



**Geo-Environmental**

**DESK STUDY REPORT**

**for the land at**

**LAND AT STRATFIELD FARM**

**OXFORD ROAD**

**KIDLINGTON**



**OXFORDSHIRE**

**OX5 1DA**

**on behalf of**

**MANOR OAK HOMES**



<b>Report:</b>	<b>DESK STUDY REPORT</b>
<b>Site:</b>	<b>LAND AT STRATFIELD FARM, OXFORD ROAD, KIDLINGTON, OXFORDSHIRE, OX5 1DA</b>
<b>Client:</b>	<b>MANOR OAK HOMES</b>
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## 1.0 INTRODUCTION

### 1.1 General

Geo-Environmental Services Limited (Geo-Environmental) was instructed by Manor Oak to undertake a Phase I desk study into the geotechnical and geo-environmental factors pertaining to the planned redevelopment of the land at Stratfield Farm, Oxford Road, Kidlington, Oxfordshire, OX5 1DA herein referred to as 'the site'. The site's location is presented in Figure 1.

### 1.2 Form of Development

Proposals for the site are for a residential development with associated soft landscaping and infrastructure.

### 1.3 Objectives

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

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

### 1.4 Standards

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

- National Planning Policy Framework – March 2012;
- Planning Policy Statement 23 – Planning and Pollution Control;
- Model Procedures for the Management of Contaminated Land, CLR11, DEFRA and Environment Agency 2004;
- Environment Agency Guidance on Requirements for Land Contamination Reports, Version 1 dated July 2005;
- BS10175:2011 - Investigation of Potentially Contaminated Sites - Code of Practice, BSI 2011;
- BS5930: 2015 - Code of Practice for Site Investigations, BSI 2015;
- EN ISO 14688 Geotechnical Investigation and Testing Part 1-2002 and Part 2-2004;
- BS1377: 1990 - Soils for Civil Engineering Purposes, BSI1990;
- NHBC Standards Chapter 4.1 Land Quality - Managing Ground Conditions;
- NHBC Standards Chapter 4.2 Building Near Trees;
- CIRIA C665 – Assessing risks posed by hazardous ground gases to buildings (2007);
- NHBC 10627-R01(04)- Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present (2007);
- BS8485:2015 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings;



- Department of Environment - Industry Profiles (1995 - 1996).

### **1.5 Conditions**

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

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## 2.0 DESK STUDY

The findings of the Phase I desk study are presented in the following section. A copy of the information obtained as part of the desk study is presented in Appendix A.

### 2.1 Site Description

The site comprised an oblong area of land covering approximately 10ha centred on NGR 449490, 212433.

At the time of investigation, October 2018, the site comprised a number of fields with a large farmhouse, yard and complex of farm buildings in the approximate centre. The site's topography was visually noted to be approximately level. The fields appeared largely arable with a small area of orchard in the central south. The westernmost field was formed of rough grass and immature trees. The fields were divided by deciduous hedgerows with some mature trees and occasionally post and wire fences. A small area of woodland was noted to the east of the area of buildings and a margin of woodland was present alongside the ditch in the west of the site. Access to the site, and the area of buildings, was afforded by a track running through the eastern field from the centre of the eastern boundary.

Two ponds were present at the site, both of which were dry at the time of the walkover survey. These were located adjacent to the northern site boundary in the east and west. A number of dry ditches or drains were linked to these features: in the west crossing the site in the north-easterly direction; in the central east to the south of the pond in this area; and running in a westerly direction along the northern site boundary.

The area of buildings included a two storey stone farmhouse and a number of barns and farm buildings of various sizes and in varying states of repair. The farm buildings were either stone or steel framed construction. Potential asbestos cement products were noted as cladding and roofing materials on a number of buildings. Broken discarded profiled asbestos cement roof sheets were noted adjacent to the building in the east of the farm yard area. An above ground heating oil tank was observed to the east of the farm yard area. Two greenhouses were recorded to the south and south-west of the area of buildings.

The site was bounded on all sides by tall deciduous hedgerows. Sports pitches were present to the south of the site, with the residential area of Kidlington to the north. A large roundabout was located to the east and the Oxford Canal was present along the western boundary with open fields beyond.

An annotated site plan is included as Figure 2.

### 2.2 Geology

British Geological Survey geological mapping indicated the geology of the site to comprise the Oxford Clay Formation. Superficial deposits of Alluvium were recorded overlying the Oxford Clay in the west of the site.

Alluvium is the most recent river or estuarine deposit and generally comprises silty clays usually with an appreciable organic content. Lenses of sand and gravel are also commonly found, as are pockets of peat.

The Oxford Clay comprises for the most part blue grey and light grey silty clays turning to brown on weathering. Selenite and iron-pyrites are found in abundance throughout the series. The clays become very stiff and shaley with depth.

### 2.3 Hydrogeology

With reference to information provided by the Environment Agency, the superficial geology of the site was indicated to be classified as a Secondary A Aquifer .

The underlying Oxford Clay was indicated to be classified as Unproductive Strata .

Secondary A aquifers are 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.

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

The site was recorded as being outside of any Source Protection Zone.

No discharge consents to groundwater were recorded within a 500m of the subject site.

Two groundwater aquifer abstractions were recorded within 2km of the site.

- 1233m S, General farming and domestic, 12/11/1997
- 1818m E, General farming and domestic, 14/02/1966

### 2.4 Hydrology

The nearest surface features are five features identified on site. These are assumed to be the three ditches and two ponds observed during the site walkover survey.

Two pollution incidents were identified within a radius of 500m of the site.

- 301m N, Pollutant not identified, 16/09/2003, major impact to water (Oxford Canal)
- 344m W, Storm sewage, 26/11/2002, no impact to water

The site was indicated to be located outside an area at particular risk of flooding on the Environment Agency's Flood Map for Planning or Risk of Flooding from Rivers and the Sea (RoFRaS) Map.

The site was indicated by the BGS to be in an area identified as potentially susceptible to groundwater flooding at the surface. Note, the mapping is a susceptibility set, it does not indicate hazard or risk, i.e. it does not provide any information on the depth to which groundwater flooding occurs or the likelihood of the occurrence of an event of a particular magnitude.

No licensed surface water abstractions were recorded within 1km of the site.

Zero discharge consents to surface water were recorded within a 500m of the subject site.



## 2.5 Radon

Based on data supplied by the British Geological Survey (BGS), the estimated probability of the property being above the Action Level for radon is: 0-1%, Lower probability area.

The site is not indicated to be in a radon affected area. Radon protection measures are not required for new dwellings.

## 2.6 Environmental Data

Searches of other various environmental databases were made as part of the desk study, including air pollution control sites, Part IIA contaminated land, Integrated Pollution Control (IPC) and Integrated Pollution Prevention and Control (IPPC) sites, registered radioactive substances, COMAH sites, explosives sites, Notification of Installations Handling Hazardous Substances (NIHHS) sites, planning permissions for sites involving hazardous substances, fuel station registers, points of interest – commercial services and points of interest – manufacturing and production.

No Contaminated Land Register entries were recorded within a 500m radius of the site.

One Integrated Pollution Controls were recorded within a 500m radius of the site.

- 120m N, Sainsbury's Supermarket, Oxford Road, Kidlington, Oxfordshire, OX5 2PE, Unloading of Petrol into Storage at Service Stations

No Integrated Pollution Prevention and Control entries were recorded within a 500m radius of the site.

No Local Authority Integrated Pollution Controls were recorded within a 500m radius of the site.

The desk study identified ten Contemporary Trade Directory entries within 250m of the site as summarised in Table 2.1.

Distance	Direction	Company	Activity	Category
31	N	P C Painkillers	Electrical Equipment Repair and Servicing	Repair and Servicing
31	N	Pumping Station	Water Pumping Stations	Industrial Features
64	N	Electricity Sub Station	Electrical Features	Infrastructure and Facilities
67	E	Gas Governor Station	Gas Features	Infrastructure and Facilities
107	N	Bray Sweepers	Construction and Tool Hire	Hire Services
113	NE	Sainsbury's Kidlington	Petrol and Fuel Stations	Road and Rail
164	S	Pipeline	Pipelines	Industrial Features
182	N	Electricity Sub Station	Electrical Features	Infrastructure and Facilities
188	N	Electricity Sub Station	Electrical Features	Infrastructure and Facilities





Distance	Direction	Company	Activity	Category
201	NE	Sunray Blinds & Shutters	Curtains and Blinds	Consumer Products

**Table 2.1 Contemporary Trade Directory entries within 250m**

The desk study identified one Fuel Station entries within 500m of the site.

- 69m NE, Sainsburys, Oxford Road, Kidlington, Oxfordshire, OX5 2PE

## 2.7 Soil Chemistry

Data obtained as part of the desk study provides details on the estimated soil chemistry for the natural soils in the vicinity of the site. The estimated soil quality on the subject site is presented Table 2.2.

Contaminant	Estimated Concentration (mg/kg)
Arsenic	25-45
Cadmium	<1.8
Chromium	90-120
Lead	100-200
Nickel	30-45

**Table 2.2 Estimated Soil Concentrations on site**

The natural background concentrations of cadmium, chromium, lead and nickel were below (or equal to, in the case of lead) respective published Soil Guideline Values, Generic Assessment Criteria and Category 4 Screening Levels for the protection of human health under a residential (with homegrown produce) land use, i.e. the most conservative end use proposed. However, the range of arsenic concentrations exceeds screening values and as such elevated levels of arsenic may be present within the soils at the site.

However, it should be noted that these values are not necessarily representative of the site's soil chemistry. Furthermore, some SGVs and GACs are dependent on pH and soil organic matter content. Therefore, concentrations of specific determinants and the utilised SGV/GAC cannot be determined without site specific investigation and analysis.

## 2.8 Sensitive Land Uses

A search was made of environmentally sensitive areas, including areas of green belt, scenic or natural beauty, parks, reserves, nitrate zones, protected conservation and scientific areas.

The site lies within a Nitrate Vulnerable Zone and an area of Green Belt (Oxford Greenbelt). No other sensitive land uses are recorded with 1km of the site.

## 2.9 Geotechnical Data

The site was not recorded as being located within any coal or non-coal mining areas.

National databases for a number of different geological hazards have been compiled by the BGS, and a summary of the hazard data pertaining to the site itself is presented in Table 2.2.



Hazard	Designation
Collapsible ground	Very Low
Compressible ground	Moderate (associated with the Alluvium)
Ground dissolution	Negligible
Landslide	Very Low
Running sand	Low
Shrinking and Swelling clay	Moderate

**Table 2.3 Summary of BGS Geological Hazards**

No man-made mining cavities were identified within 1km of the site.

No natural cavities were identified within 1km of the site.

### 2.10 Landfill and Waste Management Facilities

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

No landfill sites were recorded within 500m of the site.

One Waste Transfer site was recorded within a 500m radius of the site.

- 494m SE; Type of Site: Waste Reduction/Recovery Facility; The Grain Silos ,Oxford Road, Gosford & Water Eaton, Kidlington, Oxfordshire, OX5

Sixteen areas of potentially infilled land have been identified within 250m of the site. Two of these are records of the pond in the north-east of the site which was not noted to be infilled during the site walkover survey. The remaining fourteen entries are associated with the Oxford Canal to the west of the site which was also noted not to be backfilled.

### 2.11 Historical Mapping

Historical maps dating back to 1876 were obtained as part of the desk study. A summary of the apparent key features observed on the map extracts both on the site and within the local area is presented within Table 2.4.

Date	On Site	Off Site
1876	Six farm buildings and farmhouse, wooded area and agricultural fields.	Canal approximately 20m of the westernmost site boundary. Lock approximately 300m north. Railway line approximately 1km to the south and east. Remaining area contains agricultural fields and associated farm buildings.
1878	No significant changes indicated.	No significant changes indicated.
1880	No significant changes indicated.	No significant changes indicated.



Date	On Site	Off Site
1899	No significant changes indicated.	No significant changes indicated.
1900	No significant changes indicated.	No significant changes indicated.
1913	No significant changes indicated.	No significant changes indicated.
1919	No significant changes indicated.	No significant changes indicated.
1947	No significant changes indicated.	Residential development with associated infrastructure approximately 750m north in Gosford.
1955	No significant changes indicated.	Sewage works identified approximately 500m west of site. A43 to south of site marked as under construction.
1969	No significant changes indicated.	No significant changes indicated.
1970	No significant changes indicated.	Extensive residential development from northern boundary of site into Gosford town to the north
1972	Two glass houses constructed to the south of the farm buildings	No significant changes indicated.
1976	No significant changes indicated.	No significant changes indicated.
1977	No significant changes indicated.	No significant changes indicated.
1978	No significant changes indicated.	No significant changes indicated.
1981	No significant changes indicated.	No significant changes indicated.
1992	No significant changes indicated.	No significant changes indicated.
1994	No significant changes indicated.	No significant changes indicated.
1995	No significant changes indicated.	No significant changes indicated.
2002	No significant changes indicated.	Network of ponds and reservoirs close to canal mapped approximately 50m south of site. A sports ground was located to the south of the site.
2010	No significant changes indicated.	No significant changes indicated.
2014	No significant changes indicated.	No significant changes indicated.

**Table 2.4 Summary of Historic Map extracts**

Historical mapping has shown the site to comprise a farm property and associated agricultural fields which have remains undeveloped.

The surrounding land comprised primarily open space and gradually became developed for residential purposes to the north.

## 2.12 Asbestos

Potential asbestos cement products were noted as cladding and roofing materials on a number of buildings. In line with current best practice, asbestos and ACM should be assumed to be present until proven otherwise, this includes the consideration of the potential for asbestos to be present within the shallow soils on the site.



### **2.13 Previous Ground Investigations**

Geo-Environmental is not aware of any previous investigations had been undertaken on the subject site. There were eight BGS borehole records within the site, however it appears that these are associated with an area of residential development to the north rather than the site itself. These boreholes recorded Alluvium to between 1m and 2m bgl overlying the Oxford Clay Formation.

### **2.14 Potential Contamination**

A heating oil tank has been identified at the site which is a potential source of hydrocarbon contamination.

Made Ground associated with the area of farm buildings may be present and represents a potential source of contamination.

Historically heavy metal dusting powders may have been used in the orchard areas of the site for fungal disease control. Pesticides may have been used within the greenhouses and across the site for agricultural purposes.

Whilst gross contamination is considered unlikely based on the information reviewed, it would be prudent to assume the presence of commonly occurring brownfield contaminants such as metals, inorganics, PAH compounds, TPH compounds, and asbestos along with pesticides. Testing would be recommended to verify the actual concentrations of these substances within the near surface soils with targeted testing focused on the areas of the heating oil tank, buildings, orchards and greenhouses.

### **2.15 Ground Gas Summary**

The desk study has not identified any sources of ground gases within 250m of the site. As such, ground gases are not considered further within this assessment.



### 3.0 PRELIMINARY ASSESSMENT

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

#### 3.1 Geotechnical Risk Assessment

##### 3.1.1 Potential Geotechnical Issues

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

Hazards identified as being potentially present on site could have implications for foundation design and construction. A summary of commonly occurring geotechnical hazards is given in the following table:

Geotechnical Hazard	Probability	Engineering Implications
Lateral changes in ground conditions	Likely	Variable ground conditions across the site may affect foundation design, construction and zoning.
Shrinkable soils	Likely	The clays of both the Ashdown Beds and the Wadhurst Clay Formation are likely to be shrinkable horizons.
Aggressive chemical ground conditions (sulphates)	Unlikely	The possible presence of aggressive chemical ground conditions within the underlying geology may affect foundation design and construction.
Shallow Groundwater	Likely	Due to the Secondary 'A' aquifer designation of the Alluvium beneath the site, the presence of shallow groundwater is considered to be likely.
Potential for shallow soakaways to be unviable	Likely	Due to the likely cohesive nature of the Oxford Clay, the potential for shallow soakaways to be unviable is considered to be likely across much of the site.
Potential for dissolution features	Unlikely	
Potential for slope stability issues	Unlikely	

**Table 3.1 Possible Geotechnical Hazards**

#### 3.2 Preliminary Environmental Conceptual Site Model & Risk Assessment

##### 3.2.1 Methodology

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

A risk of harm may only exist where a plausible pollutant linkage is present, and where the quantity or concentration of a contaminant is sufficient so as to pose harm. Under the statutory definition,



"Contamination" may only strictly exist where contaminants pose a risk of harm to a receptor. The risk classification has been assessed in accordance with CIRIA C552 (Rudland et al., 2001). A summary of how the risks are derived and their definitions are presented in Tables 3.2 and 3.3.



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

Table 3.2 Risk Ratings Matrix

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

Table 3.3 Risk Rating Definitions



### 3.2.2 Summary of Plausible Sources

Possible sources of contamination identified from the desk study are summarised in Table 3.4.

Source	Description	Contaminants
Shallow soils across the site	The general quality of shallow soils could be impacted by the presence of contamination.	Pesticides. Possible elevated concentrations of metals, metalloids, TPH and PAH compounds.
Made Ground associated with the area of buildings	Chemical quality and nature of the Made Ground.	Possible elevated concentrations of metals, metalloids, TPH and PAH compounds, and asbestos.
Orchards and Greenhouses	Shallow soils may be impacted by pesticide and dusting powder usage.	Possible elevated concentrations of heavy metals from dusting powders and pesticides.
Heating oil tank	Soils and groundwater could be impacted by the presence of contamination.	Possible elevated concentrations of hydrocarbons depending age and integrity of tank.
Naturally occurring aggressive ground conditions	Naturally occurring compounds in the ground which could damage buried concrete.	Possible elevated sulphate concentrations.

**Table 3.4 Possible Sources of Contamination**

### 3.2.3 Summary of Plausible Pathways

The plausible pathways are summarised in Table 3.5. These pathways are based on the proposed end use, including houses and gardens.

Pathway	Description
Direct Contact	Ingestion of soil particles, ingestion and bioaccumulation in vegetables/fruit and inhalation of soil derived dust (including tracked back dust), dermal contact.
Inhalation	Inhalation of soil dust both inside and outside of buildings.
Vertical & Lateral Migration	Contaminant movement both vertically through leaching/gravity and horizontally along preferential pathways, e.g. services trenches, or with groundwater.
Root Uptake	Uptake of soil and waterborne contaminants by plants.
Shallow Groundwater	Shallow groundwater or perched water may be present, if encountered it could result in the vertical and lateral migration of contaminants.
Chemical Attack	Attack of buried plastics and concrete by aggressive ground conditions.

**Table 3.5 Possible Contamination Pathways**

### 3.2.4 Summary of Plausible Receptors

Potential receptors associated with the site and its development are summarised in Table 3.6.





Receptor	Description	Comments
End Users	Residents/occupants of the proposed development.	The development will include residential properties with gardens, public open space and associated infrastructure.
Soft Landscaping	Possible areas of planting including lawns, shrubs, trees, etc.	Private gardens and soft landscaped areas are proposed.
Built Environment	Buried concrete for foundations and plastics for potable water supply pipes may be laid in contact with contaminated soils.	Aggressive ground conditions and depths of Made Ground may be present beneath the site.
Adjacent Land Users	Sensitive land uses identified within the immediate vicinity.	Adjacent land comprises residential use to the north and open land elsewhere.
Groundwater	Controlled Waters contained within the aquifer(s) beneath the site.	The site overlies a Secondary A Aquifer and Unproduction Strata. The site is not situated within an SPZ.
Surface Water	Controlled Waters within lakes, rivers, and ponds, etc., or coastal waters.	Two ponds and a number of ditches (all dry) were identified on site.

**Table 3.6 Possible Receptors of Contamination**

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

Whilst the above sources and receptors have been identified, Table 3.7 summarises the identified plausible pollution linkages and a qualitative assessment of the risks based on the desk study research.



Potential Source/Media	Potential Receptors	Possible Pathways	Probability	Consequence	Risk & Justification
Shallow Soils across the site	End Users	Direct contact and inhalation / ingestion of soil derived dust	Likely	Minor	<b>Low</b> Future occupiers are likely to come into contact with soils via a number of pathways. However, natural soils are not anticipated to represent a risk of harm to human health.
	Soft Landscaping	Root uptake	Unlikely	Minor	<b>Very Low</b> Areas of soft landscaping are proposed. However, landscaping would be completed with uncontaminated/natural soils in the near surface root zone. Any consequence is likely to be minor. No evidence of harm to existing vegetation was observed.
	Adjacent land users	Direct contact	Unlikely	Minor	<b>Very Low</b> Adjacent site users are not expected to come into contact with soils on the site. Additionally, natural soils are not anticipated to represent a risk of harm to human health. Any consequence is likely to be minor.
	Water Supply Pipes	Direct contact	Likely	Minor	<b>Low</b> Water supply pipes may come into contact with impacted soils depending upon depth of installation and extent of any soil impact.
	Buildings and Infrastructure	Direct contact	Likely	Minor	<b>Low</b> Foundations will be placed within natural soils which may be an aggressive environment for concrete. However, the consequence is anticipated to be minor.
	Groundwater	Vertical Migration	Unlikely	Minor	<b>Very Low</b> The site overlies a Secondary A Aquifer and Unproductive Strata. However, the desk study has not identified any significant sources of potentially mobile contamination in the general shallow soils at the site.
	Surface Water	Vertical and Lateral Migration	Unlikely	Minor	<b>Very Low</b> Two ponds and a number of ditches are present at the site. No significant sources of potentially mobile contamination have been identified in the general soils at the site.



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Potential Source/Media	Potential Receptors	Possible Pathways	Probability	Consequence	Risk & Justification
Made Ground associated with the area of buildings	End Users	Direct contact and inhalation / ingestion of soil derived dust	Low likelihood	Medium	<b>Moderate to low</b> Future occupiers may come into contact with these Made Ground soils. However, the soils will only be present in an isolated area of the site. Should contamination be identified landscaping (gardens) would be completed with uncontaminated/natural soils in the near surface root zone which would reduce exposure.
	Soft Landscaping	Root uptake	Unlikely	Medium	<b>Low</b> Soft landscaping may be affected by contaminated soils where proposed. However, landscaping would be completed with uncontaminated soils in the near surface root zone.
	Water Supply Pipes	Direct contact	Low likelihood	Mild	<b>Low</b> Water supply pipes may be affected by contaminated soils depending on the depth of installation. The consequence is likely to be mild.
	Buildings and Infrastructure	Direct contact	Low likelihood	Minor	<b>Very low</b> Foundations are may to come into contact with contaminated soils. However, the consequence is likely to be minor.
	Groundwater	Vertical Migration	Unlikely	Medium	<b>Low</b> This area of the site overlies Unproductive Strata therefore shallow groundwater (<5m bgl) is not anticipated. Mobile contamination may be present within the Made Ground soils at the site. However, the volume of Made Ground is likely to be low and spatially isolated.
	Surface Water	Vertical and Lateral Migration	Low likelihood	Medium	<b>Moderate to low</b> A ditch and pond are close to this area of the site. Mobile contamination may be present within the Made Ground which have been identified close to these receptors.



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Potential Source/Media	Potential Receptors	Possible Pathways	Probability	Consequence	Risk & Justification
Orchards and Greenhouses	End Users	Direct contact and inhalation / ingestion of soil derived dust	Low likelihood	Medium	<b>Moderate to low</b> Future occupiers may to come into contact with soils impacted by these land uses via direct contact.
	Soft Landscaping	Root uptake	Unlikely	Medium	<b>Low</b> Soft landscaping may be affected by contaminated soils where proposed. However, landscaping would be completed with uncontaminated soils in the near surface root zone.
	Water Supply Pipes	Direct contact	Low likelihood	Mild	<b>Low</b> Water supply pipes could potentially to come into contact with impacted soils depending upon depth of installation and extent of soil impact.
	Buildings and Infrastructure	Direct contact	Likely	Minor	<b>Low</b> Foundations and utilities will be placed within soils. However, the consequence is anticipated to be minor.
	Groundwater	Vertical Migration	Low likelihood	Mild	<b>Low</b> The site overlies a Secondary A Aquifer and Unproductive Strata. Shallow groundwater (<5m bgl) is potentially present beneath the site. However, the contaminants from these sources are not expected to be particularly mobile.
	Surface Water	Vertical and Lateral Migration	Unlikely	Mild	<b>Very low</b> Two ponds and a number of ditches are present at the site. However, the contaminants from these sources are not expected to be particularly mobile.



Desk Study Report

Potential Source/Media	Potential Receptors	Possible Pathways	Probability	Consequence	Risk & Justification
Heating oil tank	End Users	Direct contact and inhalation / ingestion of soil derived dust	Likely	Medium	<b>Moderate</b> Future occupiers may come into contact with soils impacted by the tank although impacted soils are likely to be isolated to a small area of the site.
	End Users	Inhalation	Likely	Medium	<b>Moderate</b> Future occupiers may inhale hydrocarbon vapours originating from impacted soils. However, impacted soils are likely to be isolated to a small area of the site.
	Soft Landscaping	Root uptake	Low likelihood	Mild	<b>Low</b> This source is unlikely to impact a significant area of shallow soils. The vegetation surrounding the tank did not shows signs of distress.
	Water Supply Pipes	Direct contact	Likely	Mild	<b>Moderate to low</b> Water supply pipes could potentially to come into contact with impacted soils depending upon depth of installation and extent of soil impact.
	Buildings and Infrastructure	Direct contact	Low likelihood	Minor	<b>Low</b> Foundations and utilities will be placed within potentially impacted soils. However, the consequence is anticipated to be minor.
	Groundwater	Vertical Migration	Low likelihood	Medium	<b>Moderate to low</b> This area of the site overlies Unproductive Strata and as such shallow groundwater (<5m bgl) is not anticipated. However, groundwater may be adversely affected depending on the extent of impact.
	Surface Water	Vertical and Lateral Migration	Low likelihood	Medium	<b>Moderate to low</b> A ditch and pond are located close to this source and may have been adversely affected if gross soil impact from this feature is present.

Potential Source/Media	Potential Receptors	Possible Pathways	Probability	Consequence	Risk & Justification
Naturally occurring aggressive ground conditions	End Users	Direct contact and inhalation / ingestion of soil derived dust	Unlikely	Minor	<b>Very Low</b> No naturally occurring potential sources which could harm human health have been identified. The consequence is likely to be minor.
	Soft Landscaping	Root Uptake	Unlikely	Minor	<b>Very Low</b> Gardens and amenity soft landscaping are unlikely to be affected by naturally occurring aggressive ground conditions. Current vegetation around the site appeared in good condition. The consequence is likely to be minor.
	Adjacent land users	Direct contact	Unlikely	Minor	<b>Very Low</b> No potential sources which could harm human health have been identified. The consequence is likely to be minor.
	Water supply pipes	Direct contact	Unlikely	Minor	<b>Very Low</b> No potential sources which could harm human health have been identified. The consequence is likely to be minor.
	Buildings and infrastructure	Direct contact	Likely	Minor	<b>Low</b> Foundations and utilities may be constructed in/through Made Ground soils (if present). However, the consequence is anticipated to be minor.

Table 3.7 Plausible Pollutant Linkages & Qualitative Risk Assessment

### **3.3 Preliminary Risk Assessment Summary**

The PRA and CSM developed from the information gathered as part of the desk study process have identified several plausible pollutant linkages that exist in relation to the proposed development of the site and the preliminary risk rating for most of the pollution linkages have been classified as low or very low. With moderate to low risks identified in some locations in relation to potential Made Ground and orchard and greenhouse usage. Moderate and moderate to low risks were identified in relation to the above ground heating oil tank.

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

In order to progress this assessment in line with the National Planning Policy Framework, to provide further characterisation of the site and refinement of the PRA and CSM, it is recommended that intrusive investigation and associated testing is undertaken to confirm the findings of the desk study report and to provide a robust risk assessment for the site and proposed redevelopment. As such it is recommended that geochemical and geotechnical investigation be carried out on the site to include analysis of soil and groundwater (if encountered) samples for the range of potential contaminants identified within the desk study, in particular associated with the heating oil tank, area of farm buildings, orchards and greenhouses.

### **3.4 Preliminary Geotechnical Assessment Summary**

The site is anticipated to be underlain by the Oxford Clay Formation with Alluvium present in the west.

It is possible that conventional strip or pad foundations could be suitable for the proposed development assuming foundations terminate within the Oxford Clay Formation. Soils containing a higher proportion of cohesive materials may be subject to a higher volume change potential in accordance with NHBC guidance. The foundation design would also need to account for the presence of trees in various areas of the site and these could require the localised deepening of foundations.

Whilst ground bearing floor slabs may be suitable if non-shrinkable soil and deep Made Ground are not present, suspended floor slabs are recommended at this stage.

It is considered unlikely that soakaways would function effectively on this site, although this would be subject to formal testing design. As such it may be necessary (subject to testing) to utilise on-site storage and attenuation of peak storm flow, through systems such as porous paving and cellular storage crates. The use of soakaways would also only be acceptable in areas remote from any contamination and infilled/Made Ground that may be identified on the site.



## 4.0 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Conclusions

The desk study has shown the site to have remained in its current configuration comprised of a number of farm buildings in an open field since 1876. The surrounding land comprised primarily open space and gradually became developed for residential purposes to the north with the east south and west remaining primarily as agricultural land.

The proposed end use of the site is understood to comprise a residential development with gardens, communal soft landscaping and associated infrastructure and access. As such, sensitive uses such as in private gardens with gardening activities (including dust being tracked back into buildings) and growing vegetables are considered likely to form part of the end use scenario for this site.

It is concluded that the overall risk of harm to end users is generally low (as defined in Section 3) but that further assessment is likely to be required in order to better characterise contamination on site as result of current and historical land uses and the associated risk to human health and the environment.

It is possible that conventional foundations would be suitable for the proposed development, although any design should account for the potential presence of shrinkable soils and several trees in proximity to proposed foundations.

### 4.2 Recommendations

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

- Intrusive investigation works should be carried out in order to clarify the geotechnical and geo-environmental issues pertaining to redevelopment of the site.
- Soil and groundwater (if encountered) sampling and analysis should be undertaken to inform subsequent geotechnical and geo-environmental risk assessment.
- Laboratory analysis, on soil samples recovered from the exploratory holes for a range of geotechnical parameters to support foundation design and the like.
- Laboratory analysis, on shallow soil samples and groundwater samples recovered from the exploratory holes, for an analytical suite to include the potential contaminants identified within the desk study and encountered during any intrusive investigation. The suite should include commonly occurring metals, non-metals, asbestos, TPH, and PAH along with pesticides.
- Waste Acceptance Criteria testing may be required if surplus spoil is to be disposed of from the development.

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





<b>Project:</b>	Land at Stratfield Farm, Oxford Road, Kidlington			<b>Title</b>	Site Location Plan
<b>Client:</b>	Manor Oak Homes			<b>Geo-Environmental Services Ltd</b> Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	
<b>Ref No:</b>	GE17706	<b>Revision:</b>	0		
<b>Drawn:</b>	SA	<b>Date:</b>	02/11/2018		
<b>Figure:</b>	1	<b>Scale:</b>	Not To Scale		



Area of buildings  
(blue)

Heating oil tank



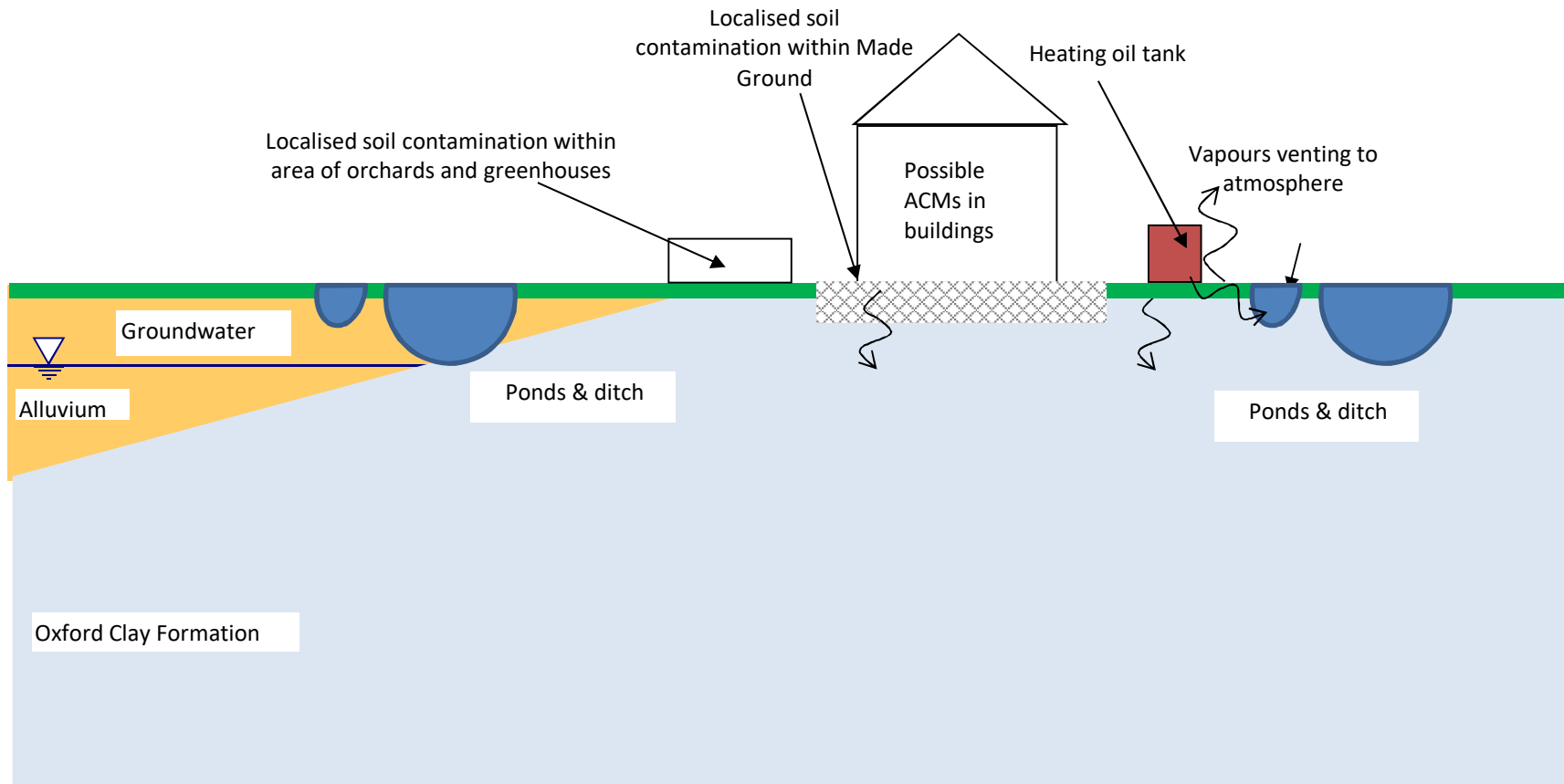
Orchards (orange)


Greenhouses

<b>Project:</b>	Land at Stratfield Farm, Oxford Road, Kidlington			<b>Title</b>	Annotated Site Plan	
<b>Client:</b>	Manor Oak Homes			<b>Geo-Environmental Services Ltd</b> Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		
<b>Ref No:</b>	GE17706	<b>Revision:</b>	0			
<b>Drawn:</b>	SA	<b>Date:</b>	02/11/2018			
<b>Figure:</b>	2	<b>Scale:</b>	Not To Scale			

WEST

EAST



<b>Project:</b>	Land at Stratfield Farm, Oxford Road, Kidlington			<b>Title</b>	Conceptual Site Model (Current Land Use)	
<b>Client:</b>	Manor Oak Homes			<b>Geo-Environmental Services Ltd</b> Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		 <b>Geo-Environmental</b>
<b>Ref No:</b>	GE17706	<b>Revision:</b>	0			
<b>Drawn:</b>	SA	<b>Date:</b>	02/11/2018			
<b>Figure:</b>	3	<b>Scale:</b>	Not To Scale			



## **APPENDIX A**

### **Desk Study Information**



# Groundsure

LOCATION INTELLIGENCE

Geo-Environmental Services Ltd

GEO ENVIRONMENTAL SERVICES LTD, UNIT 7,  
DANWORTH FARM, CUCKFIELD ROAD,  
HURSTPIERPOINT, BN6 9GL

Groundsure  
Reference:

GS-5538412

Your Reference: GE17706

Report Date 17 Oct 2018

Report Delivery Method: Email - pdf

## Enviro Insight

Address: LAND AT STRATFIELD FARM, OXFORD ROAD, KIDLINGTON, OX5 1DA

Dear Sir/ Madam,

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

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director  
Groundsure Limited

Enc.  
Groundsure Enviroinsight

**Address:** LAND AT STRATFIELD FARM, OXFORD ROAD, KIDLINGTON, OX5 1DA  
**Date:** 17 Oct 2018  
**Reference:** GS-5538412  
**Client:** Geo-Environmental Services Ltd



**Aerial Photograph Capture date:** 20-Apr-2016  
**Grid Reference:** 449495,212434  
**Site Size:** 10.25ha

**Report Reference:** GS-5538412  
**Client Reference:** GE17706

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# 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.

<b>Section 1: Historical Industrial Sites</b>	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	1	7
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	14	5
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	2	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	2	14	0	6
<b>Section 2: Environmental Permits, Incidents and Registers</b>	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	1	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	5	0
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	2
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
<b>3.1 Landfill Sites</b>						
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	3	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	1
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	1	1
<b>3.2 Landfill and Other Waste Sites Findings</b>						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	1	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	2	1

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	8	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	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	0-500m
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	On-site	0-50m	51-250	251-500	501-1000	1000-2000
<b>0-500m</b>						
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site						Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site						Identified
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
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)	2	0	#250GWV #	#500GWV #	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 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	Yes	No	Yes	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	14	6	10	20	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

## Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Medium
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Moderate

## 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	3
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	2
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	3

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	1	0	1	0	1	1
8.14 Records of Green Belt land	1	0	1	0	0	3

## Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	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 site 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 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

# 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 licences, 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.

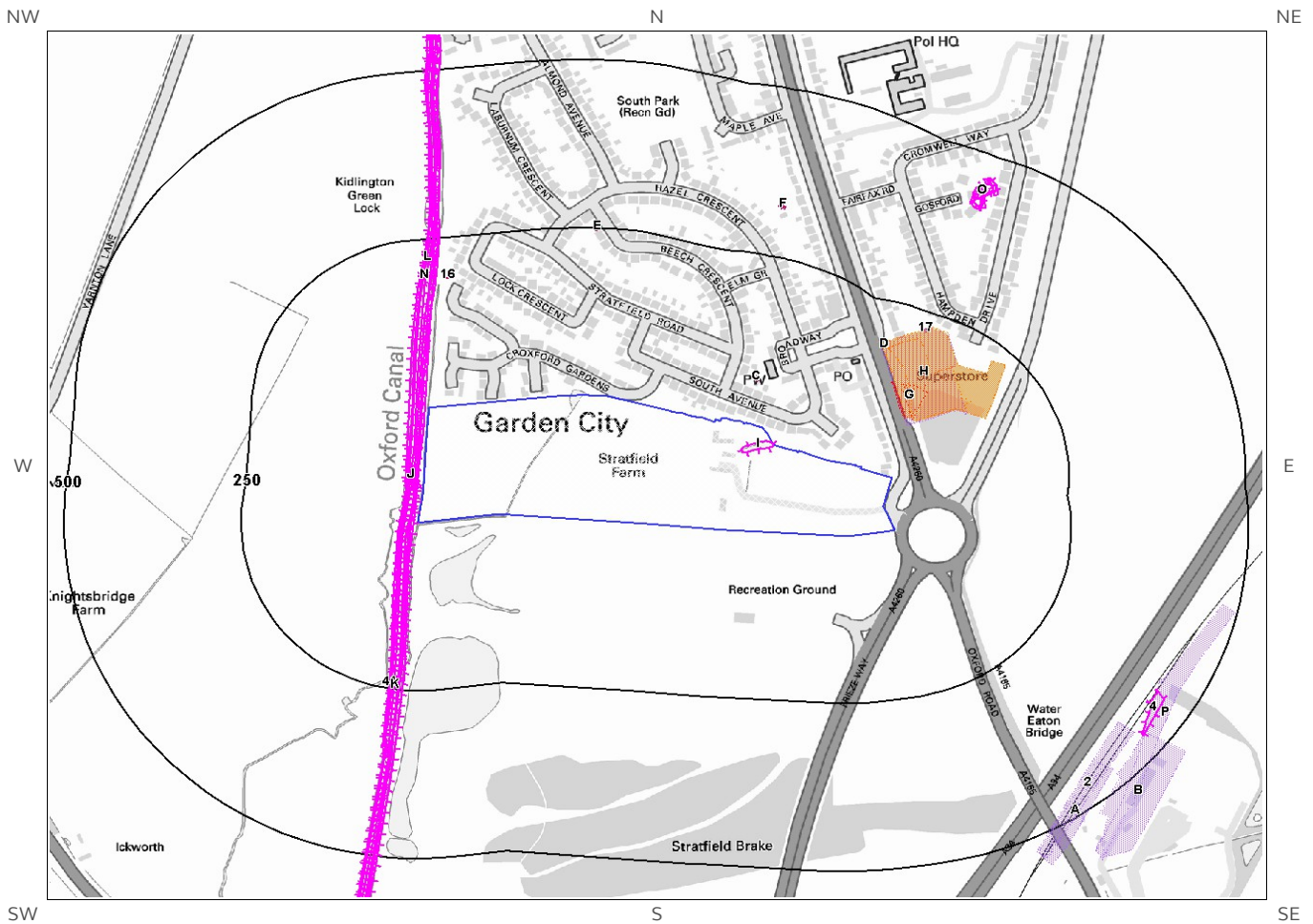
### Note: Maps

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).

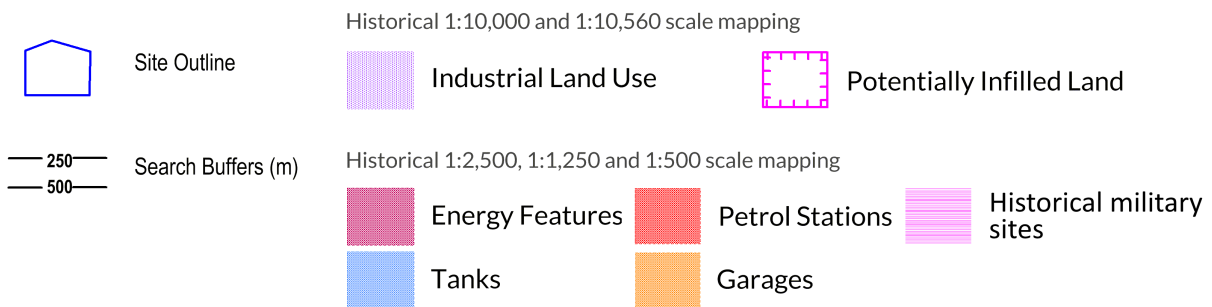
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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



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# 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: 8

ID	Distance [m]	Direction	Use	Date
1H	81	N	Garage	1979
2	428	SE	Railway Sidings	1954
3P	438	SE	Railway Sidings	1954
4	443	SE	Unspecified Heap	1938
5A	448	SE	Railway Sidings	1922
6A	459	SE	Railway Sidings	1914
7B	465	SE	Electric Substation	1992
8B	465	SE	Electric Substation	1980

## 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: 0

Database searched and no data found.

## 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: 19

ID	Distance (m)	Direction	Use	Date
9C	64	N	Electricity Substation	1991
10C	65	N	Electricity Substation	1977
11C	66	N	Electricity Substation	1997
12C	66	N	Electricity Substation	1995
13D	178	N	Electricity Substation	1991
14D	179	N	Electricity Substation	1997



15D	179	N	Electricity Substation	1995
16	188	N	Electricity Substation	1997
17	219	NE	Electricity Substation	1977
18E	244	N	Electricity Substation	1997
19E	244	N	Electricity Substation	1995
20E	245	N	Electricity Substation	1991
21E	248	N	Electricity Substation	1977
22E	248	N	Electricity Substation	1970
23F	321	N	Electricity Substation	1977
24F	322	N	Electricity Substation	1997
25F	322	N	Electricity Substation	1995
26F	322	N	Electricity Substation	1991
27F	324	N	Electricity Substation	1970

### 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
28G	89	N	Filling Station	1991
29G	91	N	Filling Station	1995

### 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: 2

ID	Distance (m)	Direction	Use	Date
30H	90	N	Garage	1977
31H	91	N	Garage	1970

### 1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary:

0

Database searched and no data found.

## 1.7 Potentially Infilled Land

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

22














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

ID	Distance(m)	Direction	Use	Date
32I	0	On Site	Pond	1979
33I	0	On Site	Pond	1992
34J	5	W	Canal	1968
35J	5	W	Canal	1979
36J	5	W	Canal	1992
37K	6	W	Canal	1900
38K	7	W	Canal	1914
39L	8	W	Canal	1919
40L	8	W	Canal	1876
41	9	W	Canal	1876
42M	9	W	Canal	1922
43M	9	W	Canal	1938
44	10	W	Canal	1900
45N	11	W	Canal	1919
46N	11	W	Canal	1947
47N	13	W	Canal	1898
48O	418	NE	Pond	1898
49O	420	N	Pond	1919
50O	420	N	Pond	1876
51O	422	N	Pond	1919
52O	422	N	Pond	1947
53P	443	SE	Unspecified Heap	1938

# 2. Environmental Permits, Incidents and Registers Map



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

# 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:

1

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
8	120	N	449849 212533	<p>Address: Sainsbury's Supermarket, Oxford Road, Kidlington, Oxfordshire, OX5 2PE</p> <p>Process: Unloading of Petrol into Storage at Service Stations</p> <p>Status: Current Permit</p> <p>Permit Type: Part B</p> <p>Enforcement: No Enforcements Notified</p> <p>Date of Enforcement: No Enforcements Notified</p> <p>Comment: No Enforcements Notified</p>

### 2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

5

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

ID	Distance (m)	Direction	NGR	Details
3A	61	W	449100 212400	<p>Address: KIDLINGTON STW, KIDLINGTON LANE, KI, KIDLINGTON STW, KIDLINGTON LANE,, KIDLINGTON, OXFORDSHIRE</p> <p>Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY</p> <p>Permit Number: CTCR.0607</p> <p>Permit Version: 2</p> <p>Receiving Water: OXFORD CANL OR TRB KINGSBRIDGE</p> <p>Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995)</p> <p>Issue date: 08/04/1963</p> <p>Effective Date: 09-Jul-1991</p> <p>Revocation Date: 20/08/1992</p>
4A	61	W	449100 212400	<p>Address: KIDLINGTON STW, KIDLINGTON LANE, KI, KIDLINGTON STW, KIDLINGTON LANE,, KIDLINGTON, OXFORDSHIRE</p> <p>Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY</p> <p>Permit Number: CTCR.0607</p> <p>Permit Version: 1</p> <p>Receiving Water: OXFORD CANL OR TRB KINGSBRIDGE</p> <p>Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995)</p> <p>Issue date: 08/04/1963</p> <p>Effective Date: 31-Jan-1985</p> <p>Revocation Date: 08/07/1991</p>
5A	61	W	449100 212400	<p>Address: KIDLINGTON STW, KIDLINGTON LANE, KI, KIDLINGTON STW, KIDLINGTON LANE,, KIDLINGTON, OXFORDSHIRE</p> <p>Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY</p> <p>Permit Number: CTCR.0607</p> <p>Permit Version: 3</p> <p>Receiving Water: OXFORD CANL OR TRB KINGSBRIDGE</p> <p>Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995)</p> <p>Issue date: 08/04/1963</p> <p>Effective Date: 21-Aug-1992</p> <p>Revocation Date: 19/07/1993</p>
6A	61	W	449100	<p>Address: Kidlington, Kidlington</p> <p>Receiving Water: OXFORD CANAL (LWR)</p>

ID	Distance (m)	Direction	NGR	Details	
			212400	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: TEMP.2699 Permit Version: 1	SECTION) Status: REVOKED - UNSPECIFIED Issue date: 02/11/1989 Effective Date: 02-Nov-1989 Revocation Date: 29/04/1999
7A	61	W	449100 212400	Address: KIDLINGTON STW, KIDLINGTON LANE, KI, KIDLINGTON STW, KIDLINGTON LANE,, KIDLINGTON, OXFORDSHIRE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CTCR.0607 Permit Version: 4	Receiving Water: OXFORD CANL OR TRB KINGSBRIDGE Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 08/04/1963 Effective Date: 20-Jul-1993 Revocation Date: 29/04/1999

### 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:

2

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	301	N	449178 212823	Incident Date: 16-Sep-2003 Incident Identification: 190207 Pollutant: Pollutant Not Identified	Water Impact: Category 1 (Major) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Distance (m)	Direction	NGR	Details	
Pollutant Description: Not Identified					
2	344	W	448820 212460	Incident Date: 26-Nov-2002 Incident Identification: 123153 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 4 (No Impact) 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.

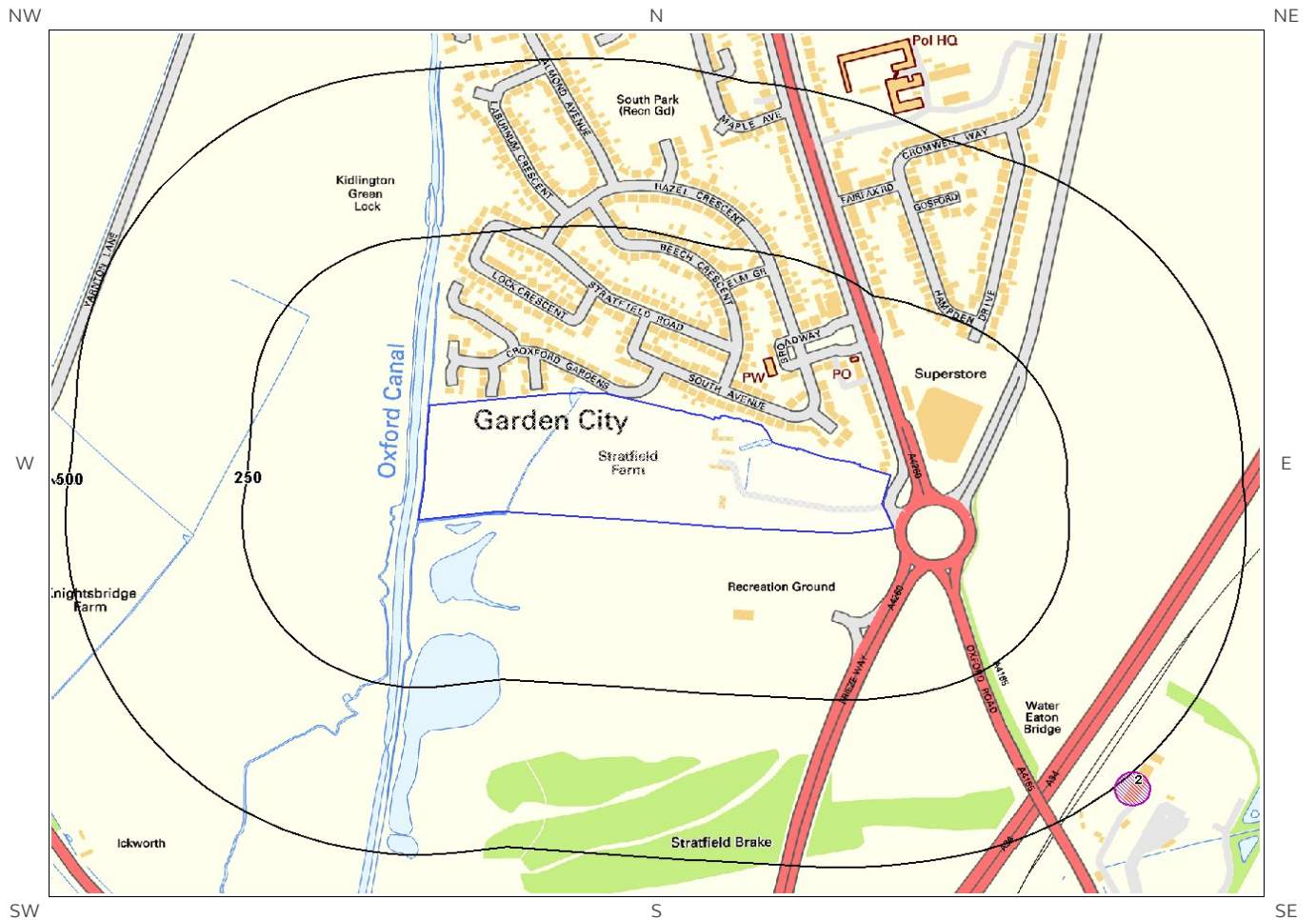
---

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










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



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- |   |                        |   |                           |   |   |
|---|------------------------|---|---------------------------|---|---|
|  | Site Outline           |  | EA/NRW Active Landfill    |  | Historic and Planned Waste Sites                    |
|  | 250 Search Buffers (m) |  | EA/NRW Historic Landfill  |  | EA/NRW Licensed Waste Site                          |
|  | 500 Search Buffers (m) |  | BGS / DoE Survey Landfill |  | Local Authority/Historical Mapping Landfill Records |



# 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:

4

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	664	SW		Site Address: Knightsbridge Farm, Yarnton, Oxfordshire Waste Licence: - Site Reference: TP0441, 13.6.4812 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1994
Not shown	848	S		Site Address: Pear Tree Railway Cutting, Oxford, Oxfordshire Waste Licence: - Site Reference: 13.6.4911, TP0490 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1973
Not shown	988	NW		Site Address: Sandy Lane East, Yarnton, Oxfordshire Waste Licence: - Site Reference: TP0184, 13.6.4813 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Ploughley Rural District Council Licence Holder: Ploughley Rural District Council First Recorded: - Last Recorded: -
Not shown	1269	W		Site Address: Sandy Lane West, Yarnton, Oxfordshire Waste Licence: - Site Reference: 13.6.4813, TP0183, 13.6.4713 Waste Type: Inert 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:

1

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1141	S	449500.0 211200.0	Address: Gosford Tip, Woodstock Rd, Yarnton, Oxon BGS Number: 855.0	Risk: No risk to aquifer Waste Type: N/A

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

2

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	990	NW	448179 213119	Refuse Tip	1970 mapping	Polygon
Not shown	1053	NW	448163 212981	Refuse Tip	1970 mapping	Polygon

## 3.2 Other Waste Sites

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

1

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	
2	494	SE	450166 211946	Type of Site: Waste Reduction/Recovery Facility Site Address: The Grain Silos, Oxford Road, Gosford & Water Eaton, KIDLINGTON, Oxfordshire, OX5	Planning Application Reference: 07/01857/CM Date: -  Further Details: Scheme comprises development of a waste reduction and materials recovery facility with ancillary developments. An application (ref: 07/01857/CM) for detailed planning permission was submitted to Cherwell D.C. Data Source: Historic Planning Application Data Type: Point

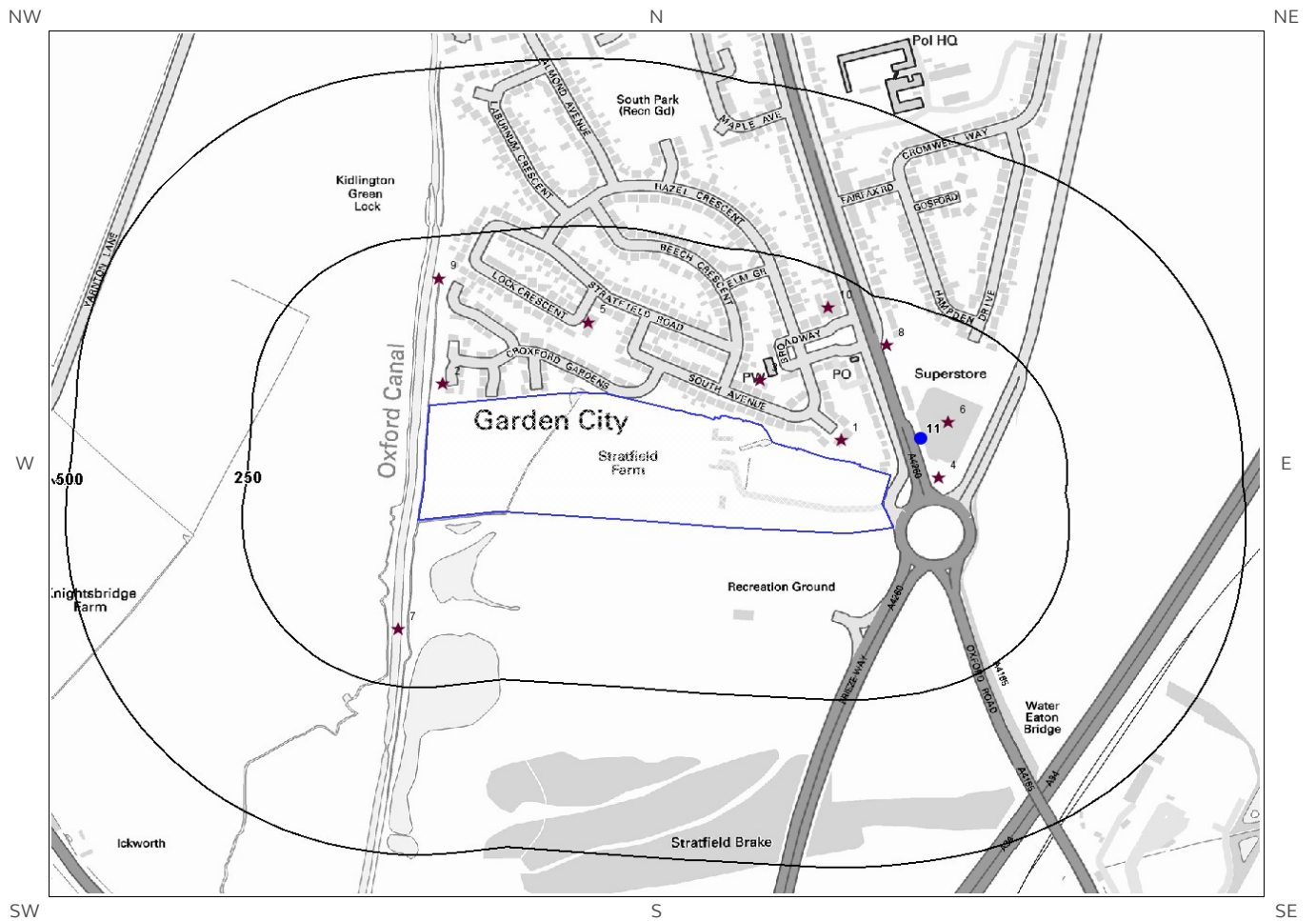
### 3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

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	909	W	448277 212108	<p>Site Address: 1, Woodstock Road, Yarnton, Kidlington, OX5 1NY            Type: Storage of electrical insulating oils            Size: &lt; 25000 tonnes            Environmental Permitting Regulations (Waste) Licence Number: SEP005            EPR reference: EA/EPR/BB3909LB/A001            Operator: Southern Electric Power Distribution P L C            Waste Management licence No: 401718            Annual Tonnage: 0.0</p> <p>Issue Date: 11/05/2015            Effective Date: -            Modified: -            Surrendered Date: -            Expiry Date: -            Cancelled Date: -            Status: Issued            Site Name: Oxford Depot And Yarnton Grid Substation            Correspondence Address: -</p>
Not shown	909	W	448277 212108	<p>Site Address: 1, Woodstock Road, Yarnton, Kidlington, Oxfordshire, OX5 1NY            Type: Storage of electrical insulating oils            Size: &lt; 25000 tonnes            Environmental Permitting Regulations (Waste) Licence Number: SEP005            EPR reference: EA/EPR/BB3909LB/V002            Operator: Southern Electric Power Distribution Plc            Waste Management licence No: 401718            Annual Tonnage: 0.0</p> <p>Issue Date: 11/05/2015            Effective Date: -            Modified: 06/10/2017            Surrendered Date: -            Expiry Date: -            Cancelled Date: -            Status: Modified            Site Name: Oxford Depot And Yarnton Grid Substation            Correspondence Address: -</p>
Not shown	1299	W	447923 211932	<p>Site Address: Douglas L. Charlett (Tyres) Ltd, Charlett Tyres, 89, Cassington Road, Yarnton, Oxfordshire, OX5 1QB            Type: Household, Commercial &amp; Industrial Waste T Stn            Size: &lt; 25000 tonnes            Environmental Permitting Regulations (Waste) Licence Number: CHA001            EPR reference: EA/EPR/NP3599EF/A001            Operator: Douglas L Charlett (Tyres) Ltd            Waste Management licence No: 86123            Annual Tonnage: 1040.0</p> <p>Issue Date: 29/03/1996            Effective Date: -            Modified: -            Surrendered Date: -            Expiry Date: -            Cancelled Date: -            Status: Issued            Site Name: Charlett Tyres            Correspondence Address: -</p>

# 4. Current Land Use Map



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- |   |                    |   |                          |  |                                 |
|---|--------------------|---|--------------------------|--|---------------------------------|
|  | Site Outline       |  | Current Industrial Sites |  | Electricity Transmission Cables |
|  | Search Buffers (m) |  | 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: 10

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	31	N	P C Painkillers	449752 212468	7, South Close, Kidlington, OX5 1DF	Electrical Equipment Repair and Servicing	Repair and Servicing
2	31	N	Pumping Station	449187 212553	OX5	Water Pumping Stations	Industrial Features
3	64	N	Electricity Sub Station	449637 212558	OX5	Electrical Features	Infrastructure and Facilities
4	67	E	Gas Governor Station	449890 212412	OX5	Gas Features	Infrastructure and Facilities
5	107	N	Bray Sweepers	449393 212644	3, Lock Crescent, Kidlington, OX5 1HD	Construction and Tool Hire	Hire Services
6	113	NE	Sainsbury's Kidlington	449904 212495	Oxford Road, Kidlington, Oxfordshire, OX5 2PE	Petrol and Fuel Stations	Road and Rail
7	164	S	Pipeline	449125 212186	OX5	Pipelines	Industrial Features
8	182	N	Electricity Sub Station	449817 212610	OX5	Electrical Features	Infrastructure and Facilities
9	188	N	Electricity Sub Station	449182 212710	OX5	Electrical Features	Infrastructure and Facilities
10	201	NE	Sunray Blinds & Shutters	449734 212666	8, The Parade, Kidlington, OX5 1EE	Curtains and Blinds	Consumer Products

## 4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
11	69	NE	449865 212470	SAINSBURYS	Oxford Road, Kidlington, Oxfordshire, OX5 2PE	No	Open

### 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
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

## 5.3 Bedrock and Solid Geology

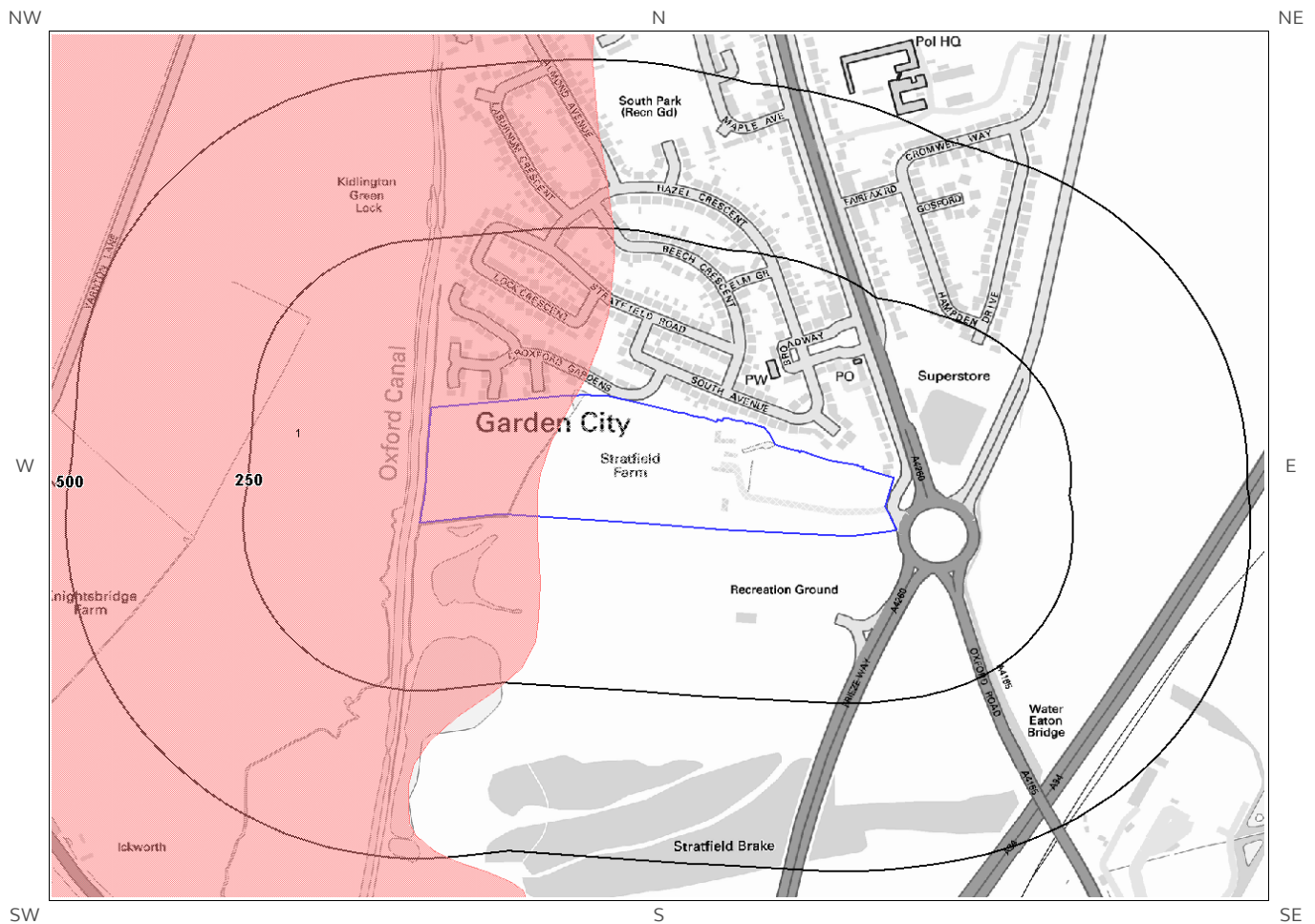
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
OXWW-MDST	OXFORD CLAY FORMATION AND WEST WALTON FORMATION (UNDIFFERENTIATED)	MUDSTONE

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

# 6 Hydrogeology and Hydrology

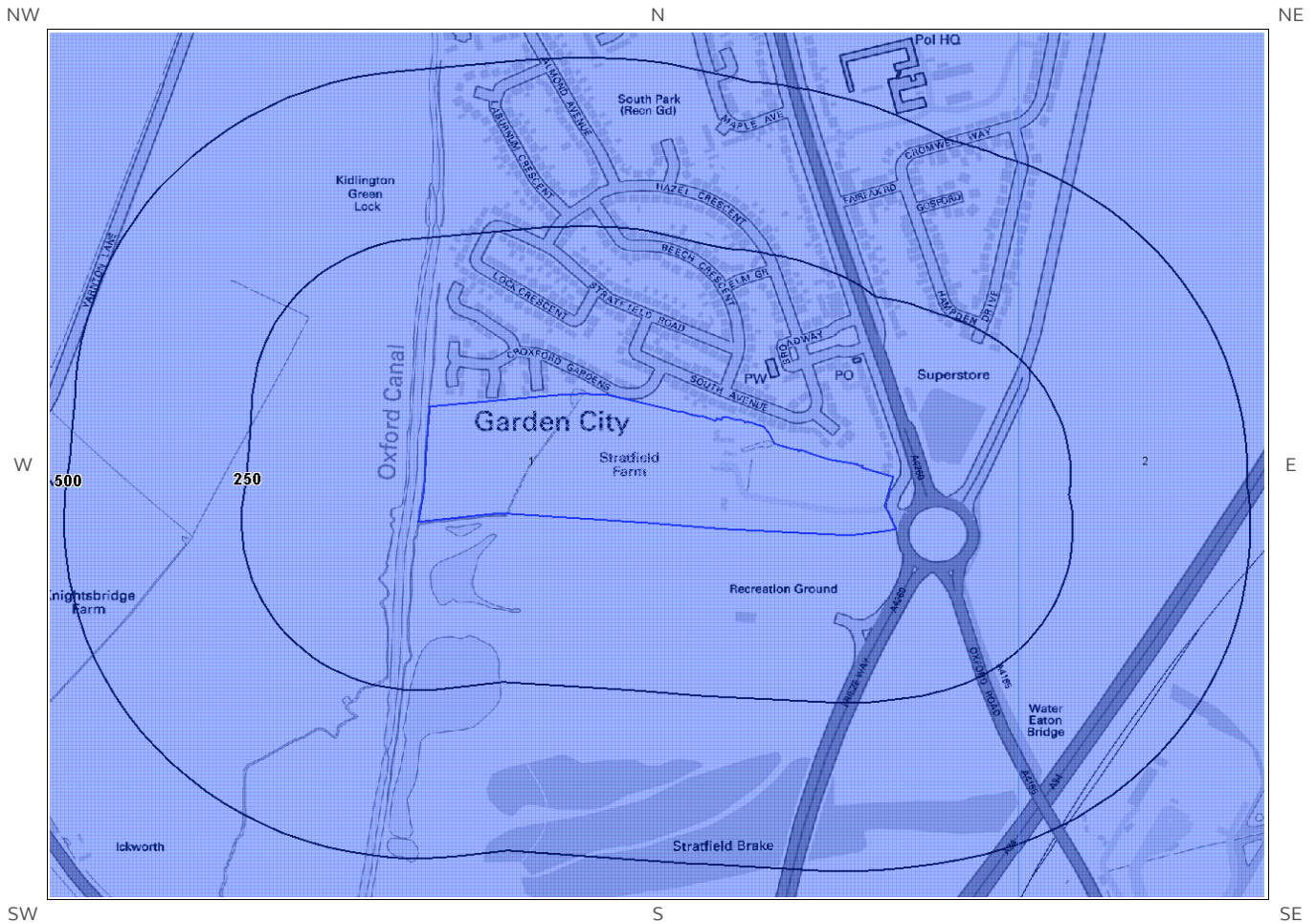
## 6a. Aquifer Within Superficial Geology



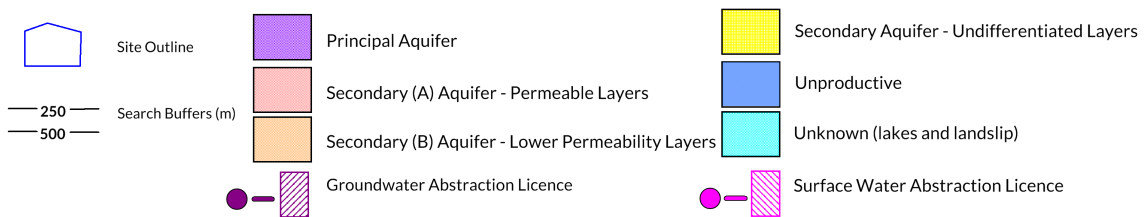
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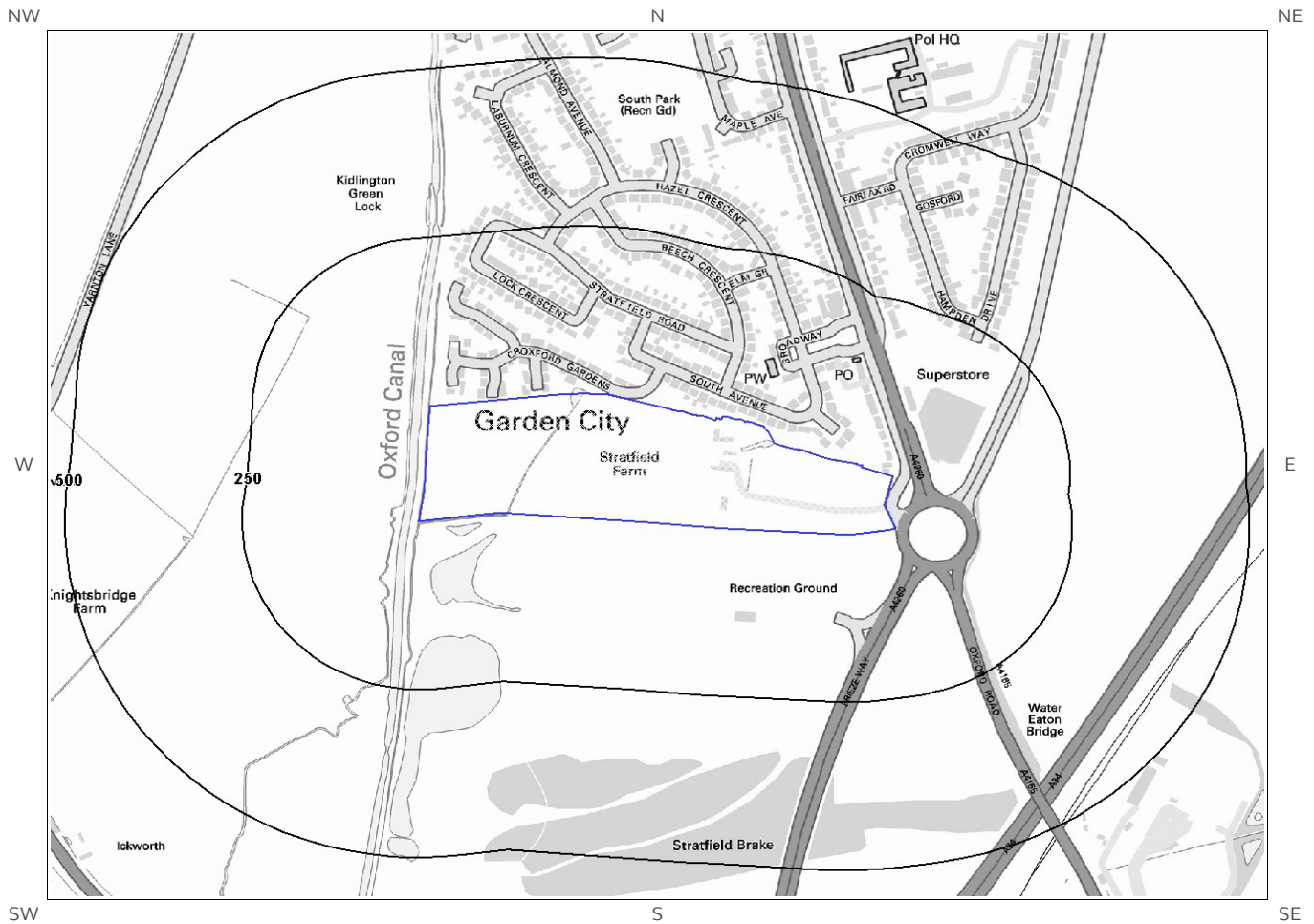
# 6b. Aquifer Within Bedrock Geology and Abstraction Licences



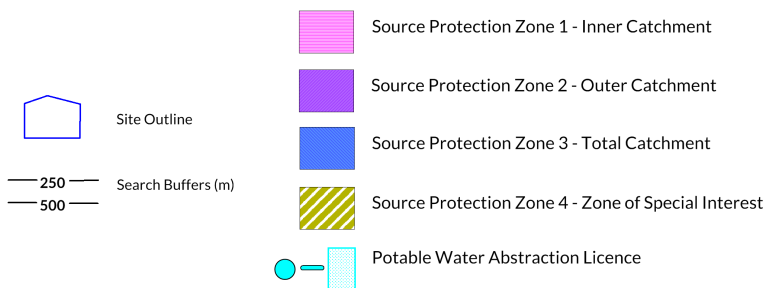
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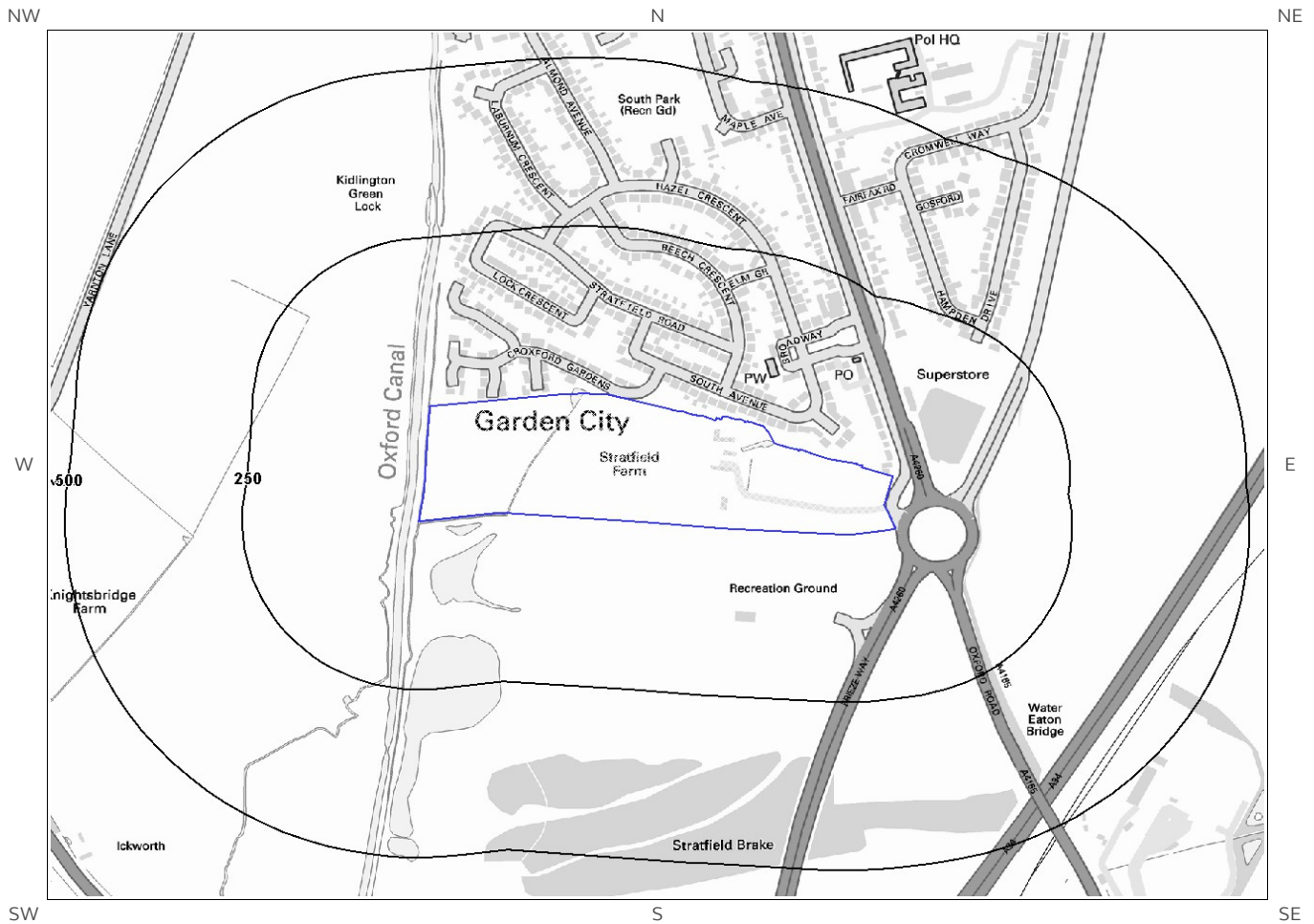
# 6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



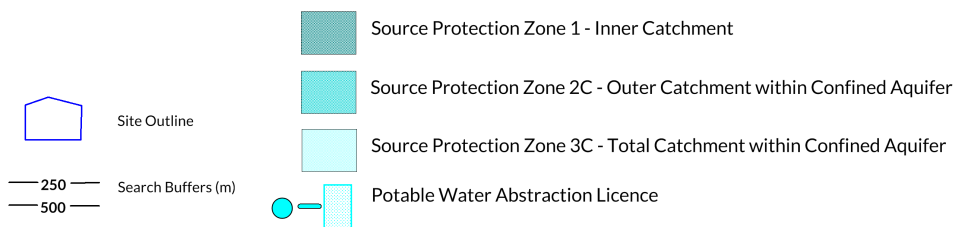
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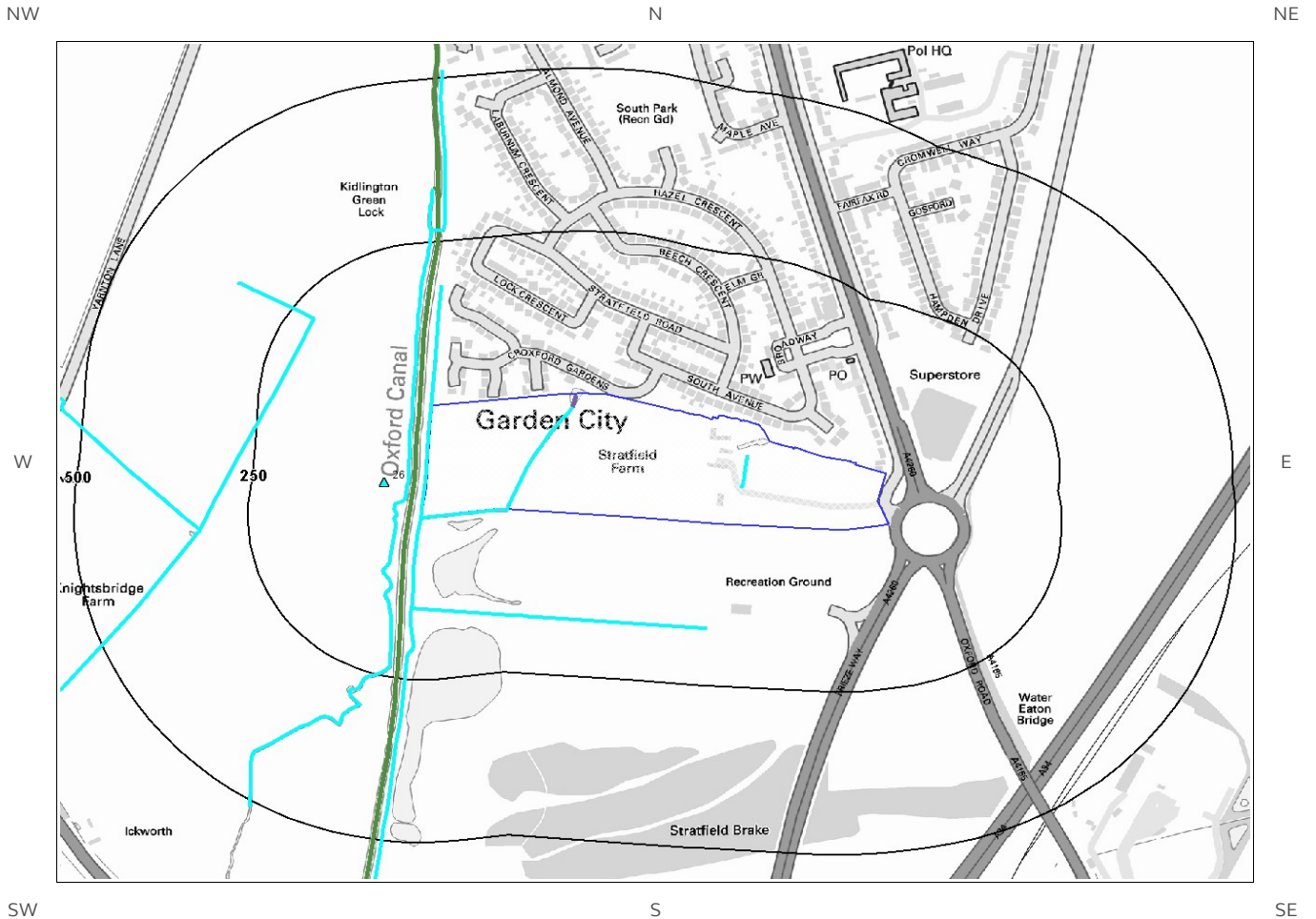
# 6d. Hydrogeology – Source Protection Zones within confined aquifer



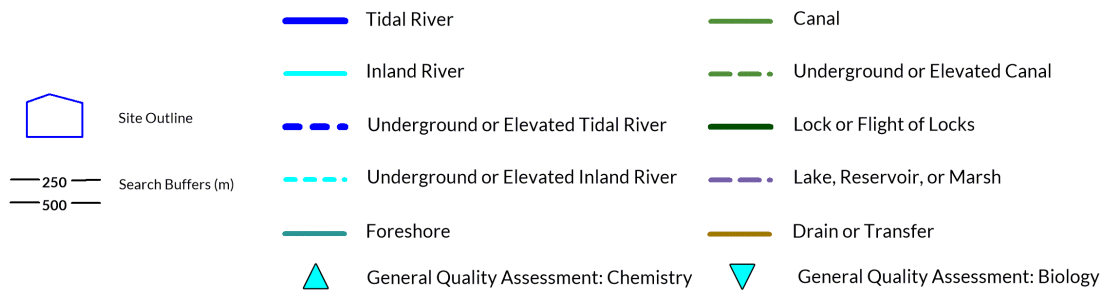
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# 6e. Hydrology – Watercourse Network and River Quality



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# 6. Hydrogeology and Hydrology

## 6.1 Aquifer within Superficial Deposits

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

## 6.2 Aquifer within Bedrock Deposits

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
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	173	E	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

Groundwater Abstraction Licences within 2000m of the study site

Identified

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	
Not shown	1233	S	448790 211170	Status: Historical Licence No: 28/39/13/0019 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LOOP FARM, WOODSTOCK ROAD, - BOREHOLE 'A' Data Type: Point Name: W H DRINKWATER & SONS	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 12/11/1997 Expiry Date: - Issue No: 100 Version Start Date: 12/11/1997 Version End Date:
Not shown	1818	E	451600 212800	Status: Historical Licence No: 28/39/14/0010 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: NORTHFIELD FARM, WATER EATON (A) Data Type: Point Name: SMITH	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 14/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 14/02/1966 Version End Date:

## 6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

Identified

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	
Not shown	1754	NE	450900 213800	Status: Active Licence No: 28/39/14/0195 Details: Spray Irrigation - Direct Direct Source: THAMES SURFACE WATER - NON TIDAL Point: MILL FARM, ISLIP, - RIVER CHERWELL AND RIVER RAY Data Type: Line Name: J E HENMAN & SON	Annual Volume (m <sup>3</sup> ): 3000 Max Daily Volume (m <sup>3</sup> ): 295.49 Application No: - Original Start Date: 10/04/1967 Expiry Date: - Issue No: 101 Version Start Date: 01/10/2004 Version End Date:

## 6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

## 6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

None identified

Database searched and no data found.

---

## 6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site

None identified

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

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

Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor 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.
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.

---

## 6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site

Identified

### 6.9.1 Biological Quality:

Database searched and no data found.

## 6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). 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
26	61	W	449100 212400	River Name: Oxford Canal (lower) Reach: Kidlington Stw - Castle Mill Stream End/Start of Stretch: Start of Stretch NGR	B	C	C	C	C
Not shown	826	S	448961 211544	River Name: Oxford Canal (lower) Reach: Kidlington Stw - Castle Mill Stream End/Start of Stretch: Sample Point NGR	B	C	C	C	C

## 6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
2	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)



ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
5	0 On Site	Not specified	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
6	0 W	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
7	0 SW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
15	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
16	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
17	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	0 On Site	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	0 On Site	Not specified	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
20	0 W	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
21	0 SW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
8	17 W	Oxford Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.3
22	17 W	Oxford Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.3

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
9	26 W	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	26 W	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	35 W	Kingsbridge Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
24	35 W	Kingsbridge Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
11	140 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	140 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
25	140 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	140 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
13	211 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	211 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	216 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
28	216 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	229	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	W			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	229 W	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	266 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
17	266 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
30	266 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
31	266 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
18	267 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.8
32	267 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.8
19	319 W	Rowel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	319 W	Rowel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
20	320 W	Rowel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	320 W	Rowel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	321 W	Rowel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 1.9
Not shown	321 W	Rowel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
22	331 N	Not specified	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.4
23	331 N	Oxford Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.3
36	331 N	Not specified	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.4
37	331 N	Oxford Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.3
24	429 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	429 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	447 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
Not shown	447 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3

## 6.11 Surface Water Features

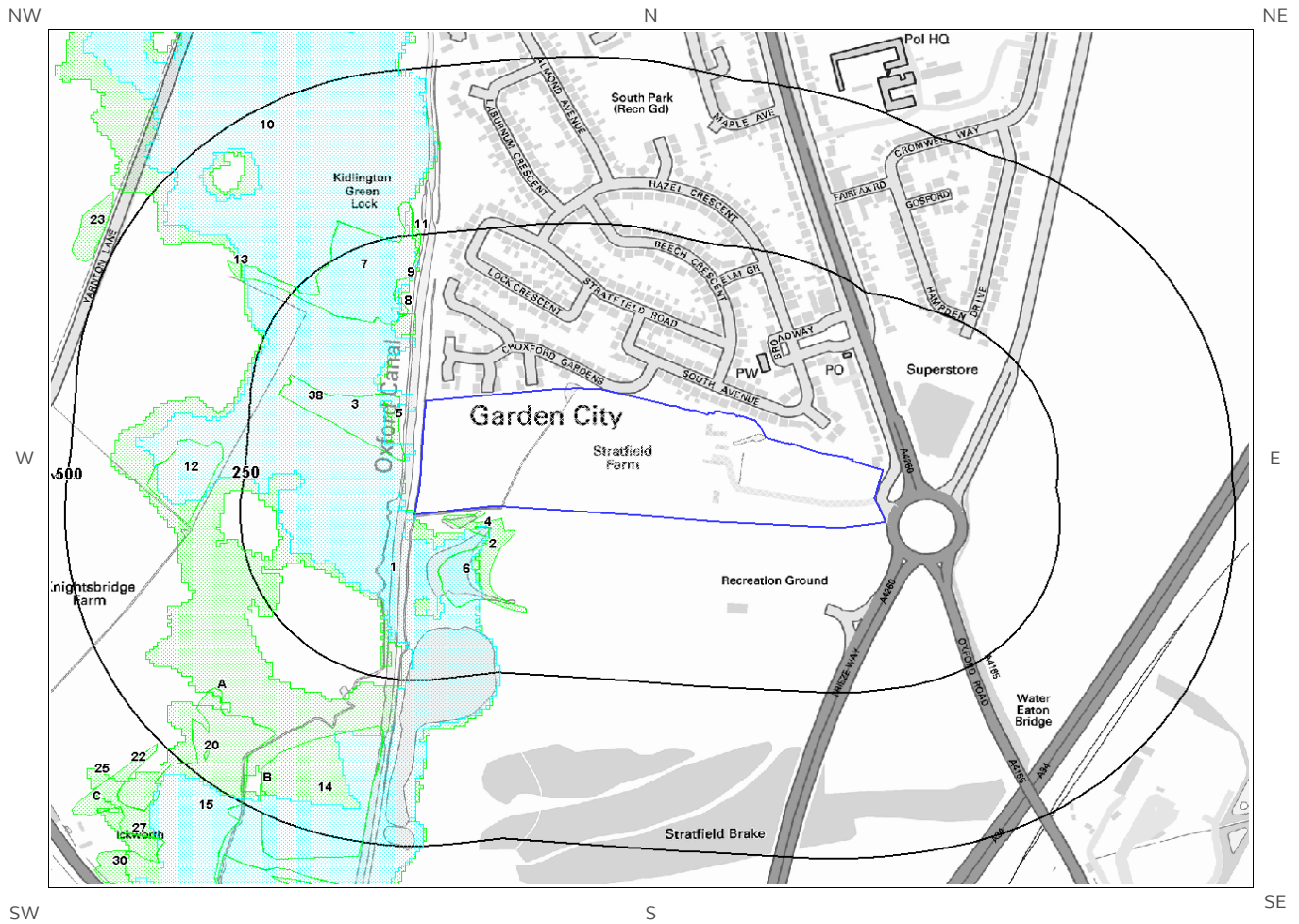
Surface water features within 250m of the study site

Identified

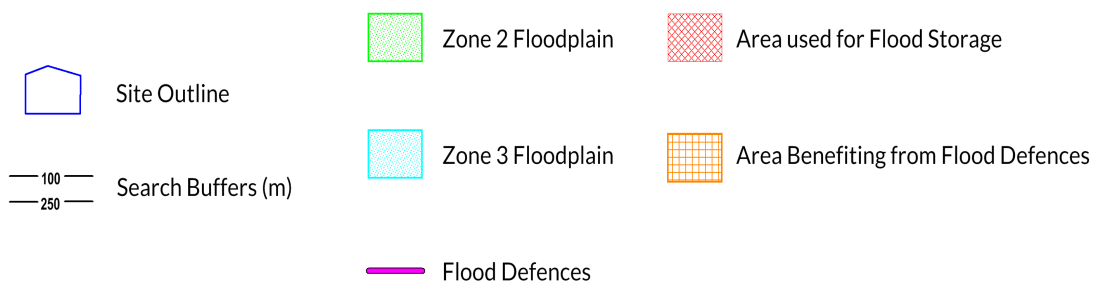
The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
0	On Site
0	On Site
0	On Site
0	On Site
10	S
12	W
26	W
29	S
33	W
172	S
212	NW
214	NW

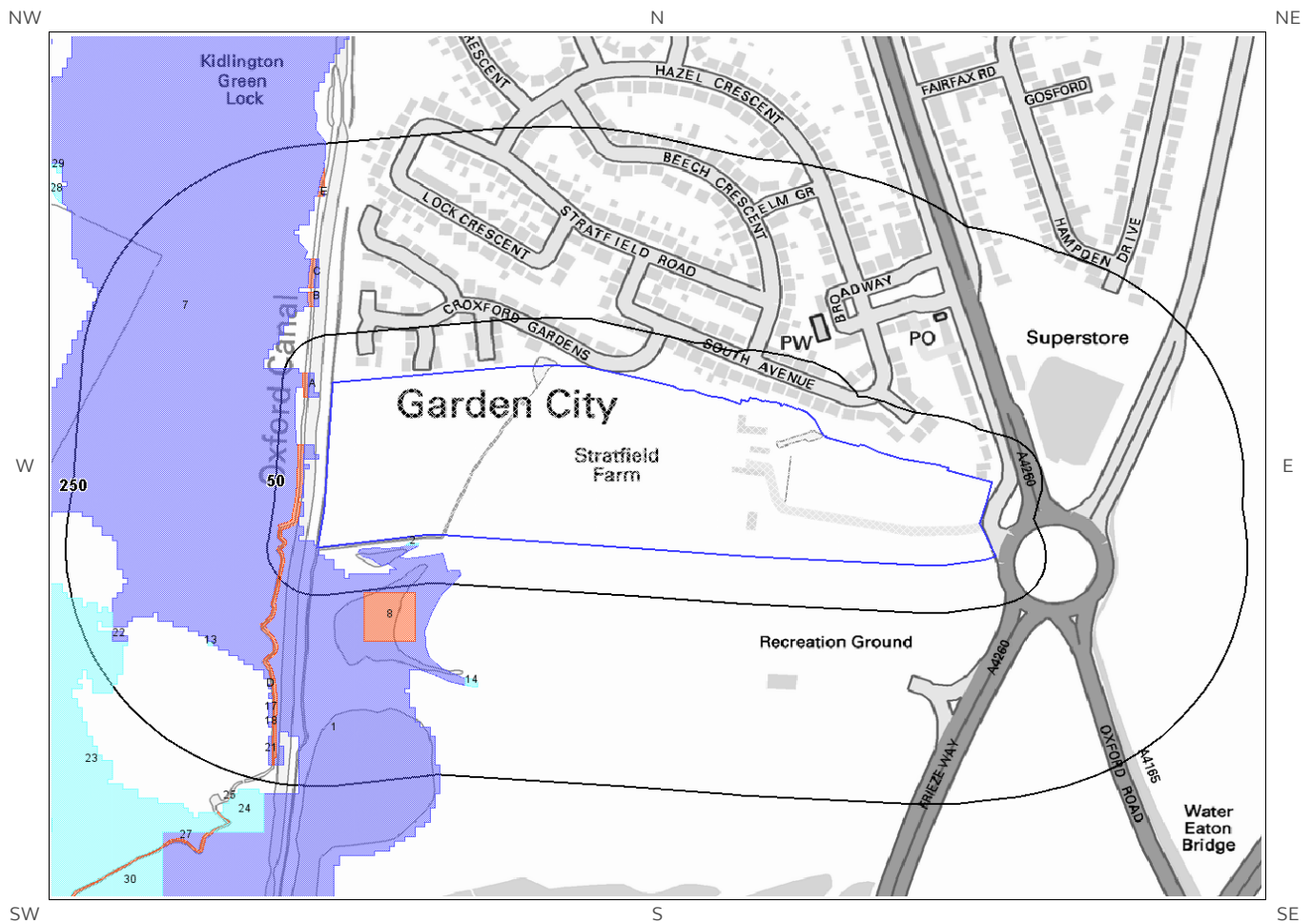
# 7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



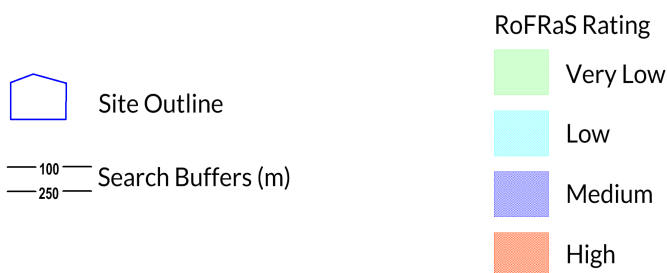
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# 7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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# 7 Flooding

## 7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m

Identified

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	0	On Site	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
2	5	S	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
3	23	W	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
4	24	S	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
5	31	W	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
6	57	S	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
7	123	N	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
8	133	N	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
9	150	N	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
10	221	NW	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
11	230	N	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)

## 7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m

Identified

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.

ID	Distance (m)	Direction	Update	Type
1	2	S	15-Oct-2018	Zone 3 - (Fluvial Models)



---

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

Highest risk of flooding onsite

Medium

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 Medium (greater than 1 in 100 but less than 1 in 30) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRaS flood Risk
1	0.0	On Site	Medium
2	5.0	S	Low
3	9.0	W	Medium
4A	13.0	W	Medium
5	23.0	W	High
6A	24.0	W	High
7	29.0	W	Medium

---

### 7.4 Flood Defences

Flood Defences within 250m of the study site

None identified

Database searched and no data found.

---

### 7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site

None identified

---

### 7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

---

## 7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site Identified

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 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

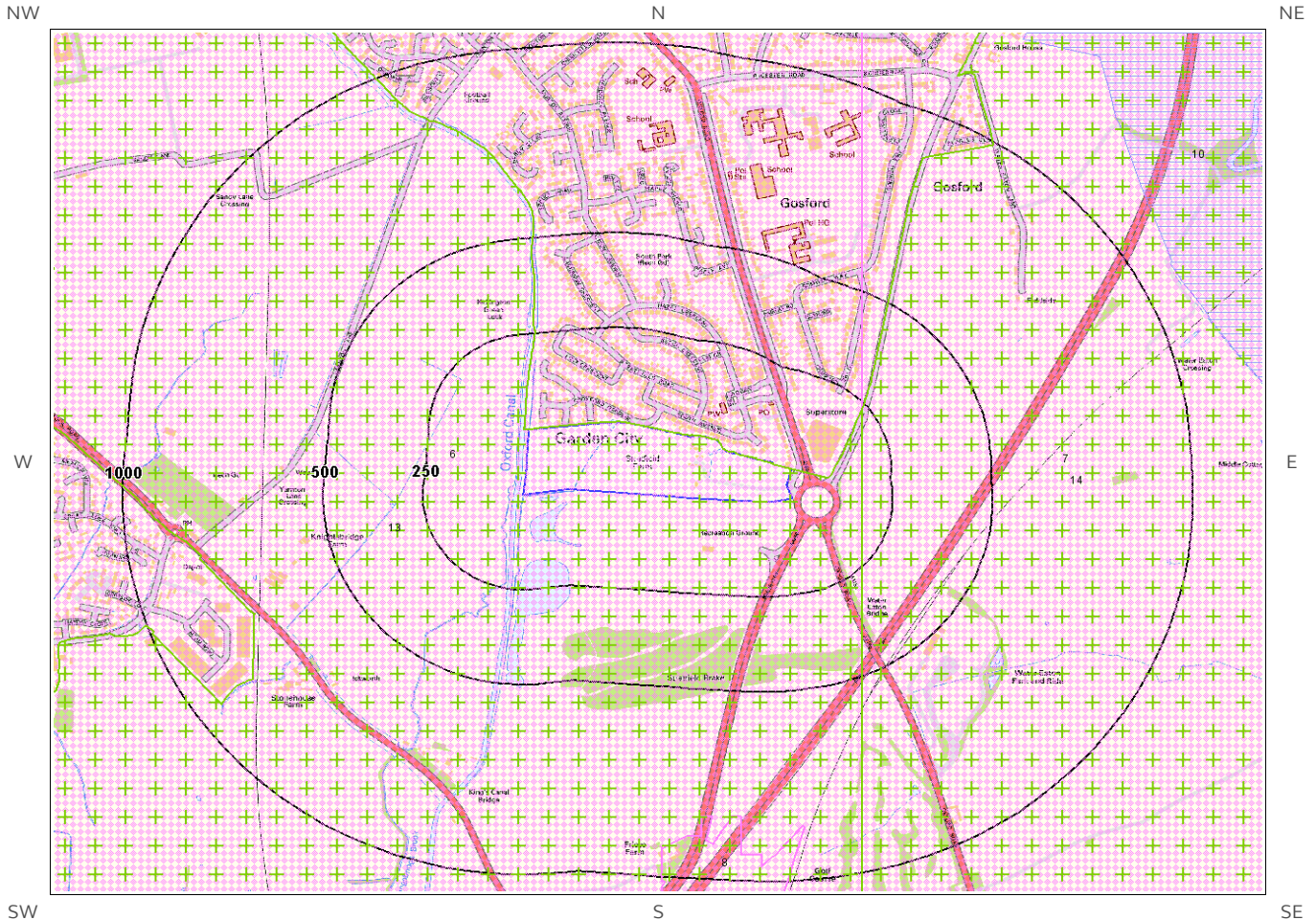
## 7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result Moderate

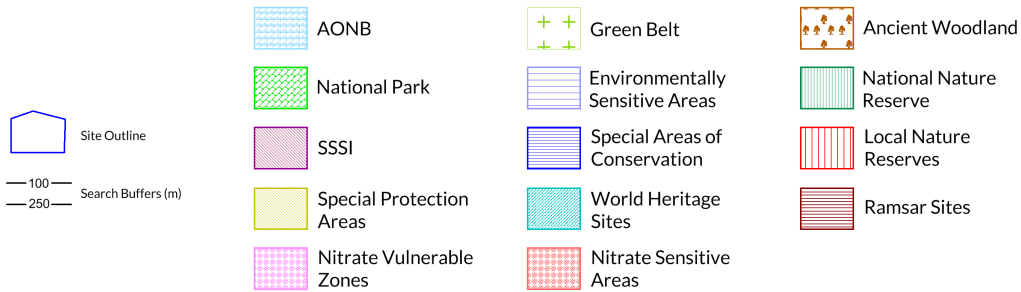
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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



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# 8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

Identified

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

3

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1763	NW	Rushy Meadows	Natural England
Not shown	1893	SW	Pixey and Yarnton Meads	Natural England
Not shown	1983	SW	Pixey and Yarnton Meads	Natural England

## 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:

2

The following Special Area of Conservation (SAC) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SAC Name	Data Source
Not shown	1893	SW	Oxford Meadows	Natural England
Not shown	1983	SW	Oxford Meadows	Natural England

#### 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:

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

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

3

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

ID	Distance (m)	Direction	ESA Name	Data Source
10	1091	NE	Upper Thames Tributaries	Natural England
Not shown	1605	SW	Upper Thames Tributaries	Natural England
Not shown	1677	N	Upper Thames Tributaries	Natural England

---

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

### 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
6	0	On Site	Existing	DEFRA
7	173	E	Existing	DEFRA
8	830	S	Existing	DEFRA
Not shown	1199	S	Existing	DEFRA

---

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

5

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
13	0	On Site	Oxford Greenbelt	Cherwell District
14	173	E	Oxford Greenbelt	Cherwell District
Not shown	1256	S	Oxford Greenbelt	Oxford
Not shown	1488	SE	Oxford Greenbelt	Oxford

shown

Not  
shown

1973

S

Oxford Greenbelt

Oxford

---

# 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

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

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

Maximum Soluble Rocks\* 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
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.

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



### 9.1.4 Compressible Ground

Maximum Compressible Ground\* 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**

Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

---

### 9.1.5 Collapsible Rocks

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

Maximum Running Sand\*\* 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**

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

---



---

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

## 9.2 Radon

### 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 site 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.

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### 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

Coal mining areas within 75m of the study site

None identified

Database searched and no data found.

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## 10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

None identified

Database searched and no data found.

---

## 10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

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# Contact Details

**Groundsure Helpline**  
Telephone: 08444 159 000  
info@groundsure.com

**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](http://www.bgs.ac.uk)

BGS Geological Hazards Reports and general geological enquiries:  
[enquiries@bgs.ac.uk](mailto:enquiries@bgs.ac.uk)

**Environment Agency**

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

Web: [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)

**Public Health England**

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

Email: [enquiries@phe.gov.uk](mailto:enquiries@phe.gov.uk)  
Main switchboard: 020 7654 8000

**The Coal Authority**

200 Lichfield Lane  
Mansfield  
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[www.coal.gov.uk](http://www.coal.gov.uk)

**Ordnance Survey**

Adanac Drive, Southampton  
SO16 0AS  
Tel: 08456 050505

**Local Authority**

Authority: Cherwell District Council  
Phone: 01295 252 535

Web: <http://www.cherwell-dc.gov.uk/>

Address: Bodicote House, Bodicote, Banbury, Oxfordshire, OX15 4AA

**Gemapping PLC**

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Public Health  
England



The Coal  
Authority



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<https://www.groundsure.com/terms-and-conditions-may25-2018>