

ASOS CAR PARK EXTENSION

LAND WEST OF, PARK SPRING ROAD, LITTLE HOUGHTON,
BARNSELEY, S72 7GX

PHASE 1: GEO-ENVIRONMENTAL RISK ASSESSMENT

FOR

ASOS

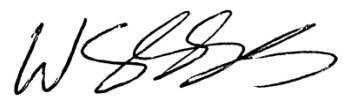


May 2017

Our Ref: RCEI52836-002 R

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Report Status:	Final	
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Date:	May 2017	

This report has been prepared in the RPS Group Quality Management System to British Standard EN ISO 9001:2008

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CONTENTS

	PAGE
EXECUTIVE SUMMARY	4
1. INTRODUCTION.....	6
2. LAND USE	8
3. ENVIRONMENTAL SETTING, REGULATORY CONSULTATIONS & ADDITIONAL INFORMATION	11
4. ENVIRONMENTAL RISK ASSESSMENT	16
5. CONCLUSIONS & RECOMMENDATIONS	20

FIGURE 1 Site Location Plan

FIGURE 2 Site Plan

APPENDIX A Photographs

APPENDIX B Database Information

APPENDIX C Historical Maps

APPENDIX D General Notes

APPENDIX E Part 2A (The Contaminated Land Regime)

EXECUTIVE SUMMARY

Section Summary:

Section	Summary
Site Details	Area: 1.2 Hectare. NGR: SE417064 Current use: undeveloped scrubland land Proposed use: Surface car park
Site History	Historical maps indicate the site was undeveloped prior to 1890. A series of railway lines were depicted on maps between 1890 and 1981 associated with Houghton Main Colliery which existed approximately 75m to the southeast of the site.
Environmental Setting	The existing ASOS/XPO Logistics warehouse is located southeast of the site across Park Spring Road. The surrounding area is predominantly rural/agricultural land. Several villages are present around the site including Little Houghton 1km to the southeast; Great Houghton town 1.5km east; and Grimethorpe 2km north. BGS data indicates there are no records of superficial strata beneath the site; bedrock consists of Pennine Middle Coal Measures Formation. BGS data suggests the presence of made ground across the site which may be associated with colliery spoil (this has not been proven). The bedrock is classified as a Secondary A Aquifer; no potable abstractions have been identified. A single licensed ground water abstraction is situated within 2km for mineral washing processes. The River Dearne flows a short distance to the west and southern site boundaries, with two associated licensed abstractions within 2km upstream to the west.
Regulatory Consultations	RPS has consulted with the local EHO officer at Barnsley Metropolitan County Council, at the time of writing a response is yet to be received.
Risk Assessment	Human Health (Low Risk) The site exists as vegetated undeveloped land potentially underlain by made ground associated with the former railway lines or Houghton Main Colliery. There is therefore the potential for a range of contaminants to exist in made ground across the site and wider area. Made Ground beneath the site has the potential to generate ground gas. There is also the potential for mine gas to impact the site. At present, and on completion of the proposed development, soil disturbance will be limited and therefore the potential for the mobilisation of contaminants is and will be limited. Post development it is assumed that the site will be covered by hardstanding. This will form a physical barrier between soils and site users thereby mitigating the risk associated with soil contaminants (the potential for

Section	Summary
	volatile contamination is limited). The proposed use (surface car park) is considered to represent a low sensitivity land use. During normal use of the site users will spend limited period of time on site and no enclosed structures are proposed. During redevelopment of the site measures should be taken to prevent the mobilisation of soil dust. Controlled Waters (Low/Moderate Risk) The site is indicated to be underlain by a Secondary A Aquifer associated with the Coal Measures Formation. There is the potential for made ground present on site to represent a source of leachable contaminants, however made ground is likely to extend beyond the site boundaries across a wide area of land. The addition of hardstanding to the site surface as part of the proposed development is likely to reduce surface water infiltrations therefore reducing the potential for soil leaching. The Secondary A Aquifer does not represent a particularly sensitive receptor and no potable abstractions have been identified in the vicinity of the site. Infrastructure (Low Risk) There is the potential for contaminants to be present on site in soil and groundwater that could attack buried concrete structures and permeate plastic utility pipes. Made Ground beneath the site has the potential to generate ground gas. There is also the potential for underground workings to generate mine gas. The proposed site use (surface car park) is not considered to be particularly sensitive to ground gas or concrete attack issues. However, if any enclosed structures or below ground concrete structures are proposed it would be considered prudent to undertake an appropriate investigation.
Recommendations & Costings	RPS recommends the following actions to reduce or clarify potential contamination risks at the site: 1. Undertaking a basic site investigation (trial pitting) to investigate soils and determine the bearing capacity, CBR value and likely settlement characteristics of the ground for the proposed development; 2. Analysis of samples of made ground to assess the potential risk, particularly to controlled waters and buried concrete/plastic water pipes (if applicable to the development); 3. Monitoring of ground gas and groundwater in existing wells (if operational); and, 4. Analysis of groundwater samples collected from existing wells (if operational).

1 INTRODUCTION

RPS Health, Safety & Environment (RPS) was commissioned by Asos to undertake a Phase 1 Geo-Environmental Review of land northwest of Park Spring Road, Little Houghton.

The report was commissioned prior to the proposed construction of a supplementary car park associated with the Asos facility situated on the opposite side of Park Spring Road.

The principal aim of the review was to determine whether there was potential for contamination to be present which could significantly constrain the use of the site, or give rise to the risk of significant environmental liability (including bodily injury, property damage, operational losses, regulatory or third party action, reputational damage or blight).

The environmental review comprised:

- i) a site inspection;
- ii) a review of the historical land uses to assess the potential for ground contamination;
- iii) a review of the environmental setting to assess the sensitivity of the surrounding area to contamination/pollution;
- iv) consultation with the regulatory authorities to establish whether any significant environmental issues have been recorded, which may impact on the site;
- v) qualitative environmental risk assessment of the site's current and proposed use; and,
- vi) a review of existing relevant reports (if supplied).

The environmental risk assessment presented within this report has been prepared having regard to the *contaminant-pathway-receptor* model introduced under Part 2A of the Environmental Protection Act 1990, and associated guidance on contaminated land published by the *Department of Environment, Food and Rural Affairs* [and its predecessors]. The methodology is essentially a qualitative assessment, based on the identification and evaluation of potential 'contaminant-pathway-receptor contaminant linkages'. On the basis of this risk assessment, consideration has been given to the potential for the site to be designated as 'contaminated land' (under the local authority contaminated land inspection strategy) as defined in Part 2A of the Environmental Protection Act 1990. See Appendix E for further details of the Environmental Protection Act 1990 and the risk assessment process.

The scope of the report is in general accordance with:

- British Standard requirements for the '*Investigation of potentially contaminated sites - Code of practice*' (ref. BS10175:2011+A1:2013);

- *‘Model Procedures for the Management of Land Contamination’ - Contaminated Land Report (CLR) 11;*
- *National Planning Policy Framework (2012); and*
- *DEFRA Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012).*

Where appropriate, consideration has also been given to the following:

- The potential for environmental liabilities to occur under other associated regimes, for example the Water Resources Act 1991 and the Environmental Damage Regulations 2009; and
- Key constraints on site redevelopment (if proposed), including the impact of other environmental issues (e.g. asbestos, flooding, ecology).

Details of the limitations of this type of assessment are described in Appendix D.

2 LAND USE

2.1 Site Inspection

This section of the report is based upon observations made during a site visit on 3rd May 2017. The site location and site boundary plans are shown in Figure 1 and Figure 2. Selected photos are shown in Appendix A.

RPS understands that the site is proposed for redevelopment in the form of a surface car park with associated access. The purpose of the development is to increase the parking capacity for the existing ASOS warehouse located to the south east of the site beyond Park Spring Road.

2.1.1 The Site

Section	Description
<i>Background:</i>	The site is located to the north west of the existing ASOS warehouse across Park Spring Road (A6195) at National Grid Reference SE417064. It is irregular in shape and occupies an area of approximately 1.2ha.
<i>Site Layout:</i>	The site currently exists as undeveloped scrubland. No buildings or hardstanding currently exist on the site. Access is via the Houghton Main Colliery Roundabout to the immediate south of the site, from Park Spring Road (A6195). The site sits between 33.12 m AOD – 33.63 m AOD, sloping down from the north east towards the south west. The centre of the site sits at roughly 33.57 m AOD. The roundabout to the south of the site is at a level of approximately 32.3 m AOD at the proposed junction with the site.
<i>Activity / Operations:</i>	The site is currently unoccupied with no formal use. Adjacent to the south is a small Gas Powered Electricity Generating Station. Several groundwater/ground gas monitoring well headworks were observed on the site during the site visit which suggests that a site investigation has previously been undertaken. This may suggest that the site may have had a formal use in the past or may have been subject to tipping.
<i>Building Structure(s):</i>	No building structures or hardstanding currently exist within the site boundary.
<i>Drainage:</i>	Reference to Yorkshire Water plans indicate there being no public sewers within the vicinity of the site. No evidence of formal drainage infrastructure was evident during the site visit.
<i>Storage / Tanks:</i>	No evidence of storage tanks was identified during the site visit. Historical maps do not suggest the presence of tanks previously.
<i>Waste:</i>	No waste streams are currently generated on site. There is the potential that waste materials (i.e. colliery spoil/landfill waste) are present on the site in the form of fill.
<i>Air Emissions:</i>	There are no records of licensed air emissions associated with the site.
<i>Electricity</i>	No transformers are present on the site.

Section	Description
<i>Transformers:</i>	
<i>Visual Evidence of Contamination:</i>	No visual or olfactory evidence of surface contamination was identified during the site visit.
<i>Statutory Nuisance:</i>	RPS is not aware of any statutory nuisance complaints associated with the site.
<i>Other Issues:</i>	No <i>Japanese Knotweed</i> or <i>Giant Hogweed</i> (invasive plant species) were readily identified on or adjacent to the site at the time of the survey. <i>(It should be noted that the identification can be limited by the seasons and in areas of dense vegetation growth).</i>

2.1.2 The Surrounding Area

The associated ASOS warehouse is located to the south east of the site beyond Park Spring Road. The wider area is dominated by undeveloped rural/agricultural land. The village of Little Houghton is located approximately 1 km to the south east; Great Houghton town is located approximately 1.5 km directly east; Grimethorpe is approximately 2 km to the north. No residential properties or schools/hospitals are situated within the immediate vicinity of the site.

Direction	Description
<i>North:</i>	Earth bund forms site perimeter. Rural/agricultural land with Grimethorpe village approximately 2km away.
<i>East:</i>	Park Spring Road. Beyond is ASOS/XPO Logistics Warehouse with Great Houghton 1.5km away.
<i>South:</i>	Gas powered electricity generating station (operated by Alkane) immediately to south. Rural/agricultural land with Little Houghton 1km away.
<i>West:</i>	Rural/agricultural land.

No watercourses were identified on site or in the immediate vicinity of the site during the site visit.

2.2 Site History

2.2.1 Historical Map Review

The following review is based on past editions of readily available Ordnance Survey (OS) maps. These include scales of 1:1,250, 1:2,500 and 1:10,000 dated 1854 to 2014. Extracts from selected historical maps are given in Appendix C.

On-site Land Use and Features	Dates
The entire site area appears undeveloped (likely agricultural land)	1854 - 1890
A series of railway lines cross the southern portion of the site (later labelled as mineral railways. Appear to Serve colliery to south east.	1904 – 1981
Additional railway line and associated embankment cross norther extremity of site	1980 - 1988
The railway lines appear to have been removed; the embankment remains along the northern site boundary.	1981 - 2002
Park Spring Road appears along the eastern site boundary.	2002 - 2014

Surrounding Land Uses (250m radius)	Orientation	Distance	Dates	
			From	To
A series of mineral railway lines/sidings immediately to the south	SW	Adjacent	1954	1988
Embankment associated with the dismantled rail lines	N	Adjacent	1982	2014
Park Spring Road (A6195)	E	Adjacent	2002	2014
Another rail line is observed running along the western site boundary	W	30m	1904	1981
Houghton Main Colliery with associated railway, conveyors, tanks and spoil tips.	SE	75m	1890	1993
The ASOS/XPO Logistics warehouse appears	E	120m	2010	2014
Extensive slag heap	E	250m	1961	2002

Whilst historical maps suggest historical use of the site is limited to mineral railways/sidings crossing the site, given the proximity of the colliery to the site there is also the potential colliery spoil to have been deposited across the site and surrounding area.

2.2.2 Site Planning History

Relevant planning records for the site, obtained from Barnsley Metropolitan Borough Council Planning Department are summarised as follows:

- 11th September 2012 – Erection of extensions to southern and western elevations of existing warehouse – Approved.
- 8th September 2016 – Erection of 3 storey extension to existing building – Approved.

3 ENVIRONMENTAL SETTING, REGULATORY CONSULTATIONS & ADDITIONAL INFORMATION

3.1 Geology & Hydrogeology

Based on British Geological Survey mapping (1:50,000-scale) and the Environment Agency's Groundwater Vulnerability mapping (1:100,000-scale), the stratigraphic sequence and aquifer classifications beneath the site are as follows:

Strata	Description & approximate thickness	Aquifer Classification	Environmental Sensitivity
Superficial	No superficial strata has been recorded within the vicinity of the site.	NA	NA
Bedrock	Pennine Middle coal Measures Formation – Mudstone, Siltstone, and Sandstone.	Secondary A	Low - Moderate

Made Ground and potentially colliery spoil may be present across the site as a result of historical activities. No site investigation reports have been reviewed to verify this. The Groundsure Geo Insight report indicates that the site and surrounding land is classified as artificial ground (made ground) by the 1:1,000 scale BGS mapping.

The presence of ground water and ground gas monitoring wells across the site suggests a SI has been undertaken but it has not been made available to RPS.

The site is located above a Secondary A Aquifer relating to the bedrock Pennine Middle Coal Measures Formation. These formations are formed of permeable layers capable of supporting water supplies at a local scale, in some cases forming an important source of base flow to rivers.

According to Environment Agency data, the site is not located in a groundwater Source Protection Zone.

3.2 Water

3.2.1 Surface Water

Under the Water Framework Directive, the Environment Agency identifies one watercourse within 1km of the site which is classified within the local River Basin Management Plan. A list of all nearby watercourses and water bodies is as follows:

Watercourse / body	Quality Classification	Approx. Distance and Direction from Site	Environmental Sensitivity
River Dearne	Current/Predicted Chemical B	196m West	Moderate

Other un-named watercourses in the vicinity of the site include a secondary river/drain 250m to the southwest which connects with a tertiary river/drain 400m in the same direction. Another tertiary river/drain 90m northeast from the site connects to a culvert leading to a tertiary river/drain to the southeast approximately 400m away.

3.2.2 Fluvial / Tidal Flood Risk

According to the Environment Agency (EA) flood map, the site is wholly located within Flood Zone 1 and is therefore classified as having an annual probability of flooding of less than 1 in 1000 from the river or sea.

There are Flood Zones 2 and 3 associated with the River Dearne. These do not extend onto the site by virtue of the elevation difference between the site and the floodplain, which is over 5 m.

3.2.3 Surface Water Flood Risk

According to the Environment Agency (EA) surface water flood map, the site has an overall low risk of flooding from this source in all events up to a 1 in 1000 year. There is a narrow strip of "low flood risk" present on the site. This corresponds to shallow (less than 300mm depth) flooding occurring as a result of rainfall of between 1 in 1000 and 1 in 100 chance in a given year.

3.2.4 Water Abstractions

Information provided by the Environment Agency indicates that there are records of one licensed groundwater abstraction and two licensed surface water abstraction within 2km of the site. The details of these are as follows:

Licence Holder	Source	Use	Approx. Distance and Direction from Site
Carlton Main Brickworks Ltd	Groundwater's	Mineral Washing	1500m North
J&E Dickinson	River Dearne	Spray Irrigation – Storage	1985m West
J&E Dickinson	River Dearne	Spray Irrigation – Direct	1985m West

No records of licensed potable abstractions have been identified in the vicinity of the site.

3.3 Sensitive Sites / Designated Protected Areas

Natural England data indicates that there are no SSSIs, SPAs, SACs, Ramsar, Nature Reserves or other protected / sensitive environmental areas within 1km of the site. There are several pockets of ancient woodland to the northwest and southwest between 20 – 30m away from the site boundary and to the north at approximately 200m.

3.4 Landfills and Waste Sites

Data provided by the Environment Agency, Local Authority and British Geological Survey indicates that there are no recorded licensed or known historical landfill sites located within 500m of the site.

Groundsure reports have identified several potential areas of unlicensed landfilling within 500m of the site. At distances between 341m and 499m east and south east there records of potential refuse heaps between the years 1904 and 1988.

3.5 Local Authority Search Responses / Consultations

The Environmental Health Department at Barnsley Metropolitan County Council has been contacted regarding any known contamination issues at the site. At the time of writing a response is yet to be received.

3.6 Pollution Incidents

Environment Agency data indicates that there are no records of 'major' or 'significant' pollution incidents within 500m of the site.

3.7 Authorised Processes

3.7.1 Environmental Permits

The Groundsure report indicates that a Part B activity in the vicinity of the site 188m to the southeast, relating to mining and the processing of coal, gypsum, and carbon process.

Environment Agency and Local Authority data indicates that there are no other processes regulated by an Environmental Permit (under the Environmental Permitting Regulations 2010) within 500m of the subject site.

3.7.2 COMAH Sites

There are no records of any operations under the Control of Major Accident Hazards (COMAH) within 500m of the site.

3.7.4 Petroleum Licences

The Groundsure report indicates that there are no records of petrol and fuel sites within 500m of the site.

3.8 Radon

Information provided by the Health Protection Agency and the British Geological Survey indicates that the site is located within a radon affected area. The estimated probability of the property being above the Action Level for radon is 1-3%. The data indicates that no radon protection measures are necessary.

3.9 Coal Authority

The Coal Authority Interactive Map Viewer indicates that the site is situated within a Development High Risk Area. The information suggests that the site has been subject to surface mining and identifies the site as in an area of 'probable shallow coal mine workings'.

There are three mine entry points located south of the existing ASOS warehouse at approximately 420m SE. No mine entries are indicated to be present within the site boundary.

It is understood that a coal mining risk assessment is being carried out to support the development by a third party.

3.10 Other Land Stability Issues

British Geological Survey Ground Stability Hazard ratings for the site are summarised as follows:

Hazard	Hazard Potential
Collapsible ground	Very Low
Compressible ground	Very Low
Ground dissolution	Negligible
Landslide	Very Low
Running sand	Very Low
Shrinking or swelling clay	Very Low

The Groundsure report identifies the potential for localised small scale underground iron ore mining may have occurred on site. It also identifies the site as being covered by made ground.

3.10 Existing Reports / Correspondence

RPS has not been provided with any reports for review.

4 ENVIRONMENTAL RISK ASSESSMENT

4.1 Background

This Risk Assessment consists of an appraisal of the *contaminant-pathway-receptor* 'contaminant linkages' which is central to the approach used to determine the existence of 'contaminated land' according to the definition set out under Part 2A of the Environmental Protection Act 1990. For a risk to exist (under Part 2A), all three of the following components must be present to facilitate a potential 'pollutant linkage'.

- **Contaminant** referring to the source of contamination (Hazard).
- **Pathway** for the contaminant to move/migrate to receptor(s).
- **Receptor** (Target) that could be affected by the contaminant(s).

Receptors include human beings, other living organisms, crops, controlled waters and buildings / structures. The assessment includes a qualitative review for the 'significant possibility of significant harm' (SPOSH). The mere presence of a contaminant source / hazard at a site does not mean that there will necessarily be attendant risks or that the site will be designated as 'contaminated land'. For further details see Appendix E.

In addition, the assessment includes consideration of redevelopment constraints, the site's '*suitability for use*' and the perception by any future purchasers regarding the potential impact on investment value/saleability.

The Risk Assessment comprises a tabular source-pathway-receptor model:

- **Low risk** - it is considered unlikely that issues within the category will give rise to significant harm or a liability/cost for the owner of the site.
- **Moderate risk** - it is possible, but not certain that issues within the category will give rise to significant harm or a liability/cost for the owner of the site.
- **High risk** - there is a high potential that issues within the category will give rise to significant harm or a liability/cost for the owner of the site.

4.2 Conceptual Model Summary

Potential Sources	Considered Pathways	Potential Receptors	Risk Assessment
Former mineral railway & made ground. <i>Metals, sulphates, hydrocarbons, PAHs, creosote, herbicides, asbestos, ground gas/mine gas.</i>	Human Health • Dermal contact • Inhalation of soil dust • Ingestion of soil dust • Inhalation soil vapours	• Current site users • Future site users • Construction/ maintenance personnel • Off-site receptors	LOW At present the site exists as vegetated undeveloped land potentially underlain by made ground associated with the former railway lines or Houghton Main Colliery. There is therefore the potential for a range of contaminants to exist in made ground across the site and wider area. Made Ground beneath the site has the potential to generate ground gas. There is also the potential for mine gas to impact the site. At present, and on completion of the proposed development, soil disturbance will be limited and therefore the potential for the mobilisation of contaminants is and will be limited. Post development it is assumed that the site will be covered by hardstanding. This will form a physical barrier between soils and site users thereby mitigating the risk associated with soil contaminants (the potential for volatile contamination is limited). The proposed use (surface car park) is considered to represent a low sensitivity land use. During normal use of the site users will spend limited period of time on site and no enclosed structures are proposed. Based on available information, on completion of the proposed development, the risk to human health receptors is considered to be low. During redevelopment of the site measures should be taken to prevent the mobilisation of soil dust.

Potential Sources	Considered Pathways	Potential Receptors	Risk Assessment
	Controlled Waters - Leaching of mobile contaminants from Made Ground. - Vertical and lateral migration of mobile contaminants in permeable strata. - Migration along subsurface structures.	- Shallow groundwater (Made Ground) - Secondary A Aquifer (Bedrock) - Surface Water (east site boundary) - River Dearne	LOW/MODERATE The site is indicated to be underlain by a Secondary A Aquifer associated with the Coal Measures Formation. There is the potential for made ground present on site to represent a source of leachable contaminants, however made ground is likely to extend beyond the site boundaries across a wide area of land. The addition of hardstanding to the site surface as part of the proposed development is likely to reduce surface water infiltrations therefore reducing the potential for soil leaching. The Secondary A Aquifer does not represent a particularly sensitive receptor and no potable abstractions have been identified in the vicinity of the site. There is the potential for mobile soil or shallow groundwater contaminants to migrate laterally via permeable strata to the surface waters including the River Dearne. However the potential for a discernible impact on water quality associated with on-site contamination is considered to be low. Based on available information, the risk to controlled water associated with the site is considered to be low to moderate.
	Infrastructure - Direct contact with fill or contaminated soils - Migration of ground gas	- Future building structures - Underground utility services - Off-site structures	LOW There is the potential for contaminants to be present on site in soil and groundwater that could attack buried concrete structures and permeate plastic utility pipes. Made Ground beneath the site has the potential to generate ground gas. There is also the potential for underground workings to generate mine gas.

Potential Sources	Considered Pathways	Potential Receptors	Risk Assessment
			The proposed site use (surface car park) is not considered to be particularly sensitive to ground gas or concrete attack issues. However, if any enclosed structures or below ground concrete structures are proposed it would be considered prudent to undertake an appropriate investigation.

5 CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The following conclusions have been drawn from the observations recorded and the information collated and reviewed as part of this Risk Assessment:

Based on the available information the site is considered to be suitable for its proposed use from a ground contamination perspective.

The site is unlikely to be classed as 'contaminated' under Part 2A of the EPA 1990 whilst it remains in its current use and for its proposed redevelopment.

It would be considered prudent to undertake a basic site investigation in the form of a trial pitting exercise in order to determine ground conditions from both a geo-environmental and geotechnical perspective. The geotechnical investigation should include CBR testing to determine the load bearing capacity of soils in relation to the proposed car park. Soil samples should be subject to laboratory analysis to determine contaminant concentrations, particularly in relation to the risks to controlled waters, buried concrete and plastic water pipes (if applicable to the development).

If the investigation identifies a considerable thickness of made ground it would be considered prudent to undertake a ground gas and groundwater monitoring programme; this could be undertaken using existing installations that were observed on site during the site visit assuming that they remain operational.

If any contamination is encountered during redevelopment of the site work in that area should be halted until professional advice has been given.

5.2 Risk Management Recommendations

5.2.1 Ground Contamination

RPS recommends the following actions to reduce or clarify potential contamination risks at the site:

- Undertaking a basic site investigation (trial pitting) to investigate soils and determine the bearing capacity, CBR value and likely settlement characteristics of the ground for the proposed development;

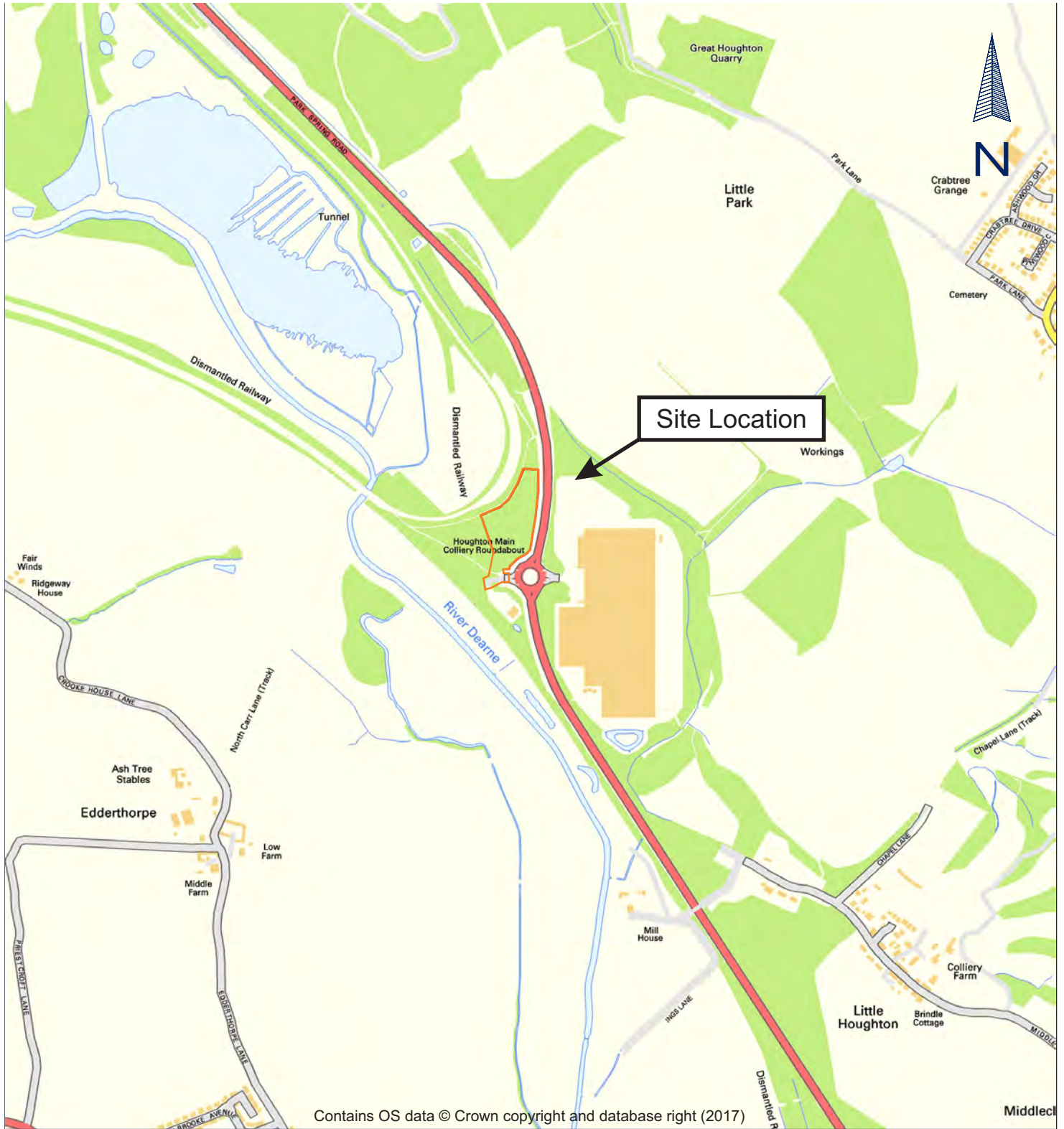
- Analysis of samples of made ground to assess the potential risk, particularly to controlled waters and buried concrete/plastic water pipes (if applicable to the development);
- Monitoring of ground gas and groundwater in existing wells (if operational); and,
- Analysis of groundwater samples collected from existing wells (if operational).

A coal mining risk assessment is understood to have been commissioned in relation to the site. RPS would be prepared to incorporate any recommendations for intrusive investigation that may be made by the risk assessment into the investigation detailed above.

Figure 1

Site Location Plan





Unit 12, Watersedge Business Park, Modwen Road, Salford Quays, M5 3EZ
 T +44 (0)161 874 3737 F +44 (0)161 877 3959 W rpsgroup.com

Client: ASOS

Date: 19/05/2017

Scale: NTS

Project: ASOS Car Park Extension

Figure: 1

Rev: 00

Title: Site Location Plan

Job Ref: RCEI52836

Figure 2

Site Plan



Unit 12, Watersedge Business Park, Modwen Road, Salford Quays, M5 3EZ
T +44 (0)161 874 3737 F +44 (0)161 877 3959 W rpsgroup.com

Client: ASOS

Date: 19/05/2017

Scale: NTS

Project: ASOS Car Park Extension

Figure: 2

Rev: 00

Title: Site Plan

Job Ref: RCEI52836

Appendix A

Photographs





Gas Monitoring Wells



Gas Monitoring Wells



Gas Monitoring Well



Gas Powered Electricity Generation Station



Unit 12, Watersedge Business Park, Modwen Road, Salford Quays, M5 3EZ
T +44 (0)161 874 3737 F +44 (0)161 877 3959 W rpsgroup.com

Client: ASOS

Date: 19/05/2017

Scale: NTS

Project: ASOS Car park Extension

Appendix: A

Rev: 00

Title: Photo Figure

Job Ref: RCEI52836



Unit 12, Watersedge Business Park, Modwen Road, Salford Quays, M5 3EZ
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Client: ASOS
 Project: ASOS Car park Extension
 Title: Photo Figure

Date: 19/05/2017 Scale: NTS
 Appendix: A Rev: 00
 Job Ref: RCEI52836

Appendix B

Database Information





RPS Consultants Ltd

Report Reference: RPS-3881240

UNIT 12 R P S LABORATORIES LTD, MODWEN
ROAD,
SALFORD, M5 3EZ

Your Reference: RCEI52836

Report Date 15 May 2017

Report Delivery Email - pdf
Method:

Groundsure Geo Insight

Address: ASOS, PARK SPRING ROAD, BARNSELEY, S72 7GX

Dear Sir/ Madam,

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

Groundsure Geo Insight

Address: ASOS, PARK SPRING ROAD, BARNSELEY, S72 7GX
Date: 15 May 2017
Reference: RPS-3881240
Client: RPS Consultants Ltd



Aerial Photograph Capture date: 07-Jun-2013
Grid Reference: 441719,406453
Site Size: 1.33ha

Contents Page

Contents Page.....	3
Overview of Findings.....	5
1:10,000 Scale Availability.....	8
Availability of 1:10,000 Scale Geology Mapping.....	9
1 Geology (1:10,000 scale).....	10
1.1 Artificial Ground Map (1:10,000 scale).....	10
1. Geology 1:10,000 scale.....	11
1.1 Artificial Ground.....	11
1.2 Superficial Deposits and Landslips Map (1:10,000 scale).....	12
1.2 Superficial Deposits and Landslips.....	13
1.2.1 Superficial Deposits/ Drift Geology.....	13
1.2.2 Landslip.....	13
1.3 Bedrock and Faults Map (1:10,000 scale).....	14
1.3 Bedrock and Faults.....	15
1.3.1 Bedrock/ Solid Geology.....	15
1.3.2 Faults.....	15
2 Geology 1:50,000 Scale.....	16
2.1 Artificial Ground Map.....	16
2. Geology 1:50,000 scale.....	17
2.1 Artificial Ground.....	17
2.1.1 Artificial/ Made Ground	17
2.1.2 Permeability of Artificial Ground.....	17
2.2 Superficial Deposits and Landslips Map (1:50,000 scale).....	18
2.2 Superficial Deposits and Landslips.....	19
2.2.1 Superficial Deposits/ Drift Geology.....	19
2.2.2 Permeability of Superficial Ground	19
2.2.3 Landslip.....	19
2.2.4 Landslip Permeability.....	19
2.3 Bedrock and Faults Map (1:50,000 scale).....	20
2.3 Bedrock, Solid Geology & Faults.....	21
2.3.1 Bedrock/Solid Geology.....	21
2.3.2 Permeability of Bedrock Ground.....	21
2.3.3 Faults.....	21
3 Radon Data.....	23
3.1 Radon Affected Areas.....	23
3.2 Radon Protection.....	23
4 Ground Workings Map.....	24
4 Ground Workings.....	25
4.1 Historical Surface Ground Working Features derived from Historical Mapping.....	25
4.2 Historical Underground Working Features derived from Historical Mapping.....	26
4.3 Current Ground Workings.....	26
5 Mining, Extraction & Natural Cavities.....	29
5.1 Historical Mining.....	29
5.2 Coal Mining.....	29
5.3 Johnson Poole and Bloomer.....	30
5.4 Non-Coal Mining.....	30
5.5 Non-Coal Mining Cavities.....	30
5.6 Natural Cavities.....	31
5.7 Brine Extraction.....	31
5.8 Gypsum Extraction.....	31
5.9 Tin Mining.....	31
5.10 Clay Mining.....	31
6 Natural Ground Subsidence.....	32
6.1 Shrink-Swell Clay Map.....	32
6.2 Landslides Map.....	33
6.3 Ground Dissolution of Soluble Rocks Map.....	34
6.4 Compressible Deposits Map.....	35
6.5 Collapsible Deposits Map.....	36
6.6 Running Sand Map.....	37

6 Natural Ground Subsidence.....	38
6.1 Shrink-Swell Clays.....	38
6.2 Landslides.....	39
6.3 Ground Dissolution of Soluble Rocks.....	39
6.4 Compressible Deposits.....	39
6.5 Collapsible Deposits.....	40
6.6 Running Sands.....	40
7 Borehole Records.....	42
8 Estimated Background Soil Chemistry.....	44
9 Railways and Tunnels Map.....	45
9 Railways and Tunnels.....	46
9.1 Tunnels	46
9.2 Historical Railway and Tunnel Features	46
9.3 Historical Railways.....	48
9.4 Active Railways.....	48
9.5 Railway Projects.....	48

Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

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

Section 2: Geology 1:50,000 Scale

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and Faults

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

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

Yes

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

Yes

Section 3: Radon

3. Radon

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

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	3	2	15	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	1	3	0	9
4.3 Current Ground Workings	0	0	2	3	5

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	1	3	0	7
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	1	0	0	2	2
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

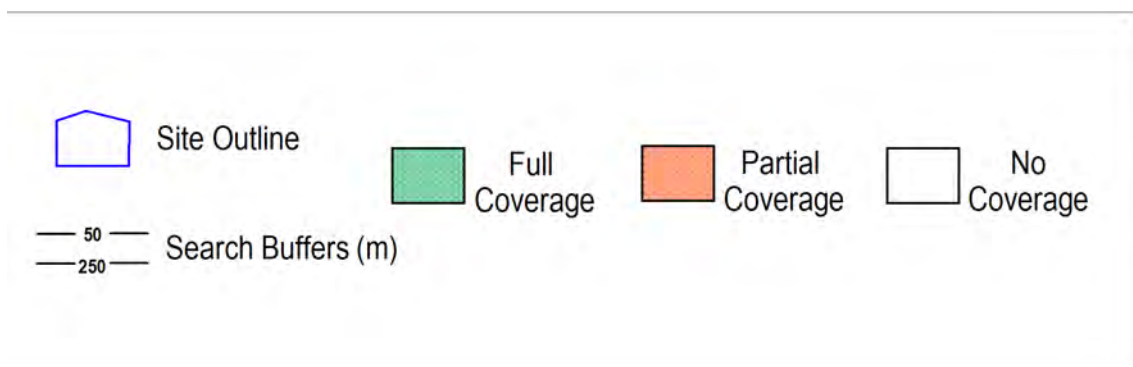
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Very Low				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	1	2	12		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	4	3	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	13	17	4	Not Searched	
9.3 Historical Railways	0	1	2	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
N2	1333.0	Some deposits are mapped	Full	Full	No coverage
N3	1659.0	Some deposits are mapped	Full	Full	No coverage

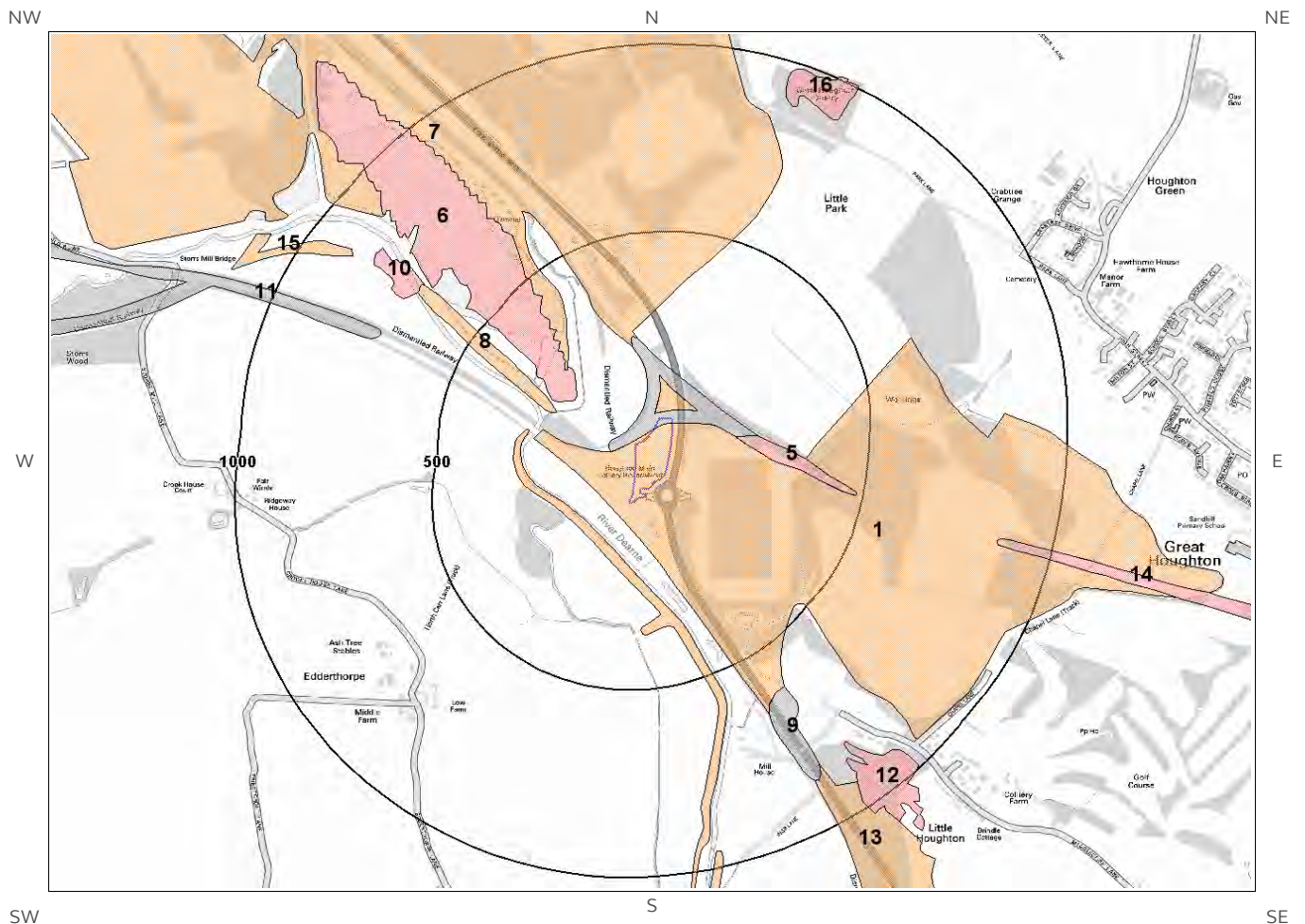
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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1. Geology 1:10,000 scale

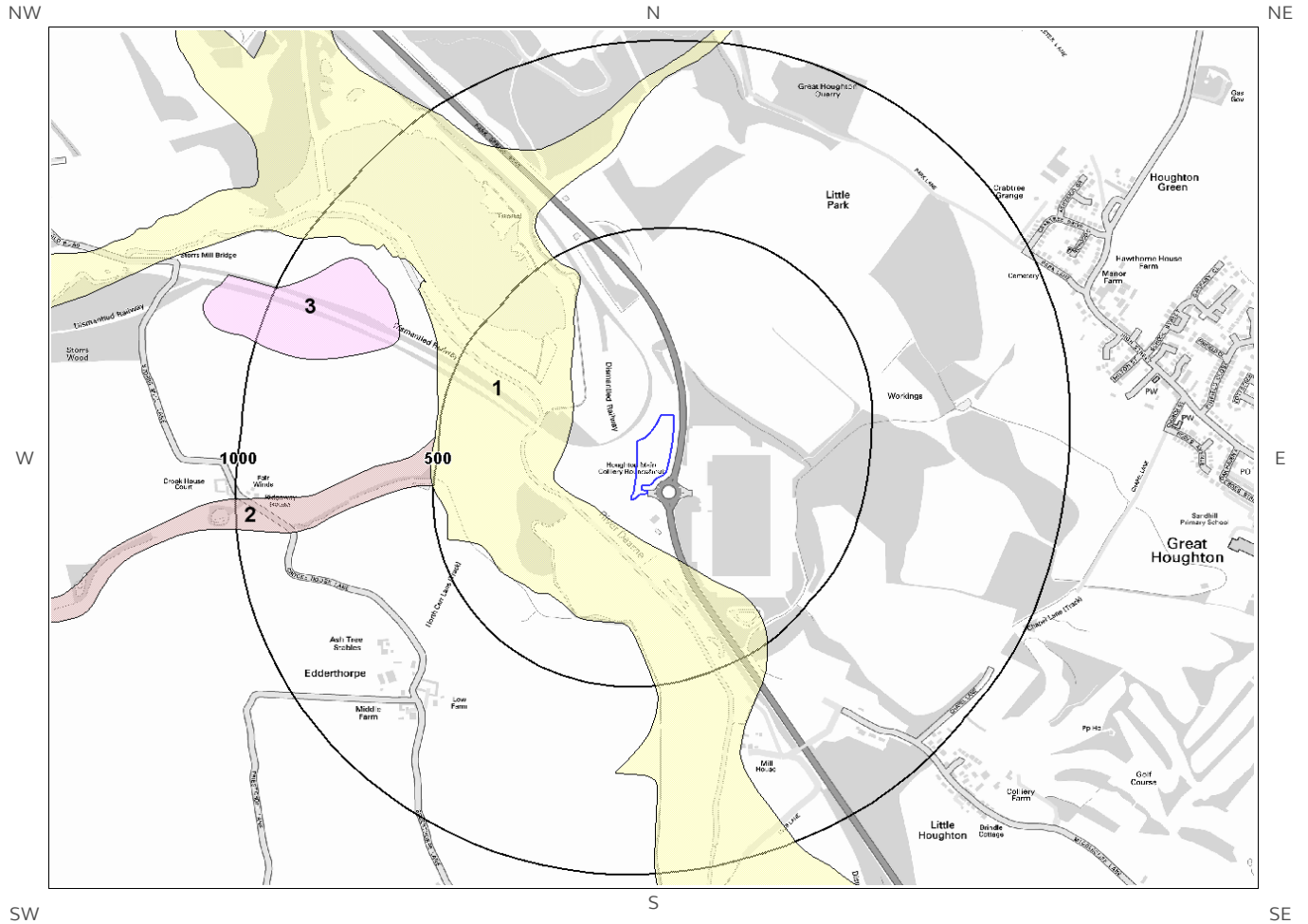
1.1 Artificial Ground

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

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

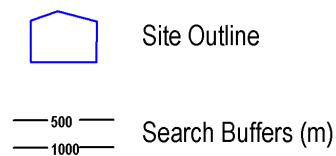
ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2A	0.0	On Site	WGR-VOID	Worked Ground (Undivided)	Void
3A	18.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	113.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	161.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	195.0	NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
7	205.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	220.0	NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	74.0	SW	ALV-XCZ	Alluvium - Clay And Silt	Clay And Silt

1.2.2 Landslip

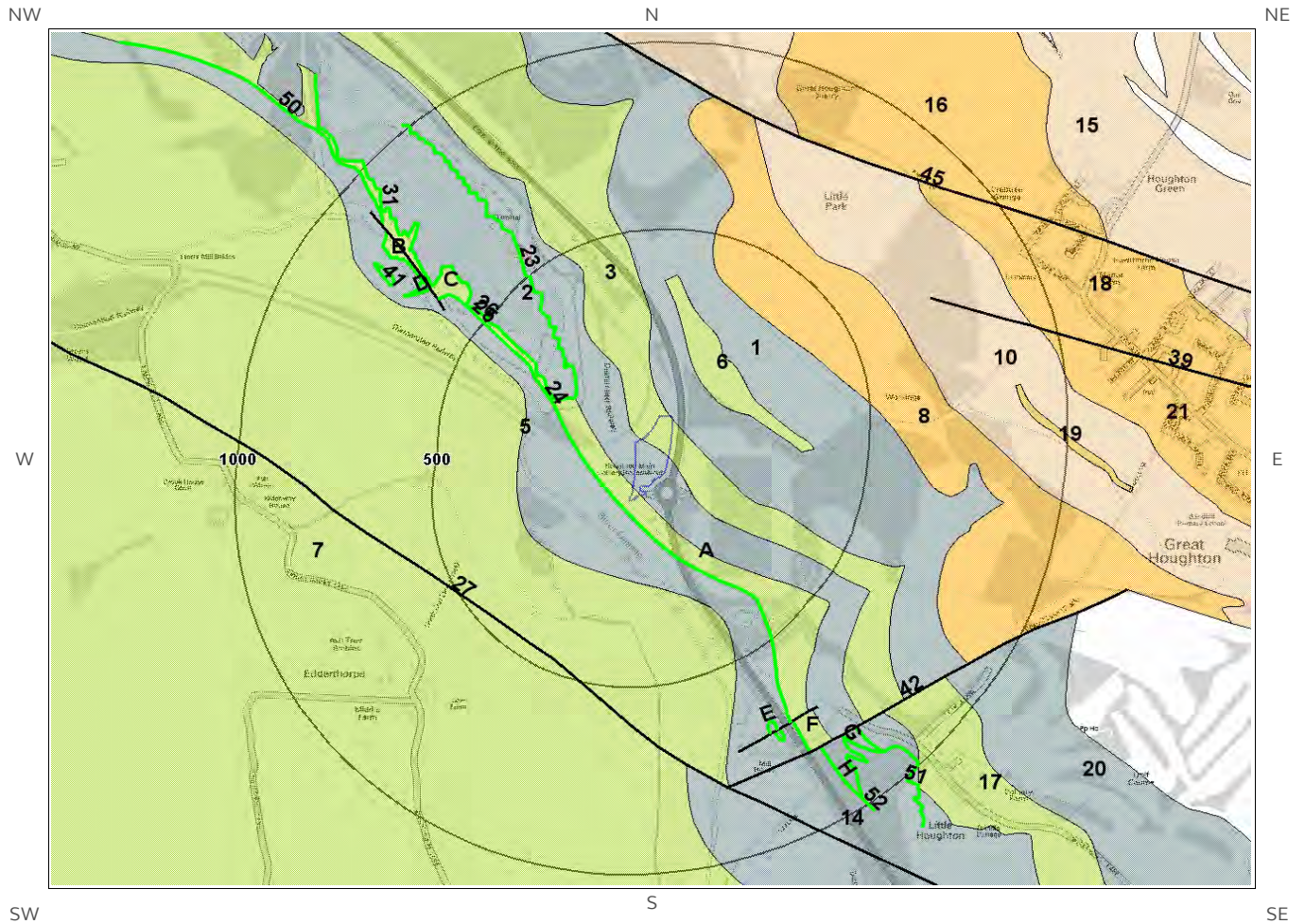
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

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

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

1.3 Bedrock and Faults Map (1:10,000 scale)

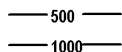


Bedrock and Faults Legend

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Site Outline



Search Buffers (m)

1.3 Bedrock and Faults

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
2	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
3	0.0	On Site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
4A	0.0	On Site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
5	26.0	SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
6	112.0	NE	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
7	205.0	S	MXR-SDST	Mexborough Rock - Sandstone	Bolsovian Sub-age
8	350.0	NE	AR-SDST	Ackworth Rock - Sandstone	Bolsovian Sub-age

1.3.2 Faults

Are there any records of Faults within 500m of the study site boundary at 1:10,000 scale?

Yes

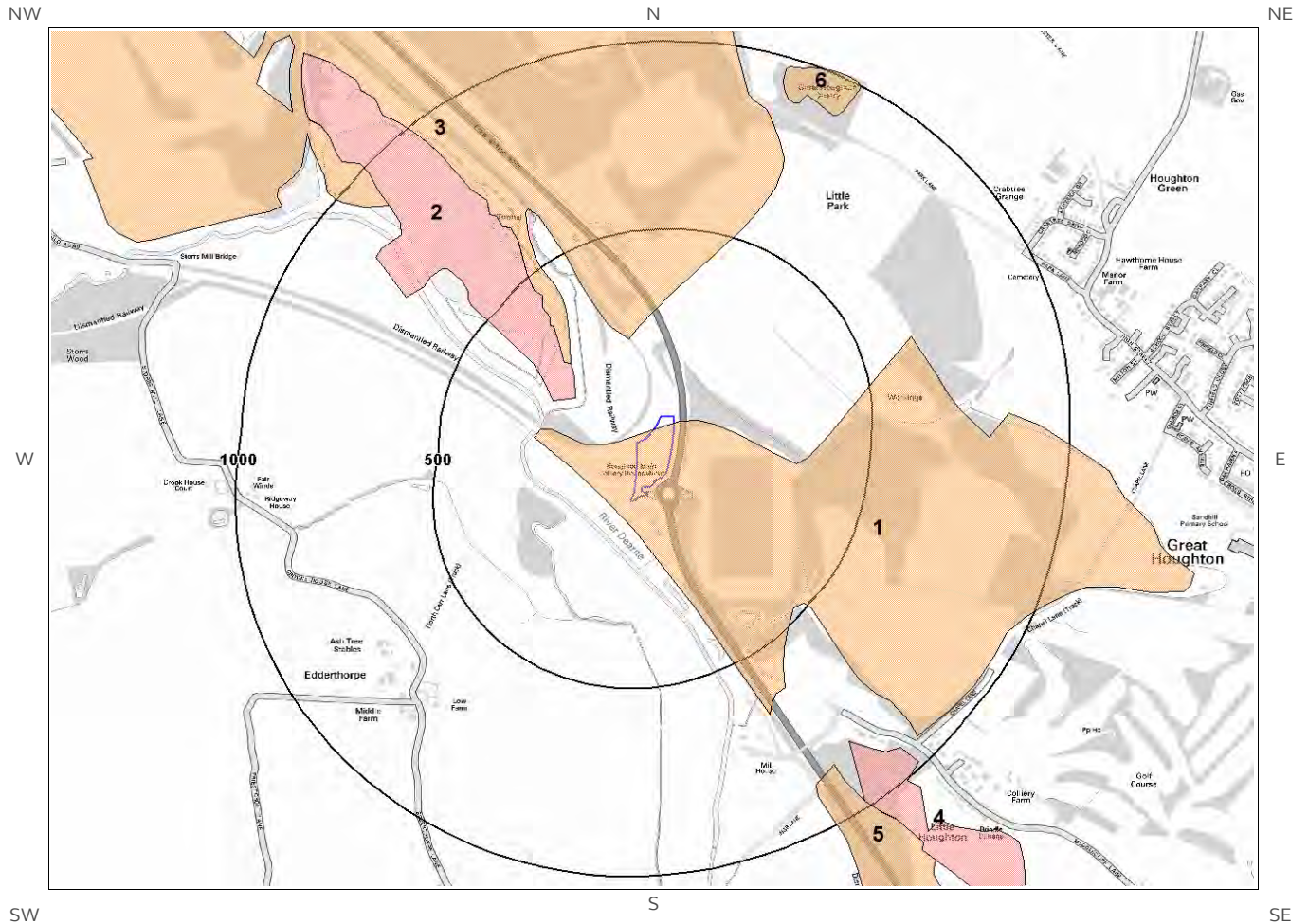
ID	Distance (m)	Direction	Category Description	Feature Description
22A	26.0	SW	ROCK	Coal seam, inferred
23	195.0	NW	ROCK	Coal seam, observed
24	220.0	NW	ROCK	Coal seam, observed
25	264.0	NW	ROCK	Coal seam, inferred
26	289.0	NW	ROCK	Coal seam, observed
27	456.0	SW	FAULT	Normal fault, inferred

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

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

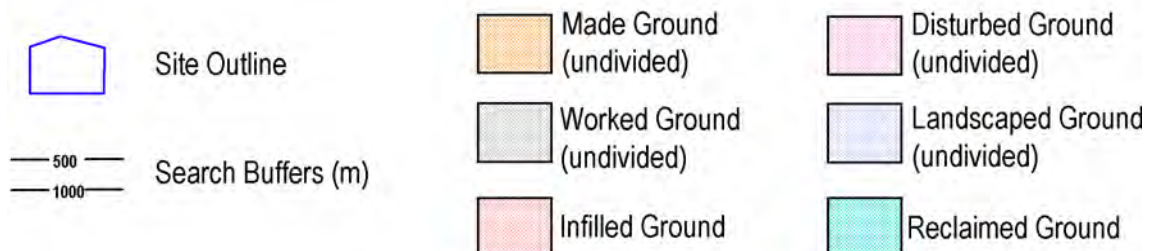
2 Geology 1:50,000 Scale

2.1 Artificial Ground Map



Ground Workings Legend

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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 087

2.1.1 Artificial/ Made Ground

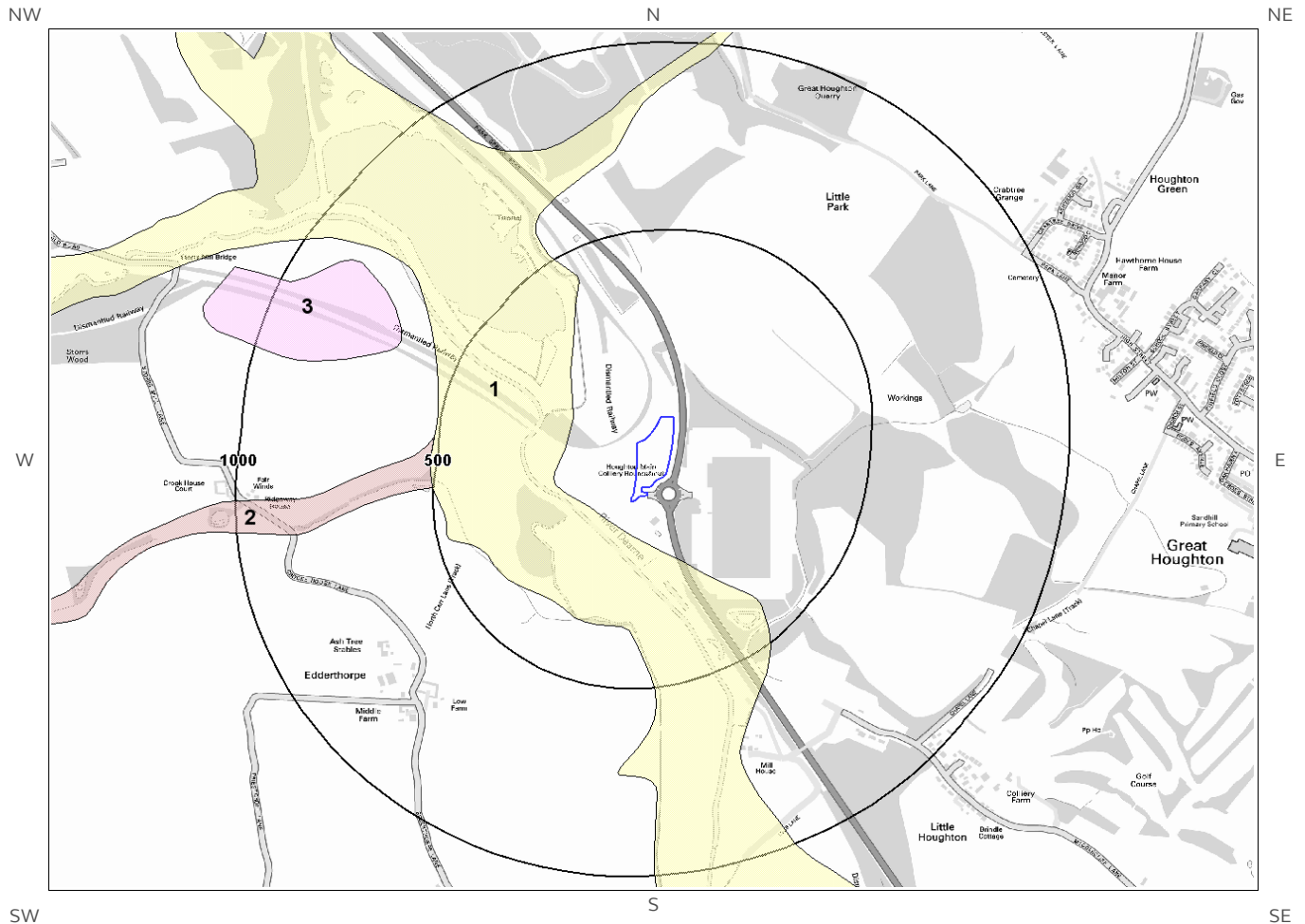
Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	196.0	NW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	222.0	N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

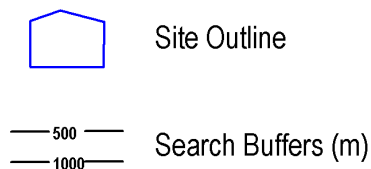
2.1.2 Permeability of Artificial Ground

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

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



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	74.0	SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Database searched and no data found.

2.2.3 Landslip

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

Database searched and no data found.

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

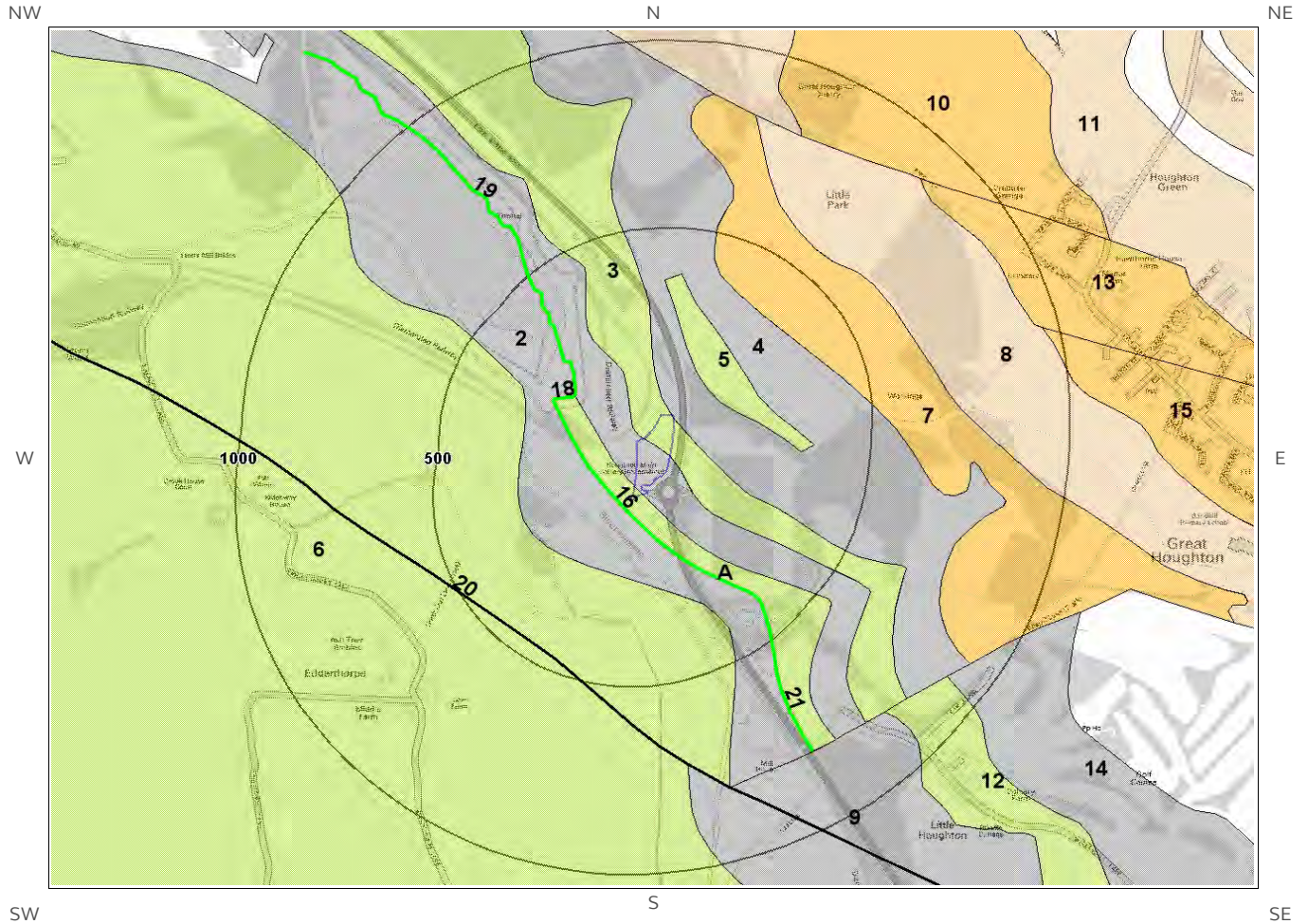
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

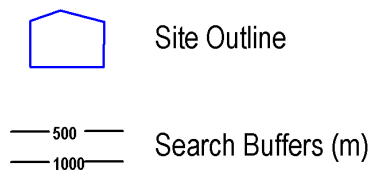
Database searched and no data found.

2.3 Bedrock and Faults Map (1:50,000 scale)



Ground Workings Legend

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2.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 087

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1A	0.0	On Site	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
2	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
3	0.0	On Site	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
4	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	109.0	NE	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
6	202.0	S	MXR-SDST	MEXBOROUGH ROCK - SANDSTONE	WESTPHALIAN
7	349.0	NE	AR-SDST	ACKWORTH ROCK - SANDSTONE	WESTPHALIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low
0.0	On Site	Fracture	Moderate	Low
0.0	On Site	Fracture	High	Moderate
0.0	On Site	Fracture	High	Moderate

2.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
16	28.0	SW	ROCK	Coal seam, inferred
17A	192.0	SE	ROCK	Coal seam, inferred
18	196.0	NW	ROCK	Coal seam, inferred
19	196.0	NW	ROCK	Coal seam, inferred
20	456.0	SW	FAULT	Fault, inferred
21	471.0	SE	ROCK	Coal seam, inferred

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

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

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

3.2 Radon Protection

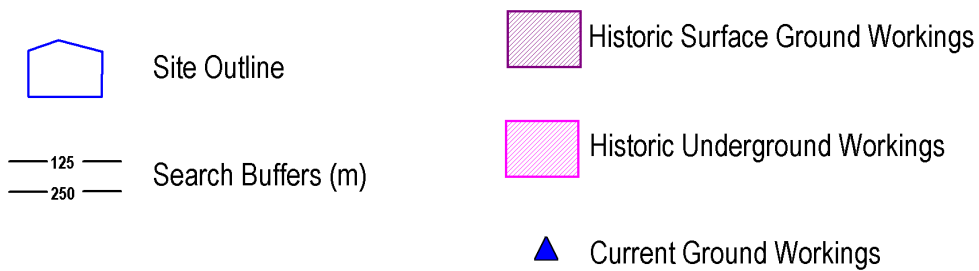
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings Map



Ground Workings Legend

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4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	441760 406354	Cuttings	1904
2	0.0	On Site	441968 406499	Cuttings	1981
3	0.0	On Site	441789 406559	Cuttings	1988
4	21.0	NW	441714 406637	Cuttings	1988
5D	35.0	S	441891 406018	Colliery	1948
6A	53.0	W	441571 406414	Cuttings	1904
7A	53.0	W	441571 406414	Cuttings	1948
8	57.0	SE	441799 406333	Cuttings	1948
9B	58.0	NE	441914 406550	Cuttings	1948
10B	58.0	NE	441914 406550	Cuttings	1904
11	59.0	NE	441879 406563	Cuttings	1951
12	61.0	NE	441945 406527	Cuttings	1967
13	61.0	SE	441814 406235	Cuttings	1904
14	118.0	SE	441859 406256	Cuttings	1904
15E	166.0	SE	442198 406079	Colliery	1951
16	172.0	E	441983 406321	Refuse Heap	1967
17C	209.0	SE	441830 406165	Unspecified Ground Workings	1951
18F	211.0	SE	441947 405970	Colliery	1904
19C	222.0	SE	441836 406159	Unspecified Pit	1948
20G	223.0	SE	441955 405941	Colliery	1890

4.2 Historical Underground Working Features derived from Historical Mapping

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

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
21D	35.0	S	441891 406018	Colliery	1948
22E	166.0	SE	442198 406079	Colliery	1951
23F	211.0	SE	441947 405970	Colliery	1904
24G	223.0	SE	441955 405941	Colliery	1890
Not shown	619.0	NW	441432 407103	Tunnel	1988
Not shown	619.0	NW	441432 407103	Tunnel	1981
Not shown	791.0	SE	442253 405445	Colliery	1951
Not shown	793.0	SE	442310 405405	Unspecified Mine	1967
Not shown	793.0	SE	442310 405405	Colliery	1981
Not shown	793.0	SE	442310 405405	Colliery	1988
Not shown	794.0	SE	442266 405496	Colliery	1904
Not shown	794.0	SE	442266 405442	Colliery	1938
Not shown	937.0	NW	440859 408124	Colliery	1948

4.3 Current Ground Workings

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

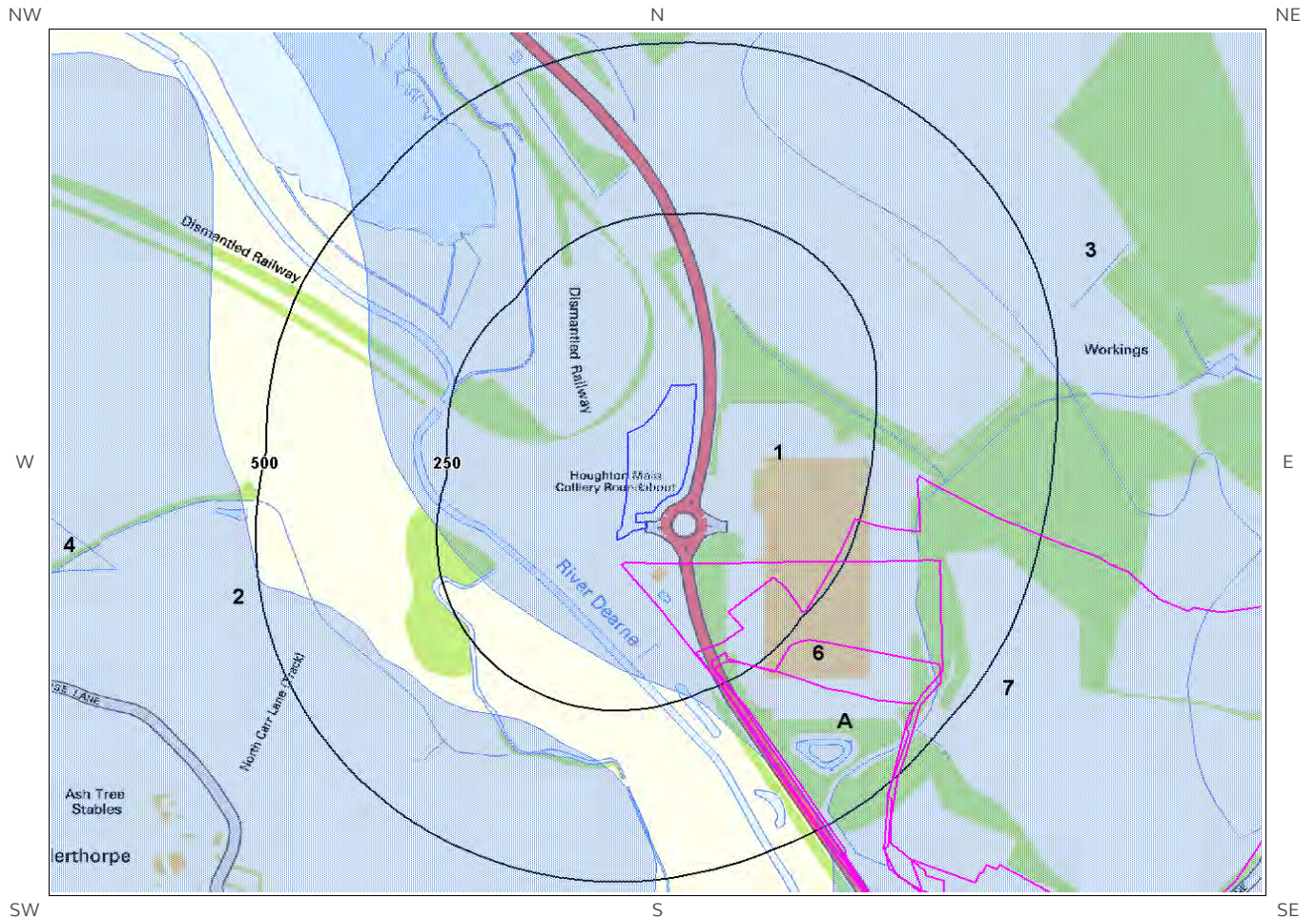
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
34	234.0	E	442000 406500	Coal, Surface Mined	Houghton Main OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
35	249.0	SE	441900 406200	Coal, Surface Mined	Houghton Main Extension OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
36	351.0	SE	441957 406109	Coal, Deep	Houghton Main Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	379.0	SE	441908 406032	Coal, Deep	Houghton Main Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	393.0	SE	441944 406040	Coal, Deep	Houghton Main Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	673.0	SE	442066 405784	Sandstone	Little Houghton Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	685.0	SE	442063 405768	Coal, Deep	Little Houghton Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	942.0	SE	442248 405582	Coal, Deep	Dearne Valley Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	952.0	NE	442135 407437	Sandstone	Great Houghton	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	965.0	SE	442298 405591	Coal, Surface Mined	Dearne Valley OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
6	35.0	S	441891 406018	Colliery	1948
7	166.0	SE	442198 406079	Colliery	1951
8A	211.0	SE	441947 405970	Colliery	1904
9A	223.0	SE	441955 405941	Colliery	1890
Not shown	791.0	SE	442253 405445	Colliery	1951
Not shown	793.0	SE	442310 405405	Colliery	1981
Not shown	793.0	SE	442310 405405	Colliery	1988
Not shown	793.0	SE	442310 405405	Unspecified Mine	1967
Not shown	794.0	SE	442266 405496	Colliery	1904
Not shown	794.0	SE	442266 405442	Colliery	1938
Not shown	937.0	NW	440859 408124	Colliery	1948

5.2 Coal Mining

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

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

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

5.3 Johnson Poole and Bloomer

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

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

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

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

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

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	295.0	SW	Sheffield Area	Iron Ore	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
3	355.0	NE	Sheffield Area	Iron Ore	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
4	693.0	W	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	699.0	SE	Sheffield Area	Iron Ore	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

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

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

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

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

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

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Tin Mining

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

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

Database searched and no data found.

5.10 Clay Mining

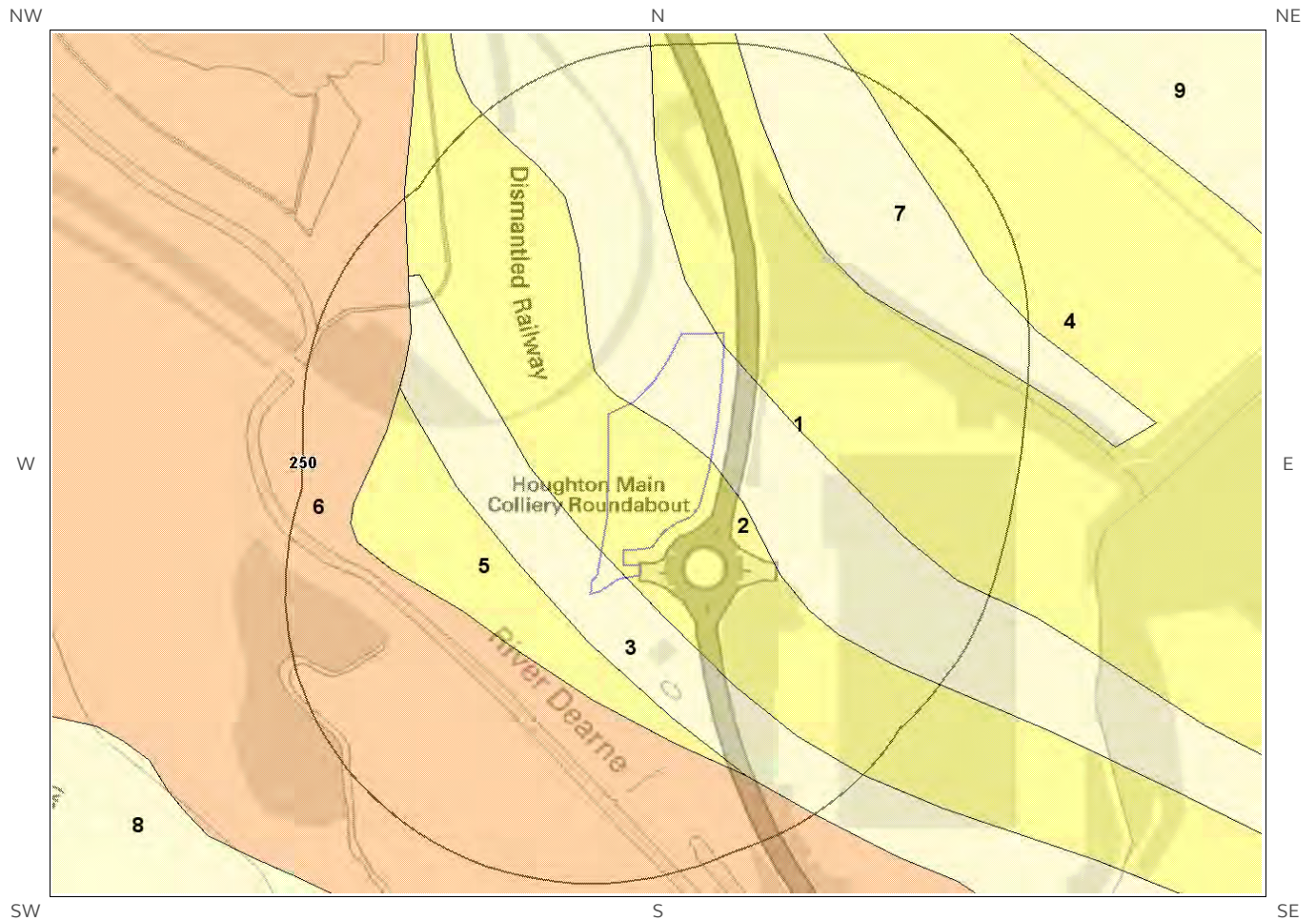
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay Map



Shrink Swell Clay Legend

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6.2 Landslides Map



Landslides Legend

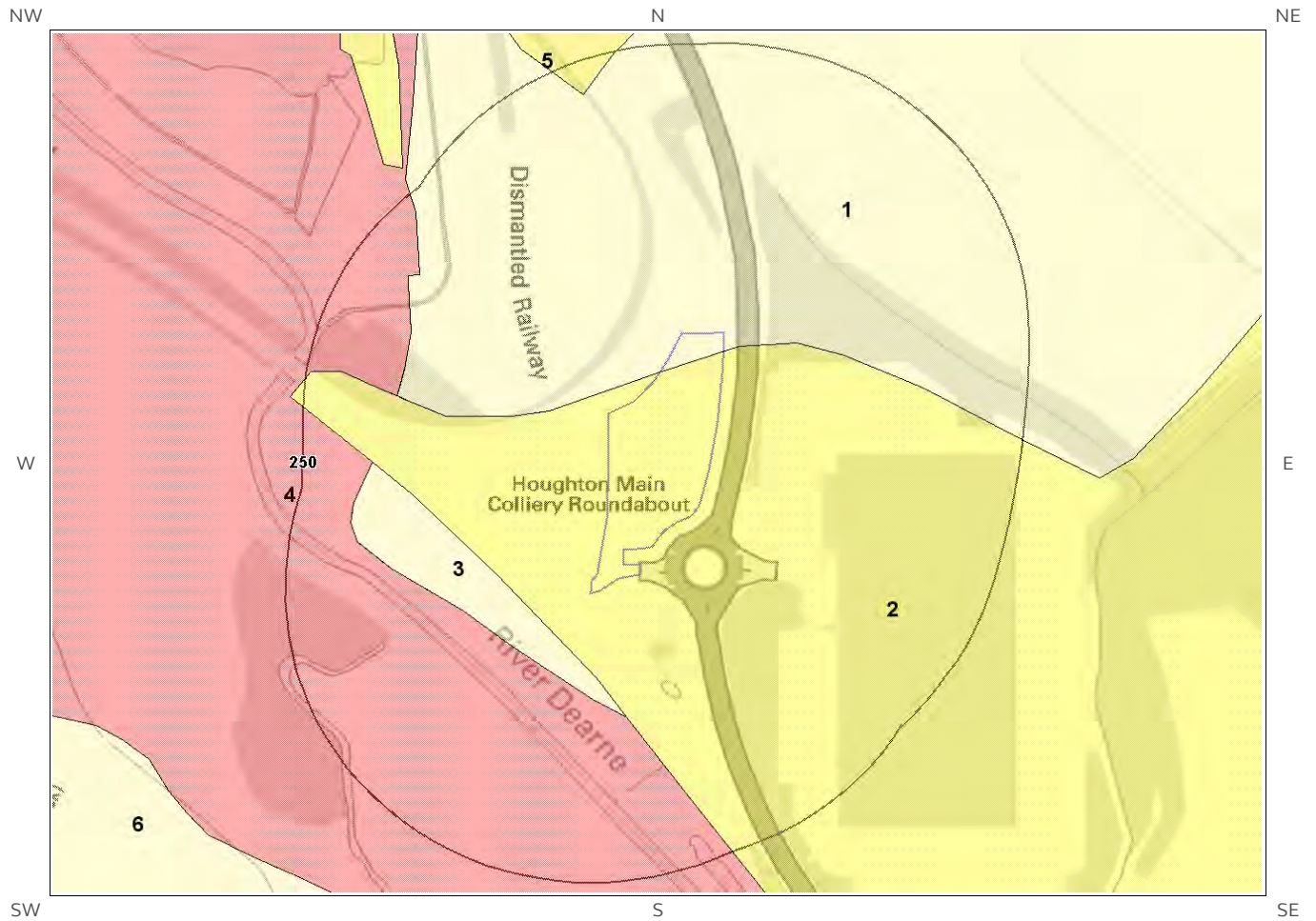
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6.3 Ground Dissolution of Soluble Rocks Map



6.4 Compressible Deposits Map

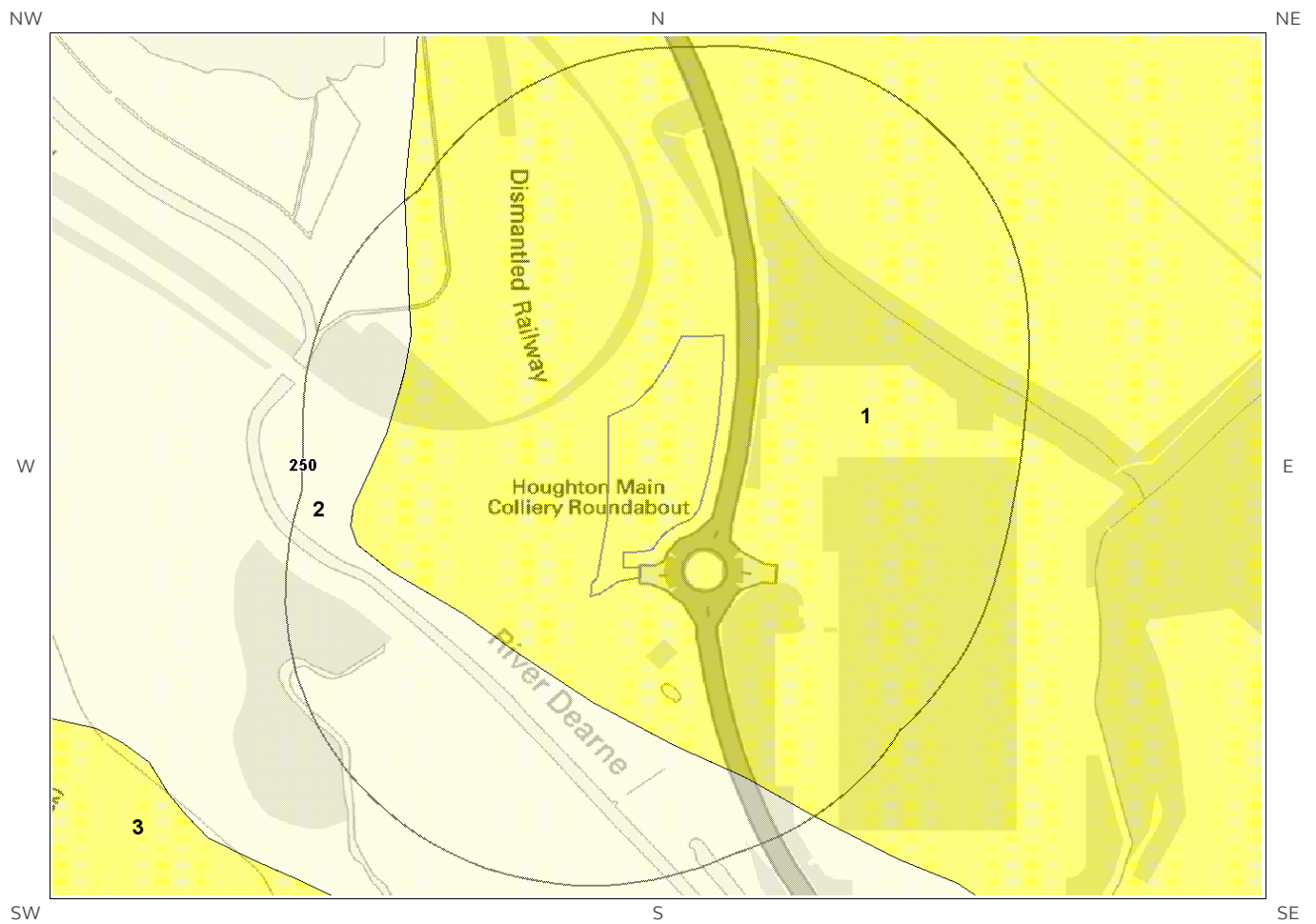


Compressible Deposits Legend

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6.5 Collapsible Deposits Map

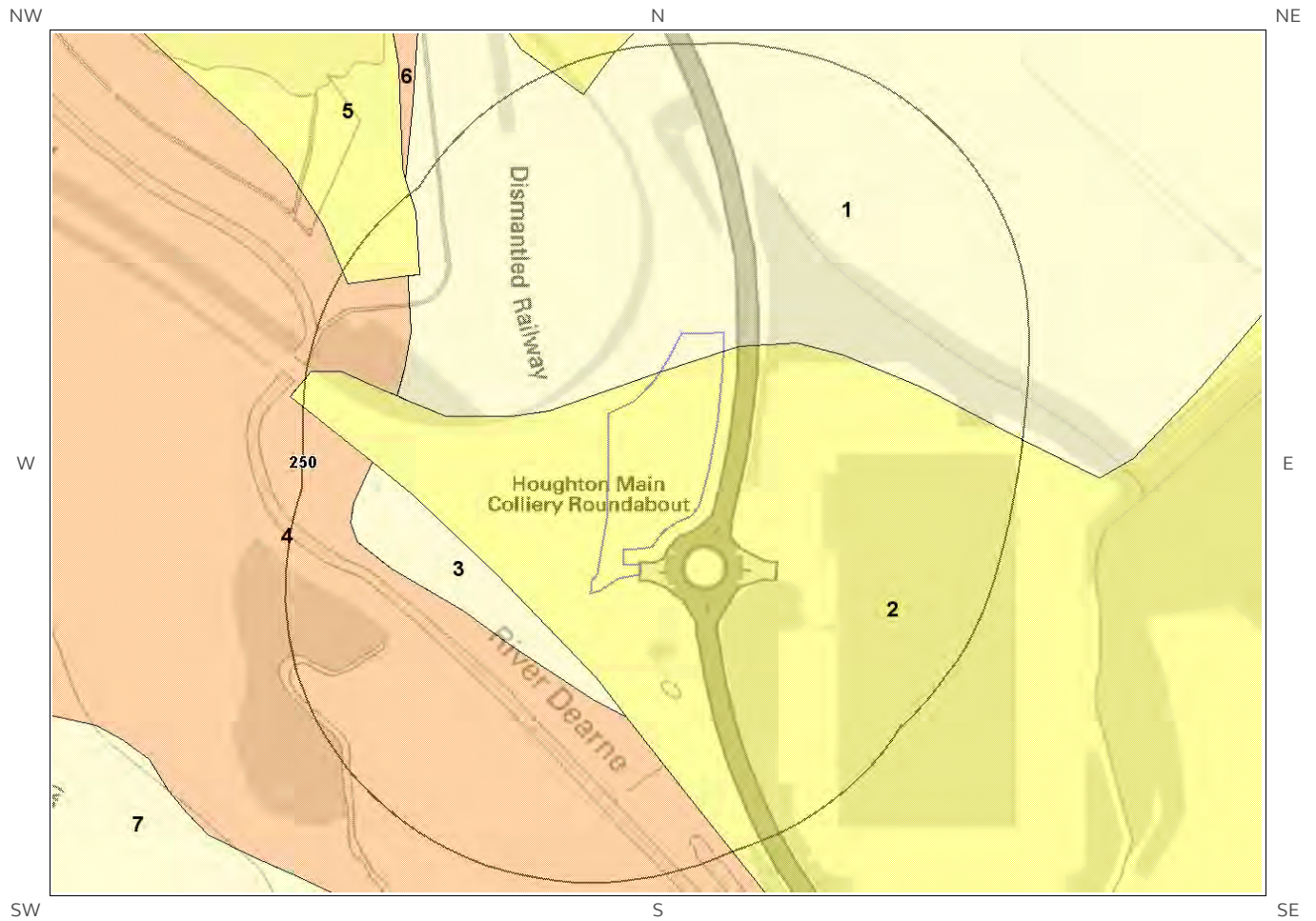


Collapsible Deposits Legend

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6.6 Running Sand Map



Running Sand Legend

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6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
3	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
4	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
5	28.0	SW	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

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

The following Landslides information provided by the British Geological Survey:

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

6.3 Ground Dissolution of Soluble Rocks

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
3	46.0	SW	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

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

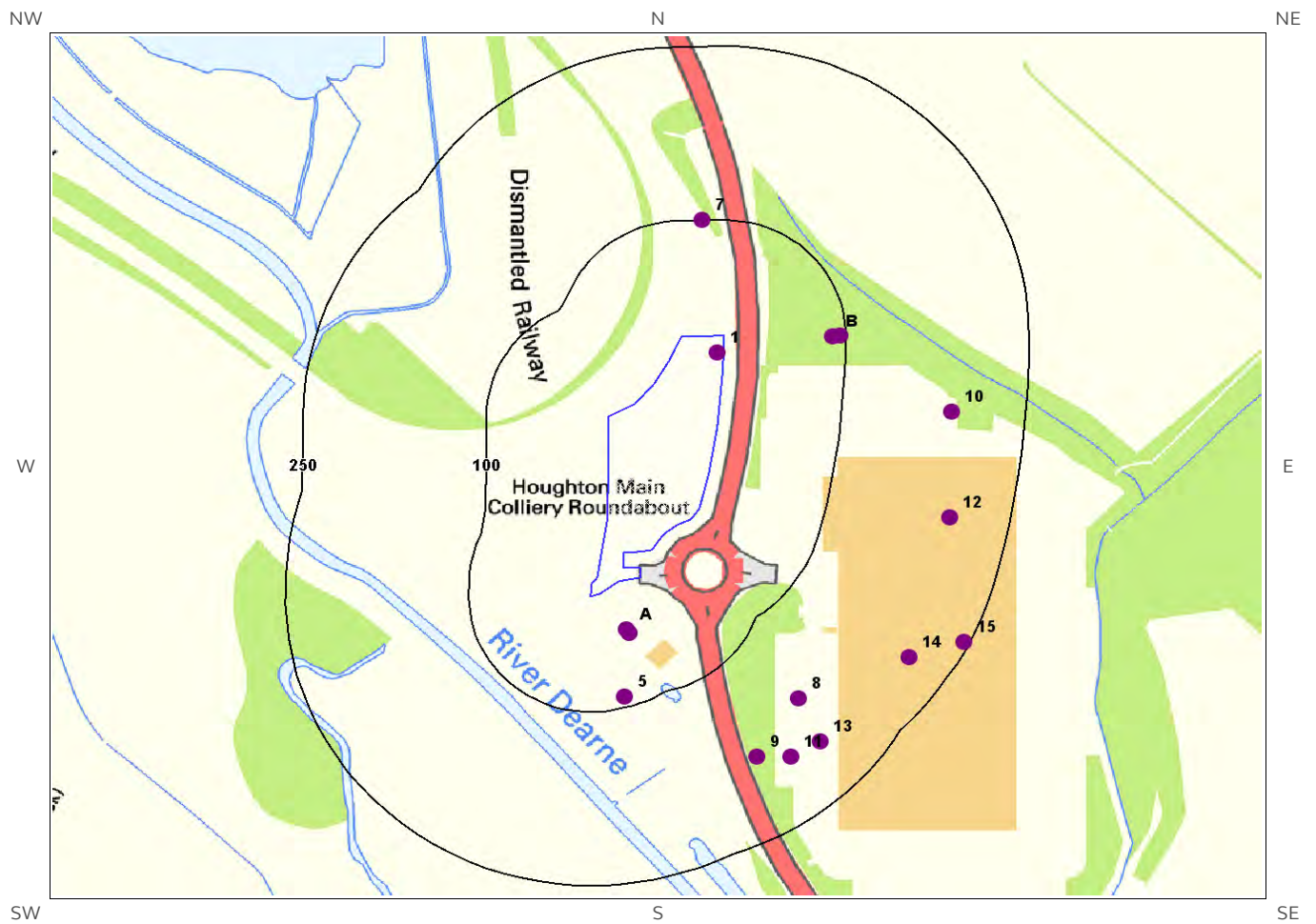
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

6.6 Running Sands

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

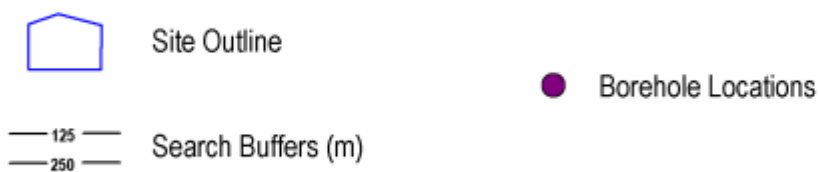
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
3	46.0	SW	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records Map



Borehole Records Legend

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7 Borehole Records

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

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

15

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	0.0	On Site	441763 406543	SE40NW22	32.61	HOUGHTON MAIN COLLIERY 11 U/G
2A	38.0	SE	441688 406304	SE40NW397	-1.0	HOUGHTON MAIN 2
3A	42.0	SE	441691 406301	SE40NW398	-1.0	HOUGHTON MAIN BOREHOLE
4B	89.0	E	441857 406557	SE40NW12/B	9.14	THREE BHS AT GRIMETHORPE
5	91.0	S	441687 406246	SE40NW19	37.8	HOUGHTON MAIN COLLIERY 4 U/G
6B	95.0	E	441863 406558	SE40NW20	31.39	HOUGHTON MAIN COLLIERY 5 U/G
7	100.0	N	441750 406658	SE40NW12/C	7.01	GRIMETHORPE
8	166.0	SE	441829 406244	SE40NW106	19.45	HOUGHTON MAIN COLLIERY NO.4A SURF BH
9	181.0	SE	441795 406194	SE40NW108	12.77	HOUGHTON MAIN COLLIERY NO.6A SURF BH
10	190.0	E	441955 406492	SE40NW12/A	8.84	THREE BHS AT GRIMETHORPE
11	197.0	SE	441823 406194	SE40NW365	-1.0	HOUGHTON MAIN BARNLEY TP 3
12	200.0	E	441953 406401	SE40NW364	-1.0	HOUGHTON MAIN BARNLEY TP 2
13	204.0	SE	441847 406207	SE40NW107	17.08	HOUGHTON MAIN COLLIERY NO.5A SURF BH
14	215.0	SE	441920 406280	SE40NW363	-1.0	HOUGHTON MAIN BARNLEY TP 1
15	246.0	SE	441965 406293	SE40NW105	33.1	HOUGHTON MAIN COLLIERY NO.1A SURF BH

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

#1: scans.bgs.ac.uk/sobi_scans/boreholes/105483
#4B: scans.bgs.ac.uk/sobi_scans/boreholes/105472
#5: scans.bgs.ac.uk/sobi_scans/boreholes/105480
#6B: scans.bgs.ac.uk/sobi_scans/boreholes/105481
#7: scans.bgs.ac.uk/sobi_scans/boreholes/105473
#8: scans.bgs.ac.uk/sobi_scans/boreholes/105588
#9: scans.bgs.ac.uk/sobi_scans/boreholes/105590
#10: scans.bgs.ac.uk/sobi_scans/boreholes/105471
#13: scans.bgs.ac.uk/sobi_scans/boreholes/105589
#15: scans.bgs.ac.uk/sobi_scans/boreholes/105587

8 Estimated Background Soil Chemistry

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

7

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
14.0	NW	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
30.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<100 mg/kg
35.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg

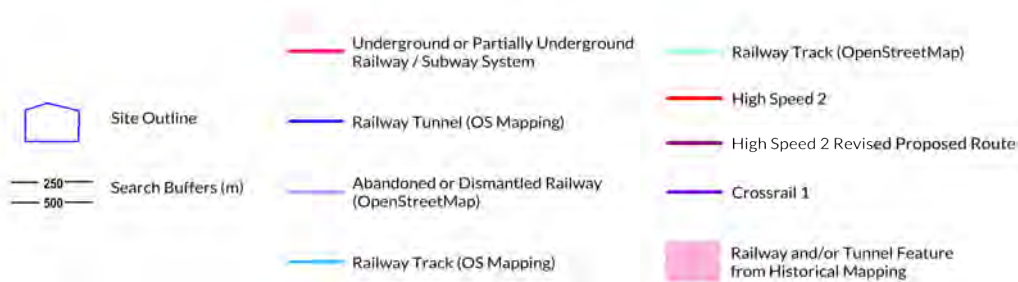
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels Map



Railways and Tunnels Legend

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9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

Have any historical railway or tunnel features been identified within the study site boundary? Yes

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	0	On Site	441504 406538	Mineral Railway Sidings	1938
2A	0	On Site	441606 406419	Railway Sidings	1904
3A	0	On Site	441606 406419	Railway Sidings	1948
4	0	On Site	441788 406268	Mineral Railway Sidings	1955
5	0	On Site	441777 406247	Mineral Railway Sidings	1967
6	0	On Site	441600 406553	Mineral Railway Sidings	1948

ID	Distance (m)	Direction	NGR	Details	Date
16	0	On Site	441612 406531	Railway Sidings	1906
17C	0	On Site	441649 406375	Railway Sidings	1931
18C	0	On Site	441649 406375	Railway Sidings	1906
19	0	On Site	441736 406347	Railway Sidings	1961
20D	0	On Site	441742 406232	Railway Sidings	1983
21D	0	On Site	441742 406232	Railway Sidings	1980
22	0	On Site	441605 406532	Mineral Railway Sidings	1931
23	3	SW	441620 406359	Railway Sidings	1961
24E	3	SW	441575 406401	Railway Sidings	1931
25E	3	SW	441575 406401	Railway Sidings	1906
26E	3	SW	441575 406401	Railway Sidings	1893
7F	12	SW	441572 406389	Railway Sidings	1890
27F	25	SW	441559 406396	Railway Sidings	1893
8	35	S	441891 406018	Railway Sidings	1948
9B	36	S	441888 406036	Railway Sidings	1931
10B	36	S	441888 406036	Railway Sidings	1938
11	37	S	441978 405988	Railway Sidings	1904
12	39	S	441871 406034	Railway Sidings	1938
28G	40	S	441690 406262	Railway Sidings	1890
29H	40	S	441690 406262	Railway Sidings	1906
30H	40	S	441690 406262	Railway Sidings	1931
31	40	S	441707 406220	Railway Sidings	1890
13G	41	S	441698 406262	Railway Sidings	1890
32	48	SE	441884 406007	Railway Sidings	1906
33	67	SE	441795 406249	Railway Sidings	1906
14	178	NW	441588 406707	Railway Sidings	1904
34	222	SE	441929 405932	Railway Sidings	1890
15	228	SE	442000 405949	Railway Sidings	1890

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

9.3 Historical Railways

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

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

Have any historical railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Status
30	NW	Dismantled
218	SE	Abandoned
243	W	Dismantled

Multiple sections of the same track may be listed in the detail above

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

9.4 Active Railways

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

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

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

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above

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

9.5 Railway Projects

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

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

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

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

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

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

Contact Details

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BGS Geological Hazards Reports and general geological enquiries

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Standard Terms and Conditions

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<https://www.groundsure.com/terms-and-conditions-sept-2016/>



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Groundsure
Reference:

RPS-3881239

Your Reference: RCEI52836

Report Date 15 May 2017

Report Delivery Method: Email - pdf

Groundsure Enviro Insight

Address: ASOS, PARK SPRING ROAD, BARNSELY, S72 7GX

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.

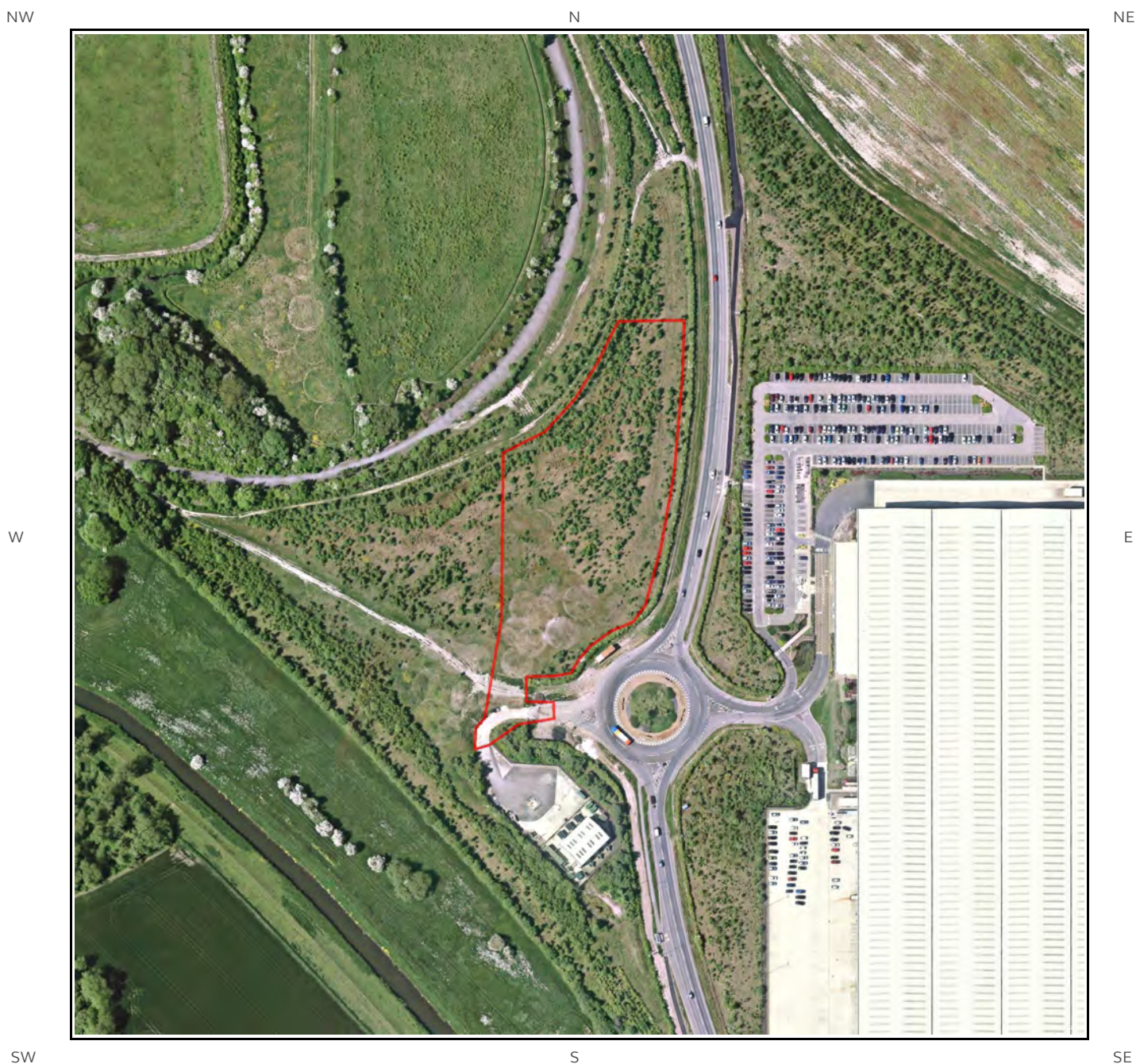
Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Groundsure Enviro Insight

Address: ASOS, PARK SPRING ROAD, BARNSELEY, S72 7GX
Date: 15 May 2017
Reference: RPS-3881239
Client: RPS Consultants Ltd



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Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	15
1.3 Additional Information – Historical Energy Features Database	15
1.4 Additional Information – Historical Petrol and Fuel Site Database	15
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	16
1.6 Potentially Infilled Land	16
2. Environmental Permits, Incidents and Registers Map	19
2. Environmental Permits, Incidents and Registers	20
2.1 Industrial Sites Holding Licences and/or Authorisations	20
2.1.1 Records of historic IPC Authorisations within 500m of the study site	20
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	20
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	20
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	20
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	21
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	21
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	21
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	21
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	22
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	22
2.2 Dangerous or Hazardous Sites	23
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents	23
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	23
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	23
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	23
3. Landfill and Other Waste Sites Map	24
3. Landfill and Other Waste Sites	25
3.1 Landfill Sites	25
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site	25
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site	25
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	26
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	26
3.2 Other Waste Sites	26
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	26
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site	26
4. Current Land Use Map	27
4. Current Land Uses	28
4.1 Current Industrial Data	28
4.2 Petrol and Fuel Sites	28
4.3 National Grid High Voltage Underground Electricity Transmission Cables	28
4.4 National Grid High Pressure Gas Transmission Pipelines	29

5. Geology	30
5.1 Artificial Ground and Made Ground.....	30
5.2 Superficial Ground and Drift Geology	30
5.3 Bedrock and Solid Geology	30
6 Hydrogeology and Hydrology	31
6a. Aquifer Within Superficial Geology	31
6b. Aquifer Within Bedrock Geology and Abstraction Licenses	32
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses	33
6d. Hydrogeology – Source Protection Zones within confined aquifer	34
6e. Hydrology – Detailed River Network and River Quality	35
6.Hydrogeology and Hydrology	36
6.1 Aquifer within Superficial Deposits.....	36
6.2 Aquifer within Bedrock Deposits.....	36
6.3 Groundwater Abstraction Licences.....	37
6.4 Surface Water Abstraction Licences.....	37
6.5 Potable Water Abstraction Licences.....	37
6.6 Source Protection Zones.....	38
6.7 Source Protection Zones within Confined Aquifer.....	38
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	38
6.9 River Quality.....	39
6.9.1 Biological Quality:.....	39
6.9.2 Chemical Quality:.....	39
6.10 Detailed River Network.....	40
6.11 Surface Water Features.....	41
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	42
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)	43
Map	43
7 Flooding	44
7.1 River and Coastal Zone 2 Flooding.....	44
7.2 River and Coastal Zone 3 Flooding.....	45
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	45
7.4 Flood Defences.....	46
7.5 Areas benefiting from Flood Defences.....	46
7.6 Areas benefiting from Flood Storage.....	46
7.7 Groundwater Flooding Susceptibility Areas.....	46
7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes.....	46
7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?.....	46
7.8 Groundwater Flooding Confidence Areas.....	47
8. Designated Environmentally Sensitive Sites Map	48
8. Designated Environmentally Sensitive Sites	49
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	49
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	49
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	49
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	49
8.5 Records of Ramsar sites within 2000m of the study site:.....	49
8.6 Records of Ancient Woodland within 2000m of the study site:	50
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	50
8.8 Records of World Heritage Sites within 2000m of the study site:.....	50
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	50

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	51
8.11 Records of National Parks (NP) within 2000m of the study site:	51
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	51
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	51
8.14 Records of Green Belt land within 2000m of the study site:.....	51
9. Natural Hazards Findings	52
9.1 Detailed BGS GeoSure Data.....	52
9.1.1 Shrink Swell.....	52
9.1.2 Landslides.....	52
9.1.3 Soluble Rocks.....	52
9.1.4 Compressible Ground.....	53
9.1.5 Collapsible Rocks.....	53
9.1.6 Running Sand.....	53
9.2 Radon.....	53
9.2.1 Radon Affected Areas.....	53
9.2.2 Radon Protection.....	54
10. Mining	55
10.1 Coal Mining.....	55
10.2 Non-Coal Mining.....	55
10.3 Brine Affected Areas	55
Contact Details	56
Standard Terms and Conditions	58

Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	9	15	32	66
1.2 Additional Information – Historical Tank Database	0	0	5	13
1.3 Additional Information – Historical Energy Features Database	0	0	0	0
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	3	6	20	46

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	1	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	1	0	4	2
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	0
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
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3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	2	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	1	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	1	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	1	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	Yes
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	None
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology		0-500m
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes	
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes	

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
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	0	2	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	Yes	No	No	Yes
6.10 Detailed River Network entries within 500m of the site	0	0	6	12	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes					
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Yes					
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low					
7.4 Are there any Flood Defences within 250m of the study site?	Yes					
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No					
7.6 Are there any areas used for Flood Storage within 250m of the study site?	Yes					
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface					
7.8 What is the 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	1
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	2	3
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

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

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Very Low
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Very Low
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Very Low
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

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

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

Note: Maps

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

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

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

1. Historical Land Use



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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: 122

ID	Distance [m]	Direction	Use	Date
1AA	0	On Site	Mineral Railway Sidings	1955
2AG	0	On Site	Cuttings	1904
3	0	On Site	Mineral Railway Sidings	1967
4A	0	On Site	Railway Sidings	1948
5E	0	On Site	Cuttings	1981
6AF	0	On Site	Cuttings	1988
7	0	On Site	Mineral Railway Sidings	1948
8	0	On Site	Mineral Railway Sidings	1938
9A	0	On Site	Railway Sidings	1904
10	12	SW	Railway Sidings	1890
11AH	21	NW	Cuttings	1988
12B	32	SE	Colliery	1988
13B	32	SE	Colliery	1981
14B	35	S	Colliery	1948
15B	35	S	Railway Sidings	1948
16C	36	S	Colliery	1938
17C	36	S	Colliery	1931
18D	36	S	Railway Sidings	1938
19D	36	S	Railway Sidings	1931
20	37	S	Railway Sidings	1904
21D	39	S	Railway Sidings	1938
22	41	S	Railway Sidings	1890
23B	42	S	Colliery	1938
24B	42	S	Colliery	1938
25A	53	W	Cuttings	1904
26A	53	W	Cuttings	1948
27AI	57	SE	Cuttings	1948
28E	58	NE	Cuttings	1904
29E	58	NE	Cuttings	1948
30F	59	NE	Cuttings	1955
31AJ	60	SE	Cuttings	1938
32AK	61	NE	Cuttings	1967
33AL	61	SE	Cuttings	1904
34F	62	NE	Cuttings	1938

35AB	108	SE	Unspecified Mine	1967
36AM	118	SE	Cuttings	1904
37	120	SE	Railway Building	1904
38Z	145	SE	Unspecified Tanks	1988
39AN	166	SE	Colliery	1955
40K	172	E	Refuse Heap	1967
41	172	W	Railway Building	1938
42G	178	NW	Railway Sidings	1904
43G	185	NW	Railway Building	1904
44H	209	SE	Unspecified Ground Workings	1955
45AD	211	SE	Colliery	1904
46H	211	SE	Unspecified Pit	1938
47H	211	SE	Unspecified Pit	1938
48H	222	SE	Unspecified Pit	1948
49I	223	SE	Colliery	1890
50H	226	SE	Unspecified Ground Workings	1938
51H	226	SE	Unspecified Ground Workings	1931
52I	228	SE	Railway Sidings	1890
53M	228	SE	Unspecified Commercial/Industrial	1948
54J	234	SE	Unspecified Tanks	1988
55J	234	SE	Unspecified Tank	1981
56K	247	E	Unspecified Tanks	1988
57L	259	SE	Unspecified Pit	1931
58L	259	SE	Unspecified Pit	1938
59L	259	SE	Unspecified Pit	1955
60L	260	SE	Unspecified Pit	1938
61L	260	SE	Unspecified Pit	1938
62L	262	SE	Unspecified Pit	1948
63L	271	SE	Unspecified Tank	1981
64L	271	SE	Unspecified Tanks	1988
65M	273	E	Railway Sidings	1948
66M	273	E	Railway Sidings	1938
67N	274	SE	Railway Sidings	1988
68N	274	SE	Railway Sidings	1981
69AO	277	SE	Unspecified Pit	1904
70O	283	SE	Cuttings	1948
71O	285	SE	Cuttings	1955
72O	286	SE	Cuttings	1938
73O	288	SE	Cuttings	1931
74O	288	SE	Cuttings	1938
75P	313	SE	Cuttings	1938
76P	313	SE	Cuttings	1955
77P	315	SE	Cuttings	1948

78P	315	SE	Cuttings	1938
79P	315	SE	Cuttings	1931
80Q	327	E	Cuttings	1955
81AP	341	E	Refuse Heap	1988
82Q	344	E	Cuttings	1904
83Q	344	E	Cuttings	1948
84X	344	E	Refuse Heap	1981
85R	344	SE	Refuse Heap	1948
86R	345	SE	Refuse Heap	1931
87AQ	345	E	Refuse Heap	1967
88R	346	SE	Refuse Heap	1938
89R	346	SE	Refuse Heap	1938
90R	348	SE	Refuse Heap	1955
91Q	352	E	Cuttings	1932
92AR	357	SE	Unspecified Pit	1904
93S	374	E	Refuse Heap	1939
94S	375	E	Refuse Heap	1955
95T	378	E	Refuse Heaps	1948
96T	378	E	Refuse Heaps	1948
97S	381	E	Refuse Heap	1929
98U	396	E	Railway Sidings	1948
99U	399	E	Railway Sidings	1932
100U	418	E	Refuse Heap	1932
101U	418	E	Refuse Heap	1932
102U	428	E	Refuse Heap	1948
103V	457	SE	Refuse Heap	1904
104V	457	SE	Refuse Heap	1948
105V	459	SE	Refuse Heap	1938
106V	459	SE	Refuse Heap	1938
107V	461	SE	Refuse Heap	1938
108V	461	SE	Refuse Heap	1931
109W	463	SE	Pump House	1955
110W	464	SE	Pump House	1948
111W	467	SE	Pump House	1938
112W	467	SE	Pump House	1938
113W	467	SE	Pump House	1931
114X	476	SE	Refuse Heap	1955
115AV	479	SE	Refuse Heap	1904
116	485	NW	Railway Sidings	1955
117Y	487	SE	Railway Sidings	1948
118Y	488	SE	Railway Sidings	1939
119Y	490	SE	Railway Sidings	1929
120AU	495	E	Refuse Heap	1939
121AW	499	SE	Refuse Heap	1939
122	500	NW	Railway Sidings	1948

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:

18

ID	Distance (m)	Direction	Use	Date
123Z	145	SE	Tanks	1983
124J	232	SE	Unspecified Tank	1983
125J	234	SE	Unspecified Tank	1980
126J	234	SE	Unspecified Tank	1983
127J	245	E	Unspecified Tank	1983
128AA	263	SE	Unspecified Tank	1931
129AA	268	SE	Unspecified Tank	1961
130O	271	SE	Unspecified Tank	1983
131M	276	E	Unspecified Tank	1983
132	285	E	Unspecified Tank	1983
133AB	297	SE	Unspecified Tank	1983
134AS	387	SE	Tanks	1931
135AC	432	SE	Tanks	1931
136AC	436	SE	Tanks	1931
137AD	457	SE	Unspecified Tank	1906
138AE	483	SE	Unspecified Tank	1964
139AE	491	SE	Tanks	1931
140AE	497	SE	Tanks	1931

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:

0

Database searched and no data found.

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:

0

Database searched and no data found.

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:

0

Database searched and no data found.

1.6 Potentially Infilled Land

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

75

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

ID	Distance(m)	Direction	Use	Date
141E	0	On Site	Cuttings	1981
142AF	0	On Site	Cuttings	1988
143AG	0	On Site	Cuttings	1904
144AH	21	NW	Cuttings	1988
145B	32	SE	Colliery	1988
146B	32	SE	Colliery	1981
147B	35	S	Colliery	1948
148B	42	S	Colliery	1938
149B	42	S	Colliery	1938
150A	53	W	Cuttings	1904
151A	53	W	Cuttings	1948
152AI	57	SE	Cuttings	1948
153E	58	NE	Cuttings	1904
154E	58	NE	Cuttings	1948
155F	59	NE	Cuttings	1955
156AJ	60	SE	Cuttings	1938
157AK	61	NE	Cuttings	1967
158AL	61	SE	Cuttings	1904
159F	62	NE	Cuttings	1938
160AB	108	SE	Unspecified Mine	1967
161AM	118	SE	Cuttings	1904
162AN	166	SE	Colliery	1955
163K	172	E	Refuse Heap	1967
164H	209	SE	Unspecified Ground Workings	1955

165AD	211	SE	Colliery	1904
166H	211	SE	Unspecified Pit	1938
167H	211	SE	Unspecified Pit	1938
168H	222	SE	Unspecified Pit	1948
169I	223	SE	Colliery	1890
170AA	259	SE	Unspecified Pit	1955
171AA	260	SE	Unspecified Pit	1938
172AA	260	SE	Unspecified Pit	1938
173AA	262	SE	Unspecified Pit	1948
174AO	277	SE	Unspecified Pit	1904
175O	283	SE	Cuttings	1948
176O	285	SE	Cuttings	1955
177	285	E	Pond	1988
178L	286	SE	Cuttings	1938
179P	313	SE	Cuttings	1938
180P	313	SE	Cuttings	1955
181P	315	SE	Cuttings	1948
182Q	327	E	Cuttings	1955
183AP	341	E	Refuse Heap	1988
184Q	344	E	Cuttings	1948
185Q	344	E	Cuttings	1904
186X	344	E	Refuse Heap	1981
187R	344	SE	Refuse Heap	1948
188AQ	345	E	Refuse Heap	1967
189R	346	SE	Refuse Heap	1938
190R	346	SE	Refuse Heap	1938
191R	348	SE	Refuse Heap	1955
192Q	352	E	Cuttings	1932
193AR	357	SE	Unspecified Pit	1904
194AS	362	SE	Pond	1988
195S	374	E	Refuse Heap	1939
196S	375	E	Refuse Heap	1955
197T	378	E	Refuse Heaps	1948
198T	378	E	Refuse Heaps	1948
199	383	NW	Pond	1988
200AT	406	S	Pond	1981
201AT	406	S	Pond	1988
202U	418	E	Refuse Heap	1932
203U	418	E	Refuse Heap	1932
204AC	423	SE	Pond	1988
205AU	428	E	Refuse Heap	1948
206	436	SE	Ponds	1967
207	445	E	Pond	1981
208V	457	SE	Refuse Heap	1904
209V	457	SE	Refuse Heap	1948
210V	459	SE	Refuse Heap	1938

211V	459	SE	Refuse Heap	1938
212AQ	476	SE	Refuse Heap	1955
213AV	479	SE	Refuse Heap	1904
214AU	495	E	Refuse Heap	1939
215AW	499	SE	Refuse Heap	1939

2. Environmental Permits, Incidents and Registers Map



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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:

1

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1A	191	W	441470 406360	Name: Rjb Mining Ltd - Outlet D2 - Sw Status: Not Active Receiving Water: River Dearne Authorised Substances: Iron

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
9	188	SE	441919 406331	Address: Rjb Mining Houghton Main Occs, Little Houghton, Barnsley, S72 0HY Process: coal/gypsum/carbon process Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

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:

7

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

ID	Distance (m)	Direction	NGR	Details
2	0	On Site	441700 406400	Address: HOUGHTON MAIN, SANDHILL, BARNSELY, SOUTH YORKSHIRE Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 3712 Permit Version: 1 Receiving Water: - Status: REVOKED - UNSPECIFIED Issue date: 12/09/1983 Effective Date: 12-Sep-1983 Revocation Date: 21/11/1994

ID	Distance (m)	Direction	NGR	Details	
3A	191	W	441470 406360	Address: HOUGHTON MAIN OCCS, CONSENT WRA7231, SOUTH YORKSHIRE Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: WRA7231 Permit Version: 1	Receiving Water: RIVER DEARNE Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 23/10/1996 Effective Date: 23-Oct-1996 Revocation Date: 07/05/1997
4A	191	W	441470 406360	Address: HOUGHTON MAIN OCCS, CONSENT WRA7231, SOUTH YORKSHIRE Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: WRA7231 Permit Version: 1	Receiving Water: RIVER DEARNE Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 23/10/1996 Effective Date: 23-Oct-1996 Revocation Date: 07/05/1997
5A	191	W	441470 406360	Address: HOUGHTON MAIN OCCS, CONSENT WRA7231, SOUTH YORKSHIRE Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: WRA7231 Permit Version: 2	Receiving Water: RIVER DEARNE Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 08/05/1997 Effective Date: 08-May-1997 Revocation Date: 11/06/2002
6A	191	W	441470 406360	Address: HOUGHTON MAIN OCCS, CONSENT WRA7231, SOUTH YORKSHIRE Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: WRA7231 Permit Version: 2	Receiving Water: RIVER DEARNE Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 08/05/1997 Effective Date: 08-May-1997 Revocation Date: 11/06/2002
7	402	SE	441900 406000	Address: NCB,HOUGHTON MAIN COLLIERY, SURFACE, DRAINAGE INTERCEPTOR Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 3505 Permit Version: 1	Receiving Water: - Status: REVOKED - UNSPECIFIED Issue date: 12/09/1983 Effective Date: 12-Sep-1983 Revocation Date: 15/02/1991
8	467	SE	442100 406100	Address: NCB,HOUGHTON MAIN COLLIERY, SURFACE, DRAINAGE INTERCEPTOR Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 3505 Permit Version: 1	Receiving Water: - Status: REVOKED - UNSPECIFIED Issue date: 12/09/1983 Effective Date: 12-Sep-1983 Revocation Date: 15/02/1991

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

0

Database searched and no data found.

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

0

Database searched and no data found.

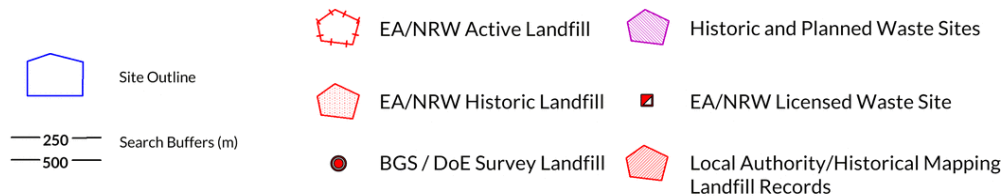
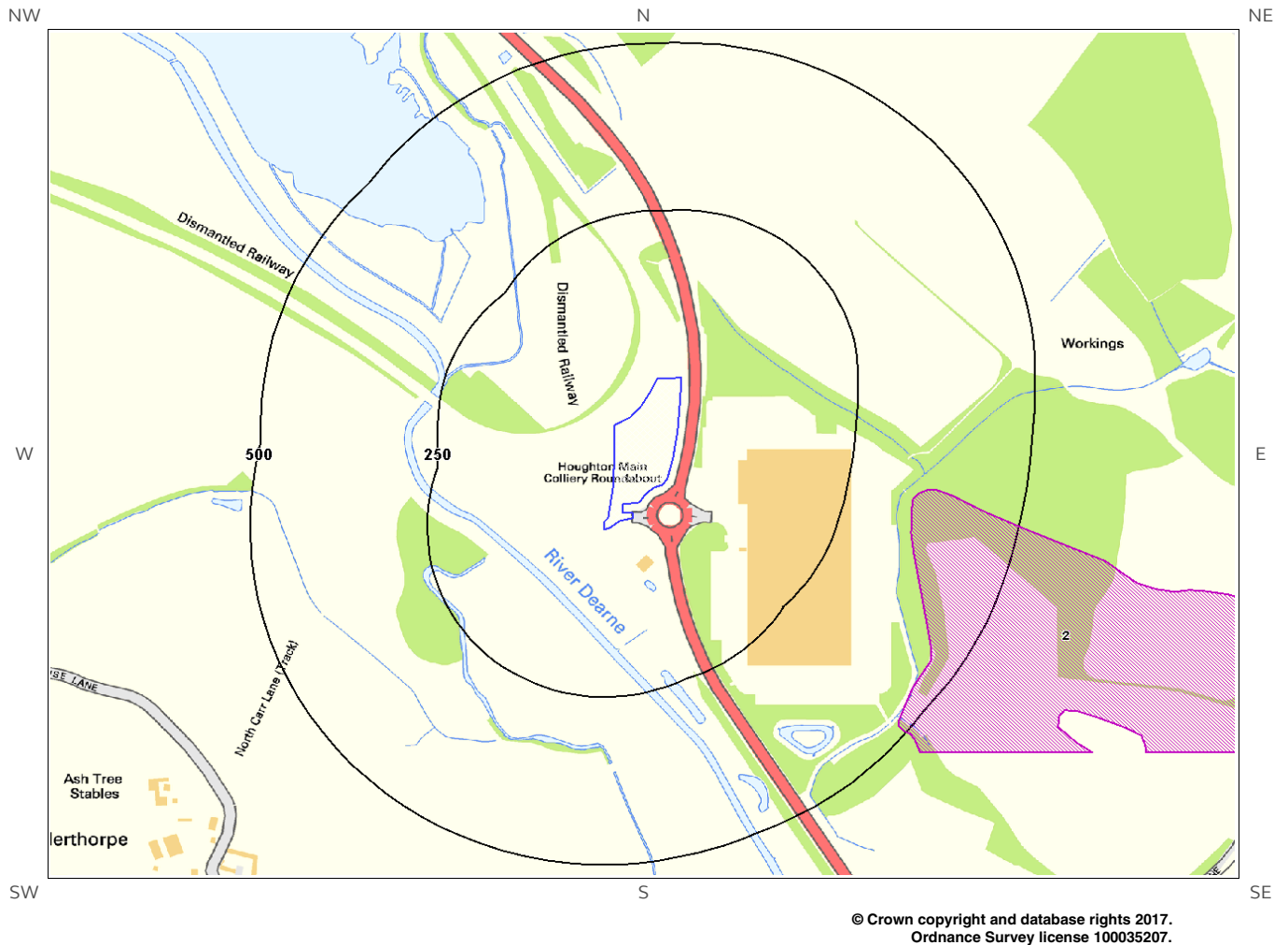
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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

0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

3

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

ID	Distance (m)	Direction	NGR	Details
Not shown	852	NE	442100 407400	Site Address: Quarry, Park Lane, Great Houghton, Near Barnsley, South Yorkshire Waste Licence: - Site Reference: - Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Hemsworth Rural District Council Licence Holder: - First Recorded: 31-Jan-1949 Last Recorded: -
Not shown	972	NW	441100 407600	Site Address: National Coal Board, New Park Spring Tip, Grimethorpe, Barnsley Waste Licence: Yes Site Reference: 20B160(45), 4400/B1060, WD20 B160, 20B1060, 4400/0448 Waste Type: Industrial, Liquid, sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 17-Nov-1977 Licence Surrendered: 22-Feb-1996 Licence Holder Address: Coalite Works, Grimethorpe, Barnsley Operator: Coalite and Chemical Products Licence Holder: Coalite and Chemical Products Limited First Recorded: 17-Nov-1977 Last Recorded: 31-Dec-1995
Not shown	1360	N	441400 407900	Site Address: Part of New Park Spring Tip, Wood Lane, Grimethorpe, Barnsley Waste Licence: Yes Site Reference: WD20 B175, 4400/B175, 20B175 Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 11-Jan-1978 Licence Surrendered: 10-Feb-1993 Licence Holder Address: Barnsley Area, Grimethorpe, Barnsley Operator: - Licence Holder: National Coal Board 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	813	NE	442100.0 407300.0	Address: Quarry, Park Lane, Gt Houghton, nr Barnsley BGS Number: 2524.0 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:

0

Database searched and no data found.

3.2 Other Waste Sites

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

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	344	E	442350 406195	Type of Site: Ground Workings and Refuse Heap Site Address: N/A Planning Application Reference: N/A Date: 1961 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

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

0

Database searched and no data found.

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: 1

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	147	SE	Electricity Sub Station	441855 406306	Electricity Sub Station, S72	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

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

Lex Code	Description	Rock Type
MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

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