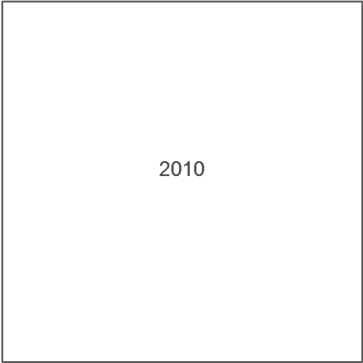
Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



Produced by
Groundsure Insights
www.groundsure.com

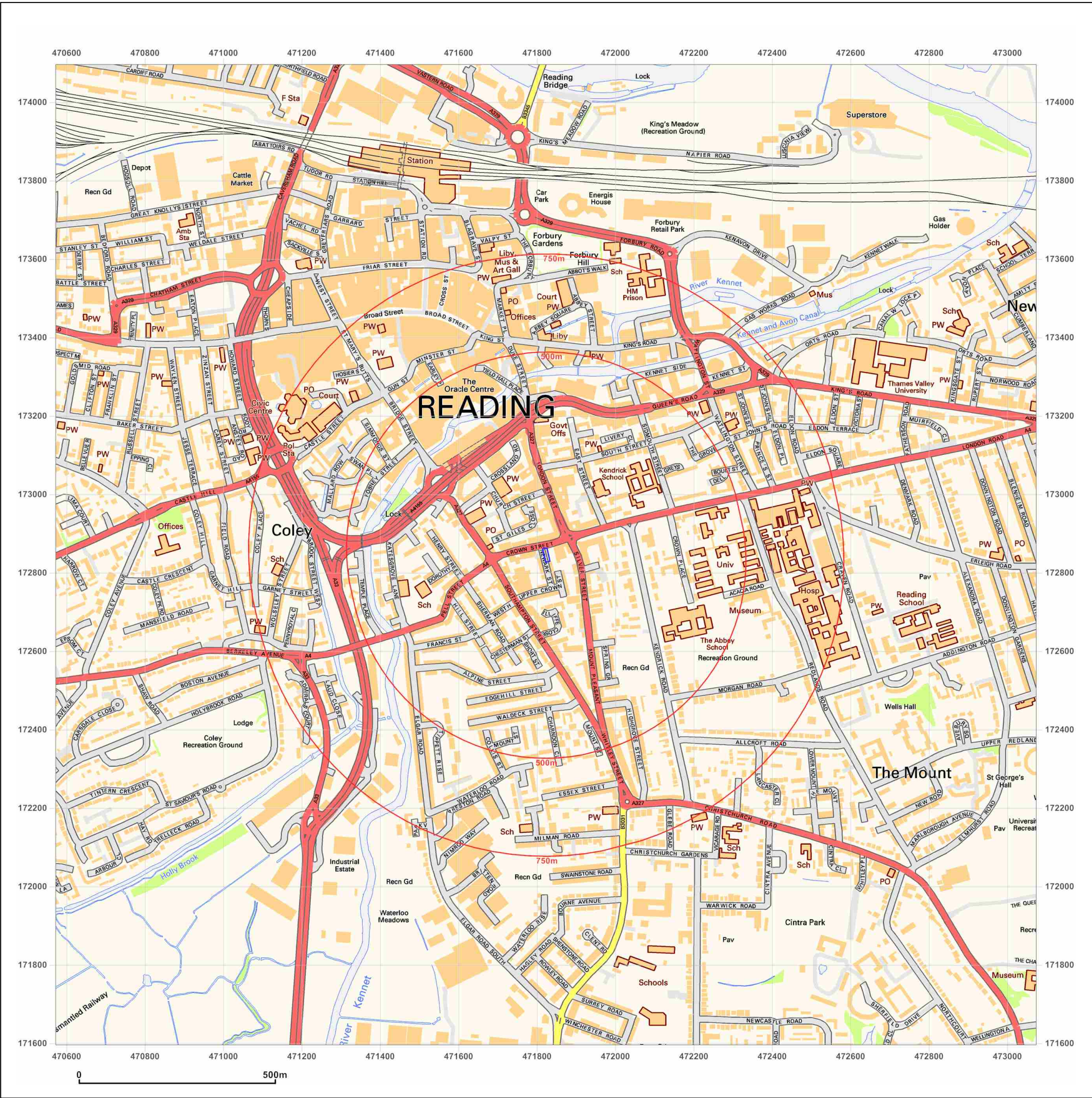


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)



Site Details:

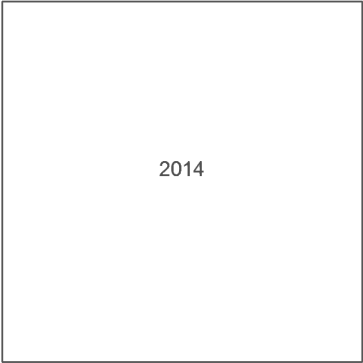
Client Ref: EMS_451676_605814
Report Ref: EMS-451676_605814
Grid Ref: 471823, 172845

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



Produced by
Groundsure Insights
www.groundsure.com

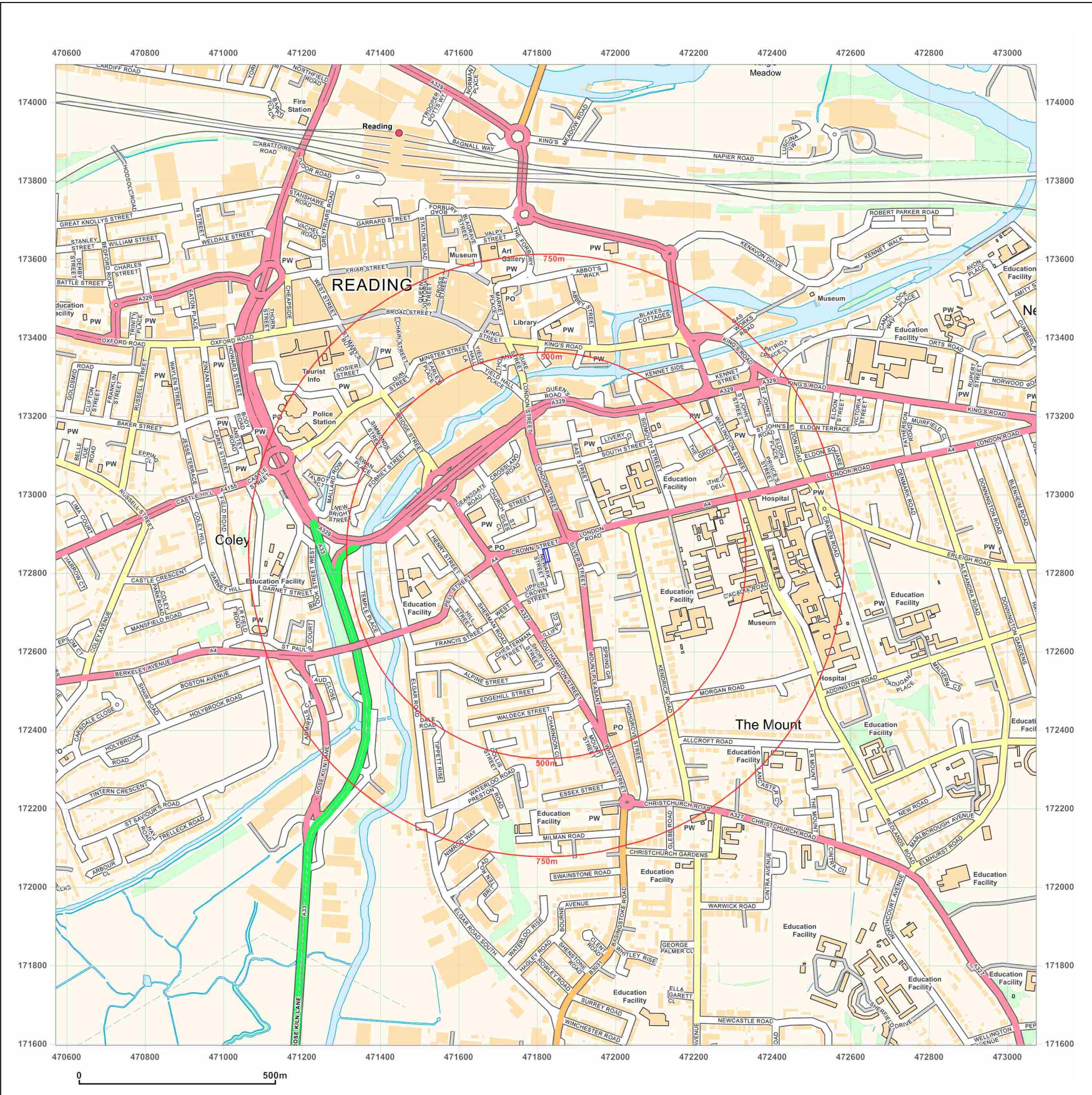


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 28 November 2017

To view map legend click here [Legend](#)





emapsite

Masdar House, 1 Reading Road,
Eversley, RG27 0RP

Report Reference: EMS-451676_605815

Your Reference: EMS_451676_605815

Report Date 28 Nov 2017

Report Delivery Email - pdf
Method:

Geo Insight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
Groundsure Geo Insight

Address: ,
Date: 28 Nov 2017
Reference: EMS-451676_605815
Client: emapsite

NW N NE

W E



SW S SE

Aerial Photograph Capture date: 11-Jul-2013
Grid Reference: 471823,172846
Site Size: 0.04ha

Contents Page

Contents Page.....	3
Overview of Findings.....	5
1:10,000 Scale Availability.....	8
Availability of 1:10,000 Scale Geology Mapping.....	9
1 Geology (1:10,000 scale).....	10
1.1 Artificial Ground map (1:10,000 scale).....	10
1. Geology 1:10,000 scale.....	11
1.1 Artificial Ground.....	11
1.2 Superficial Deposits and Landslips map (1:10,000 scale).....	12
1.2 Superficial Deposits and Landslips.....	13
1.2.1 Superficial Deposits/ Drift Geology.....	13
1.2.2 Landslip.....	13
1.3 Bedrock and linear features map (1:10,000 scale).....	14
1.3 Bedrock and linear features.....	15
1.3.1 Bedrock/ Solid Geology.....	15
1.3.2 Linear features.....	15
2 Geology 1:50,000 Scale.....	16
2.1 Artificial Ground map.....	16
2. Geology 1:50,000 scale.....	17
2.1 Artificial Ground.....	17
2.1.1 Artificial/ Made Ground	17
2.1.2 Permeability of Artificial Ground.....	17
2.2 Superficial Deposits and Landslips map (1:50,000 scale).....	18
2.2 Superficial Deposits and Landslips.....	19
2.2.1 Superficial Deposits/ Drift Geology.....	19
2.2.2 Permeability of Superficial Ground	19
2.2.3 Landslip.....	19
2.2.4 Landslip Permeability.....	19
2.3 Bedrock and linear features map (1:50,000 scale).....	20
2.3 Bedrock, Solid Geology & linear features.....	21
2.3.1 Bedrock/Solid Geology.....	21
2.3.2 Permeability of Bedrock Ground.....	21
2.3.3 Linear features.....	21
3 Radon Data.....	22
3.1 Radon Affected Areas.....	22
3.2 Radon Protection.....	22
4 Ground Workings map.....	23
4 Ground Workings.....	24
4.1 Historical Surface Ground Working Features derived from Historical Mapping.....	24
4.2 Historical Underground Working Features derived from Historical Mapping.....	24
4.3 Current Ground Workings.....	24
5 Mining, Extraction & Natural Cavities.....	30
5.1 Historical Mining.....	30
5.2 Coal Mining.....	30
5.3 Johnson Poole and Bloomer.....	30
5.4 Non-Coal Mining.....	30
5.5 Non-Coal Mining Cavities.....	33
5.6 Natural Cavities.....	34
5.7 Brine Extraction.....	36
5.8 Gypsum Extraction.....	36
5.9 Tin Mining.....	36
5.10 Clay Mining.....	36
6 Natural Ground Subsidence.....	37
6.1 Shrink-Swell Clay map.....	37
6.2 Landslides map.....	38
6.3 Ground Dissolution of Soluble Rocks map.....	39
6.4 Compressible Deposits map.....	40
6.5 Collapsible Deposits map.....	41
6.6 Running Sand map.....	42

6 Natural Ground Subsidence..... 43

 6.1 Shrink-Swell Clays.....43

 6.2 Landslides.....43

 6.3 Ground Dissolution of Soluble Rocks.....44

 6.4 Compressible Deposits.....44

 6.5 Collapsible Deposits.....44

 6.6 Running Sands.....44

7 Borehole Records..... 47

8 Estimated Background Soil Chemistry..... 49

9 Railways and Tunnels map..... 50

9 Railways and Tunnels..... 51

 9.1 Tunnels51

 9.2 Historical Railway and Tunnel Features51

 9.3 Historical Railways.....52

 9.4 Active Railways.....52

 9.5 Railway Projects.....52

Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslide within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslide within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

No

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

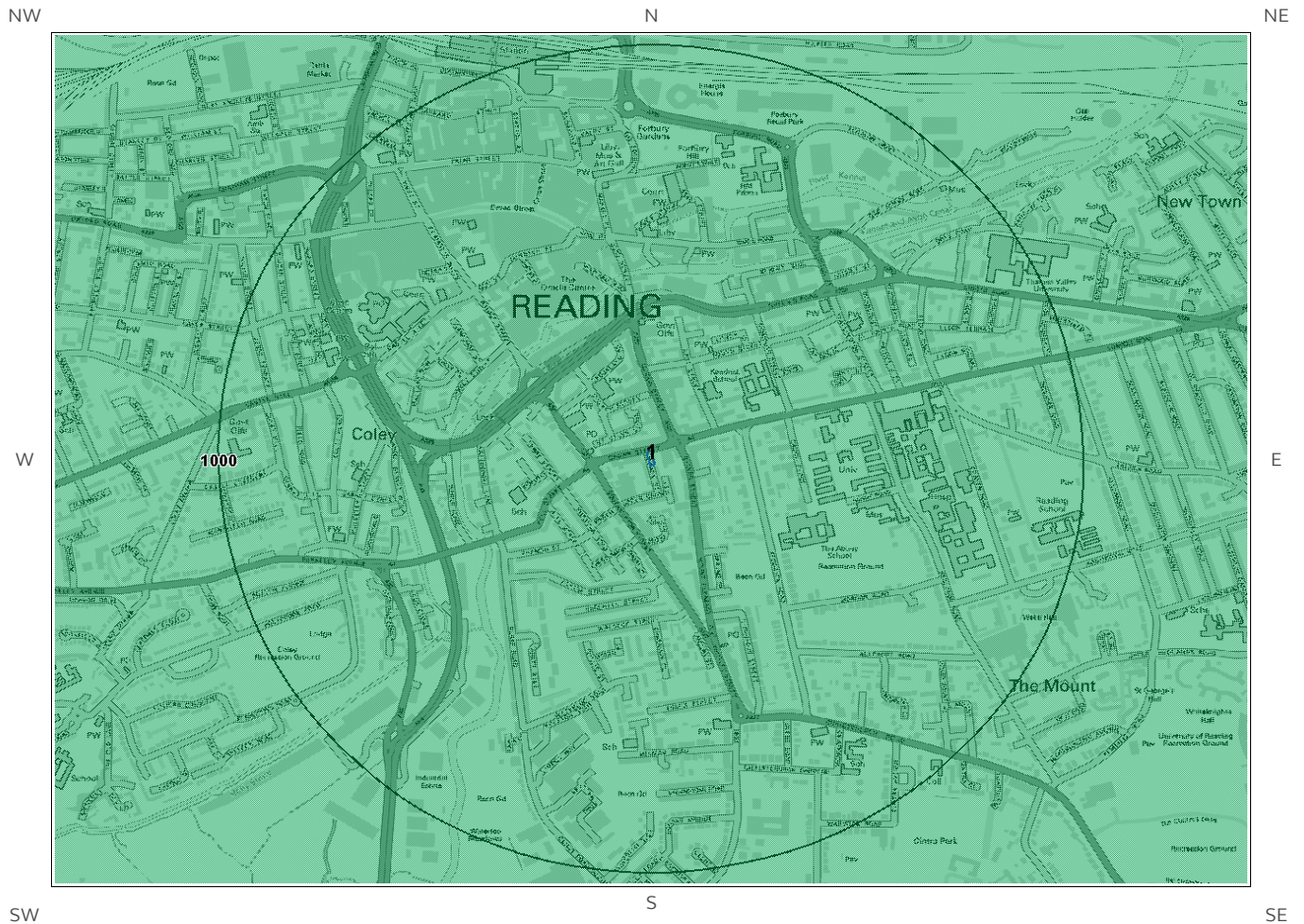
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	0	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	5	44

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	1	0	3	0	4
5.4 Non-Coal Mining*	1	0	2	3	41
5.5 Non-Coal Mining Cavities	0	0	3	3	5
5.5 Natural Cavities	0	0	1	0	37

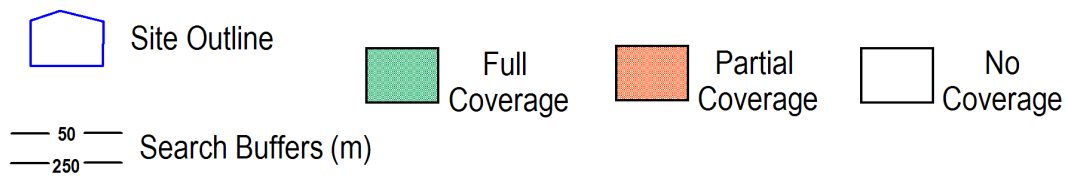
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Moderate				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Low				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	0	17		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	1	0	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
N2	1813.0	Some deposits are mapped	Full	Full	No coverage

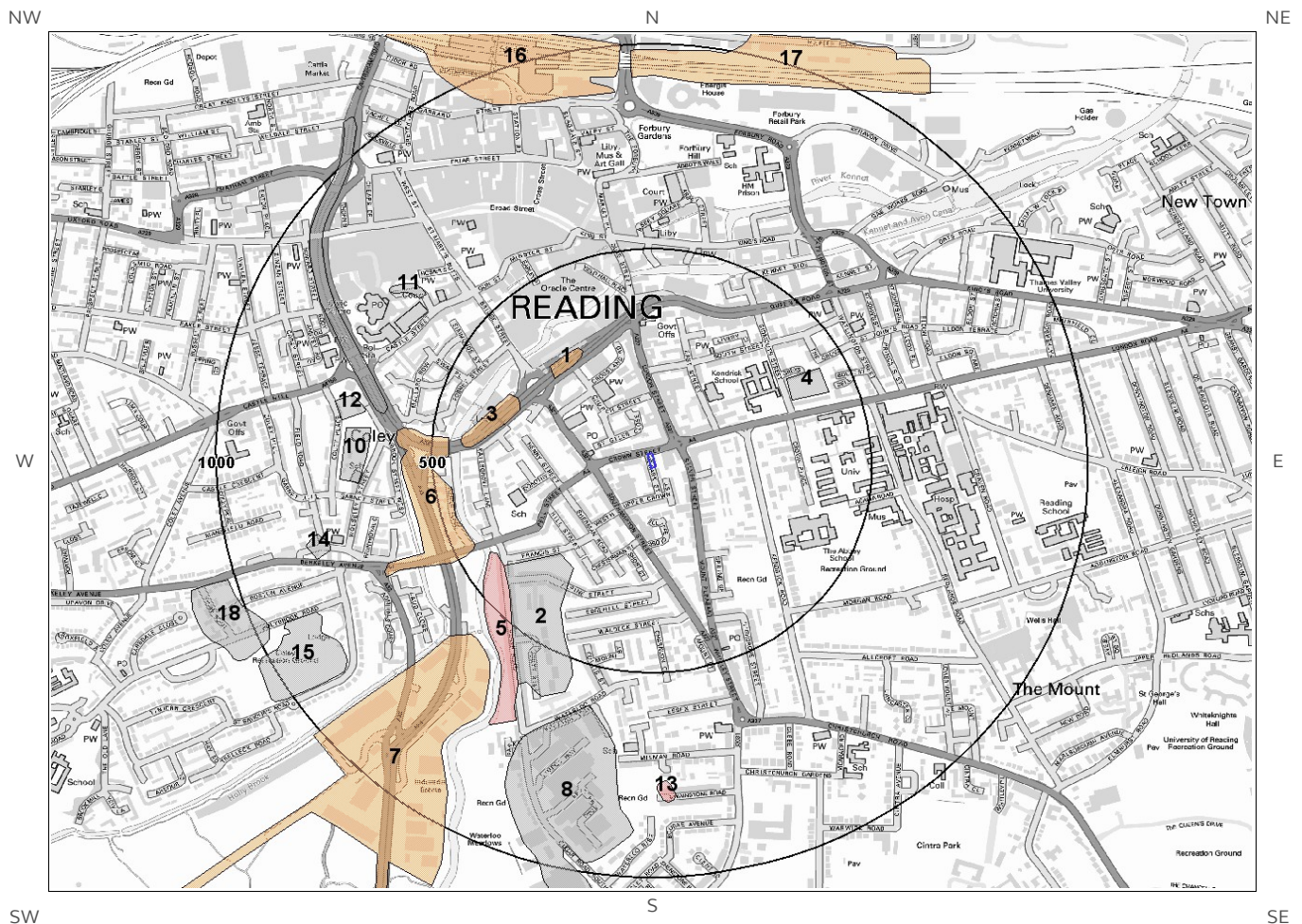
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

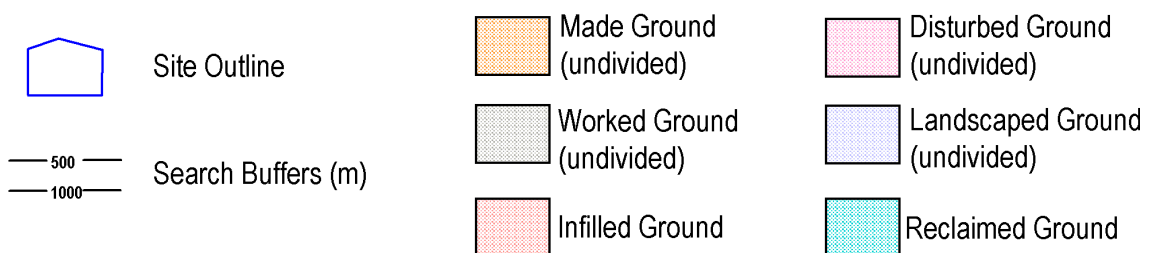
1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

© Crown copyright and database rights 2017.
Ordnance Survey licence 100035207.



1. Geology 1:10,000 scale

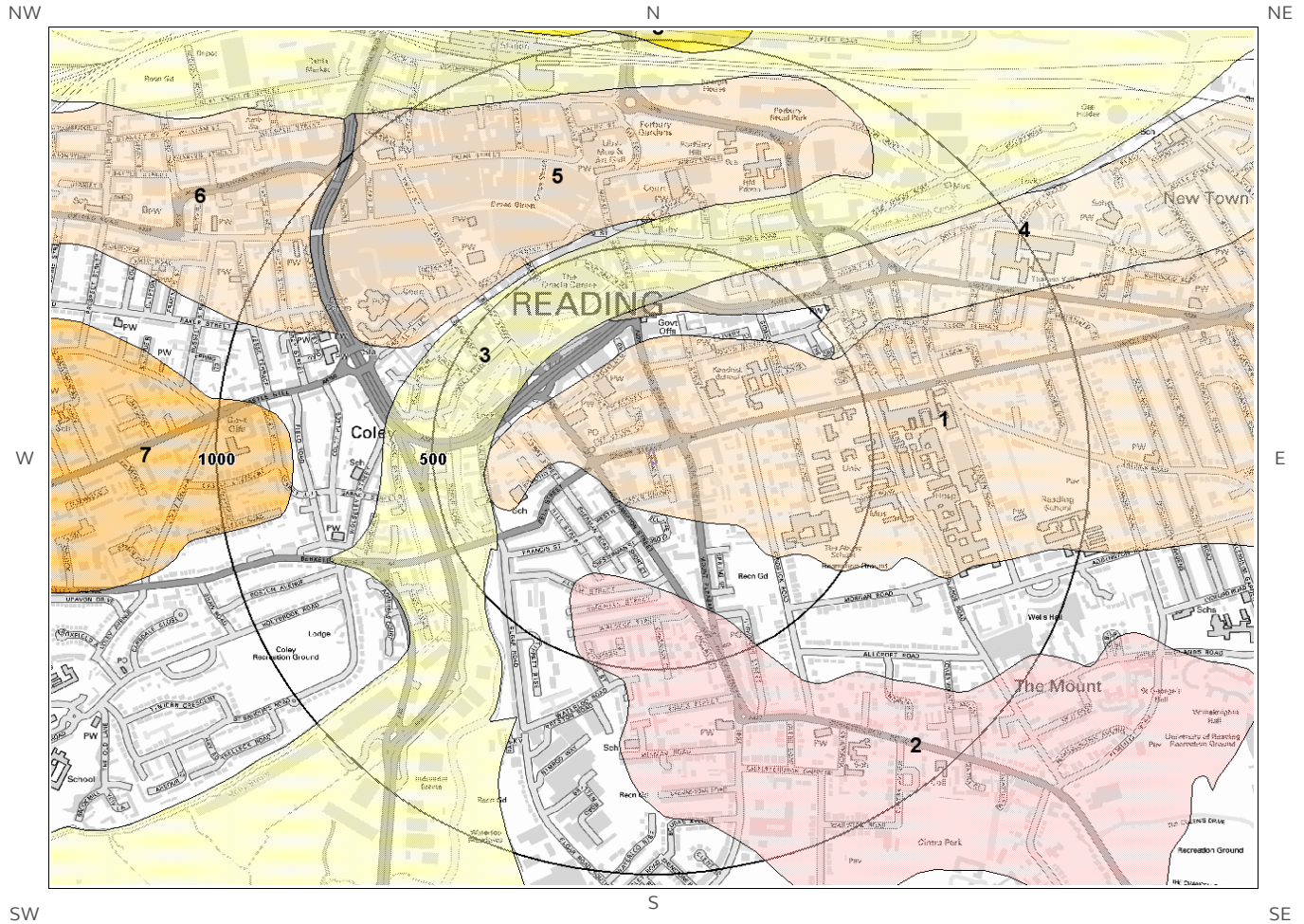
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

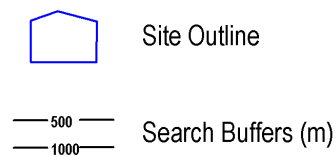
ID	Distance	Direction	LEX Code	Description	Rock Description
1	277.0	NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	297.0	SW	WGR-VOID	Worked Ground (Undivided)	Void
3	315.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	348.0	E	WGR-VOID	Worked Ground (Undivided)	Void
5	415.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	448.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
2	283.0	S	BHT-XSV	Boyn Hill Gravel Member - Sand And Gravel	Sand And Gravel
3	324.0	NW	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
4	324.0	N	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

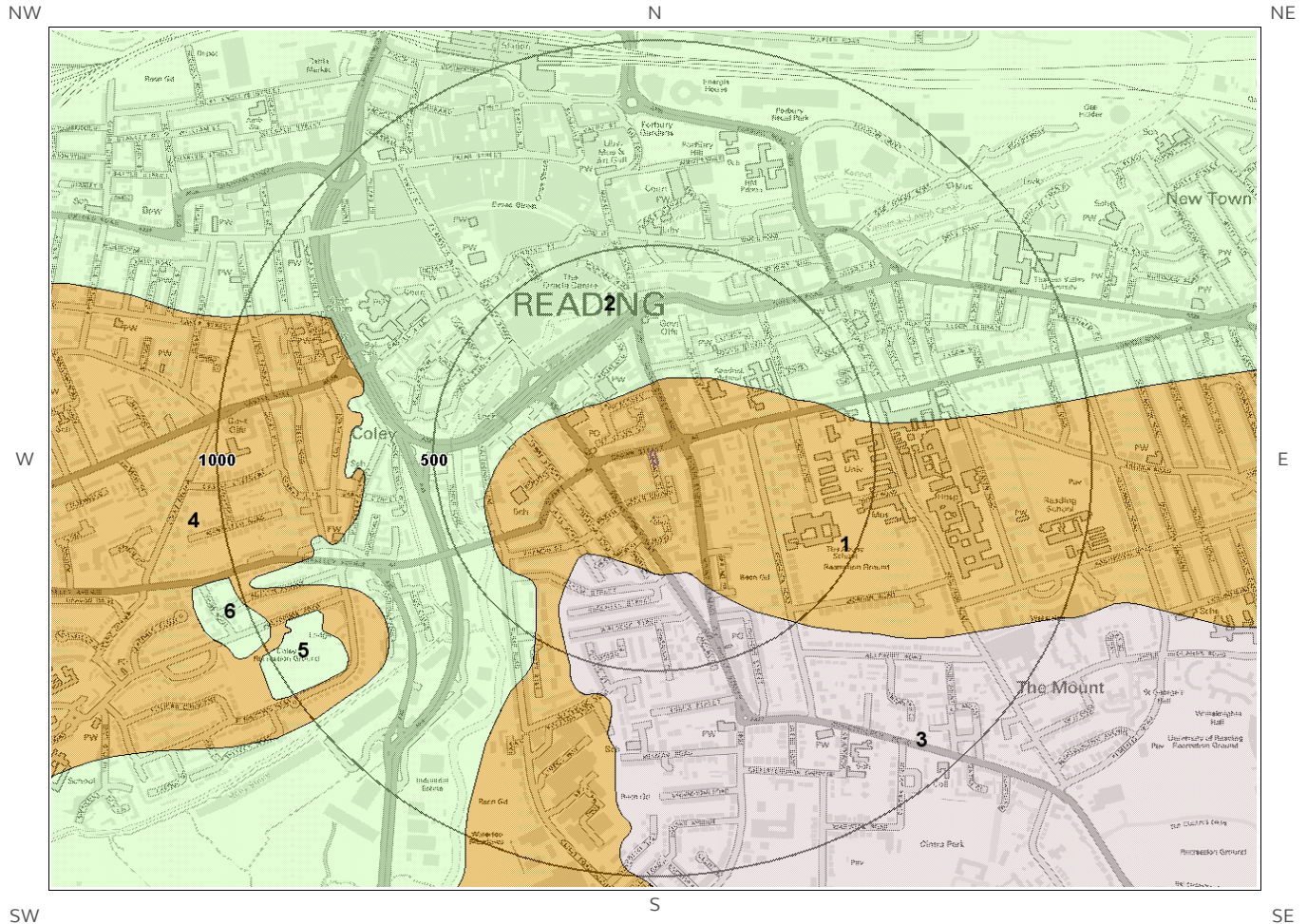
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)

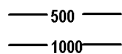


Bedrock and linear features Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch
2	151.0	NW	LSNCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation And Newhaven Chalk Formation (undifferentiated) - Chalk	Campanian Age - Turonian Age
3	246.0	S	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

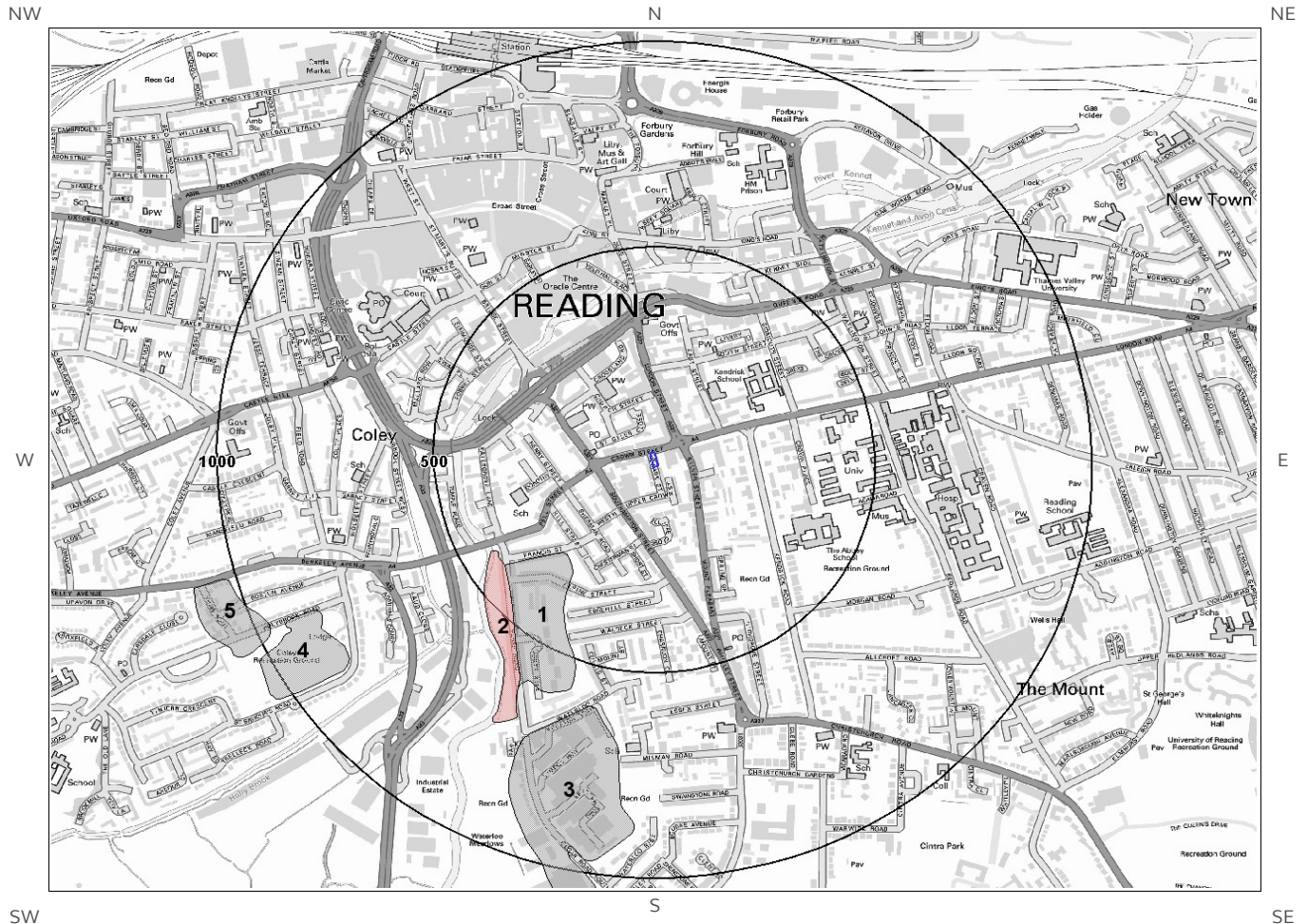
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

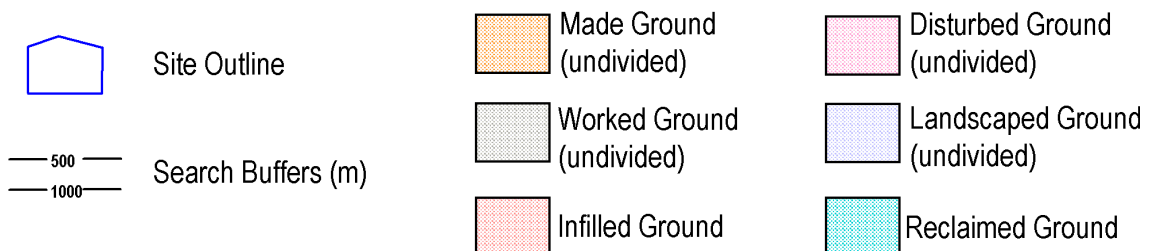
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 268

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

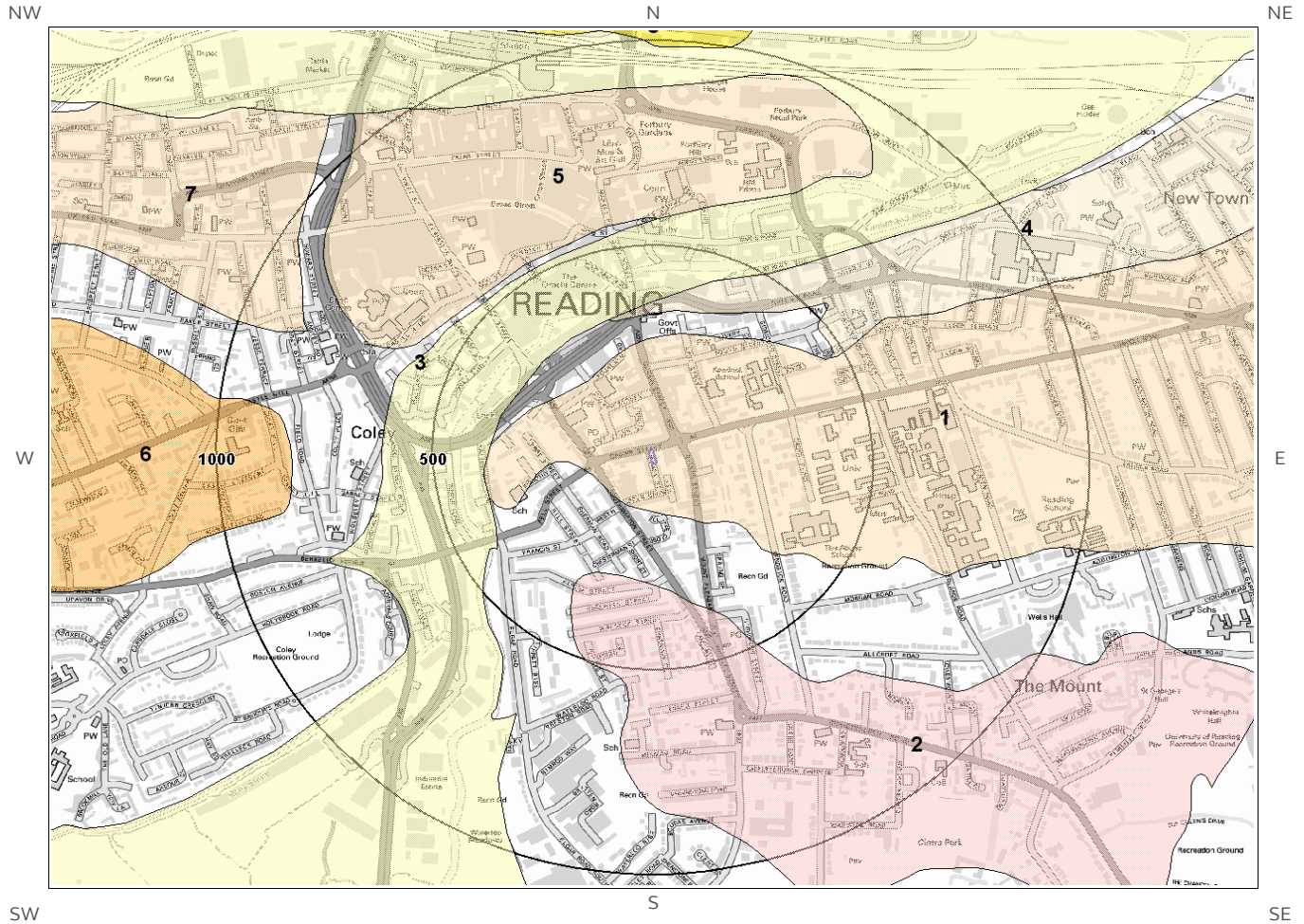
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	292.0	SW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
2	413.0	SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

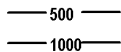
2.2 Superficial Deposits and Landslips map (1:50,000 scale)



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL
2	279.0	S	BHT-XSV	BOYN HILL GRAVEL MEMBER	SAND AND GRAVEL
3	325.0	NW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	327.0	N	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	High

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

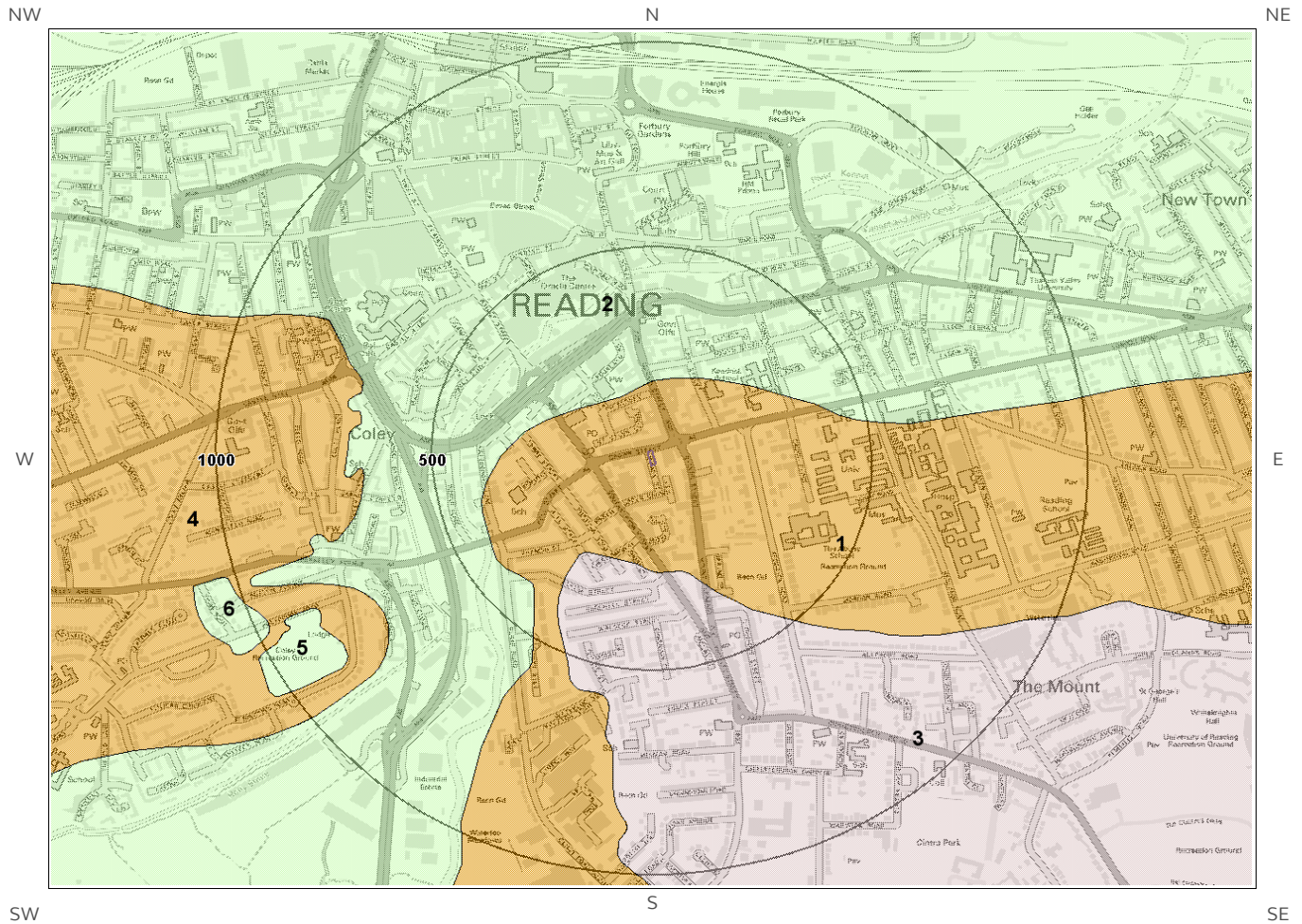
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

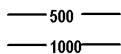
2.3 Bedrock and linear features map (1:50,000 scale)



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 268

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN
2	149.0	NW	SNCK-CHLK	SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK	CONIACIAN
3	241.0	S	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Moderate	Very Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

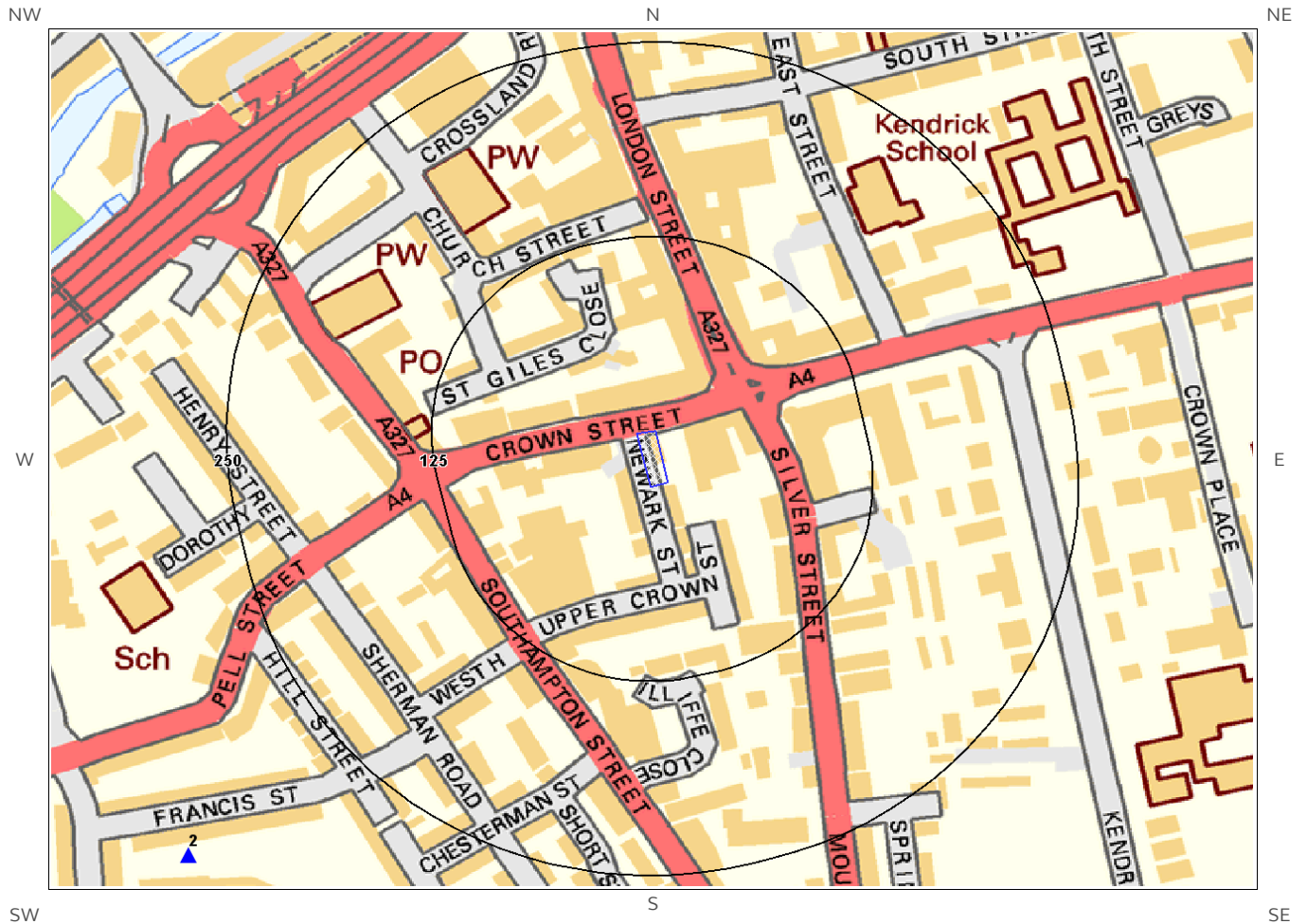
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

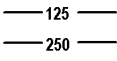
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.

-  Site Outline
-  Historic Surface Ground Workings
-  Historic Underground Workings
-  Current Ground Workings
-  Search Buffers (m)
125
250

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	332.0	S	471778 172498	Clay & Shale	Ivy Bridge Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
2	368.0	SW	471540 172590	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	399.0	S	471686 172452	Clay & Shale	Ivy Bridge Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	428.0	SW	471551 172495	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	493.0	SW	471549 172417	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

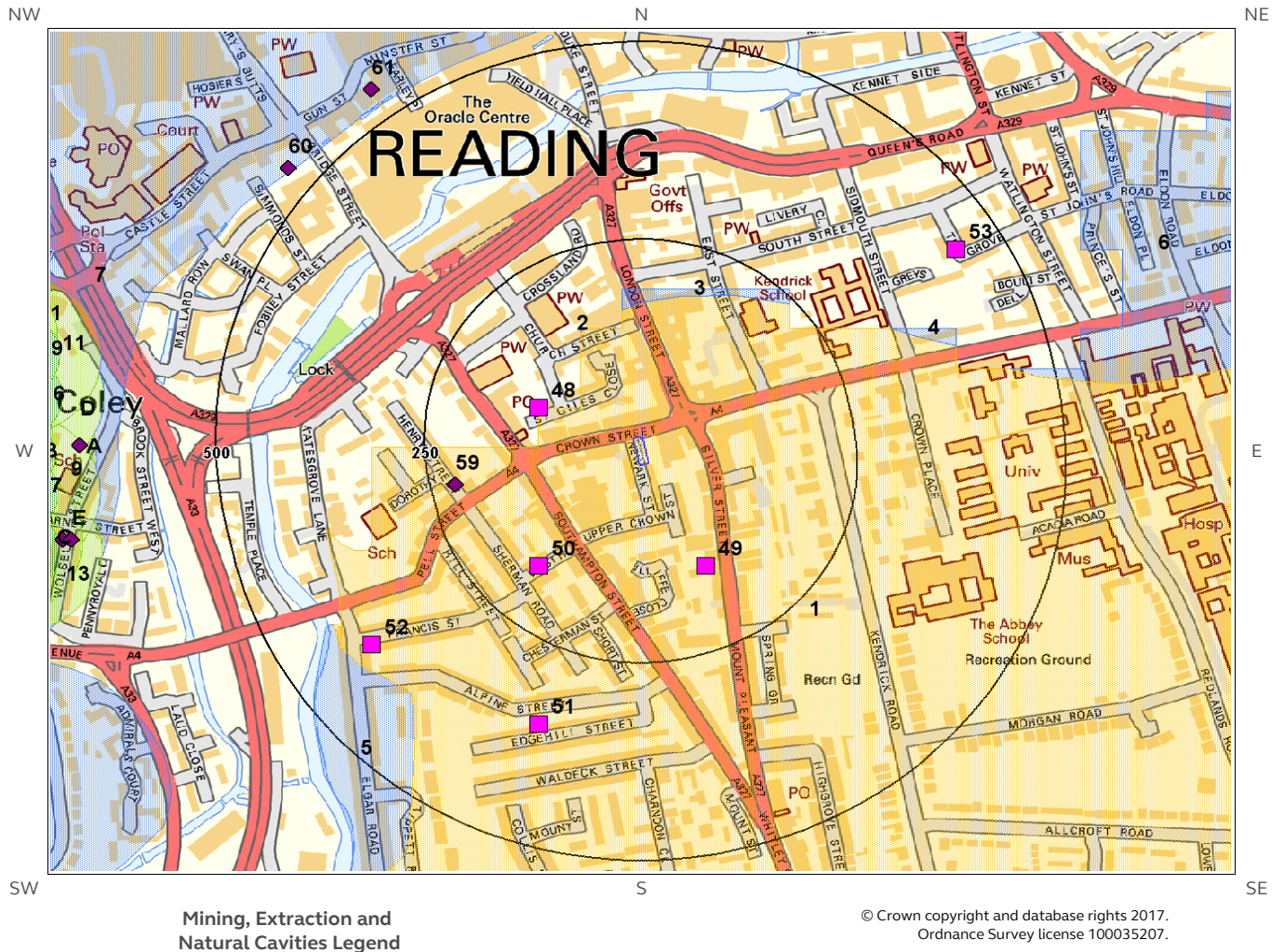
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	557.0	SW	471571 172330	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	650.0	SW	471532 172245	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	715.0	S	471669 172129	Clay & Shale	Waterloo Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	736.0	W	471079 172914	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	743.0	W	471074 172792	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	744.0	W	471070 172838	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	745.0	W	471076 172966	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	746.0	W	471067 172868	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	749.0	W	471066 172810	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	750.0	W	471077 172717	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	767.0	S	471550 172110	Clay & Shale	Waterloo Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	771.0	W	471053 172733	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	784.0	W	471033 172784	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	785.0	W	471030 172804	Chalk	Reading Chalk Mine	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)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	790.0	W	471044 172680	Clay & Shale	Coley Pottery	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	793.0	W	471031 172735	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	793.0	W	471021 172821	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	797.0	W	471017 172877	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	797.0	W	471021 172946	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	800.0	W	471023 172986	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	801.0	S	471864 172027	Gravel	Whitley Grove Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	801.0	W	471018 172763	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	806.0	W	471010 172798	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	812.0	W	471002 172827	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	823.0	W	471002 172996	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	830.0	W	470991 172974	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	831.0	W	470992 172733	Chalk	Reading Chalk Mine	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)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	833.0	W	470981 172898	Chalk	Neuk & Bramley Chalk Mine	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)	Ceased
Not shown	836.0	W	470978 172827	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	837.0	W	470985 172742	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	846.0	W	470968 172883	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	850.0	W	470964 172898	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	851.0	SW	471058 172452	Clay & Shale	Coley Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	854.0	S	471699 171982	Clay & Shale	Waterloo Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	857.0	W	470959 172798	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	868.0	W	470957 172717	Gravel	Coley Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	870.0	W	470946 172797	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	881.0	W	470938 172960	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	884.0	S	471578 171977	Clay & Shale	Waterloo Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	893.0	SW	471060 172362	Clay & Shale	Coley Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	906.0	W	470915 172741	Gravel	Coley Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	926.0	SW	471046 172321	Clay & Shale	Coley Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	936.0	S	471577 171924	Clay & Shale	Waterloo Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	982.0	SW	470975 172330	Clay & Shale	Coley Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? Yes

The following information provided by JPB is not represented on mapping: 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.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Chalk	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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
2	149.0	NW	Not available	Chalk	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
3	162.0	N	Not available	Chalk	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
4	328.0	NE	Not available	Chalk	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
5	398.0	SW	Not available	Chalk	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
6	447.0	E	Not available	Chalk	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
7	518.0	NW	Not available	Chalk	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
8D	636.0	W	Not available	Chalk	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	642.0	W	Not available	Chalk	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
10A	643.0	W	Not available	Chalk	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
11	645.0	W	Not available	Chalk	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
12A	646.0	W	Not available	Chalk	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
13	650.0	W	Not available	Chalk	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
Not shown	652.0	NW	Not available	Chalk	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
15C	670.0	W	Not available	Chalk	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
16	686.0	W	Not available	Chalk	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
17	692.0	W	Not available	Chalk	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
18B	693.0	W	Not available	Chalk	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
19	695.0	W	Not available	Chalk	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	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
20B	696.0	W	Not available	Chalk	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
21	700.0	W	Not available	Chalk	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
22C	700.0	W	Not available	Chalk	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
Not shown	720.0	W	Not available	Chalk	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
Not shown	747.0	W	Not available	Chalk	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
Not shown	748.0	W	Not available	Chalk	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
Not shown	749.0	W	Not available	Chalk	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
Not shown	753.0	W	Not available	Chalk	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
Not shown	753.0	W	Not available	Chalk	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
Not shown	770.0	W	Not available	Chalk	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
Not shown	779.0	W	Not available	Chalk	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
Not shown	781.0	W	Not available	Chalk	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
Not shown	789.0	W	Not available	Chalk	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
Not shown	795.0	W	Not available	Chalk	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
Not shown	795.0	W	Not available	Chalk	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
Not shown	799.0	W	Not available	Chalk	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	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
Not shown	800.0	W	Not available	Chalk	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
Not shown	806.0	W	Not available	Chalk	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
Not shown	830.0	W	Not available	Chalk	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
Not shown	842.0	W	Not available	Chalk	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
Not shown	856.0	W	Not available	Chalk	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
Not shown	875.0	W	Not available	Chalk	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
Not shown	876.0	W	Not available	Chalk	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
Not shown	877.0	W	Not available	Chalk	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
Not shown	920.0	W	Not available	Chalk	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
Not shown	922.0	W	Not available	Chalk	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
Not shown	930.0	W	Not available	Chalk	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
Not shown	938.0	W	Not available	Chalk	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

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? Yes

The following Non-Coal Mining Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
48	120.0	W	471700 172900	Reading, Berkshire	Taplow Gravel	Lambeth Group, Upper Chalk Formation	Chalk

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
49	146.0	SE	471900 172700	'The Old Orchard Kiln', Reading, Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
50	176.0	SW	471700 172700	'Shearmans Brick Kiln', Reading, Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
51	349.0	S	471700 172500	'Ivy Lodge Brickfield/ Southampton Kiln', Reading, Berkshire	Boyn Hill Gravel	London Clay, Lambeth Group, Upper Chalk Formation	Chalk
52	394.0	SW	471500 172600	'Katesgrove Kilns' (2), Reading, Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk
53	444.0	NE	472200 173100	Reading, Berkshire	Taplow Gravel	Chalk Group	Chalk
Not shown	731.0	W	471100 172700	'Coley Potteries', Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	816.0	W	471000 172800	'Castle Hill Kiln', Reading (Coley), Berkshire	Lynch Hill Gravel	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	856.0	S	471600 172000	'Waterloo Kiln/Clackmans Field', Reading, Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	926.0	SW	471000 172400	'Wheeler Works', Reading (Coley), Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	935.0	S	471700 171900	'Waterloo Kiln', Reading, Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk

5.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary?

Yes

The following Natural Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
59	222.0	W	471600 172800	-	Chalk Group, Lambeth Group	Unknown
60	534.0	NW	471400 173200	Taplow Gravel	Chalk Group	Solution Pipe x 2
61	539.0	NW	471500 173300	Taplow Gravel	Chalk Group	Solution Pipe x 1
Not shown	600.0	NW	471550 173400	Taplow Gravel	Chalk Group	Solution Pipe x 5
Not shown	623.0	NW	471500 173400	Taplow Gravel	Chalk Group	Solution Pipe x 3
64D	664.0	W	471150 172850	-	Chalk Group	Solution Widened Joint or Fissure x 1
65E	686.0	W	471140 172730	-	Chalk Group, Lambeth Group	Solution Pipe x 1

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
66E	696.0	W	471130 172730	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	721.0	W	471100 172760	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	768.0	W	471060 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	783.0	W	471030 172850	-	Chalk Group, Lambeth Group	Solution Pipe x 3
Not shown	788.0	W	471040 173010	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	793.0	W	471020 172850	-	Chalk Group, Lambeth Group	Solution Pipe x 3
Not shown	794.0	W	471020 172840	-	Chalk Group, Lambeth Group	Solution Pipe x 3
Not shown	797.0	W	471040 172670	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	801.0	W	471040 172650	-	Chalk Group	Solution Pipe x 1
Not shown	804.0	W	471040 172640	-	Chalk Group	Solution Pipe x 1
Not shown	807.0	W	471020 173010	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	814.0	W	471000 172840	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	816.0	W	471030 172630	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	817.0	W	471010 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	817.0	W	471010 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	821.0	W	471000 172750	Lynch Hill Gravel	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	823.0	W	471020 172640	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	826.0	W	471000 172720	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	827.0	W	471000 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	827.0	W	471000 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	827.0	W	471000 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	827.0	W	470990 172940	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	828.0	W	470990 172770	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	837.0	W	470990 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	843.0	W	470990 173040	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	853.0	W	470970 172990	-	Chalk Group, Lambeth Group	Solution Pipe x 1

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
Not shown	857.0	W	470980 173060	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	872.0	W	470950 172980	Lynch Hill Gravel	Chalk Group, Lambeth Group	Solution Pipe x 2
Not shown	872.0	NW	471010 173200	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 3
Not shown	894.0	NW	471100 173400	Taplow Gravel	Chalk Group	Solution Pipe x 3
Not shown	913.0	W	470920 173050	-	Chalk Group, Lambeth Group	Solution Pipe x 1

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

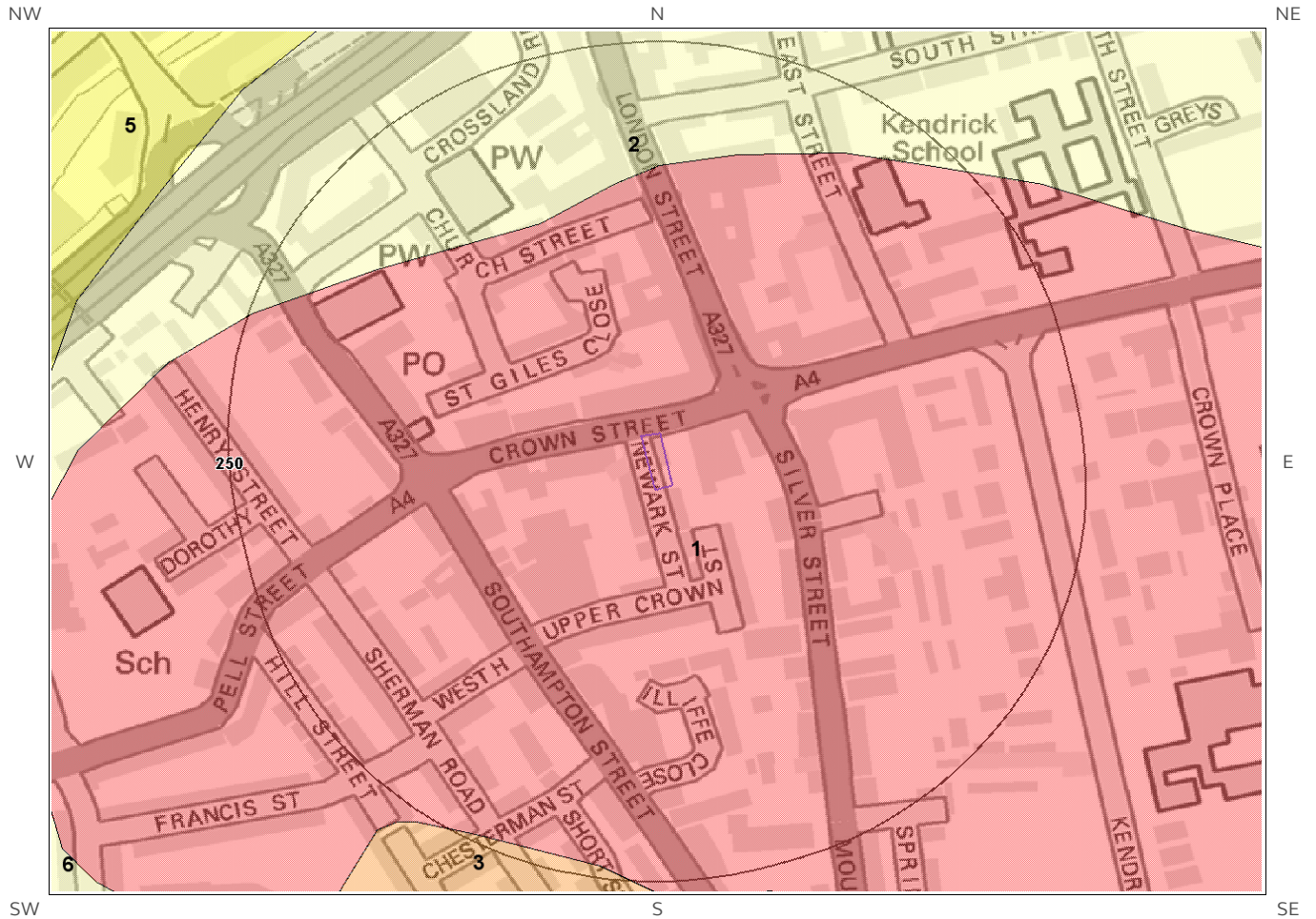
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

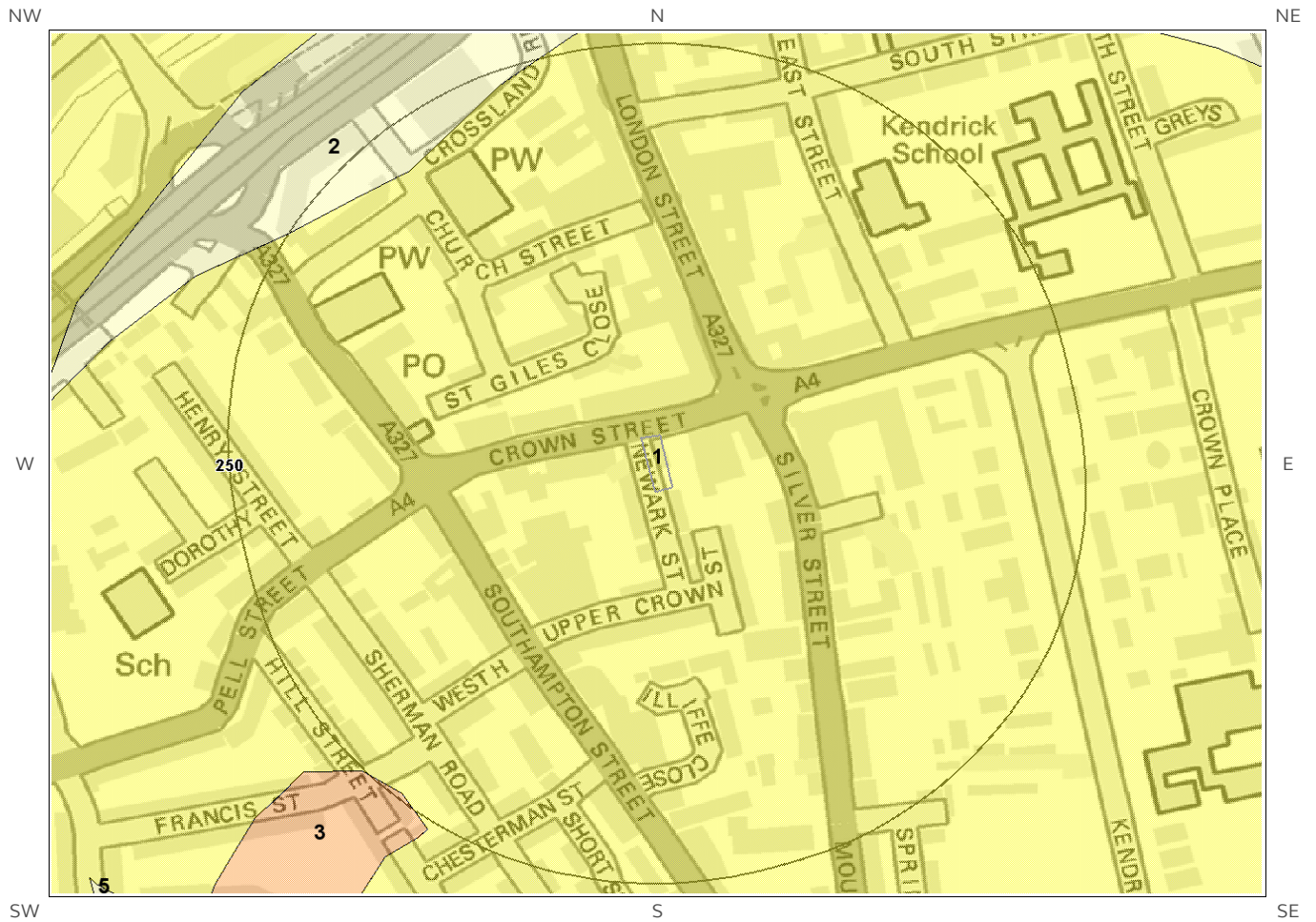


Shrink Swell Clay Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



6.2 Landslides map

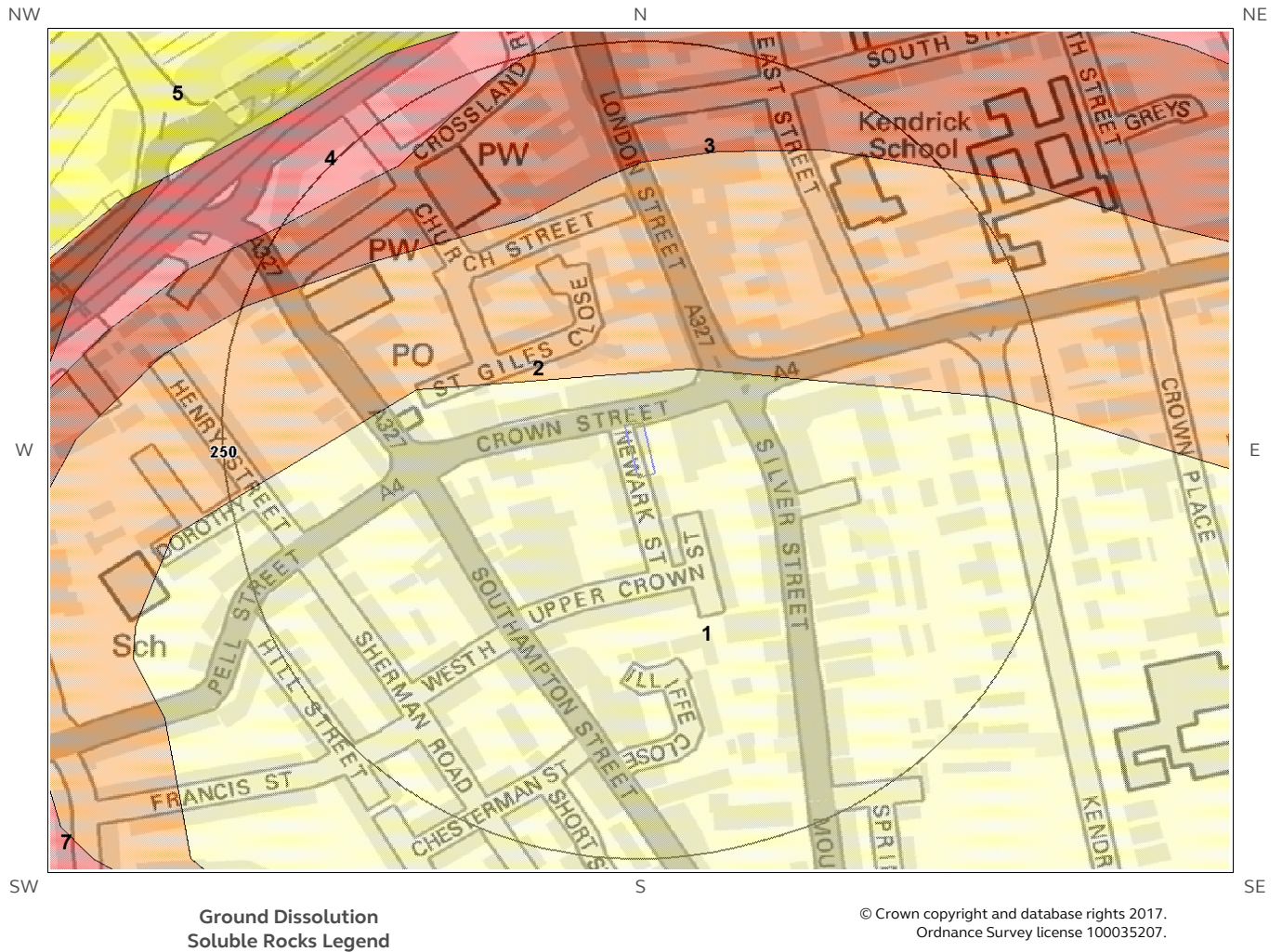


Landslides Legend

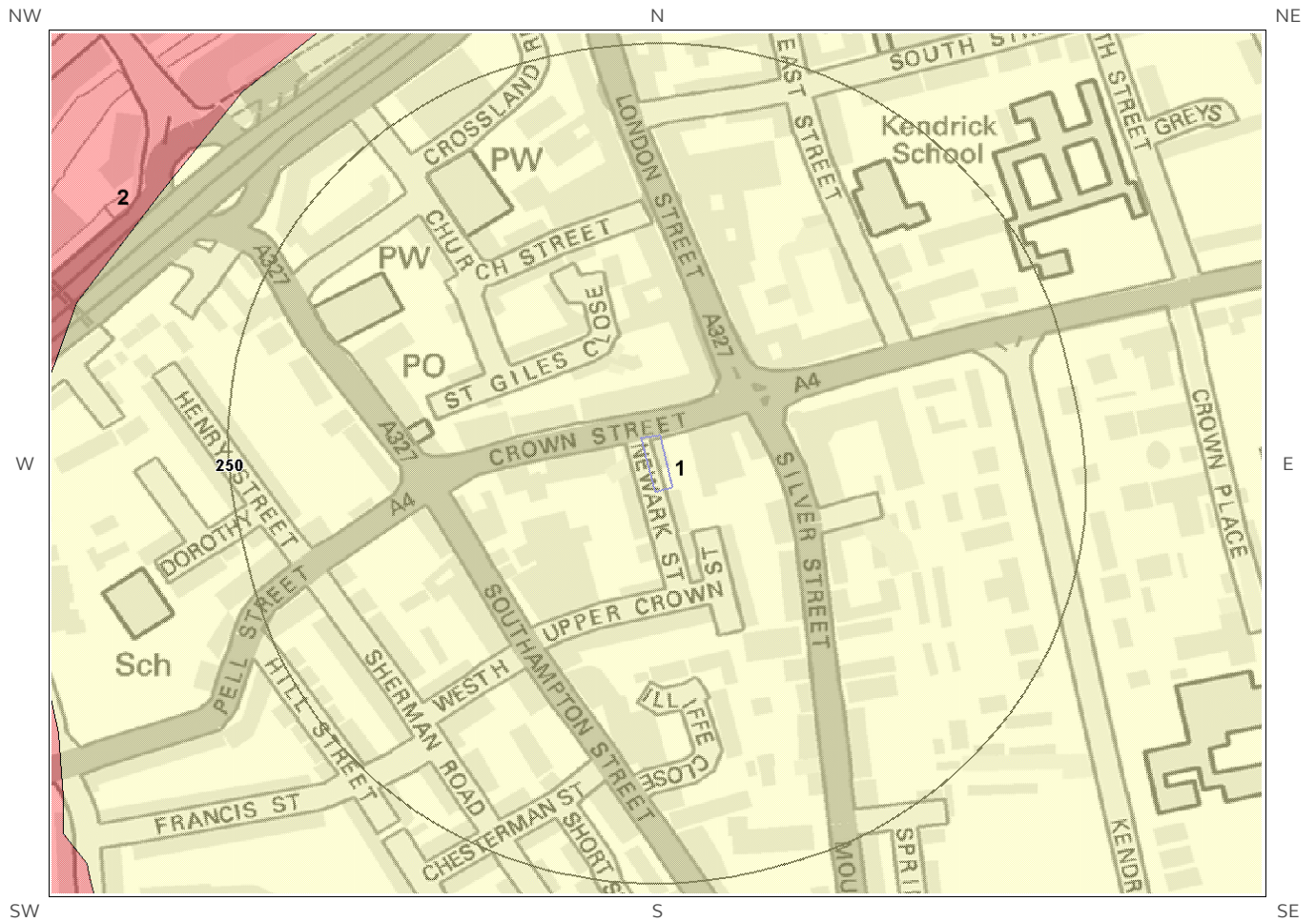
© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

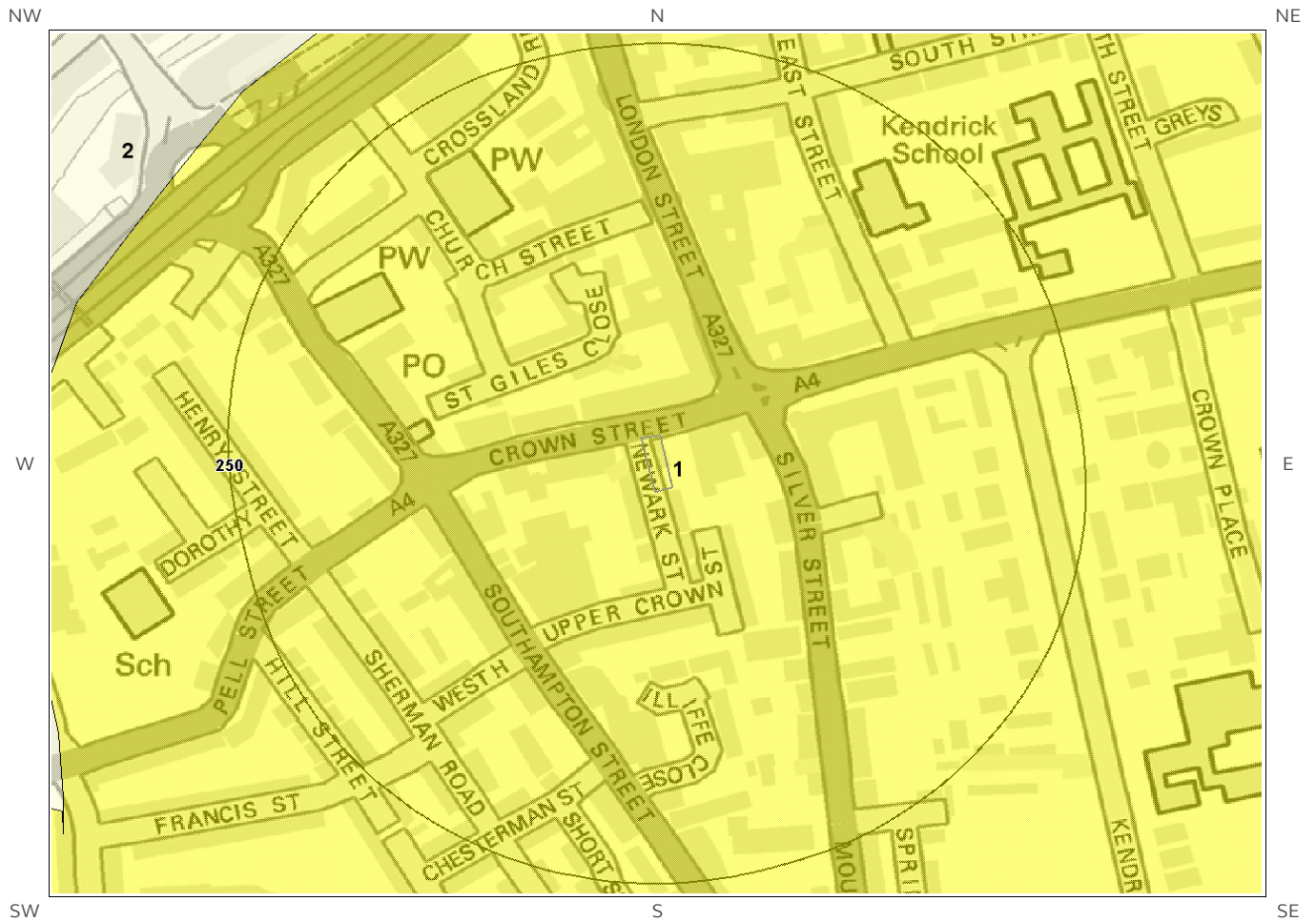


Compressible Deposits Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



6.5 Collapsible Deposits map

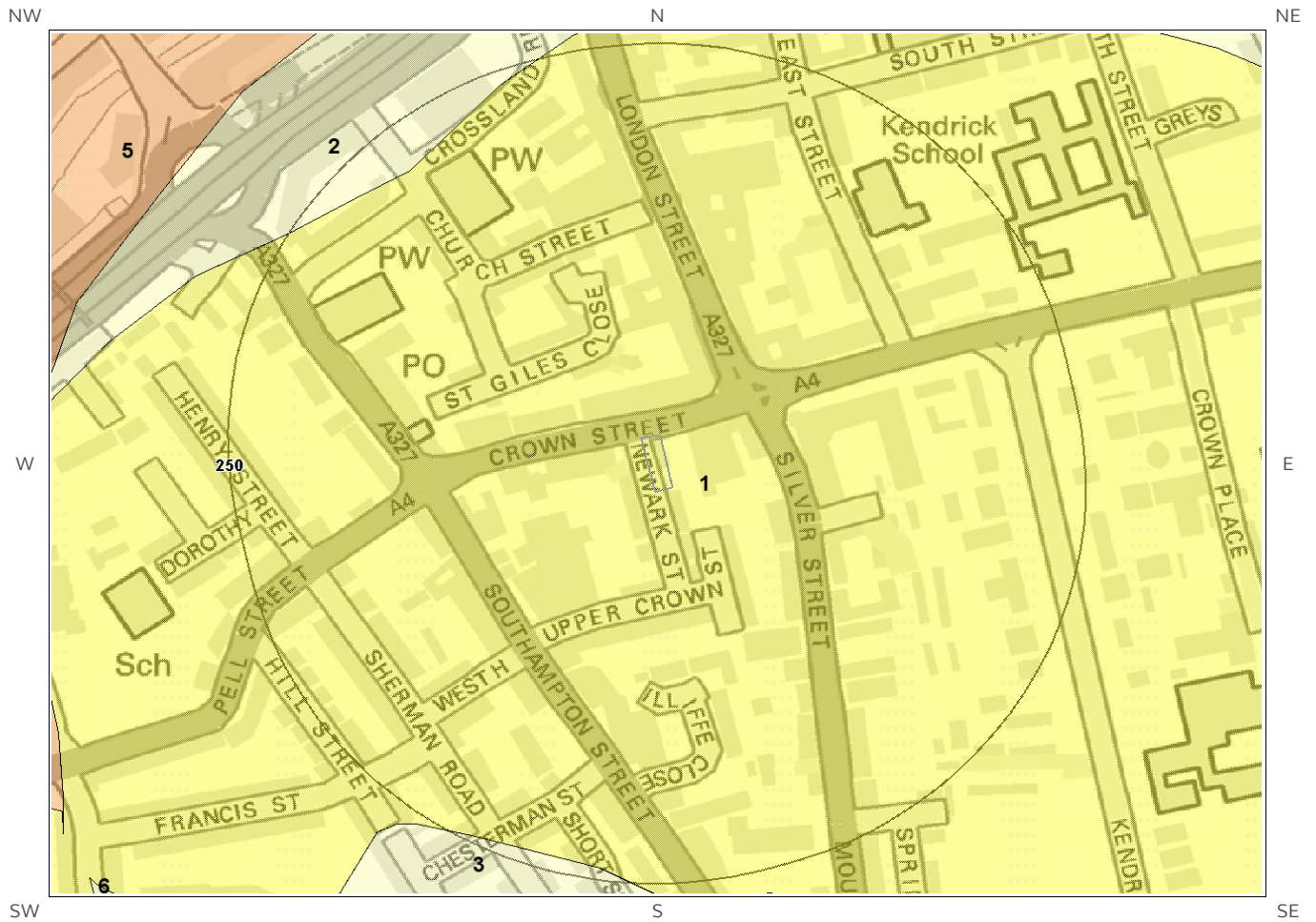


Collapsible Deposits Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



6.6 Running Sand map



Running Sand Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site* boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

* This includes an automatically generated 50m buffer zone around the site

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.
2	33.0	N	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build - site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property - possible increase in insurance risk due to soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

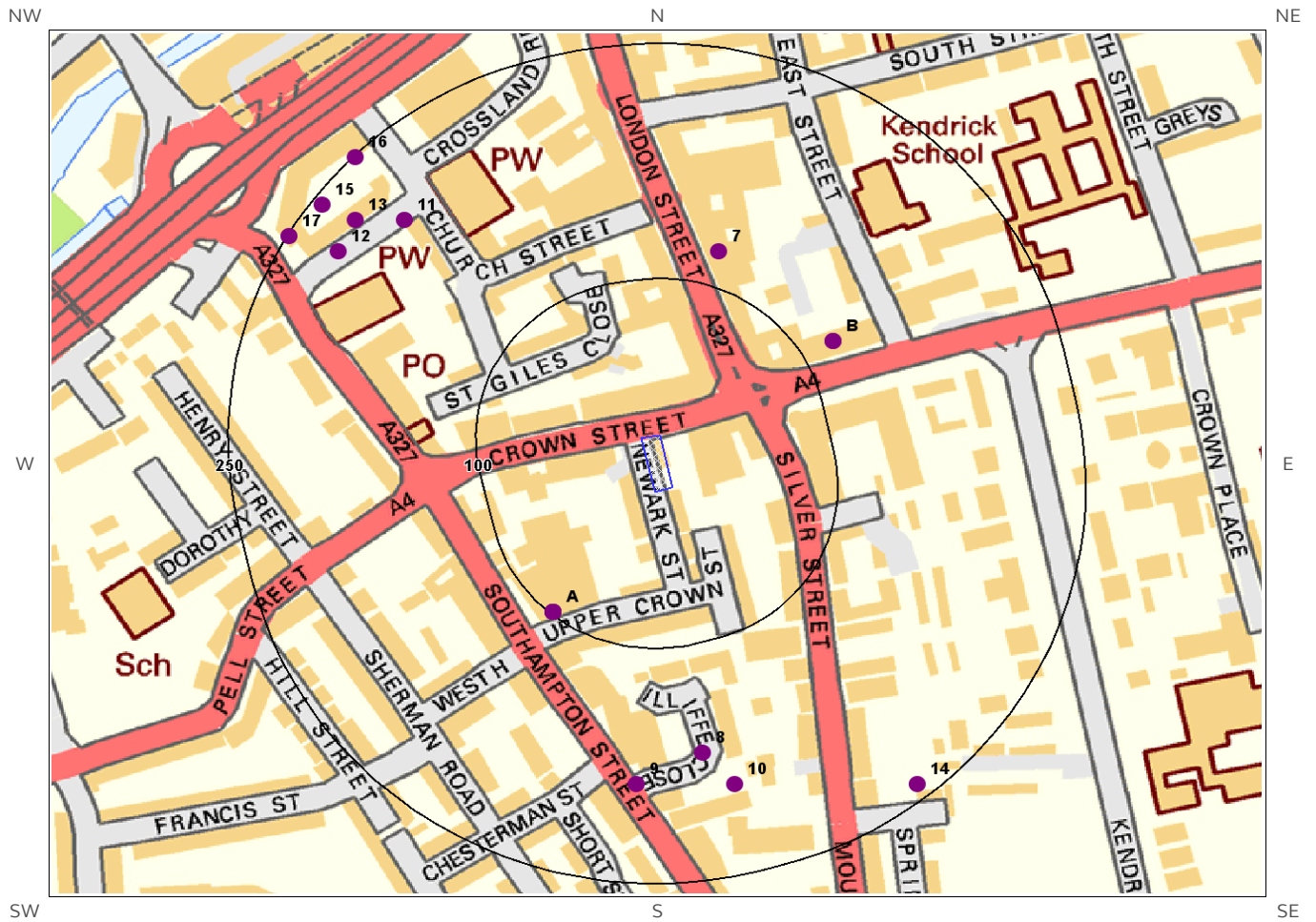
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

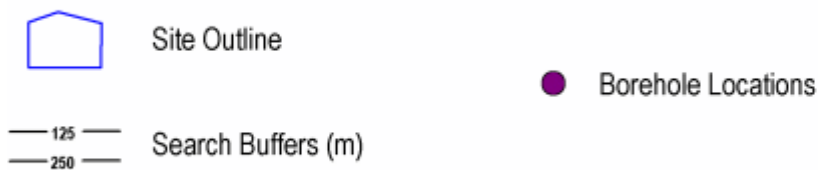
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

17

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1A	99.0	SW	471760 172750	SU77SW31/A	49.37	SOUTHAMPTON STREET READING
2A	99.0	SW	471760 172750	SU77SW697	35.97	VENNER & SONS, SOUTHAMPTON STREET, READING
3A	99.0	SW	471760 172750	SU77SW31/B	60.96	SOUTHAMPTON STREET READING
4A	99.0	SW	471760 172750	SU77SW625	49.38	SOUTHAMPTON STREET READING
5B	120.0	NE	471929 172923	SU77SW858	15.0	25-29 LONDON ROAD READING 2
6B	120.0	NE	471929 172923	SU77SW857	15.0	25-29 LONDON ROAD READING 1
7	122.0	N	471860 172980	SU77SW23	16.76	LONDON STREET READING
8	169.0	S	471850 172660	SU77SW792	2.0	SOUTHAMPTON STREET- READING TP 2
9	187.0	S	471810 172640	SU77SW791	2.4	SOUTHAMPTON STREET- READING TP 1
10	193.0	S	471870 172640	SU77SW793	2.0	SOUTHAMPTON STREET- READING TP 3
11	199.0	NW	471670 173000	SU77SW60	18.0	SOUTHAMPTON STREET READING BH6
12	218.0	NW	471630 172980	SU77SW56	18.0	SOUTHAMPTON STREET READING BH2
13	222.0	NW	471640 173000	SU77SW57	25.0	SOUTHAMPTON STREET READING BH3
14	240.0	SE	471980 172640	SU77SW702	10.0	MOUNT PLEASANT GROVE READING BH1
15	244.0	NW	471620 173010	SU77SW58	18.0	SOUTHAMPTON STREET READING BH4
16	249.0	NW	471640 173040	SU77SW59	18.0	SOUTHAMPTON STREET READING BH5
17	249.0	NW	471600 172990	SU77SW55	18.0	SOUTHAMPTON STREET READING BH1

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1A: scans.bgs.ac.uk/sobi_scans/boreholes/428179
#2A: scans.bgs.ac.uk/sobi_scans/boreholes/1137654
#3A: scans.bgs.ac.uk/sobi_scans/boreholes/428180
#4A: scans.bgs.ac.uk/sobi_scans/boreholes/428777
#5B: scans.bgs.ac.uk/sobi_scans/boreholes/15637527
#6B: scans.bgs.ac.uk/sobi_scans/boreholes/15637525
#7: scans.bgs.ac.uk/sobi_scans/boreholes/428171
#8: scans.bgs.ac.uk/sobi_scans/boreholes/15613577
#9: scans.bgs.ac.uk/sobi_scans/boreholes/15613573
#10: scans.bgs.ac.uk/sobi_scans/boreholes/15613580
#11: scans.bgs.ac.uk/sobi_scans/boreholes/428212
#12: scans.bgs.ac.uk/sobi_scans/boreholes/428208
#13: scans.bgs.ac.uk/sobi_scans/boreholes/428209
#14: scans.bgs.ac.uk/sobi_scans/boreholes/12709328
#15: scans.bgs.ac.uk/sobi_scans/boreholes/428210
#16: scans.bgs.ac.uk/sobi_scans/boreholes/428211
#17: scans.bgs.ac.uk/sobi_scans/boreholes/428207

8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

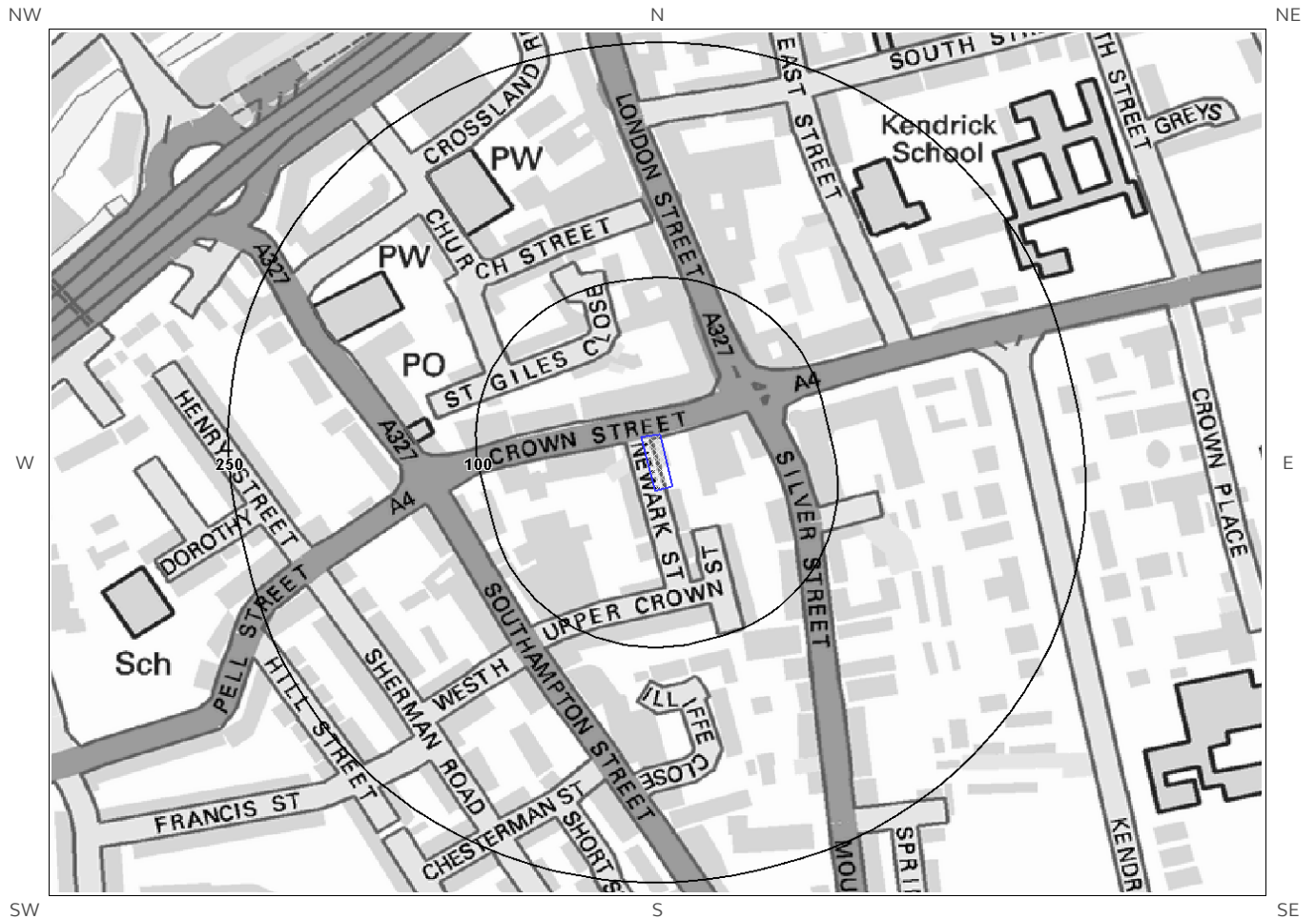
1

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

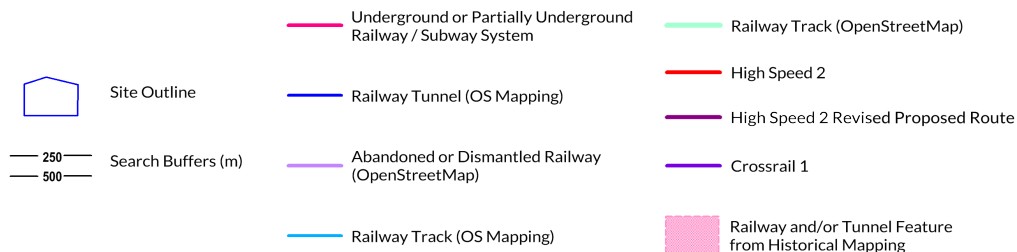
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.
© OpenStreetMapContributors



9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

emapsite
Telephone: 0118 9736883
sales@emapsite.com



British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettell Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email: enquiries.gs@jpb.co.uk
Website: www.jpb.co.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505
Website: <http://www.ordnancesurvey.co.uk/>



Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN

Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk
Website: <http://www.peterbrett.com/home>



Acknowledgements: Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].
This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
<https://www.groundsure.com/terms-and-conditions-sept-2016/>



emapsite

Masdar House, 1 Reading Road,
Eversley, RG27 0RP

Groundsure
Reference:

EMS-451676_605816

Your Reference:

EMS_451676_605816

Report Date

28 Nov 2017

Report Delivery
Method:

Email - pdf

Enviro Insight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.

Groundsure Enviroinsight

Address: ,
Date: 28 Nov 2017
Reference: EMS-451676_605816
Client: emapsite

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 11-Jul-2013
Grid Reference: 471823,172846
Site Size: 0.04ha

Report Reference: EMS-451676_605816
Client Reference: EMS_451676_605816

Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	14
1.3 Additional Information – Historical Energy Features Database	16
1.4 Additional Information – Historical Petrol and Fuel Site Database	18
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	19
1.6 Potentially Infilled Land	20
2. Environmental Permits, Incidents and Registers Map	21
2. Environmental Permits, Incidents and Registers	22
2.1 Industrial Sites Holding Licences and/or Authorisations	22
2.1.1 Records of historic IPC Authorisations within 500m of the study site	22
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	22
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	22
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	22
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	22
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	23
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	23
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	23
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	24
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	24
2.2 Dangerous or Hazardous Sites	25
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents	25
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	25
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	26
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	26
3. Landfill and Other Waste Sites Map	27
3. Landfill and Other Waste Sites	28
3.1 Landfill Sites	28
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site	28
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site	28
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	29
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	29
3.2 Other Waste Sites	29
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	29
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site	29
4. Current Land Use Map	31
4. Current Land Uses	32
4.1 Current Industrial Data	32
4.2 Petrol and Fuel Sites	33
4.3 National Grid High Voltage Underground Electricity Transmission Cables	33
4.4 National Grid High Pressure Gas Transmission Pipelines	34

5. Geology	35
5.1 Artificial Ground and Made Ground.....	35
5.2 Superficial Ground and Drift Geology	35
5.3 Bedrock and Solid Geology	35
6 Hydrogeology and Hydrology	36
6a. Aquifer Within Superficial Geology	36
6b. Aquifer Within Bedrock Geology and Abstraction Licences	37
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences	38
6d. Hydrogeology – Source Protection Zones within confined aquifer	39
6e. Hydrology – Detailed River Network and River Quality	40
6.Hydrogeology and Hydrology	41
6.1 Aquifer within Superficial Deposits.....	41
6.2 Aquifer within Bedrock Deposits.....	41
6.3 Groundwater Abstraction Licences.....	42
6.4 Surface Water Abstraction Licences.....	45
6.5 Potable Water Abstraction Licences.....	46
6.6 Source Protection Zones.....	47
6.7 Source Protection Zones within Confined Aquifer.....	48
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	48
6.9 River Quality.....	48
6.9.1 Biological Quality:.....	48
6.9.2 Chemical Quality:.....	49
6.10 Detailed River Network.....	49
6.11 Surface Water Features.....	50
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	51
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)	52
Map	52
7 Flooding	53
7.1 River and Coastal Zone 2 Flooding.....	53
7.2 River and Coastal Zone 3 Flooding.....	53
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	53
7.4 Flood Defences.....	53
7.5 Areas benefiting from Flood Defences.....	54
7.6 Areas benefiting from Flood Storage.....	54
7.7 Groundwater Flooding Susceptibility Areas.....	54
7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes.....	54
7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?.....	54
7.8 Groundwater Flooding Confidence Areas.....	54
8. Designated Environmentally Sensitive Sites Map	55
8. Designated Environmentally Sensitive Sites	56
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	56
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	56
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	56
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	56
8.5 Records of Ramsar sites within 2000m of the study site:.....	56
8.6 Records of Ancient Woodland within 2000m of the study site:	57
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	57
8.8 Records of World Heritage Sites within 2000m of the study site:.....	57
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	57

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	57
8.11 Records of National Parks (NP) within 2000m of the study site:	57
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	57
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	58
8.14 Records of Green Belt land within 2000m of the study site:.....	58
9. Natural Hazards Findings	59
9.1 Detailed BGS GeoSure Data.....	59
9.1.1 Shrink Swell.....	59
9.1.2 Landslides.....	59
9.1.3 Soluble Rocks.....	59
9.1.4 Compressible Ground.....	60
9.1.5 Collapsible Rocks.....	60
9.1.6 Running Sand.....	60
9.2 Radon.....	61
9.2.1 Radon Affected Areas.....	61
9.2.2 Radon Protection.....	61
10. Mining	62
10.1 Coal Mining.....	62
10.2 Non-Coal Mining.....	62
10.3 Brine Affected Areas	62
Contact Details	63
Standard Terms and Conditions	65

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	8	8	69
1.2 Additional Information – Historical Tank Database	0	0	22	70
1.3 Additional Information – Historical Energy Features Database	0	0	25	65
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	2	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	12	20
1.6 Potentially Infilled Land	0	0	0	23
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	2
2.1.8 Records of Licensed Discharge Consents	0	0	0	8
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	10
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	2
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	1	2

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	24	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	2	18
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	2	0	4
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	2	10
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	1	0	Not searched	Not searched

Section 6: Hydrogeology and Hydrology	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	Yes	Yes	Yes
6.10 Detailed River Network entries within 500m of the site	0	0	0	10	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding						
7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes					
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	No					
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low					
7.4 Are there any Flood Defences within 250m of the study site?	No					
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No					
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No					
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential below Surface					
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High					

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	1	3
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Low
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	Yes
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

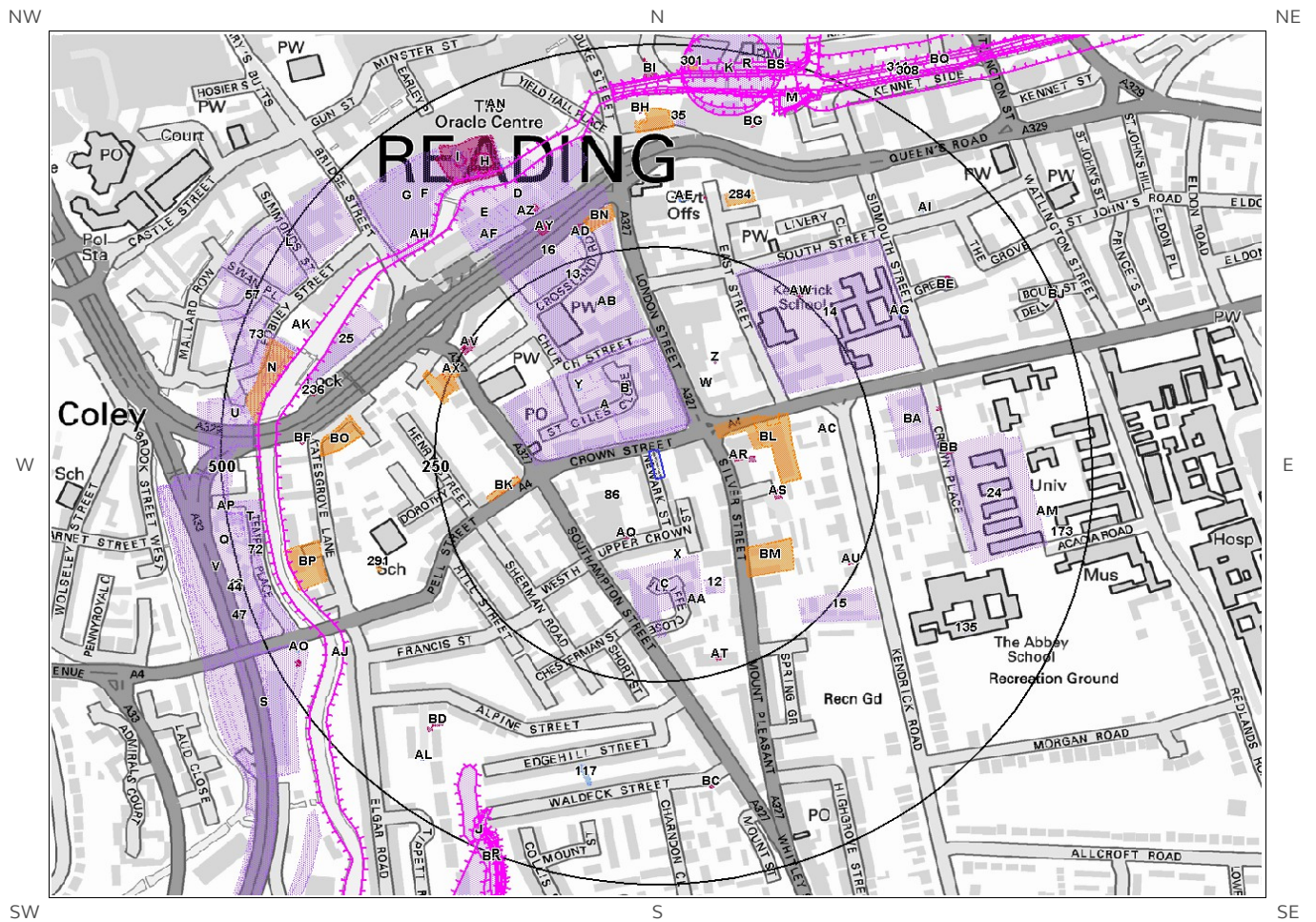
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.

Historical 1:10,000 and 1:10,560 scale mapping



Site Outline



Industrial Land Use



Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping



Search Buffers (m)



Energy Features



Petrol Stations



Tanks



Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 85

ID	Distance [m]	Direction	Use	Date
1A	14	N	Unspecified Works	1962
2A	14	N	Unspecified Commercial/Industrial	1977
3A	14	N	Unspecified Commercial/Industrial	1989
4A	14	N	Unspecified Commercial/Industrial	1971
5A	20	N	Tin Works	1913
6A	20	N	Tin Works	1938
7B	20	N	Tin Works	1938
8B	22	N	Tin Works	1933
9C	101	S	Unspecified Works	1977
10C	101	S	Unspecified Works	1989
11C	101	S	Unspecified Works	1994
12	135	S	Smithy	1913
13	139	NW	Unspecified Factory	1977
14	163	NE	Biscuit Factory	1913
15	217	SE	Nursery	1898
16	219	NW	Unspecified Factory	1971
17AZ	253	NW	Unspecified Mill	1898
18BA	273	E	Nursery	1898
19D	316	NW	Unspecified Depot	1977
20D	316	NW	Unspecified Depot	1989
21D	316	NW	Unspecified Depot	1994
22E	317	NW	Unspecified Commercial/Industrial	1933
23E	318	NW	Railway Sidings	1933
24	327	E	Nursery	1898
25	347	NW	Hospitals	1898
26F	365	NW	Brewery	1913
27F	365	NW	Unspecified Commercial/Industrial	1898
28F	365	NW	Brewery	1938
29F	368	NW	Brewery	1938
30F	369	NW	Brewery	1933
31G	374	NW	Brewery	1977

32G	374	NW	Brewery	1971
33H	388	NW	Unspecified Tank	1898
34H	388	NW	Unspecified Tank	1913
35	401	N	Smithy	1913
36I	409	NW	Unspecified Tanks	1971
37I	409	NW	Unspecified Tanks	1977
38I	411	NW	Unspecified Tank	1898
39J	414	SW	Unspecified Ground Workings	1962
40J	414	SW	Unspecified Ground Workings	1971
41J	414	SW	Unspecified Ground Workings	1977
42K	419	N	Unspecified Wharf	1938
43N	428	W	Unspecified Commercial/Industrial	1933
44	429	W	Railway Sidings	1913
45O	429	W	Railway Sidings	1938
46K	429	N	Unspecified Wharf	1994
47	431	W	Railway Sidings	1938
48	432	W	Railway Sidings	1933
49M	437	N	Unspecified Wharf	1938
50L	438	NW	Brewery	1977
51L	438	NW	Brewery	1971
52M	439	N	Unspecified Disused Wharf	1933
53N	440	W	Railway Building	1938
54O	441	W	Railway Sidings	1962
55M	443	N	Unspecified Wharf	1938
56M	443	N	Unspecified Wharf	1938
57	450	NW	Unspecified Commercial/Industrial	1933
58P	453	SW	Unspecified Ground Workings	1933
59S	454	SW	Unspecified Commercial/Industrial	1933
60P	455	SW	Unspecified Ground Workings	1938
61P	455	SW	Unspecified Ground Workings	1913
62Q	459	SW	Goods Depot	1933
63Q	461	SW	Goods Depot	1938
64R	464	N	Unspecified Wharf	1938
65R	464	N	Unspecified Wharf	1938
66S	465	SW	Unspecified Works	1977
67S	465	SW	Unspecified Works	1994
68S	465	SW	Unspecified Works	1989
69T	470	W	Railway Building	1913
70BR	471	SW	Unspecified Ground Workings	1898

71T	472	W	Railway Building	1962
72	473	W	Railway Building	1938
73	476	W	Railway Building	1913
74P	477	SW	Unspecified Pit	1938
75P	477	SW	Unspecified Pit	1938
76BS	478	N	Unspecified Wharf	1989
77U	478	W	Railway Buildings	1938
78U	479	W	Railway Buildings	1913
79U	481	W	Railway Building	1962
80V	482	W	Railway Sidings	1971
81V	482	W	Unspecified Depot	1971
82V	482	W	Unspecified Depot	1977
83V	482	W	Railway Sidings	1977
84T	485	W	Goods Depot	1938
85T	485	W	Goods Depot	1913

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary:

92

ID	Distance (m)	Direction	Use	Date
86	55	SW	Unspecified Tank	1969
87W	94	NE	Unspecified Tank	1969
88W	94	NE	Unspecified Tank	1982
89W	94	NE	Unspecified Tank	1968
90W	95	NE	Unspecified Tank	1979
91W	95	NE	Unspecified Tank	1982
92X	99	S	Unspecified Tank	1968
93X	100	S	Unspecified Tank	1982
94X	100	S	Unspecified Tank	1969
95X	100	S	Unspecified Tank	1982
96X	100	S	Unspecified Tank	1979
97Y	110	NW	Unspecified Tank	1912
98Y	110	NW	Unspecified Tank	1900
99Z	125	NE	Unspecified Tank	1982
100Z	125	NE	Unspecified Tank	1969
101Z	126	NE	Unspecified Tank	1968
102AA	158	S	Unspecified Tank	1982
103AA	158	S	Unspecified Tank	1982
104AB	185	N	Tanks	1968
105AB	185	N	Tanks	1962

106AC	196	E	Unspecified Tank	1879
107AC	196	E	Unspecified Tank	1879
108AD	275	N	Unspecified Tank	1979
109AD	275	N	Unspecified Tank	1968
110AE	308	N	Unspecified Tank	1956
111AE	308	N	Unspecified Tank	1957
112AE	308	N	Unspecified Tank	1958
113AF	320	NW	Unspecified Tank	1879
114AF	321	NW	Unspecified Tank	1900
115AG	325	NE	Unspecified Tank	1989
116AG	326	NE	Unspecified Tank	1991
117	362	S	Tanks	1879
118AH	375	NW	Tank or Trough	1879
119AH	377	NW	Tank or Trough	1879
120AH	378	NW	Tank or Trough	1879
121H	383	NW	Gas Works	1879
122H	384	NW	Gas Works	1912
123H	384	NW	Gas Works	1900
124H	385	NW	Gas Works	1879
125H	385	NW	Gas Works	1879
126BE	388	NE	Unspecified Tank	1991
127H	388	NW	Tanks	1979
128H	388	NW	Tanks	1968
129H	388	NW	Tanks	1962
130H	392	NW	Gasometer	1912
131H	392	NW	Gasometer	1900
132H	392	NW	Gasometer	1879
133H	393	NW	Gasometer	1879
134H	393	NW	Gasometer	1879
135	397	SE	Unspecified Tank	1993
136H	398	NW	Unspecified Tank	1957
137H	398	NW	Unspecified Tank	1958
138H	398	NW	Tanks	1957
139H	398	NW	Tanks	1958
140H	399	NW	Unspecified Tank	1956
141H	399	NW	Tanks	1979
142H	399	NW	Tanks	1962
143H	399	NW	Tanks	1956
144H	399	NW	Tanks	1968
145I	406	NW	Tanks	1968
146I	406	NW	Tanks	1979
147I	406	NW	Tanks	1962
148I	406	NW	Tanks	1956
149I	406	NW	Tanks	1957
150I	406	NW	Tanks	1958
151I	414	NW	Gasometer	1879

152I	414	NW	Gasometer	1900
153I	415	NW	Gasometer	1879
154I	415	NW	Gasometer	1879
155AI	426	NE	Unspecified Tank	1879
156AI	426	NE	Unspecified Tank	1879
157AJ	429	SW	Tank or Trough	1879
158AJ	429	SW	Tank or Trough	1879
159AK	433	W	Unspecified Tank	1970
160AK	433	W	Unspecified Tank	1980
161AK	434	W	Unspecified Tank	1988
162AL	438	SW	Unspecified Tank	1987
163AL	438	SW	Unspecified Tank	1981
164AM	447	E	Unspecified Tank	1912
165AM	447	E	Unspecified Tank	1900
166AM	448	E	Unspecified Tank	1879
167AM	448	E	Unspecified Tank	1879
168AN	459	NW	Tanks	1879
169AN	459	NW	Tanks	1879
170AO	467	SW	Unspecified Tank	1972
171AO	467	SW	Unspecified Tank	1996
172AO	467	SW	Unspecified Tank	1995
173	467	E	Unspecified Tank	1912
174AO	469	SW	Unspecified Tank	1986
175AO	469	SW	Unspecified Tank	1991
176AP	497	W	Tanks	1879
177AP	497	W	Tanks	1879

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

90

ID	Distance (m)	Direction	Use	Date
178AQ	75	SW	Electricity Substation	1968
179AQ	75	SW	Electricity Substation	1969
180AR	84	E	Electricity Substation	1968
181AR	84	E	Electricity Substation	1969
182AR	101	E	Electricity Substation	1982
183AR	101	E	Electricity Substation	1982
184AR	101	E	Electricity Substation	1979
185Z	125	NE	Electricity Substation	1979
186AS	127	E	Electricity Substation	1968

187AS	128	E	Electricity Substation	1969
188AS	128	E	Electricity Substation	1982
189AS	128	E	Electricity Substation	1979
190AS	128	E	Electricity Substation	1982
191AT	229	S	Electricity Substation	1968
192AT	230	S	Electricity Substation	1969
193AT	230	S	Electricity Substation	1982
194AT	230	S	Electricity Substation	1979
195AT	230	S	Electricity Substation	1982
196AU	238	SE	Electricity Substation	1993
197AU	238	SE	Electricity Substation	1968
198AV	240	NW	Electricity Substation	1982
199AX	242	NW	Electricity Substation	1982
200AV	244	NW	Electricity Substation	1982
201AW	249	NE	Electricity Substation	1988
202AW	250	NE	Electricity Substation	1997
203AX	252	W	Electricity Substation	1982
204AX	252	W	Electricity Substation	1979
205AD	283	N	Electricity Substation	1997
206AD	283	N	Electricity Substation	1988
207AD	284	N	Electricity Substation	1988
208AY	294	NW	Electricity Substation	1979
209AY	294	NW	Electricity Substation	1968
210AE	314	N	Electricity Substation	1997
211AZ	323	NW	Electricity Substation	1979
212AZ	325	NW	Electricity Substation	1997
213AZ	325	NW	Electricity Substation	1988
214AZ	326	NW	Electricity Substation	1988
215BA	328	E	Electricity Substation	1993
216BB	329	E	Electricity Substation	1993
217BB	335	E	Electricity Substation	1968
218BC	378	S	Electricity Substation	1981
219BC	378	S	Electricity Substation	1969
220BC	378	S	Electricity Substation	1987
221BC	378	S	Electricity Substation	1968
222H	383	NW	Gas Works	1879
223H	384	NW	Gas Works	1912
224H	384	NW	Gas Works	1900
225H	385	NW	Gas Works	1879
226H	385	NW	Gas Works	1879
227BD	388	SW	Electricity Substation	1968
228BD	388	SW	Electricity Substation	1982
229BD	388	SW	Electricity Substation	1979
230BD	388	SW	Electricity Substation	1969
231H	392	NW	Gasometer	1912
232H	392	NW	Gasometer	1900

233H	392	NW	Gasometer	1879
234H	393	NW	Gasometer	1879
235H	393	NW	Gasometer	1879
236	395	W	Electricity Substation	1969
237BE	396	NE	Electricity Substation	1989
238BE	397	NE	Electricity Substation	1991
239BF	402	W	Electricity Substation	1972
240BF	402	W	Electricity Substation	1996
241BF	402	W	Electricity Substation	1995
242BD	402	SW	Electricity Substation	1982
243BF	403	W	Electricity Substation	1991
244BF	403	W	Electricity Substation	1986
245BG	412	N	Electricity Substation	1968
246BG	412	N	Electricity Substation	1988
247BG	413	N	Electricity Substation	1979
248I	414	NW	Gasometer	1879
249I	414	NW	Gasometer	1900
250I	415	NW	Gasometer	1879
251I	415	NW	Gasometer	1879
252BH	416	N	Electricity Substation	1988
253BH	417	N	Electricity Substation	1997
254I	423	NW	Electricity Substation	1968
255I	424	NW	Electricity Substation	1979
256BI	456	N	Electricity Substation	1988
257BI	456	N	Electricity Substation	1988
258BI	457	N	Electricity Substation	1997
259AO	472	SW	Electricity Substation	1968
260AO	473	SW	Electricity Substation	1972
261AO	473	SW	Electricity Substation	1969
262AO	473	SW	Electricity Substation	1996
263AO	473	SW	Electricity Substation	1995
264AO	474	SW	Electricity Substation	1991
265AO	474	SW	Electricity Substation	1986
266BJ	498	E	Electricity Substation	1971
267BJ	500	E	Electricity Substation	1991

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary:

2

ID	Distance (m)	Direction	Use	Date
----	--------------	-----------	-----	------

268BK	154	W	Filling Station	1969
269BK	154	W	Filling Station	1968

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 32

ID	Distance (m)	Direction	Use	Date
270BL	71	E	Garage	1957
271BL	116	E	Garage	1957
272BL	117	E	Garage	1959
273BM	127	SE	Garage	1957
274BM	128	SE	Garage	1957
275BM	128	SE	Garage	1959
276BK	154	W	Garage	1959
277BK	154	W	Garage	1957
278BK	167	W	Garage	1957
279AX	234	W	Garage	1957
280AX	240	W	Garage	1959
281AX	241	W	Garage	1957
282BN	279	N	Police Garage	1968
283BN	283	N	Police Garage	1979
284	311	N	Garage	1988
285BO	333	W	Garage	1968
286BO	333	W	Garage	1959
287BO	333	W	Garage	1957
288BO	334	W	Garage	1957
289BO	334	W	Garage	1969
290BO	334	W	Garage	1972
291	337	W	Garage	1972
292BH	392	N	Garage	1958
293BH	392	N	Garage	1957
294BH	392	N	Garage	1962
295BH	392	N	Garage	1956
296BH	393	N	Garage	1968
297BP	400	W	Garage	1968
298BP	401	W	Garage	1969
299BP	401	W	Garage	1972
300N	432	W	Depot and Destructor Works	1957
301	469	N	Garage	1968

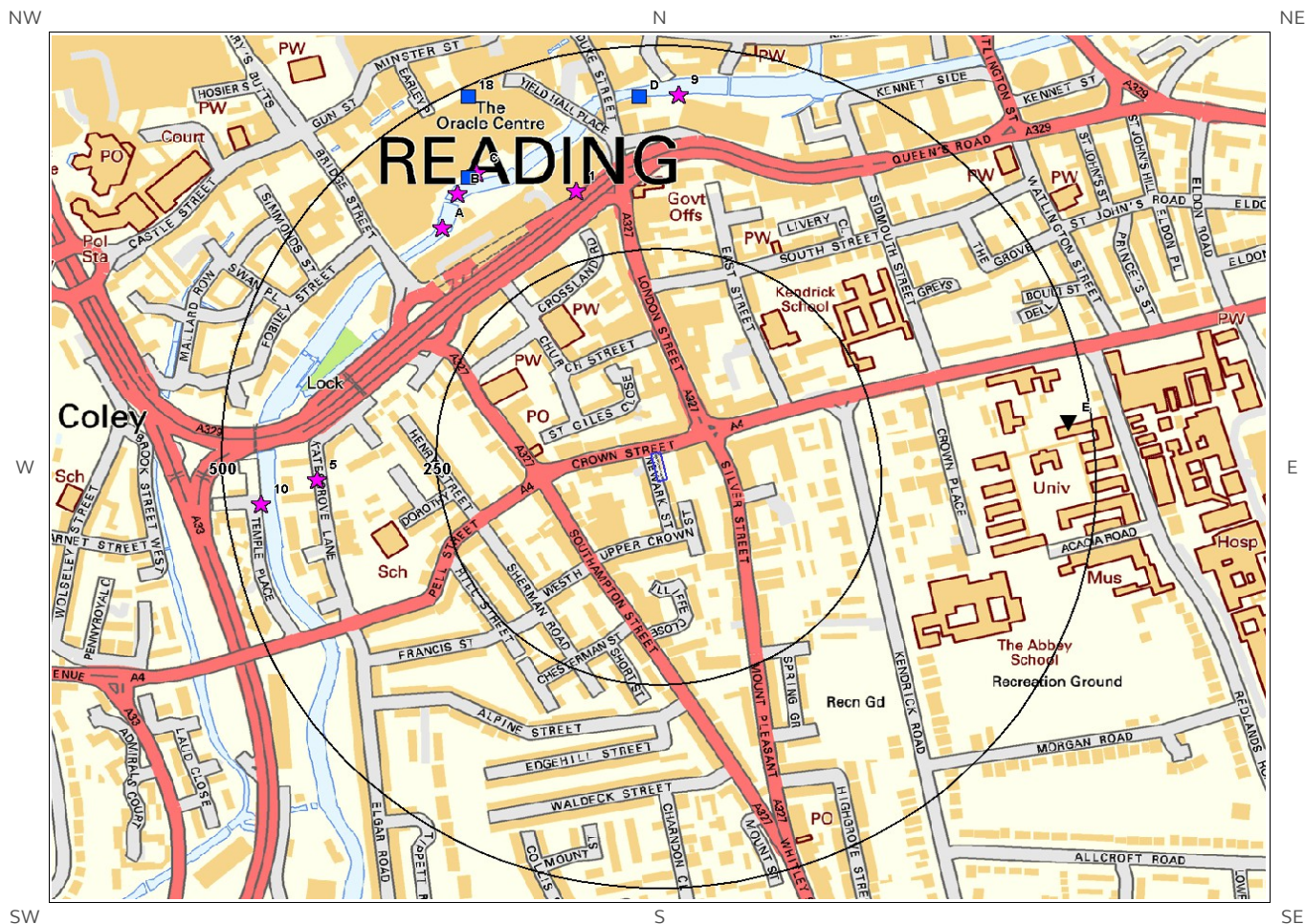
1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 23

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
302	361	NW	Canal	1938
303J	414	SW	Unspecified Ground Workings	1971
304J	414	SW	Unspecified Ground Workings	1977
305J	414	SW	Unspecified Ground Workings	1962
306K	419	N	Unspecified Wharf	1938
307K	429	N	Unspecified Wharf	1994
308	434	N	Canal	1938
309M	437	N	Unspecified Wharf	1938
310M	439	N	Unspecified Disused Wharf	1933
311	442	N	Canal	1933
312M	443	N	Unspecified Wharf	1938
313M	443	N	Unspecified Wharf	1938
314P	453	SW	Unspecified Ground Workings	1933
315P	455	SW	Unspecified Ground Workings	1938
316P	455	SW	Unspecified Ground Workings	1913
317BQ	457	NE	Canal	1994
318BQ	457	NE	Canal	1989
319R	464	N	Unspecified Wharf	1938
320R	464	N	Unspecified Wharf	1938
321BR	471	SW	Unspecified Ground Workings	1898
322P	477	SW	Unspecified Pit	1938
323P	477	SW	Unspecified Pit	1938
324BS	478	N	Unspecified Wharf	1989

2. Environmental Permits, Incidents and Registers Map



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.

- | | | |
|-------------------------------|-------------------------------|--|
| Site Outline | Recorded Pollution Incident | RAS 3 & 4 Authorisations |
| Dangerous Substances (List 1) | Dangerous Substances (List 2) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| Water Industry Referrals | Licenced Discharge Consents | Part A(2) and Part B Authorised Processes |
| Red List Discharge Consents | COMAH / NIHHS Sites | Sites Determined as Contaminated Land |
| | | Hazardous Substance Consents and Enforcements |

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

2

The following RAS Licence (3 or 4) records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
21E	473	E	472300 172900	Wyeth Research (uk) Ltd, The University Of Reading, London Road, Reading, Berkshire, RG1 5AQ	Wyeth Research (uk) Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AK1304	Date of Approval:1/12/1993 Effective from:29/12/1993 Last date of update:2015-01-01	Revoked/cancelled
22E	473	E	472300 172900	University Of Reading, London Road, Reading, Berkshire, RG6 2AF	University Of Reading	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AD6897	Date of Approval:31/3/1991 Effective from:31/3/1991 Last date of update:2015-01-01	Revoked/cancelled

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

8

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
11C	400	NW	471600 173200	Address: THE BREWERY READING BERKS THE BREWERY READING BERKS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCR.0211 Permit Version: 1 Receiving Water: KENNET Status: REVOKED - UNSPECIFIED Issue date: 19/12/1955 Effective Date: 19-Dec-1955 Revocation Date: 12/06/1990
12D	438	N	471800 173300	Address: PREMISES, KINGS RD, READING, BERKS, PREMISES, KINGS RD, READING, BER, KS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCP.0296 Permit Version: 1 Receiving Water: R KENNET Status: REVOKED - UNSPECIFIED Issue date: 12/02/1964 Effective Date: 12-Feb-1964 Revocation Date: 04/02/1986

ID	Distance (m)	Direction	NGR	Details
13D	438	N	471800 173300	Address: FACTORY AT READING BERKS FACTORY AT READING BERKS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCR.0508 Permit Version: 1 Receiving Water: KENNET Status: REVOKED - UNSPECIFIED Issue date: 22/03/1962 Effective Date: 22-Mar-1962 Revocation Date: 03/04/1987
14D	438	N	471800 173300	Address: PREMISES, KINGS RD, READING, BERKS, PREMISES, KINGS RD, READING, BER, KS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCP.0299 Permit Version: 1 Receiving Water: R KENNET Status: REVOKED - UNSPECIFIED Issue date: 12/02/1964 Effective Date: 12-Feb-1964 Revocation Date: 04/02/1986
15D	438	N	471800 173300	Address: PREMISES, KINGS RD, READING, BERKS, PREMISES, KINGS RD, READING, BER, KS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCP.0297 Permit Version: 1 Receiving Water: R KENNET Status: REVOKED - UNSPECIFIED Issue date: 12/02/1964 Effective Date: 12-Feb-1964 Revocation Date: 04/02/1986
16D	438	N	471800 173300	Address: PREMISES, KINGS RD, READING, BERKS, PREMISES, KINGS RD, READING, BER, KS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCP.0295 Permit Version: 1 Receiving Water: R KENNET Status: REVOKED - UNSPECIFIED Issue date: 12/02/1964 Effective Date: 12-Feb-1964 Revocation Date: 04/02/1986
17D	438	N	471800 173300	Address: PREMISES, KINGS RD, READING, BERKS, PREMISES, KINGS RD, READING, BER, KS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTCP.0298 Permit Version: 1 Receiving Water: R KENNET Status: REVOKED - UNSPECIFIED Issue date: 12/02/1964 Effective Date: 12-Feb-1964 Revocation Date: 04/02/1986
18	488	NW	471600 173300	Address: 17/23 KING STREET, READING, BERKSHIRE, 17/23 KING STREET, READING, BERK, SHIRE Effluent Type: MISCELLANEOUS DISCHARGES - UNSPECIFIED Permit Number: CTWC.3315 Permit Version: 1 Receiving Water: HOLY BROOK Status: REVOKED - UNSPECIFIED Issue date: 12/06/1989 Effective Date: 12-Jun-1989 Revocation Date: 27/06/1991

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

10

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	335	N	471725 173184	Incident Date: 11-Oct-2003 Incident Identification: 195650 Pollutant: Sewage Materials Pollutant Description: Crude Sewage Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	369	NW	471570 173139	Incident Date: 17-Aug-2001 Incident Identification: 24937 Pollutant: Organic Chemicals/Products Pollutant Description: Solvents Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3A	369	NW	471570 173139	Incident Date: 17-Aug-2001 Incident Identification: 24937 Pollutant: Organic Chemicals/Products:Pollutant Not Identified Pollutant Description: Solvents:Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4A	369	NW	471570 173139	Incident Date: 17-Aug-2001 Incident Identification: 24937 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	392	W	471423 172830	Incident Date: 13-Aug-2003 Incident Identification: 181888 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6B	392	NW	471587 173181	Incident Date: 04-Oct-2001 Incident Identification: 34522 Pollutant: Oils and Fuel Pollutant Description: Diesel Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7B	392	NW	471587 173181	Incident Date: 04-Oct-2001 Incident Identification: 34522 Pollutant: Oils and Fuel Pollutant Description: Diesel Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
8C	402	NW	471609 173207	Incident Date: 19-Aug-2001 Incident Identification: 25215 Pollutant: Organic Chemicals/Products Pollutant Description: Hydrocarbons Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
9	440	N	471845 173303	Incident Date: 18-Jun-2003 Incident Identification: 166999 Pollutant: Sewage Materials Pollutant Description: Crude Sewage Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

ID	Distance (m)	Direction	NGR	Details	
10	460	W	471358 172800	Incident Date: 14-Nov-2001 Incident Identification: 42787 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

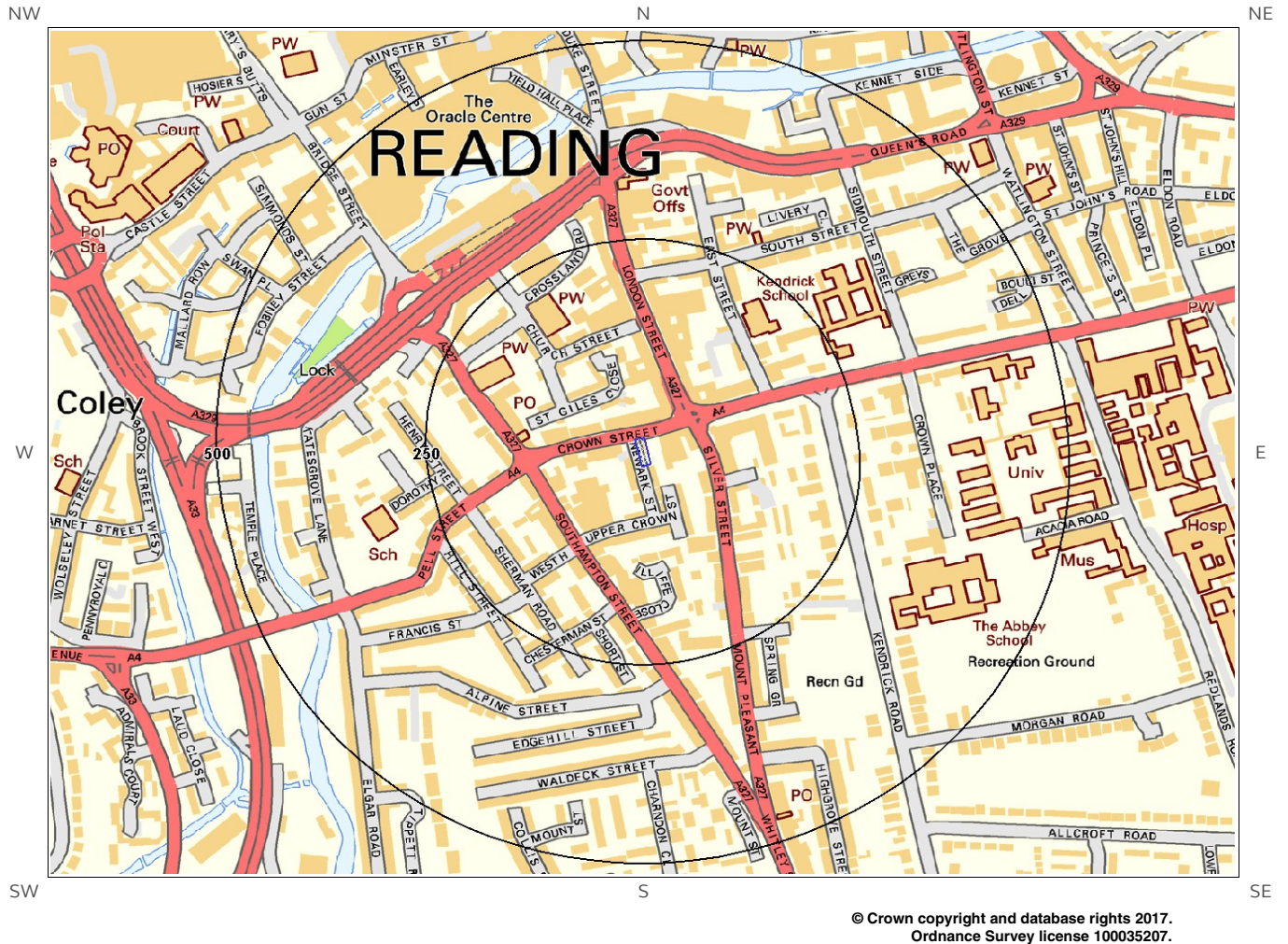
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

3

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	807	SW	471400 171900	Site Address: Waterloo Meadows, Reading, Berkshire Waste Licence: - Site Reference: TP0154, RDG8 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	1271	S	471600 171400	Site Address: Craddock Road, Reading, Berkshire Waste Licence: - Site Reference: RDG17, TP0107 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	1326	NE	472800 173800	Site Address: Napier Road, Reading, Berkshire Waste Licence: - Site Reference: TP0266, RDG3 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

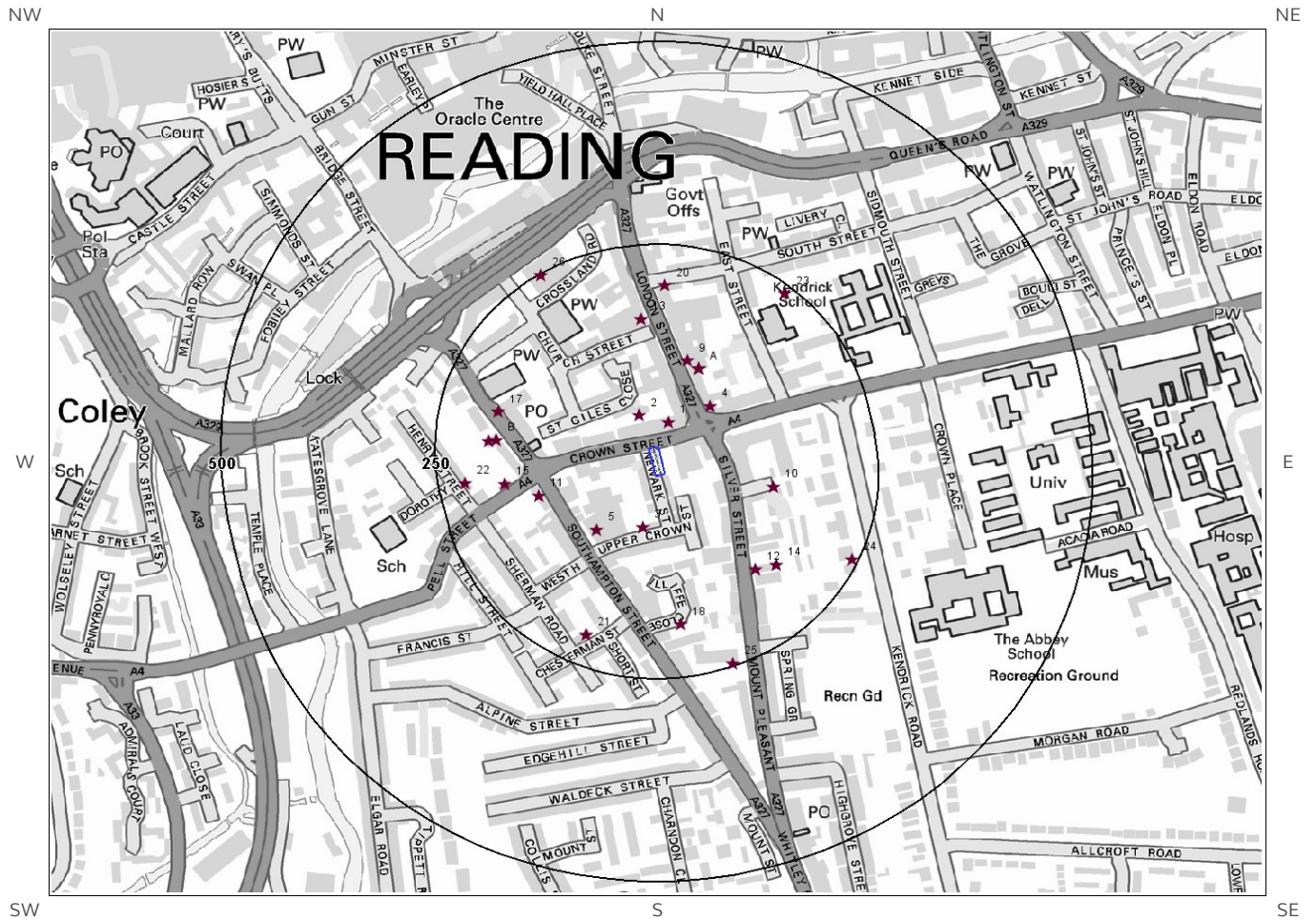
3

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	773	NE	472390 173390	Site Address: Omega Park, Alton, Hampshire, GU34 2QE Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HOP003 EPR reference: - Operator: Hopkins Recycling Ltd Waste Management licence No: 83406 Annual Tonnage: 4910.0 Issue Date: 15/10/2002 Effective Date: - Modified: 17/12/2004 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Alton House Waste Recycling Centre Correspondence Address: Hopkins Recycling Limited, Unit 10, Bridge Farm, Curbridge, Botley, Southampton, Hampshire, SO30 2HB

ID	Distance (m)	Direction	NGR	Details
Not shown	1345	S	471600 171500	Site Address: Units D & E, Reading Approach, Cradock Road, Reading, Berkshire, RG2 0JT Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN003 EPR reference: EA/EPR/GP3495EA/V003 Operator: Rentokil Initial Services Ltd Waste Management licence No: 86428 Annual Tonnage: 4999.0 Issue Date: 26/07/2007 Effective Date: - Modified: 09/08/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Rentokil Initial Services Ltd Correspondence Address: -
Not shown	1345	S	471600 171500	Site Address: Units D & E, Reading Approach, Cradock Road, Reading, Berkshire, RG2 0JT Type: Special Waste Transfer Station Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN003 EPR reference: EA/EPR/GP3495EA/S004 Operator: Rentokil Initial Services Ltd Waste Management licence No: 86428 Annual Tonnage: 0.0 Issue Date: 26/07/2007 Effective Date: - Modified: 09/08/2011 Surrendered Date: 01/06/2012 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Rentokil Initial Services Ltd Correspondence Address: -

4. Current Land Use Map



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



Site Outline

★ Current Industrial Sites

— Electricity Transmission Cables

— 250 — Search Buffers (m)
— 500 —

● Petrol & Fuel Sites

— Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

26

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	33	N	Crown Hand Car Wash	471836 172894	6-8, Crown Street, Reading, RG1 2SE	Vehicle Cleaning Services	Personal, Consumer and Other Services
2	43	N	Electricity Sub Station	471802 172903	RG1	Electrical Features	Infrastructure and Facilities
3	64	S	Wildlife Control Services Ltd	471806 172765	13, Upper Crown Street, Reading, RG1 2SS	Pest and Vermin Control	Contract Services
4	79	NE	Miraj Computers Reading	471884 172914	123, London Street, Reading, RG1 4QA	Electrical Equipment Repair and Servicing	Repair and Servicing
5	95	SW	City Gate Business Centre	471752 172761	City Gate 95-107, Southampton Street, Reading, RG1 2QW	Business Parks and Industrial Estates	Industrial Features
6A	107	NE	Shareplan Leaflet Distribution	471871 172960	105, London Street, Reading, RG1 4QD	Distribution and Haulage	Transport, Storage and Delivery
7A	107	NE	Cablecom	471871 172960	105, London Street, Reading, RG1 4QD	Cable, Wire and Fibre Optics	Industrial Products
8A	107	NE	R D Refrigeration	471871 172960	105, London Street, Reading, RG1 4QD	Construction Completion Services	Construction Services
9	112	N	Vaponics Ltd	471858 172970	99, London Street, Reading, RG1 4QA	Air and Water Filtration	Industrial Products
10	128	E	Electricity Sub Station	471959 172815	RG1	Electrical Features	Infrastructure and Facilities
11	138	W	Rose Carpets	471685 172803	96, Southampton Street, Reading, RG1 2QX	Construction Completion Services	Construction Services
12	157	SE	Photon Energy	471937 172712	8 Windsor Square, Silver Street, Reading, RG1 2TH	Electrical Motors and Generators	Industrial Products
13	160	N	Pestuk Reading	471803 173021	82, London Street, Reading, RG1 4SJ	Pest and Vermin Control	Contract Services
14	171	SE	Select Car Leasing	471961 172718	5 Windsor Square, Silver Street, Reading, RG1 2TH	Vehicle Hire and Rental	Hire Services
15	174	W	Architectural Salvage Yard	471644 172818	85, Pell Street, Reading, RG1 2NP	Clearance and Salvage Dealers	Recycling Services
16B	179	W	Southampton Street Garage	471634 172872	72a, Southampton Street, Reading, RG1 2QR	Secondhand Vehicles	Motoring
17	182	W	Gantry	471637 172907	RG1	Travelling Cranes and Gantries	Industrial Features

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
18	184	S	Electricity Sub Station	471850 172645	RG1	Electrical Features	Infrastructure and Facilities
19B	188	W	Kevin Trayhorne	471626 172871	70, Southampton Street, Reading, RG1 2QR	Vehicle Repair, Testing and Servicing	Repair and Servicing
20	200	N	printing.com	471832 173063	67, London Street, Reading, RG1 4QA	Published Goods	Industrial Products
21	211	SW	Chestermans Garage	471739 172632	1a, Chesterman Street, Reading, RG1 2PR	Vehicle Repair, Testing and Servicing	Repair and Servicing
22	220	W	24-7 Car Keys	471598 172819	59, Henry Street, Reading, RG1 2NW	Vehicle Repair, Testing and Servicing	Repair and Servicing
23	240	NE	Electricity Sub Station	471972 173053	RG1	Electrical Features	Infrastructure and Facilities
24	243	SE	Electricity Sub Station	472051 172725	RG1	Electrical Features	Infrastructure and Facilities
25	246	S	Electricity Sub Station	471911 172597	RG1	Electrical Features	Infrastructure and Facilities
26	249	NW	Depot	471687 173076	RG1	Container and Storage	Transport, Storage and Delivery

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL

5.3 Bedrock and Solid Geology

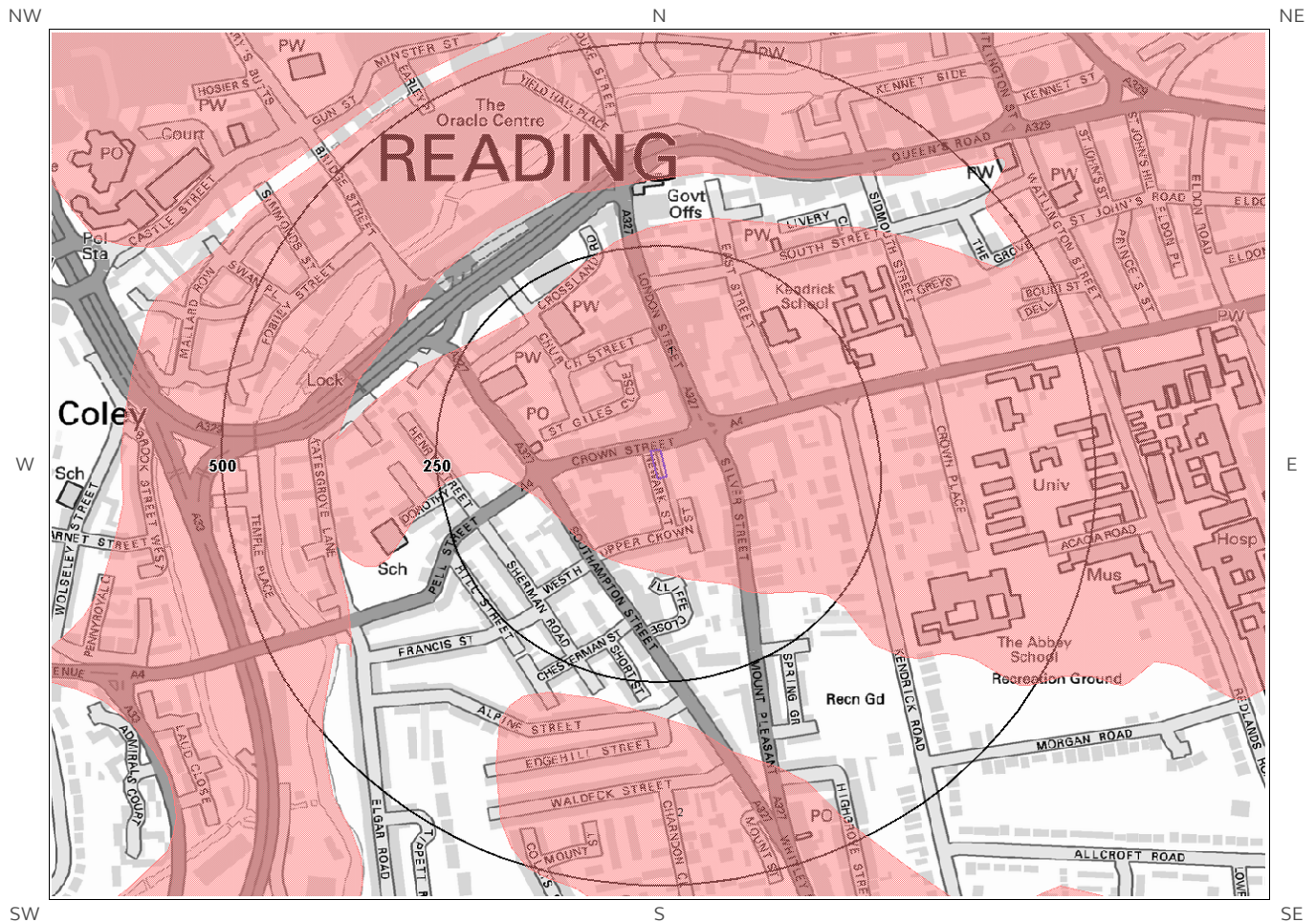
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LMBE-XCZS	LAMBETH GROUP	CLAY, SILT AND SAND

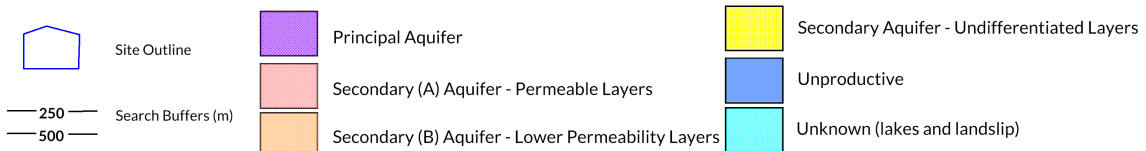
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

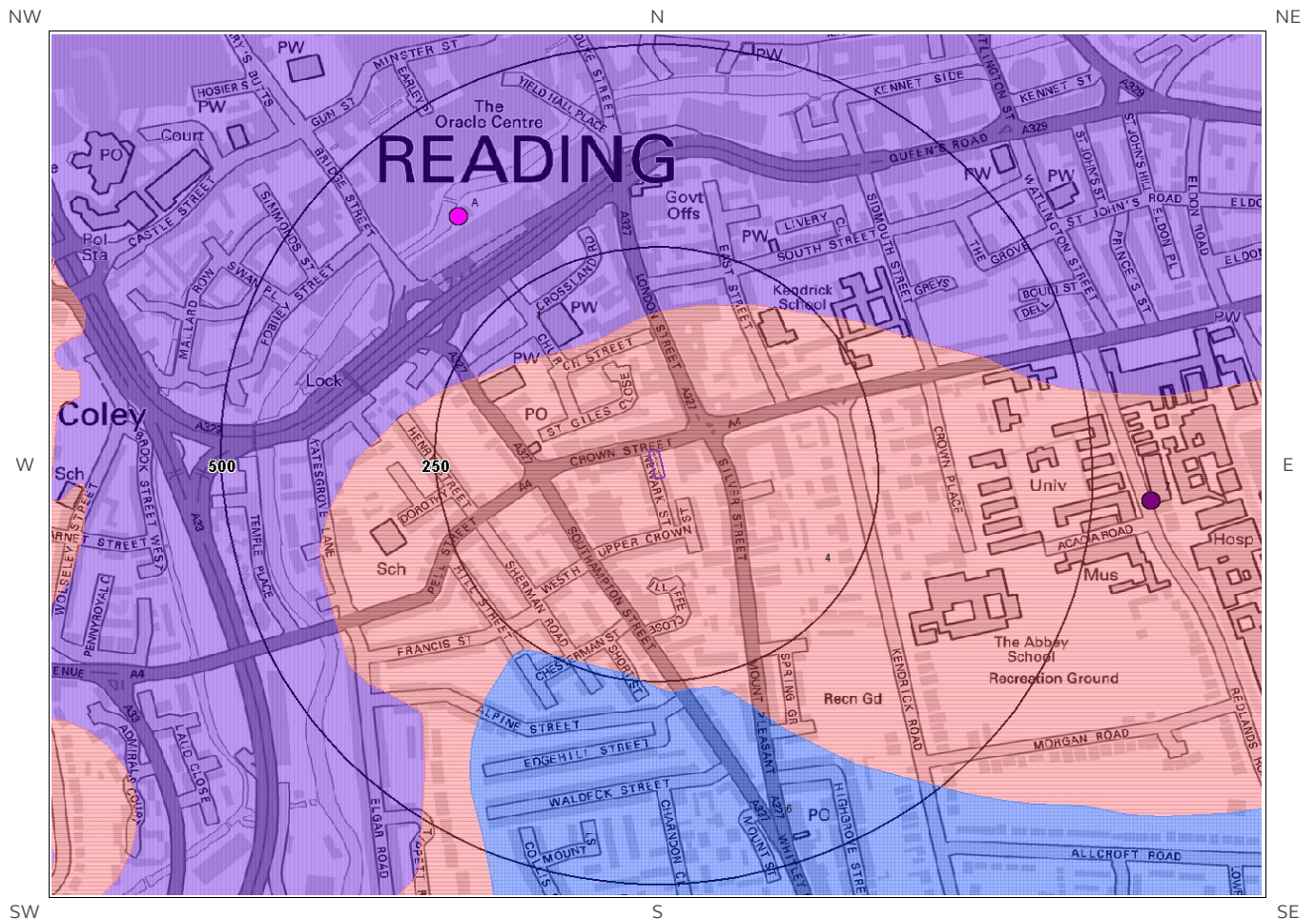
6a. Aquifer Within Superficial Geology



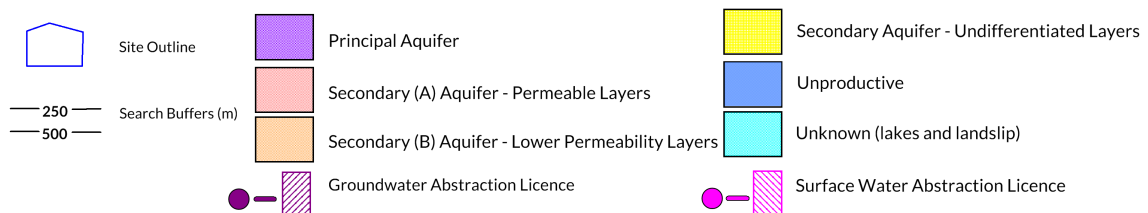
© Crown copyright and database rights 2017
Ordnance Survey license 100035207.



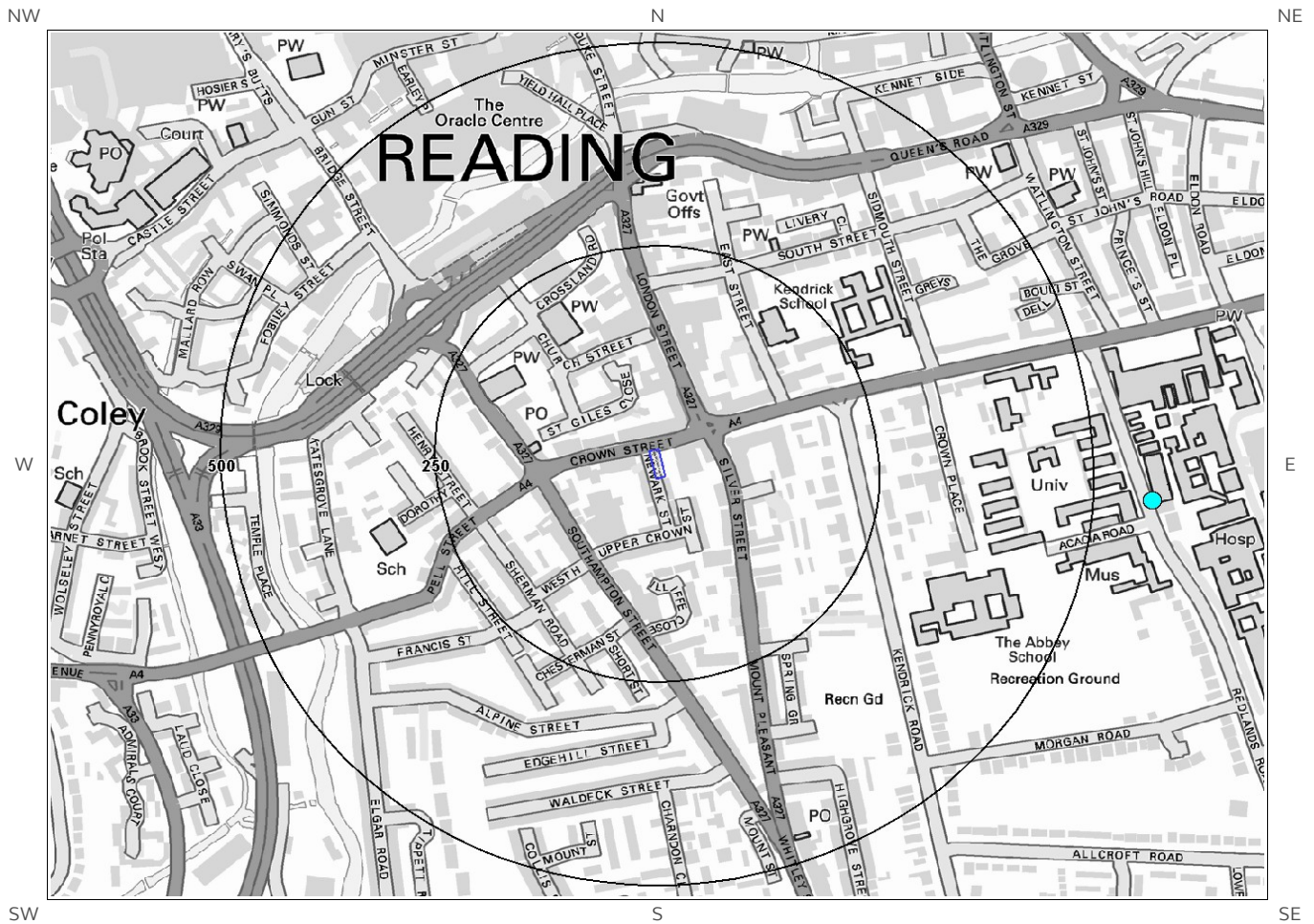
6b. Aquifer Within Bedrock Geology and Abstraction Licenses



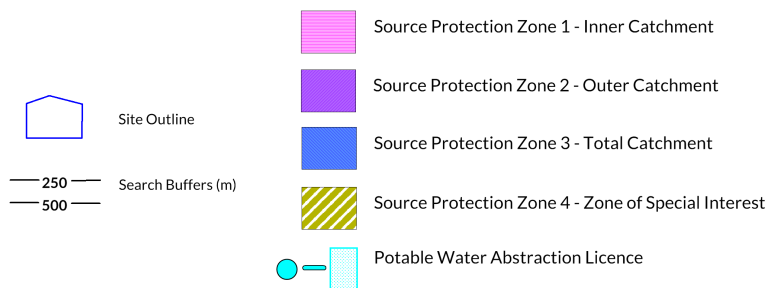
© Crown copyright and database rights 2017
Ordnance Survey license 100035207.



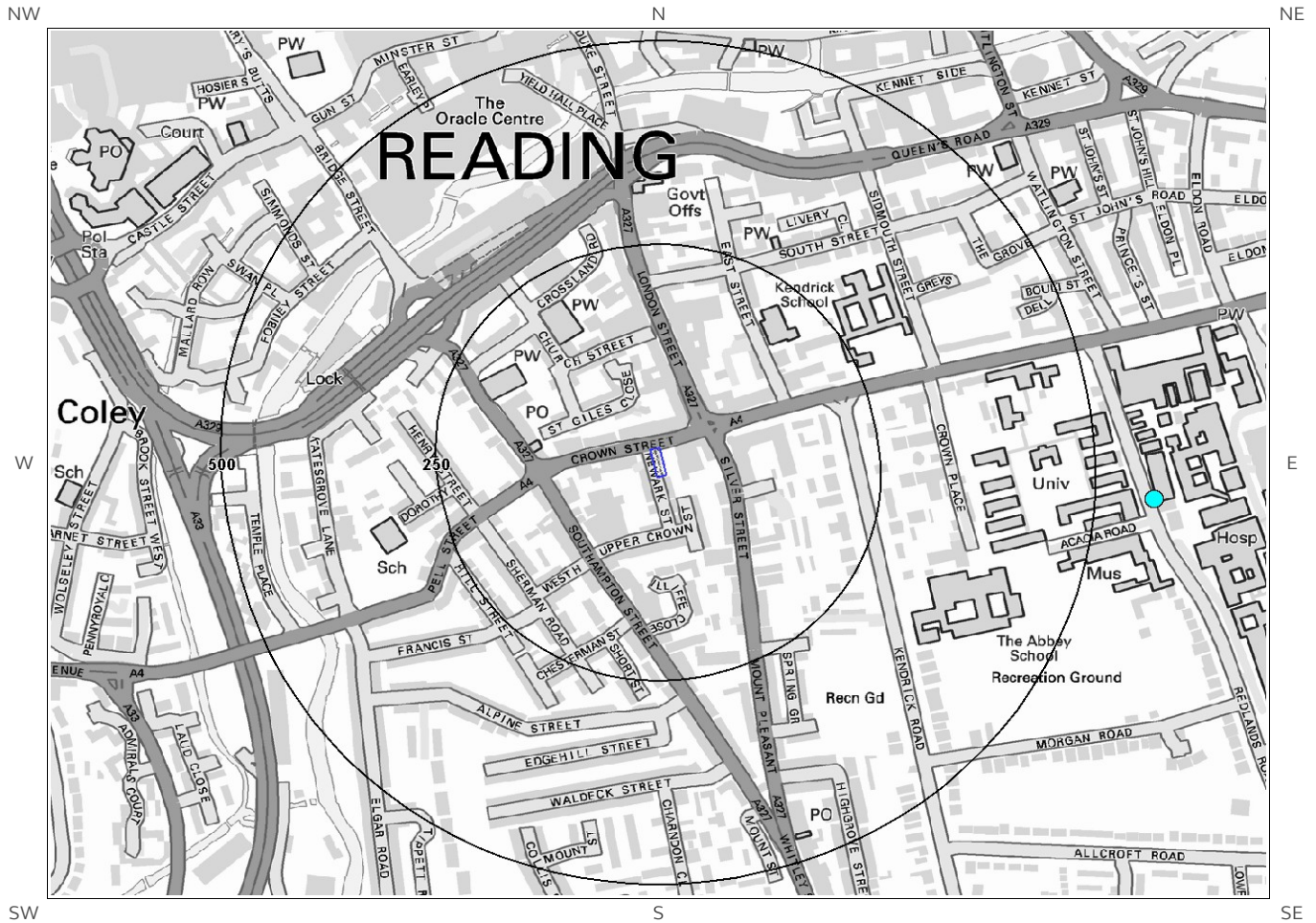
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



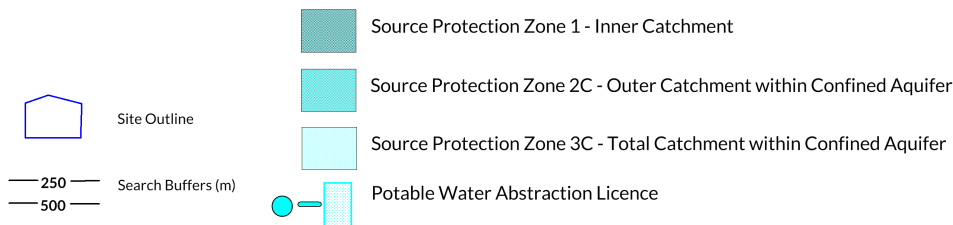
© Crown copyright and database rights 2017
Ordnance Survey license 100035207.



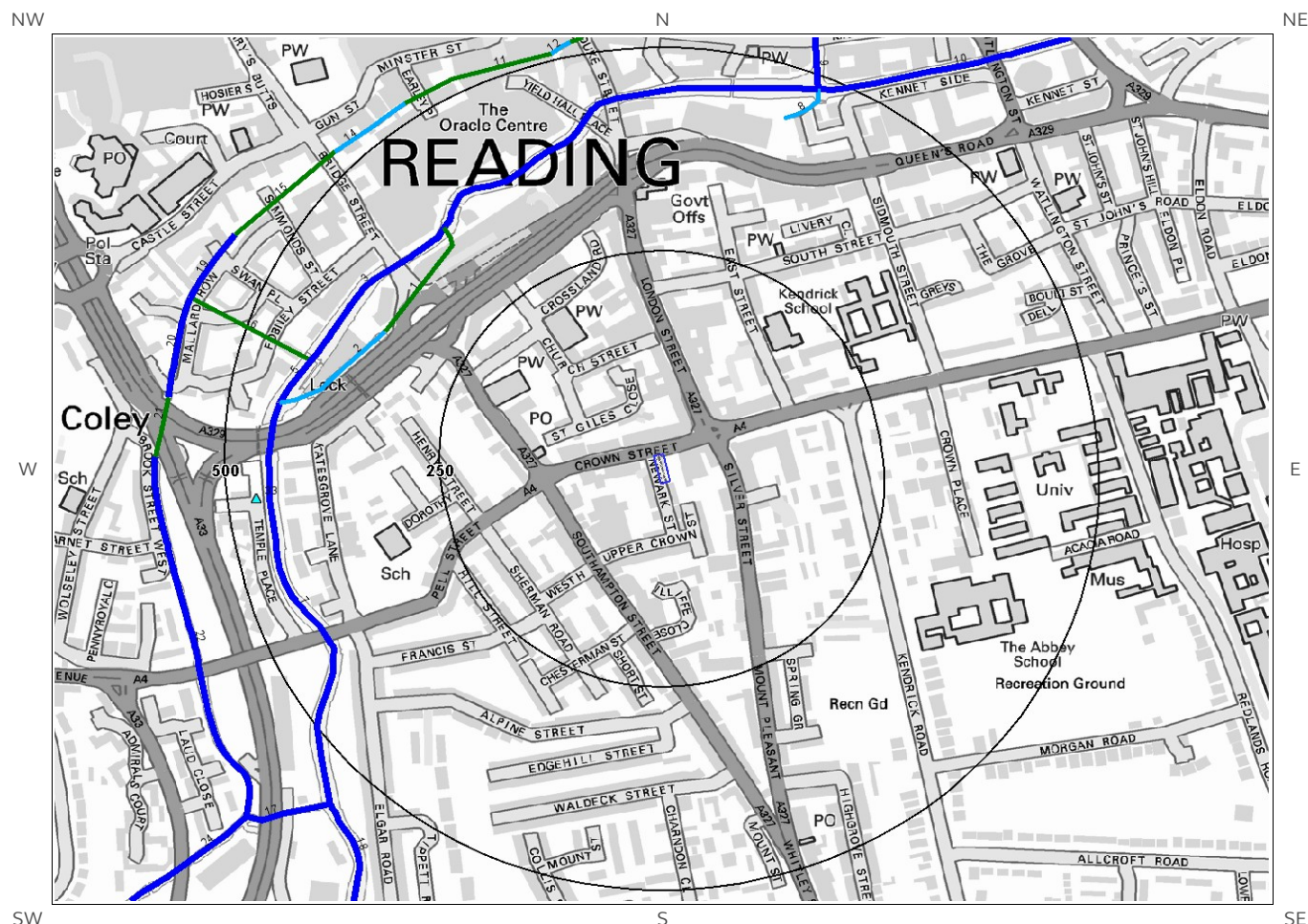
6d. Hydrogeology – Source Protection Zones within confined aquifer



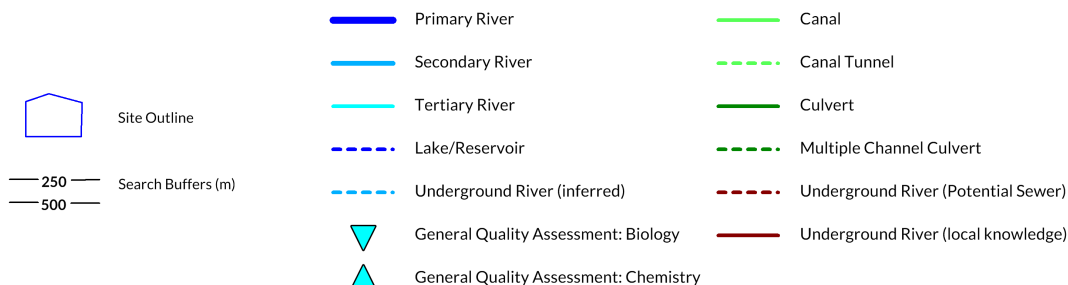
© Crown copyright and database rights 2017
Ordnance Survey license 100035207.



6e. Hydrology – Detailed River Network and River Quality



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	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	279	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

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
4	0	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
1	149	NW	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
6	241	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
7	568	E	472400 172800	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 Annual Volume (m³): 127750 Max Daily Volume (m³): 350 Original Application No: WRA/5950 Original Start Date: 17/1/1992 Expiry Date: - Issue No: 100 Version Start Date: 17/1/1992 Version End Date:
Not shown	886	NW	471200 173500	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 Annual Volume (m³): 14933 Max Daily Volume (m³): 40.91 Original Application No: - Original Start Date: 11/7/1966 Expiry Date: - Issue No: 101 Version Start Date: 1/4/2008 Version End Date:
Not shown	1144	NE	472700 173600	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRW/A/1061 Original Start Date: 31/7/2000 Expiry Date: 31/08/2001 Issue No: 1 Version Start Date: 31/7/2000 Version End Date:
Not shown	1539	N	471900 174400	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 Annual Volume (m³): 68190 Max Daily Volume (m³): 300.04 Original Application No: NPS/WR/021020 Original Start Date: 9/5/1966 Expiry Date: - Issue No: 102 Version Start Date: 12/1/2016 Version End Date:
Not shown	1539	NW	470900 174100	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 Annual Volume (m³): 90920 Max Daily Volume (m³): 727.4 Original Application No: - Original Start Date: 23/1/1990 Expiry Date: - Issue No: 101 Version Start Date: 30/6/2006 Version End Date:
Not shown	1539	NW	470900 174100	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 Annual Volume (m³): 90920 Max Daily Volume (m³): 727.4 Original Application No: - Original Start Date: 23/1/1990 Expiry Date: - Issue No: 101 Version Start Date: 30/6/2006 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1539	NW	470900 174100	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	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR.A/1988 Original Start Date: 11/7/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/7/1966 Version End Date:
Not shown	1539	NW	470900 174100	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	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR.A/1988 Original Start Date: 11/7/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/7/1966 Version End Date:
Not shown	1625	SE	473000 171700	Status: Historical Licence No: 28/39/22/0077 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Thames Groundwater Point: Whiteknights Park, Reading Data Type: Point Name: UNIVERSITY OF READING	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/348/1 Original Start Date: 14/3/1966 Expiry Date: - Issue No: 100 Version Start Date: 26/4/1993 Version End Date:
Not shown	1664	NW	470600 174000	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	Annual Volume (m³): 6682 Max Daily Volume (m³): 27.28 Original Application No: WR.A/4547 Original Start Date: 22/1/1975 Expiry Date: - Issue No: 100 Version Start Date: 1/4/2008 Version End Date:
Not shown	1872	SW	470970 171160	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'd' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/6/1998 Version End Date:
Not shown	1872	SW	470970 171160	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh D' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: 1/1/2013 Version End Date:
Not shown	1879	NW	470400 174100	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	Annual Volume (m³): 6682 Max Daily Volume (m³): 27.28 Original Application No: WR.A/4547 Original Start Date: 22/1/1975 Expiry Date: - Issue No: 100 Version Start Date: 1/4/2008 Version End Date:
Not shown	1895	SW	470850 171200	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'a' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/6/1998 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1917	SW	470840 171180	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh A' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: 1/1/2013 Version End Date:
Not shown	1937	SW	470770 171200	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'b' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/6/1998 Version End Date:
Not shown	1954	SW	470770 171180	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh B' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: 1/1/2013 Version End Date:
Not shown	1963	SW	470680 171230	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'c' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/6/1998 Version End Date:
Not shown	1963	SW	470680 171230	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh C' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: 1/1/2013 Version End Date:
Not shown	1970	NE	473500 173900	Status: Historical Licence No: 28/39/23/0016 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Thames Groundwater Point: Reading University Research Site, Reading, - Well 'a' Data Type: Point Name: UNIVERSITY OF READING	Annual Volume (m³): 1136 Max Daily Volume (m³): 22.73 Original Application No: WR.A/348/2 Original Start Date: 14/3/1966 Expiry Date: - Issue No: 100 Version Start Date: 1/4/2008 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
27A	365	NW	471590 173150	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 Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 16/2/2000 Expiry Date: - Issue No: 1 Version Start Date: 16/2/2000 Version End Date:
28A	365	NW	471590 173150	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 Annual Volume (m³): 737856 Max Daily Volume (m³): 2016 Application No: - Original Start Date: 16/2/2000 Expiry Date: - Issue No: 1 Version Start Date: 16/2/2000 Version End Date:
Not shown	1345	N	472072 174185	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 Annual Volume (m³): 0 Max Daily Volume (m³): 0 Application No: NPS/WR/020629 Original Start Date: 19/2/2016 Expiry Date: 31/3/2028 Issue No: 1 Version Start Date: 19/2/2016 Version End Date:
Not shown	1632	N	471440 174450	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 Annual Volume (m³): - Max Daily Volume (m³): - Application No: WRW/A/1115 Original Start Date: 12/5/2003 Expiry Date: 31/3/2016 Issue No: 1 Version Start Date: 12/5/2003 Version End Date:
Not shown	1632	N	471440 174450	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 Annual Volume (m³): 1752000 Max Daily Volume (m³): 4800 Application No: WRW/A/1218 Original Start Date: 10/9/2008 Expiry Date: 31/3/2016 Issue No: 1 Version Start Date: 10/9/2008 Version End Date:
Not shown	1632	N	471440 174450	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 Annual Volume (m³): 31536 Max Daily Volume (m³): 86.4 Application No: WRW/A/1115 Original Start Date: 12/5/2003 Expiry Date: 31/3/2016 Issue No: 1 Version Start Date: 1/4/2006 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
1	568	E	472400 172800	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 Annual Volume (m³): 127750 Max Daily Volume (m³): 350 Original Application No: WRA/5950 Original Start Date: 17/1/1992 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	886	NW	471200 173500	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 Annual Volume (m³): 14933 Max Daily Volume (m³): 40.91 Original Application No: - Original Start Date: 11/7/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1539	NW	470900 174100	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR.A/1988 Original Start Date: 11/7/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1539	NW	470900 174100	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 Annual Volume (m³): 90920 Max Daily Volume (m³): 727.4 Original Application No: - Original Start Date: 23/1/1990 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1872	SW	470970 171160	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'd' Data Type: Point Name: THAMES WATER UTILITIES LTD Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1872	SW	470970 171160	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh D' Data Type: Point Name: THAMES WATER UTILITIES LTD Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1895	SW	470850 171200	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'a' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1917	SW	470840 171180	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh A' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: Version End Date:
Not shown	1937	SW	470770 171200	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'b' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1954	SW	470770 171180	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh B' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: Version End Date:
Not shown	1963	SW	470680 171230	Status: Active Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station 'bh C' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: NPS/WR/008557 Original Start Date: 5/9/1966 Expiry Date: 31/3/2023 Issue No: 101 Version Start Date: Version End Date:
Not shown	1963	SW	470680 171230	Status: Historical Licence No: 28/39/22/0132 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Fobney Pumping Station Bh 'c' Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m³): 1500000 Max Daily Volume (m³): 30000 Original Application No: RG952 Original Start Date: 5/9/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
185	N	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? Yes

6.9.1 Biological Quality:

Database searched and no data found.

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHl). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
33	466	W	471351 172807	River Name: Kennet Reach: Foudry Brook - Holy Brook End/Start of Stretch: Sample Point NGR	B	A	A	A	A
Not shown	609	N	472020 173440	River Name: Kennet Reach: Holy Brook - Thames End/Start of Stretch: Start of Stretch NGR	B	A	A	A	A
Not shown	609	N	472020 173440	River Name: Kennet Reach: Foudry Brook - Holy Brook End/Start of Stretch: End of Stretch NGR	B	A	A	A	A
Not shown	1230	N	472135 174053	River Name: Thames Reach: Whitchurch Stw - Kennet End/Start of Stretch: Sample Point NGR	A	A	A	A	A
Not shown	1456	NE	473015 173702	River Name: Kennet Reach: Holy Brook - Thames End/Start of Stretch: Sample Point NGR	B	A	A	A	A

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details	
1	342	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
2	348	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
3	368	NW	River Name: River Kennet Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
4	372	NW	River Name: River Kennet Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
5	416	W	River Name: River Kennet Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
6	416	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details	
7	432	SW	River Name: River Kennet Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
8	436	N	River Name: Gunter's Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
9	484	N	River Name: River Kennet Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
10	484	N	River Name: Kennet and Avon Canal Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined

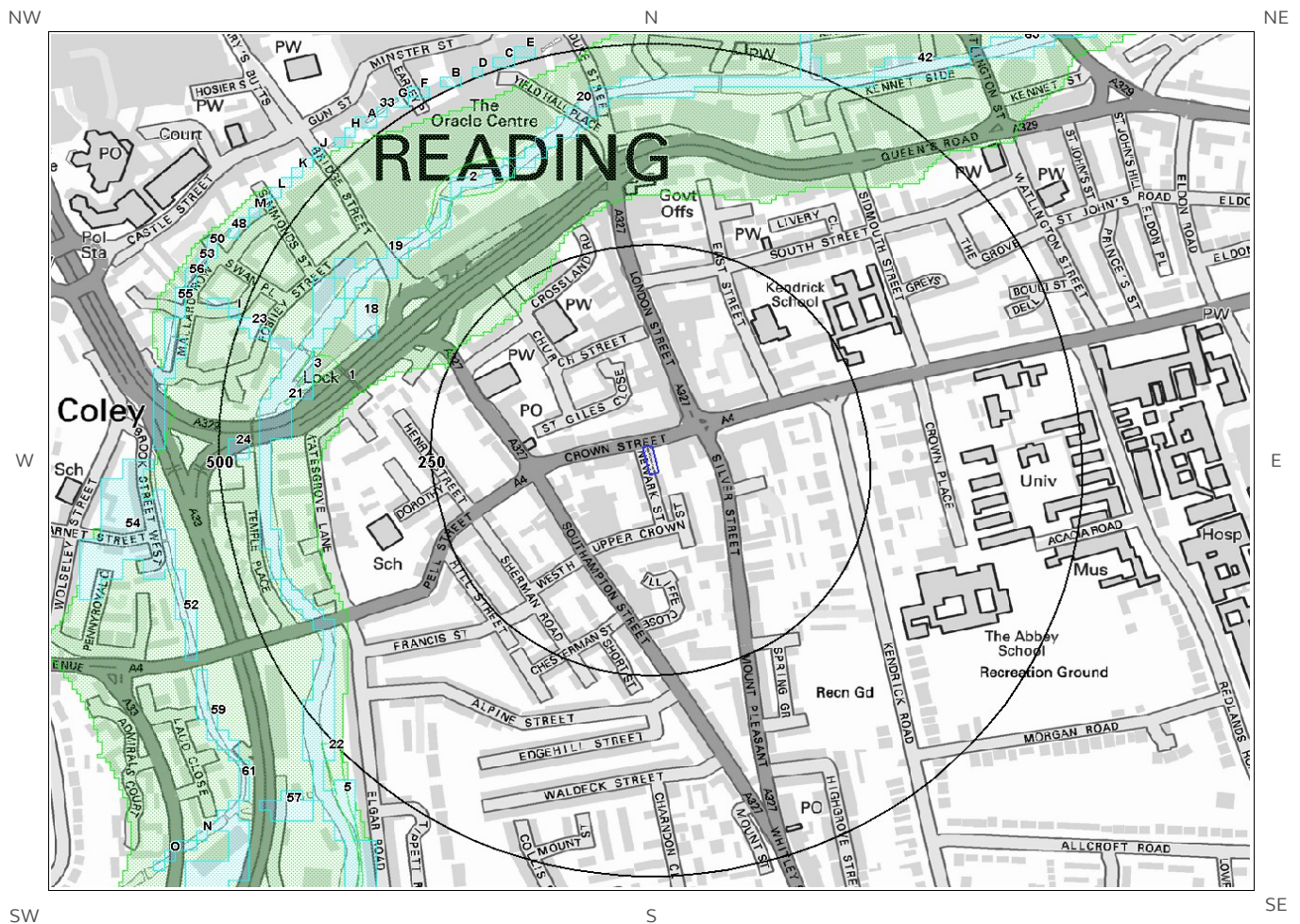
6.11 Surface Water Features

Are there any surface water features within 250m of the study site?

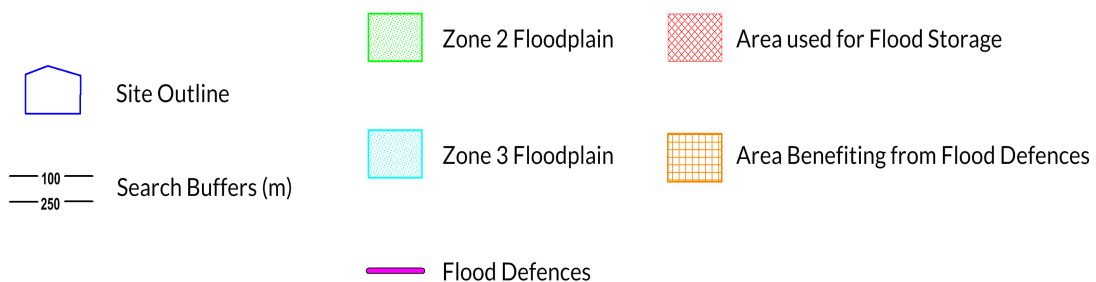
No

Database searched and no data found.

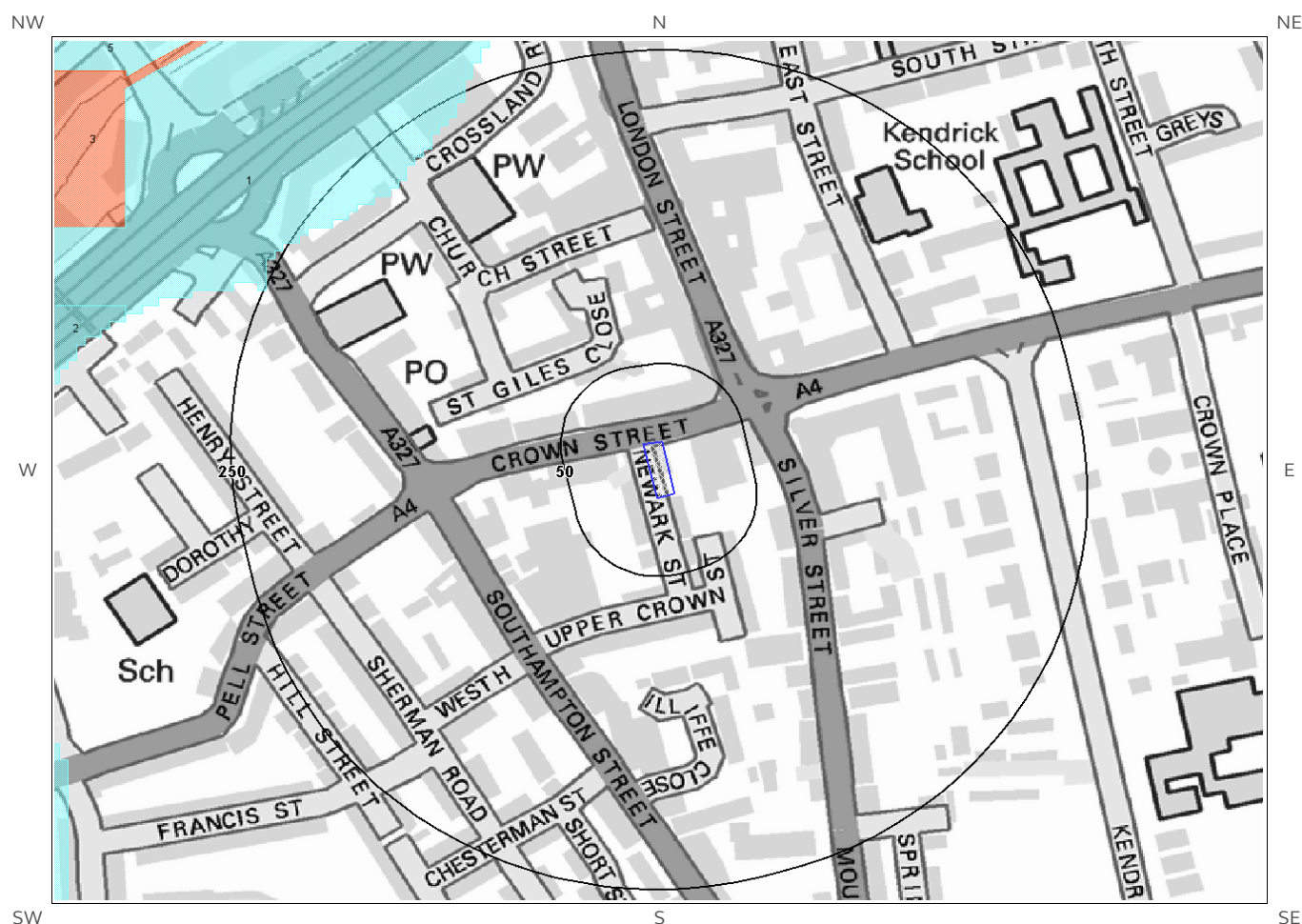
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



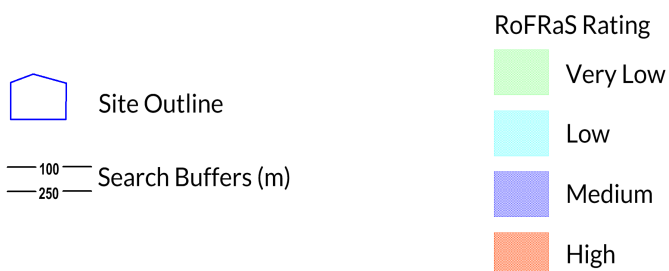
© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? Yes

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	221	NW	17-Aug-2017	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? No

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential below Surface
Where potential for groundwater flooding of property situated below ground level is indicated, this means that given the geological conditions there may be a groundwater flooding hazard to basements and other below surface infrastructure. Unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area you need take no further action in relation to groundwater flooding hazard. If there are records of previous incidences of groundwater flooding, then is recommended that other information e.g. rainfall history, property type, and land drainage information in addition to previous records of flooding be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

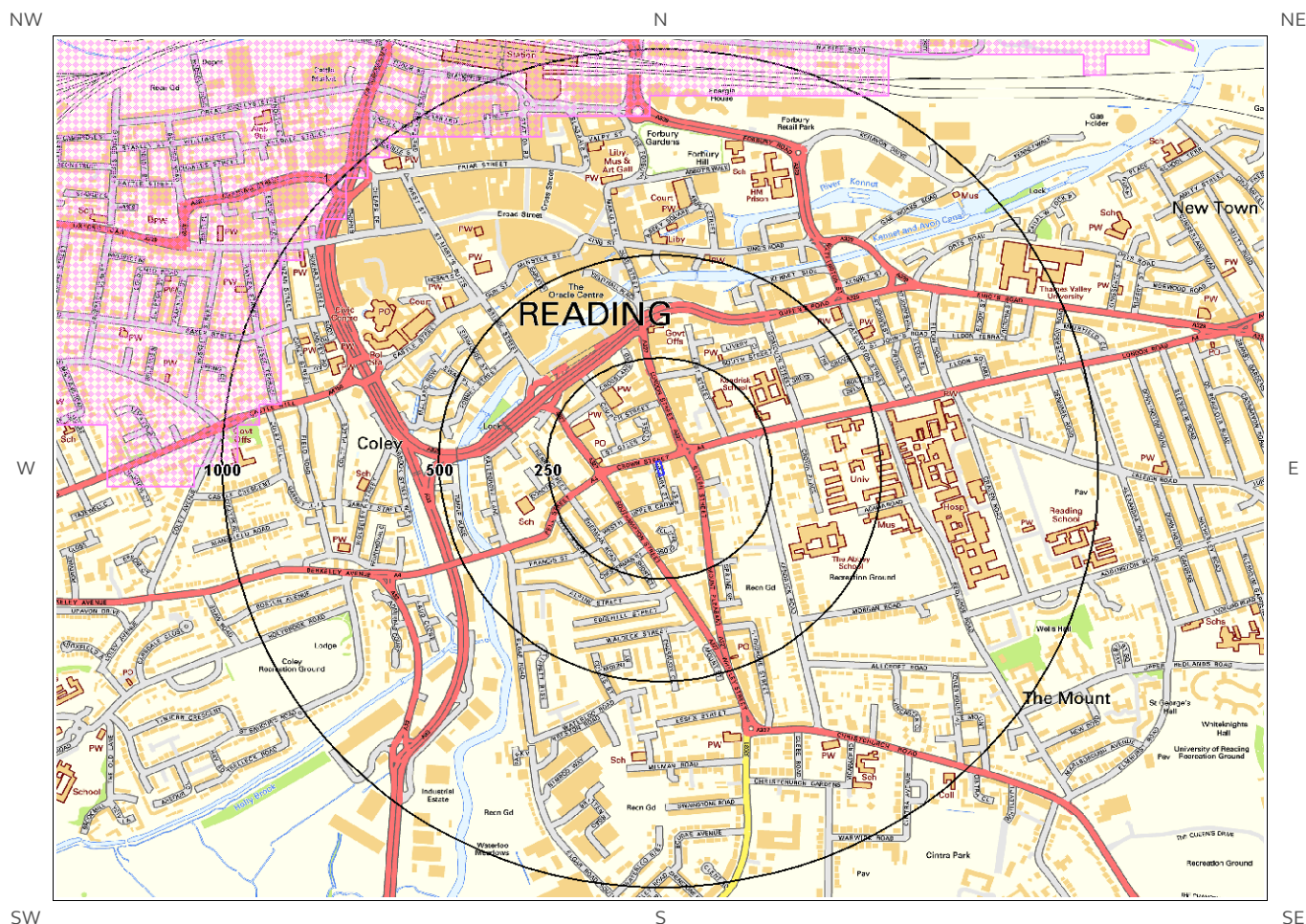
7.8 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? High

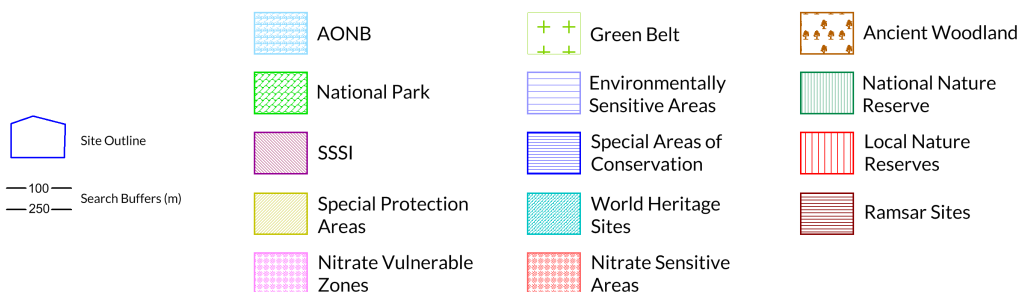
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



© Crown copyright and database rights 2017.
Ordnance Survey license 100035207.



8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site?

Yes

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

Database searched and no data found.

0

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

Database searched and no data found.

0

8.8 Records of World Heritage Sites within 2000m of the study site:

Database searched and no data found.

0

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

Database searched and no data found.

0

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

Database searched and no data found.

0

8.11 Records of National Parks (NP) within 2000m of the study site:

Database searched and no data found.

0

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

Database searched and no data found.

0

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

4

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
1	832	N	Existing	DEFRA
Not shown	1675	NE	Existing	DEFRA
Not shown	1778	S	Modified	DEFRA
Not shown	1813	W	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our **website**. The following information has been found:

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property possible increase in insurance risk due to soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site? No

Database searched and no data found.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Chalk	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

Past underground mine workings are unlikely. The rock types present in these areas are such that mineral veins may be present on which it is possible that mining has been undertaken and/or it is possible that small scale underground extraction of other materials may have occurred. All such occurrences are likely to be of localised extent and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No

Guidance: No Guidance Required.

Contact Details

emapsite
Telephone: 0118 9736883
sales@emapsite.com

emapsite™

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk



**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506

Web: www.environment-agency.gov.uk

Email: enquiries@environment-agency.gov.uk



**Environment
Agency**

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



**Public Health
England**

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



**The Coal
Authority**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505



Local Authority

Authority: Reading Borough Council
Phone: 0118 937 3787
Web: <http://beta.reading.gov.uk/>
Address: Civic Offices, Bridge Street, Reading, RG1 2LU

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England who retain the Copyright and Intellectual Property Rights for the data.

PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].

This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

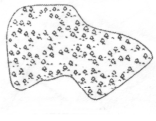
Groundsure's Terms and Conditions can be viewed online at this link:
<https://www.groundsure.com/terms-and-conditions-sept-2016>

County Series 1:10,560 scale

VEGETATION



Fir Wood



Deciduous Wood



Mixed Wood



Brushwood



Orchard



Reeds



Rough Pasture



Furze



Marsh



Osiers

ROADS



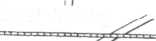
Railway over Road



Road over Railway



Road over River or Canal



Level Crossing



Railway over River



Road over Stream



Road over Stream



Sunken Road



Raised Road

RAILWAYS

Double Lines of Railway

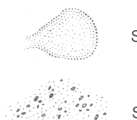


Single Lines of Railway and Tramway

GENERAL FEATURES



Gravel Pit



Sand Pit



Quarry



Shingle



Other Pits



Antiquities, Site of



Arrow, showing direction of flow of water



Trigonometrical Station

BOUNDARIES

County Boundary

Parish Boundary

Contours

Parliamentary Division Boundary

Union Boundary

Rural District Boundary

National Grid 1:10,000 scale

HEIGHTS (METRES)

Values are given in metres above mean sea level at Newlyn.

Surface heights determined by ground survey 163m
air survey 164m

Bench marks and their values are shown on large scale maps, and bench mark lists containing fuller and possibly later levelling information are obtainable from the Director General, Ordnance Survey.

Contours are at 5 metres vertical interval.

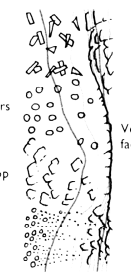
ROCK FEATURES

Loose rock

Boulders

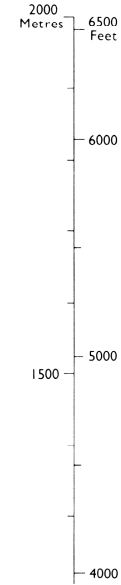
Outcrop

Scree



CONVERSION SCALE

Metres - Feet

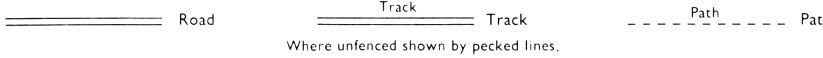


ABBREVIATIONS

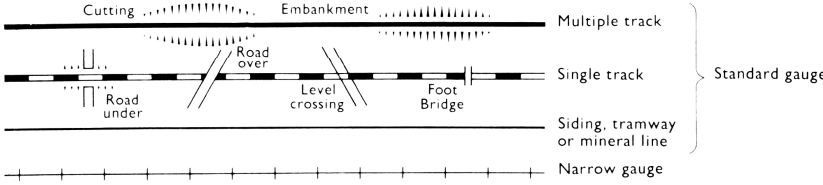
BP,BS	Boundary Post or Stone
Ch	Church
CH	Club House
F Sta	Fire Station
FB	Foot Bridge
Fn	Fountain
GP	Guide Post
MP,MS	Mile Post or Stone
P	Pole or Post
Pol Sta	Police Station

PO	Post Office
PC	Public Convenience
PH	Public House
S	Stone
Spr	Spring
TCB	Telephone Call Box
TCP	Telephone Call Post
TH	Town Hall
W	Well
Y	Youth hostel

ROADS



RAILWAYS



GENERAL FEATURES

+	Antiquity, (site of)
o o o	Boulders
□	Building
Pylon	Electricity transmission line
Pole	Electricity transmission line
⊠	Glasshouse
Δ	Triangulation station

Lake, loch or pond

Sloping masonry

= Chalk pit, clay pit or quarry

= Gravel pit

= Sand pit

Refuse or slag heap

Direction of flow of water

Shingle

Sand

VEGETATION

Bracken, rough grassland

Scrub

Heath

Marsh

Saltings

Reeds

Coppice

Orchard

Coniferous trees

Non-coniferous trees

In some areas bracken () and rough grassland () are shown separately.



GroundSure

Historical Map Pack Legend

County Series & National Grid 1:10,560 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

If you have a query regarding any of the maps provided please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

Technical Helpline

Tel 08444159000

groundsurreinsight@groundsurre.com
www.groundsure.com

County Series 1:2,500 scale

National Grid 1:2,500 / 1:1,250 scale



Historical Map Pack Legend

County Series
1:1,250 scale
~

County Series &
National Grid
1:2,500 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

If you have a query regarding any of the maps provided within this map pack, please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

Technical Helpline:
Tel 08444159000

groundsureinsight@groundsure.com
www.groundsure.com

GENERAL FEATURES	
	Wood
	Marsh
	Reeds
	Fir
	Mixed Wood
	Brush Wood
	Osiers
	Orchard
	Bush
	Rough Pasture
	Furze
	Ford
	Stepping Stones
	Ferry
	Sloping Masonry
	Flat Rock
	Lock
	Waterfall
	Quarry
	Sand Pit
	Refuse Heap
	Clay Pit
	Shingle
	Gravel Pit
	Trigonometrical Station
	Altitude at Trigonometrical Station
	Bench Mark
	Surface Level
	Permanent Traverse Station
	Antiquities (site of)
	Arrow denotes flow of water
	Sluice
	Trough
	Spring
	Well
	Mooring Ring
	Mooring Post
	Boundary Stone
	Boundary Post

ROADS	
	Road over single stream
	Road crossing railway
	Road over River or Canal
RAILWAYS	
	Railway crossing River or Canal
	Railway crossing Road
	Level Crossing
	Embankment
	Cutting

ABBREVIATIONS	
	Trigonometrical Station
	Altitude at Trigonometrical Station
	Bench Mark
	Surface Level
	Permanent Traverse Station
	Antiquities (site of)
	Arrow denotes flow of water
	Sluice
	Trough
	Spring
	Well
	Mooring Ring
	Mooring Post
	Boundary Stone
	Boundary Post

ABBREVIATIONS	
	Beer House
	Bench Mark
	Boundary Post
	Boundary Stone
	Crane
	Club House
	Chimney
	Capstan
	Drinking Fountain
	Dock
	Electricity Pillar or Post
	Electricity Transmission Line
	Fire Alarm
	Fire Alarm Pillar
	Filter Bed, Foot Bridge
	Fundamental Bench Mark
	Flagstaff
	Fire Station
	Guide Post
	Gas Valve Compound
	Hydrant or Hydraulic
	Hectares
	Lecter Box
	Lifeboat Station
	Level Crossing
	Loading Gauge
	Lighthouse
	Lighting Tower
	Metres
	Mean High Water
	Mean High Water Springs
	Mean Low Water
	Mean Low Water Springs
	Mile or Mooring Post
	Mail Pick-up
	Mile Stone
	National Trust
	Normal Tidal Limit
	National Trust for Scotland
	Pillar, Pole or Post
	Public Convenience
	Police Call Box
	Public House
	Post Office
	Pump
	Police Telephone Pillar
	Reservoir
	Road House
	Revision Point
	Stone
	Signal Box
	Signal Light
	Sluice
	Signal Post
	Spring
	Signal Station
	Telephone Call Box
	Telephone Call Post
	Tank or Track
	Trough
	Traverse Station
	Well
	Weighbridge
	Wind Pump
	Works
	Water Point
	Water Tap

GENERAL FEATURES	
	Non-coniferous Trees
	Coniferous Trees
	Surveyed Trees
	Orchard Trees
	Copple, Osier
	Scrub
	Bracken
	Heath
	Rough Grassland
	Marsh, Saltings
	Reeds
	Slopes
	Cliff
	Cave Entrance
	Rock
	Boulders
	Sloping Masonry
	Roofed Building
	Glasshouse
	Archway
	Change of boundary marking
	AREAS notes
	Antiquity (site of)
	Culvert
	Direction of water flow
	Electricity Pylon
	Electricity Transmission Line
	Triangulation Station
	Traverse Station (permanent)
	Bench Mark
	Surface Level
	Revision Point (instrumentally fixed)
	Revision Point & Bench Mark coincident
	Top
	Slopes
	Quarry
	Refuse Heap
	Sloping Masonry
	Flat Rock
	Sand
	Sand Pit
	Culvert
	Archway
	Shingle
	Boulders
	Gravel Pit
	Cliff Face
	Glazed Roof Building

BOUNDARIES	
England & Wales	
	County Boundary (geographical)
	County & Civil Parish Boundary coterminous
	Admin County or County Borough Boundary
	London Borough Boundary
	County District Boundaries based on civil parish
England, Wales & Scotland	
	Civil Parish Boundary
	Parly & Ward Boundaries based on civil parish
	Parly & Ward Boundaries not based on civil parish
Scotland	
	County Boundary (geographical)
	County Council Boundary
	County of the City Boundary
	Burgh Boundary
	District Council Boundary
	* Not with parish
	† Coincident with parish