Environmental
Geotechnical
Specialists

RGS

PHASE 1 ENVIRONMENTAL
DESK STUDY
REPORT

job number	C4313/24/E/6607
date	07.05.2024
site address	10-12 Windmill Hill Lane, Emley Moor, Huddersfield, HD8 9TA
written by	I. Sakoor
checked by	R. Palmer
issued by	S. Hale

Please consider the environment before printing this report.

Constructionline
A UK GOVERNMENT CERTIFICATION SERVICE

QMS ISO 9001 : 2015 REGISTERED Cert No. 14123657

QMS ISO 14001 : 2015 REGISTERED Cert No. 14127804

QMS ISO 45001 : 2018 REGISTERED Cert No. 14130281

CITATION APPROVED HEALTH & SAFETY SYSTEM Registered Member

UKAS United Kingdom Accreditation Service

<ENVIRONMENTAL><GEOTECHNICAL>

RGS Environmental Geotechnical Specialists
Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
01484 604354 Company No. 5130864

Contents

			Page
1.		Introduction	1
2.		Review and Summary of Published Data	2
	2.1	Historical Land Use	3
	2.2	Published Geology and Geological Hazards	3
	2.3	Construction Issues	4
	2.3.1	Foundation Construction	4
	2.3.2	Site Won Materials	4
	2.3.3	Disposal of Site Materials	4
	2.4	Mining and Natural Cavities	5
	2.4.1	Coal Mining	5
	2.4.2	Non-Coal Mining	5
	2.5	Waste Management and Gas Monitoring	5
	2.6	Hydrogeology, Hydrology	6
	2.7	Sensitive Land Use	7
	2.8	Industrial Land Use and Potential Sources of Contamination	7
3.		Preliminary Qualitative Risk Assessment	9
	3.1	Conceptual Ground Model & Preliminary Qualitative Risk Assessment	10
4.		Intrusive Investigation	13
	4.1	Site Investigation Philosophy	13
	4.2	Site Specific Investigation	13
	4.2.1	Contamination Assessment	14
	4.2.2	Geotechnical Assessment	15
	4.2.3	Reporting	16
5.		References	17

Appendices

1.	Site Plans
2.	Historical Maps
3.	Groundsure Reports
4.	Photographs
5.	Coal Authority Report – Coal Mining Risk Assessment

Please consider the environment before printing this report.

Report on a Phase One Desk Study

Location:	10-12 Windmill Hill Lane, Emley Moor, Huddersfield, HD8 9TA.		
For:	Whitshaw Builders Ltd.		
Report No.	C4313/24/E/6607	Report date:	May 2024

For and on behalf of **Rogers Geotechnical Services Ltd**

Imran Sakoor BEng FGS Geo-environmental Engineer	**Rob Palmer** MSc FGS ACIEH Engineering Director

1. Introduction

The site comprises an area of land associated with 10-12 Windmill Hill Lane, Emley Moor, Huddersfield, HD8 9TA. The site is approximately 0.08 hectares in size and its National Grid reference is centred around 422557 413641.

It is understood that the development proposals currently comprise the demolition of the existing properties and the construction of two detached properties with gardens and driveways. In order to assist with this decision-making process, and any planning and construction aspects of the development, a phase one environmental desk study has been commissioned and is the subject of this report.

In accordance with issued guidance, a site walkover was conducted on the 25th April 2024 and the following observations were made:

General site description/current site use
The site comprises the rear garden area to Nos. 10-12 Windmill Hill Lane. A couple of shed structures are present, one of which is brick built.

Site boundaries/access
The site is accessible via a driveway off Windmill Hill Lane.

Topography
The site was noted to be relatively flat.

Surface cover of site
The site was noted to be covered by grass.

Visible evidence of contamination/ contaminative sources
No visible signs of contamination were present during the time of the walkover.

Presence of vegetation and wildlife
Vegetation seems to be healthy with no evidence of degradation. There were no obvious signs of invasive flora, fauna, nesting birds, burrowing animals or edible plants observed during the time of the site walkover.

Services
The status of underground services is unknown. Overhead BT cables can be seen running along the boundary to Windmill Hill Lane.

Site neighbours
There are residential houses present nearby, however, the site is generally located within a predominantly rural area.

In order to ensure that the site is fully characterised and to comply with the Environment Act 1995[1], a Phase One Desk Study has been commissioned by Whitshaw Builders Ltd. The desk study is intended to assess the environmental impact of historical, current and future factors on the development. This report will present the data obtained and provide a conceptual ground model and preliminary risk assessment as well as discussing the scope of any intrusive investigation that may be required. This report does not consider ecological impacts (e.g. bats) or botanical risks (e.g. Japanese Knotweed).

2. Review and Summary of Published Data

As a part of this desk study the following data has been considered.

- Site Plan - Appendix 1
- Historical maps - Appendix 2
- Groundsure Reports - Appendix 3
- Photographs - Appendix 4
- Coal Mining Risk Assessment - Appendix 5

The data obtained from the above-mentioned sources has been summarised below[2].

[1]S57 of the Environment Act 1995 inserted the contaminated land regime into the Environmental Protection Act 1990 (Part 2A). The regime **'provides a risk-based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment'** See http://www.environment-agency.gov.uk/research/planning/40405.aspx. This places a duty on local authorities to inspect their areas for contaminated land and require its remediation using the 'suitable for use' approach. Much of this duty is discharged via the planning regime under the Town and Country Planning Act 1990 as historical land contamination is a 'material planning consideration.' The local authorities are required to secure the removal of unacceptable risks via remediation of the land, to therefore ensure the site is suitable for its new use. This is fulfilled via completion of a Phase One Environmental Desk Study, Phase Two Intrusive Investigation, Phase Three Remediation Strategy and Phase Four Validation Report. Therefore, as a minimum, once a site has been developed it should not be capable of being designated as 'contaminated land' under Part 2A of the Environmental Protection Act 1990, as inserted by the Environment Act 1995 (see also PPS 23 Planning and Pollution Control Section 8)
[2] This report is a summary only and reference must be made in full to the information provided in the Groundsure Report.

2.1 Historical Land Use

Table 1: Historical Land Use[3]		
HISTORICAL MAPPING SUMMARY		
Map Dates	**On site**	**Within 250m**
1854 - 1913	At the start of this period, the site is located within a rural area. A small building, anticipated to be residential, is present within the SW corner of the site.	Old coal shafts – 50m SE. Allotment gardens – 20m N.
1929 – 2024	By 1959, the building located within the SW corner appears to have been split into two discrete buildings. A couple of sheds are present along the eastern boundary. By 1987, the sheds have been replaced by one single structure. Residential housing starts to appear along Windmill Hill Lane by 1959. No significant changes can be seen within the surrounding area.	Old coal shafts – 50m SE. No longer present by 1959. Allotment gardens – 20m N. No longer labelled after 1929. Pond – 245m N.

NB. All distances given are approximate only.

2.2 Published Geology and Geological Hazards

Table 2: Geological Data for the Site			
BGS MAPPING DATA			
Strata Type	**Strata Name[4]**	**Previous Name[4]**	**Description[5]**
Made Ground/Fill	N/A	N/A	Not indicated on site although previous construction may have resulted in the presence of made ground.
Superficial Geology	N/A	N/A	Not indicated to underlie the site.
Solid Geology	Pennine Lower Coal Measures Formation	Lower Coal Measures	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils the lower part, and more numerous and thicker coal seams in the upper part.
GEOLOGICAL FEATURES			
Type	**Location**	**Features**	**Comments**
Mining Activity	On site	Coal mining	The study site is located within the specified search distance of an identified mining area.
Linear Features	32m W 80m SW	Fault	Normal fault, displacement unknown. This fault is not anticipated to affect the site.
	113m W	Coal Seam	3rd Brown Metal coal seam (3BM). Observed.
Landslip Deposits	No data	No data	No data.

[3] See Appendix 3
[4] Sources: British Geological Survey (NERC) Map Sheets 77; Huddersfield; Solid and Drift Edition, and Geology of Britain Viewer [*online resource from www.bgs.ac.uk*]
[5] Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [*online resource from www.bgs.ac.uk*]

BGS BOREHOLE DATA			
Reference[6]	**Location**	**Depth**	**Strata Description**
None present within 250m of the site.			

NATURAL GROUND SUBSIDENCE & HAZARDS[7]	
Type	**Risk Rating**
Potential for shrinking or swelling clay ground stability	Very low.
Potential for running sand ground stability	Negligible.
Potential for compressible ground stability	Negligible.
Potential for collapsible ground stability hazards	Very Low.
Potential for landslide ground stability	Very low.
Potential for ground dissolution stability	Negligible.
Radon	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. No radon protective measures are necessary.

2.3 Construction Issues

2.3.1 Foundation Construction

On the basis of the prevailing geology and assuming that there are no areas of significantly filled ground, it is anticipated that shallow strip or spread foundations could be utilised at this site. It should be appreciated that an intrusive investigation will be required to validate this opinion. Moreover, it is possible that undifferentiated strata within the Pennine Lower Coal Measures Formation may include very fine-grained rocks which are likely to have weathered to cohesive soils at or near the surface. Such soils could be sensitive to soil moisture variations and thus be susceptible to desiccation as result of tree root action. In light of this, it is possible that footings within the zone of influence of trees (existing or previously removed), may need to founded at extended depths in excess of 1m.

2.3.2 Site Won Materials

Should any residual mudstone be encountered at shallow depth over much of the site, this material is likely to be relatively difficult to re-engineer as a construction material. Therefore, depending on the results of laboratory testing, it may possible to modify/stabilise the soil using lime and/or cement to form a suitable sub-base replacement for pavements and hard standings.

2.3.3 Disposal of Site Materials

If made ground is present, then contamination/WAC testing will be required to establish the nature of the underlying soil before disposal to a licensed landfill site. However, it is anticipated that the naturally occurring soils would not be significantly contaminated, thus would probably be accepted by a waste disposal site catering for inert material.

[6] http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html
[7] See Groundsure report

2.4 Mining and Natural Cavities

2.4.1 Coal Mining

The Groundsure Report states that the site is within an area that may be affected by coal mining. As such, a Coal Mining Risk Assessment has been undertaken by the Coal Authority in September 2023. This document considers a medium risk from potential shallow unrecorded coal mining within the Second Brown Metal (2BM) and Third Brown Metal (3BM) coal seams.

In view of this, intrusive investigation to determine the presence of coal workings is required. Additionally, due to a nearby fault, it is recommended that a gas risk assessment is completed for the site.

For further details, see the Coal Authority Coal Mining Risk Assessment.

2.4.2 Non-Coal Mining

The Groundsure data does not indicate the site to have been subject to mining of minerals other than coal.

2.5 Waste Management and Gas Monitoring

Table 3: Landfill Data and Artificial Ground, Recorded and Anticipated

ENVIRONMENT AGENCY, LOCAL AUTHORITY, BGS & HISTORIC LANDFILLS			
	Location	**Comments**	**Monitoring Requirement**
Active Landfill	Within 250m	None recorded within 250m	N
Historic Landfill	90m NE	Fletcher Park (1977)	N
Historic waste sites	Within 250m	None recorded within 250m	-
Licenced waste sites	Within 250m	None recorded within 250m	-
Waste Exceptions	33m N, 45m NE	Using waste exemption. Both agricultural and non-agricultural waste. Use of waste in construction. Using waste exemption. On a farm. Use of waste in construction.	-
	45m NE	Using waste exemption. On a farm. Spreading waste of agricultural land to confer benefit.	-
	84m SW	Using waste exemption. Agricultural waste only. Use of waste for a specified purpose. Treating waste exemption. Agricultural waste only. Cleaning, washing, spraying or coating relevant waste. Disposing of waste exemption. Agricultural waste only. Burning waste in the open.	-

		Using waste exemption. Agricultural waste only. Spreading waste on agricultural land to confer benefit.	
	115m SW	Using waste exemption. Agricultural waste only/on a farm. Spreading waste on agricultural land to confer benefit.	-
MADE GROUND & INFILLED GROUNDWORKINGS			
Description	**Location**	**Comments**	**Monitoring Requirement**
Records of Potentially Infilled Features	50m SW	Old coal shafts (1913)	Y
	224 – 227m NE	Unspecified heaps (1948 – 1951)	N

2.6 Hydrogeology, Hydrology

Table 4: Ground/Controlled Water Sensitivity and Flooding

ENVIRONMENT AGENCY AQUIFER DESIGNATION[8]		
Strata	**Designation**	**Description**
Solid Geology On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
GROUNDWATER SENSITIVITY[9]		
Description	**Location**	**Details**
Source Protection Zone	-	None recorded within 250m.
Abstraction Licences	-	None recorded within 250m.
Records of Part A(2) and Part B Activities and Enforcements	133m NE	Process: other mineral processes. Status: historical permit. Permit type: Part B.
Records of Licensed Discharge Consents	-	None recorded within 250m.
CONTROLLED WATERS[10]		
Description	**Location**	**Details**
River Network Entries	111m SE 124m E 124m – 125m E	Inland river. Lake, loch or reservoir. Inland river.
Surface Water Features	Within 250m	3 surface water records present within 250m. Unknown type.

POLLUTION INCIDENTS[11]			
Pollutant	**Receptor**	**Location**	**Date**
Inert materials and wastes	Water Category 4: (No impact) Land Category: 3 (Minor) Air Category: 4 (No impact)	137m SW	May 2002

[8] See Appendix 2
[9] See Appendix 2
[10] See Appendix 2
[11] See Appendix 2

ENVIRONMENT AGENCY FLOOD RISK[12]		
Description	**Location**	**Details**
Zone 2	-	The site is not situated within a Zone 2 flood plain.
Zone 3	-	The site is not situated within a Zone 3 flood plain.
Flood Defences	-	None recorded within 250m.
Groundwater Flooding Area	-	Negligible potential for groundwater flooding to occur.

2.7 Sensitive Land Use

Table 5: Sensitive Land Uses within 250m

REGISTERED SENSITIVE LAND USES [13]		
Description	**Location**	**Details**
Nitrate Vulnerable Zone	On site	River Dearne NVZ.
Green Belt Land	On site	South and West Yorkshire.

2.8 Industrial Land Use and Potential Sources of Contamination

In order for a conceptual site model and preliminary risk assessment to be completed the historical maps and Groundsure data requires analysis to identify any past or present activities on the site and in the area that may have the potential to cause contamination on the site. Guidance has been issued by the Environment Agency, NHBC and Chartered Institute of Environmental Health.[14] Within this document, annex 3 provides examples of important contaminants that are associated with individual uses of land. This data assists in the formulation of any chemical testing regime.

Those that we consider potentially contaminative according to the guidance are given below:

Table 6: Potentially Contaminative Sources

HISTORICAL		
Land Use	**Location**	**Classification**
Historical construction Old coal shafts	On site 50m SE	Artificial/made ground.
Unspecified heaps	224 – 227m NE	Unspecified works/factories/features.
CURRENT		
Land Use	**Location**	**Classification**
Wind turbine	208m E	Unspecified works/factories/features.

[12] See Appendix 2
[13] See Appendix 2
[14] Guidance for the Safe Development of Housing on Land Affected by Contamination, R&D Publication 66: 2008 Volume 1 and 2.

TANKS (Buried and Above Ground)		
Land Use	**Location**	**Classification**
	-	None recorded within 250m.
Overground Storage Tanks	-	None recorded within 250m.

3. Preliminary Qualitative Risk Assessment

The potential of contamination hazards on the land has been identified and the risks associated with them are assessed in the following preliminary risk assessment in accordance with industry practice and the 'suitable for use' approach. This has been conducted using the source-pathway-receptor approach. This method dictates that there must be a risk contaminant produced at a 'source' in sufficient concentration to cause harm and there must be a 'pathway' for the contaminant to reach an identifiable 'receptor' for the linkage to be proved and a contamination hazard to be considered present. Not all substances are contaminants and not all contaminants are considered to be a risk. Indeed, DEFRA and The Environment Agency state that **'a contaminant is a substance which has the potential to cause harm, while a risk itself is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.**'

R&D Publication 66: 2008 states that the groups at risk of harm (receptors) can be identified by the following categorisation:

1. Humans: site personnel, end users, visitors and adjacent land users.
2. The water environment – receptors: groundwater, surface water, coastal waters and artificial drainage.
3. Ecosystems: plants and animals.
4. Construction/building materials/services

In order to complete a conceptual site model and therefore a preliminary risk assessment, an appraisal of the sources of contamination, potential and actual, on and in the area of the site has therefore been completed with reference to this pollution linkage.[15]

[15] This assessment has been based on the information as to the proposed development that has been provided by the client. If the plans should change, the assessment should be re-evaluated.

3.1 Conceptual Ground Model & Preliminary Qualitative Risk Assessment

It is understood that the development proposals currently comprise the demolition of the existing properties and the construction of two new detached residential dwellings with gardens and driveways. In view of the sensitivity of the end users it is considered that the soil screening values (SSVs) for a residential with plant uptake end use should be employed.

The preliminary risk assessment has been evaluated with reference to the following ratings and definitions:

N/A - A source-pathway-receptor linkage is not considered to exist and therefore a risk assessment is not required.

Low - A pollution linkage is unlikely and/or the likelihood of harm occurring is low and of minor consequence.

Moderate - The linkage exists but further field or laboratory data is required to confirm that the contaminant has reached the receptor and the levels of contaminant are harmful.

High - The linkage exists and the available data indicates that significant harm may be caused and remedial action could be necessary.

Table 7: Conceptual Site Model and Preliminary Qualitative Risk Assessment

CONCEPTUAL SITE MODEL			PRELIMINARY RISK ASSESSMENT	
Pathways	**Receptor**	**Linkage Present?**	**Risk Rating**	**Notes**
Direct contact/dermal absorption/soil ingestion	Operative	Yes – operatives are likely to come in contact with the soil.	Low to Moderate	There are limited on or off-site sources of contamination which have been identified. Therefore, it is not anticipated that significant contamination will be present. Notwithstanding this, if significant made ground is revealed, this risk rating should be re-considered and a regime of contamination testing may become necessary.
	End User	Yes – end users are likely to come in contact with the soil.	Low	
	Neighbours	Yes – possible source on site and immediate neighbours are present.	Low	
Inhalation of Dust/Vapours	Operative	Yes – contact with soil likely during works and vapours may accumulate in enclosed spaces.	Low to Moderate	There are limited on or off-site sources of contamination which have been identified. However, construction activities may create dust on and off site, which, if contaminated, could adversely affect operatives, end users and neighbours. In the event that harmful vapours are present they may accumulate in enclosed spaces, affecting operatives, end users and neighbours.
	End User	Yes – limited on and off-site source of contamination have been identified.	Low	
	Neighbours	Yes – neighbouring properties present and possible inhalation of dust during the works.	Low	
Ingestion of fruit/vegetables and/or waters	Operative	No – no edible plants or contained water sources in the area of the proposed new works.	N/A	There are limited on or off-site sources of contamination which have been identified. Therefore, it is not anticipated that significant contamination will be present. Notwithstanding this, if significant made ground is revealed, this risk rating should be re-considered and a regime of contamination testing may become necessary.
	End User	Yes – soft landscaping proposed as part of the new development.	Low	
	Neighbours	Yes – residential dwellings present within 250m of the proposed development.	Low	

Migration of hazardous gases via permeable strata	Operative	Yes – limited on-site source sources of ground gas have been identified. However, historic coal mine shafts could provide an off-site source of ground gas.	Moderate	Possible source off-site. Landfill gas is unlikely to present an issue; however, a source of mines gases has been identified. It is recommended that a mines gas risk assessment is undertaken. It is possible that this may necessitate a programme of monitoring to be undertaken.
	End User		Moderate	
	Neighbours	Yes – possible source on site due to historical construction.	Low to Moderate	It is unlikely that significant thicknesses of made ground will have been brought on to site for previous construction. Therefore, a generative source has unlikely been produced on site. This should be re-assessed during any intrusive works should this be proven to the contrary.
Spillage/loss/run off direct to receiving water	Controlled Waters	Yes – controlled waters present within 250m of the site.	Low to Moderate	Negligible on or off-site sources of contamination have been identified. However, testing should be undertaken should significant thicknesses of made ground be revealed during the site investigation or groundworks phase.
Migration via permeable unsaturated strata	Controlled Waters	Yes – a Secondary A aquifer is present beneath the site.	Low to Moderate	
Run off via drainage/sewers etc	Controlled Waters	Yes – limited on and off-site sources of contamination identified.	Low	
Direct contact with contaminated soils	Plants	Yes – gardens and soft landscaping areas likely to be part of the proposed development.	Low	There are limited on or off-site sources of contamination which have been identified. Therefore, it is not anticipated that significant contamination will be present. Notwithstanding this, if significant made ground is revealed, this risk rating should be re-considered and a regime of contamination testing may become necessary.
Uptake via root system			Low	
Direct contact with contaminated soils/	Building Materials	Yes – whilst there are limited on and off site sources of contamination, foundations may be affected by pH value and sulphate contents of the site soil.	Low to Moderate	
Direct contact with contaminated groundwater				

Migration of mine gas via permeable strata	Operative End User	Yes – in an area affected by coal mining activity.	Moderate	The Coal Mining Risk Assessment by the Coal Authority recommends a mines gas risk assessment.
Exposure to Radon	Operative End User	Yes – site currently indicated to be present in a low risk radon affected area[16].	Low	Less than 1% of properties are affected. The publication BR211 states that no protection measures are necessary.
Mining Instability	End User	Yes – the Coal Mining Risk Assessment indicates potential workings present at shallow depth.	Moderate	Intrusive investigation recommended. See Coal Mining Risk Assessment for further details.
Unexploded Ordinance (UXO) Risk	Operative	Yes – the Zetica[17] online maps indicate that the site is at low risk from UXO.	Low	Unlikely to be affected by UXO.

Notes:

1. The above data and table is a qualitative assessment of the probable risks identified at this site, based on the information made available to us from the client, third party professional data and walkover survey.

2. Should any additional or new data come to light, the risk assessment should be revisited and any necessary changes made to any recommendations resulting from this study.

3. Where further testing is recommended as part of the risk assessment, this is in order to provide a quantitative assessment of any contamination issues. It should at all times be considered that uncertainties may remain, and therefore any testing regime and ground investigation philosophy should be ready to accommodate any necessary alterations should any data come to light or it become evident that it has not been previously considered.

[16] Radon interactive map [*online resource https://www.ukradon.org/radonmaps/*] It should be appreciated that radon maps are subject to change and are updated regularly.
[17] Pre-desk study assessment [*online resource from www.zeticauxo.com*].

4. Intrusive Investigation

4.1 Site Investigation Philosophy

The information from the Phase 1 Desk Study shows there are potential sources of contamination on the site and in the surrounding area. In view of the above, any intrusive investigation should be undertaken in accordance with the sampling strategies given in BS10175: 2011 +A2:2017 and CLR4:1994. These two sampling strategies may be classified as:

- Non-Targeted – using a defined sampling pattern (BS10175)
- Targeted – based on prior knowledge and professional judgement (CLR4)

These sampling strategies are considered in more detail below. However, it is emphasised that they can be used individually or in combination depending on the depth of site knowledge.

Non-Targeted Sampling

If no obvious 'hot spots' of contamination have been identified on a site, it would be recommended that a stratified random pattern of sampling points be considered. This work should be undertaken with reference to BS10175: 2011 +A2: 2017 *Investigation of potentially contaminated sites – Code of practice*: 7.6, and BS5930 2015 + A1:2020, *Code of practice for ground investigations.*

Targeted Sampling

If a possible 'hot spot' of contamination has been identified on a site, it is recommended that a herringbone pattern of sampling points be considered in the immediate vicinity. If strong evidence of contamination has then been identified, it is recommended that sampling be highly focused to reflect that evidence and the investigator's experience. This work should be undertaken with reference to CLR4, *Sampling Strategies for Contaminated Land, 1994*.

The density of sampling required is defined in BS10175: 2011: +A2: 2017: 7.7.2.2.3, which indicates that an *exploratory* investigation usually requires a lower density sample spacing than does a *main* investigation. The BS goes on to state that *the actual density should depend upon the confidence and robustness required of decisions that will be based on the information obtained. Thus, the area and depth of interest will be related to the contaminants present, the pathways and the receptors. Typical densities of sampling grids can vary from 25m to 50m centres for exploratory investigations, and 10m to 25m centres for main investigations.*

4.2 Site Specific Investigation

In view of the information provided above it is considered that an investigation of the site should include the following main elements.

4.2.1 Contamination Assessment

The information from the Phase 1 Desk Study shows that there are negligible potential sources of contamination on the site and a pollution linkage is unlikely and would represent low levels of harm. In view of the above, it is not considered necessary to undertake an intrusive *geo-environmental* investigation with regards to soil contamination. It is recommended that a geotechnical ground investigation be completed in order to obtain geotechnical information, as this will facilitate the safe design of the foundations for the proposed development. This could comprise a series of windowless sample boreholes with SPTs and adjacent dynamic probes.

It is also incumbent upon the developer to carefully inspect any exposed soil during the ground-works phase of the contract. Should any contamination become evident or organic made ground be revealed, it is recommended that a pragmatic approach be adopted, with observational techniques being employed at each stage of the work. In the unlikely event that contamination is revealed, work should stop in the affected areas and chemical testing be undertaken to evaluate the risk of harm to the receptors and soils should be obtained for chemical sampling. If the made ground at the site is thought to be localised to specific areas, then the targeted strategy should be used. It should be possible to carry out the above work with a windowless sampling drilling rig, however, it may be more pragmatic to employ hand-held digging tools for a targeted strategy implemented on soil samples. If required, chemical testing should be undertaken and the following standard testing regime should be employed.

- **Metals** – Cd, Cr, Cu, Hg, Ni, Pb, Zn, V.
- **Semi Metals and Non-Metals** – As, Se, Free Cyanide and Phenols.
- **Hydrocarbons –** Polycyclic aromatic hydrocarbons (PAH EPA16), Total petroleum hydrocarbons (TPH CWG).
- **Others** – pH, Organic Content.
- **Asbestos**

Coal Mining Legacy

As per the Coal Mining Risk Assessment, there is a risk to the development from potential workings within shallow coal seams, thus intrusive investigation is recommended. General practice is to undertake rotary open-hole boreholes at three locations across the site to mitigate against the potential for drilling through intact columns associated with pillar and stall workings. Furthermore, it is normal to investigate the ground to 30m below ground level; any workings below this depth are unlikely to result in significant instability. However, in this case, the risk of instability is due to shallow workings, therefore, drilling to these depths may not be necessary and the objective should be to ensure that the shallow seams are un-worked or have sufficient competent cover. It may therefore be possible, in the first instance, to undertake one borehole to 30m below the top of the rockhead, with the remaining boreholes proving the depth and continuity of the coal seam(s). In any event, it is considered that approval should be sought with the Local Authority as to the efficacy of this approach.

Additionally, the risks associated with mines gasses has been assigned a medium risk rating. As per the recommendations of the Coal Mining Risk Assessment, it will be necessary to undertake a mines gas risk assessment. It is possible that this may result in a regime of gas monitoring being required.

Gas Monitoring

Should a significant thickness of deleterious made ground be revealed or the requirement for monitoring be confirmed from the mine gas risk assessment, then the final gas monitoring regime

should be undertaken in accordance with Table 4.2 of CIRIA C665: 2007: *Assessing risks posed by hazardous ground gasses to buildings.* In that document guidance for the frequency of monitoring is provided on tables 5.5a and 5.5b *Typical/idealised frequency and period of monitoring* on page 60. For convenience, these tables have been combined and reproduced below.

Table 8: Typical/idealised Frequency and Period of Monitoring.

Sensitivity of development	Generation potential of source				
	Very low	Low	Moderate	High	Very High
Low (commercial)	4/1	6/2	6/3	12/6	12/12
Moderate (flats)	6/2	6/3	9/6	12/12	24/24
High (residential + gardens)	**6/3**	**9/6**	**12/6**	**24/12**	**24/24**

Notes:

a) The first number is the minimum number of readings and the second number is the minimum period in months, for example 4/1 – four sets of readings over 1 month.

b) At least two sets of readings must be at low and falling atmospheric pressure (but not restricted to periods below 1000mb) known as worst case conditions.

c) The frequency and period stated are considered to represent typical minimum requirements. Depending on specific circumstances fewer or additional readings may be required (e.g. any such variation subject to site specific justification). The NHBC guidance is also recommending these periods/frequencies of monitoring.

d) Historical data can be used as part of the data set.

e) Not all sites will require gas monitoring. However, this would need to be confirmed with demonstrable evidence.

f) Placing high sensitivity end use on a high hazard site is not normally acceptable unless the source is removed or treated to reduce its gassing potential. Under such circumstances long-term monitoring may not be appropriate or required.

g) This guidance should be read in conjunction with BS 8576:2013 figure 6 which may justify fewer readings in the first instance, where the generation potential is considered to be very low to low. However, this should be undertaken pragmatically, and further readings obtained according to the above table, where a potentially significant source is identified and initial readings suggest that remedial measures are not necessary.

4.2.2 Geotechnical Assessment

In addition to the above contamination and coal mining legacy assessment which is likely to be required by planning authorities and insurance providers, the following investigation strategy could be considered:

Sampling Method

It is anticipated that a windowless sampling drilling rig will be able to gain sufficient data in regard to the near surface soils. Moreover, such equipment should be able to undertake Standard Penetration Testing (SPT) and/or Dynamic Probing.

Soakaway Design

Should soakaway data be required for drainage design, trialpits could be excavated and infiltration tests conducted. Alternatively, these tests could be undertaken within boreholes.

Geotechnical Testing

An allowance for geotechnical testing of the soils should be included in any ground investigation.

4.2.3 Reporting

The above data will need to be formulated into a formal assessment that should include the following:

- Geotechnical recommendations.
- Contamination assessment.
- Contamination remediation strategy.
- Coal mining legacy issues (mines gas and instability risks due to potential workings).
- Any recommendations for further work, if required and including validation reports where site remediation is necessary.

As soon is as practicable, and prior to the above, this Phase 1 report should be forwarded to the relevant authorities, in order to ensure they have sufficient time to review and discuss any issues.

5. References

- British Standards Institution (2015), BS5930 2015 + A1:2020: *Code of practice for site investigations*, B.S.I., London.
- British Standards Institution (2007), Amendment No 1 to BS5930: *Code of practice for ground investigations*, B.S.I., London.
- British Standards Institution (2011) +A2:2017, BS 10175: *Investigation of potentially contaminated sites – Code of Practice,* British Standards Institute.
- British Standards Institution (2013), BS 8576 Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds.
- Department for Environment, Food and Rural Affairs and the Environment Agency, DEFRA R&D Publications, Environment Agency, Bristol.
- CLR 2, 1994, *Guidance on preliminary site inspection of contaminated land*, Volume 1.
- CLR 4, 1994, *Sampling Strategies for contaminated land*.
- R&D Publication 66: 2008 Guidance for the Safe Development of Housing on Land Affected by Contamination.
- CIRIA Report C665 (2007), Assessing risks posed by ground gasses in buildings.
- The Environment Agency: Groundwater source protection.

Appendix 1

Site Plans

Notes:

Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe
Business Park,
Near Bank,
Shelley,
Huddersfield,
HD8 8LU

Telephone: 0843 50 66 87
www.rogersgeotech.co.uk

Client:

Whitshaw Builders Ltd

Job Number:

C4313/24/E/6607

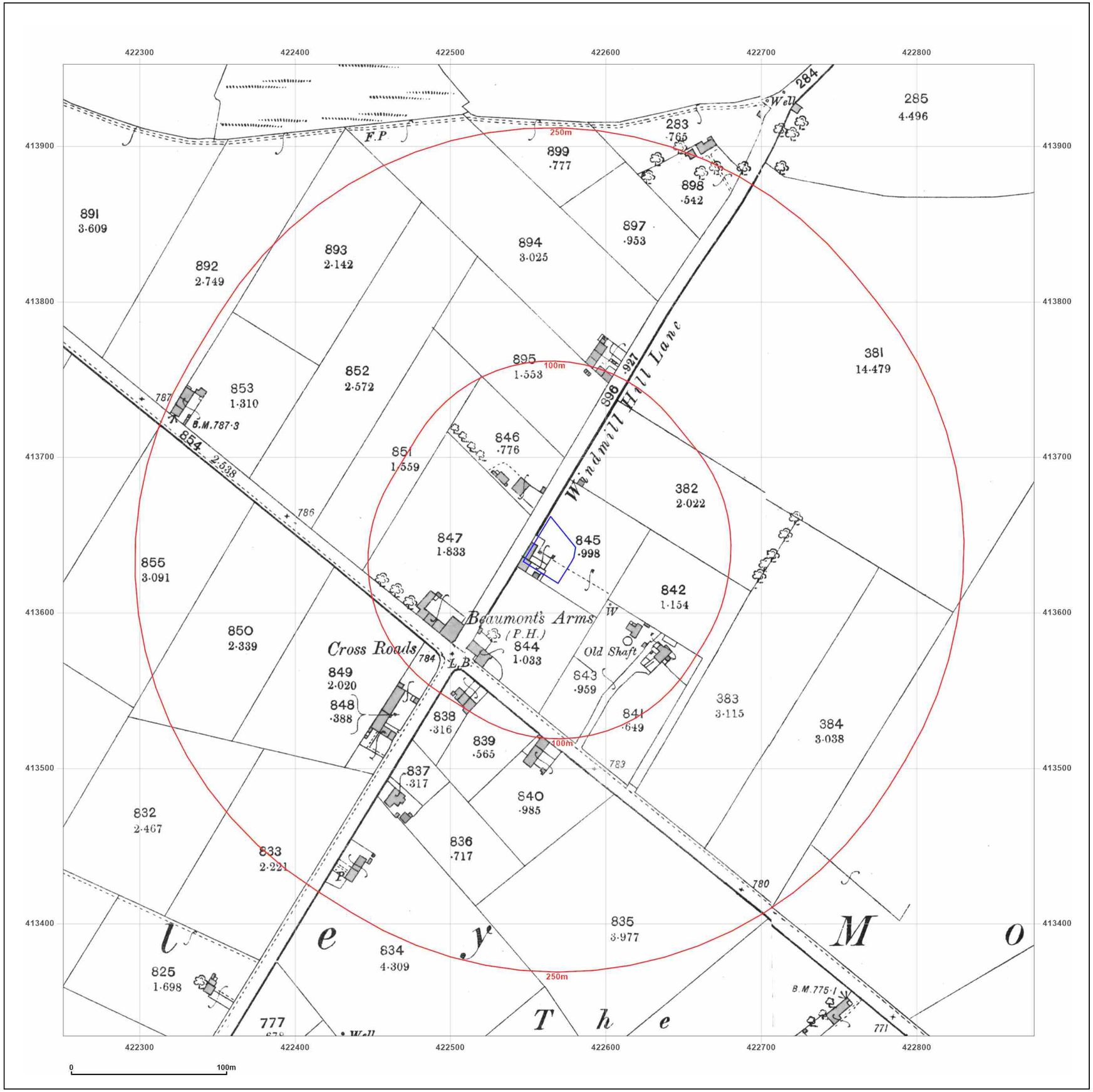
Project Details:

10-12 Windmill Hill Lane, Emley Moor

Scale: Not to scale - reference only

Appendix 2

Historical Maps



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

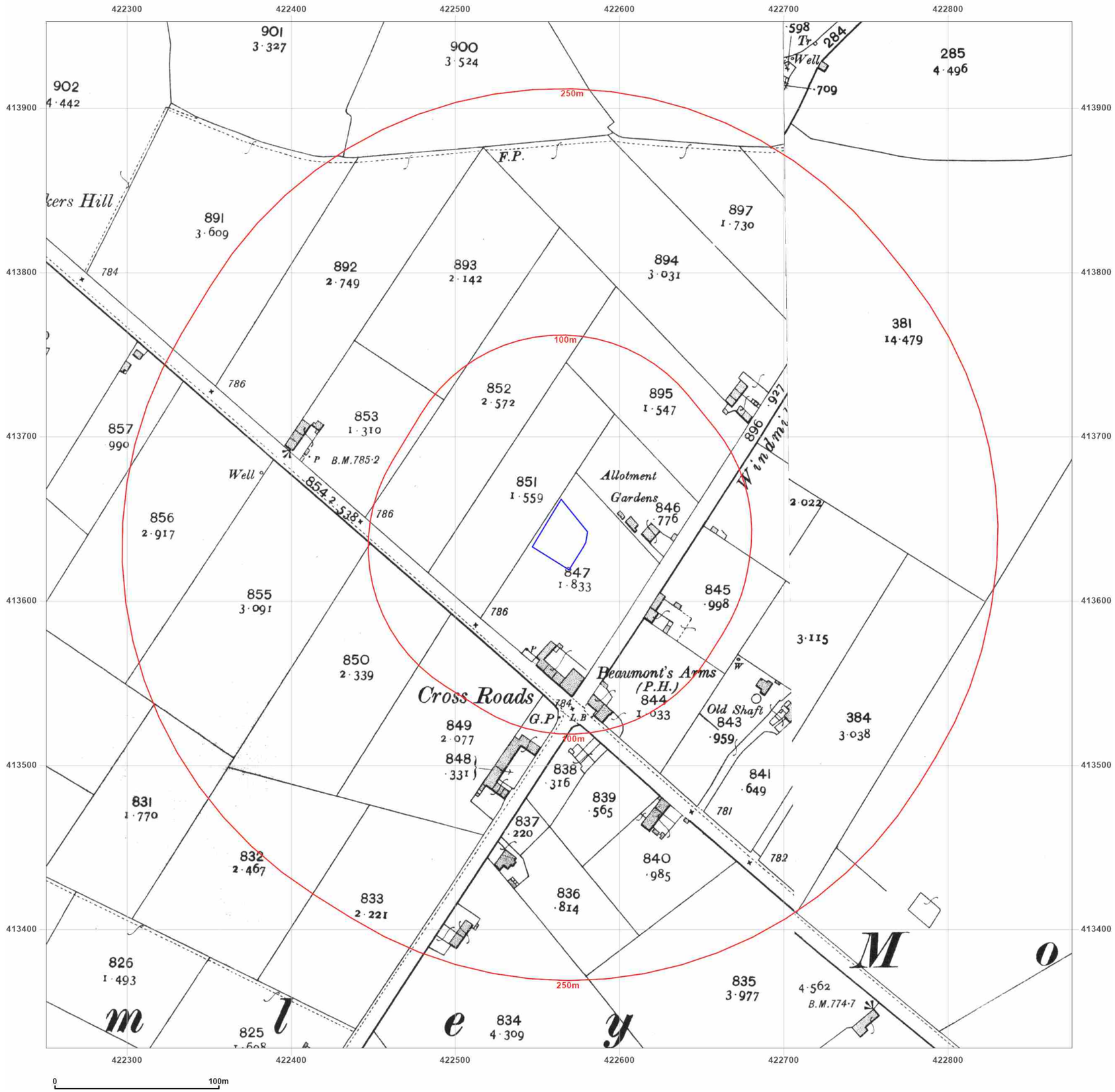
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1906**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

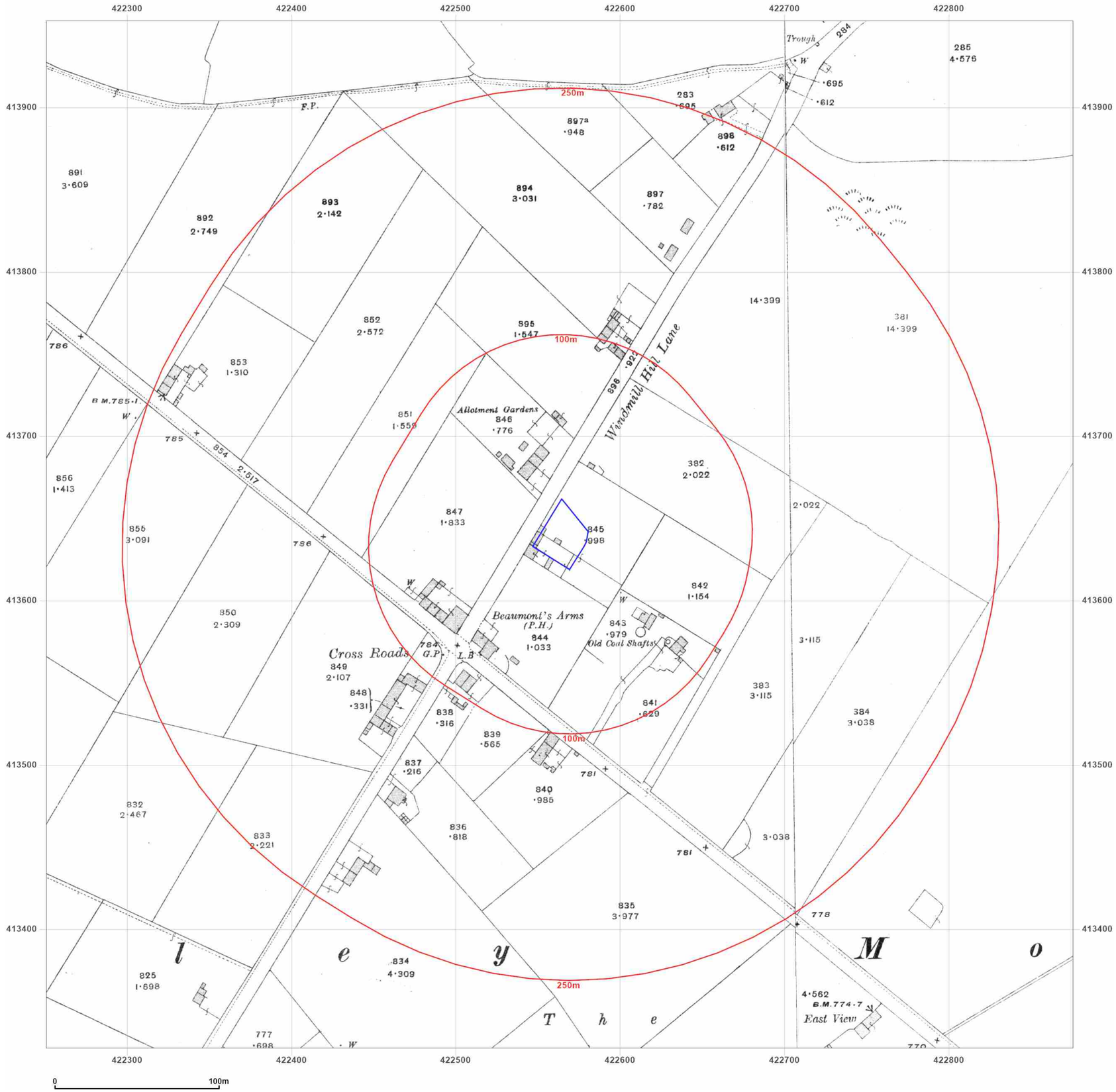
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1913**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

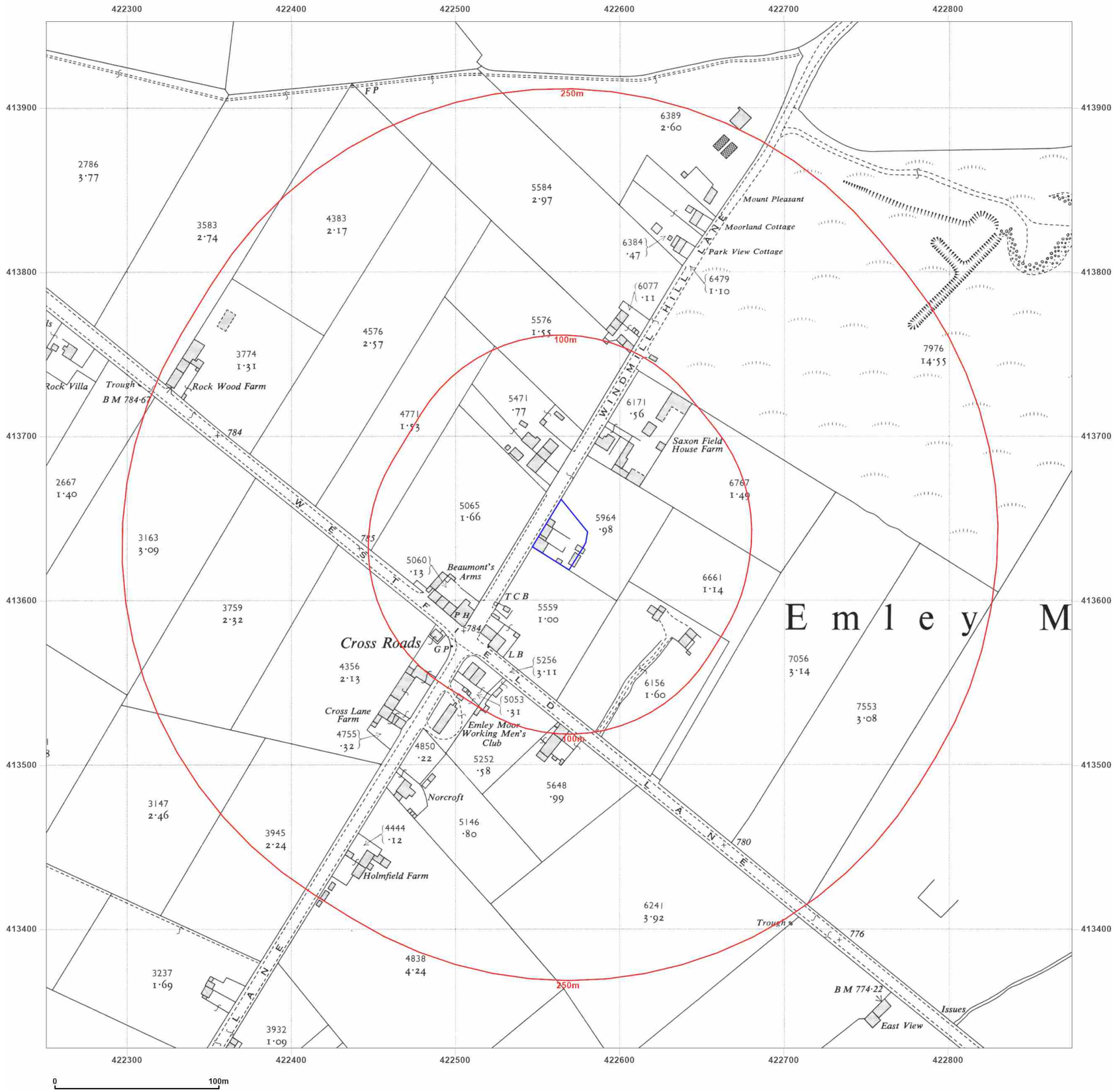
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1961
Levelled 1931

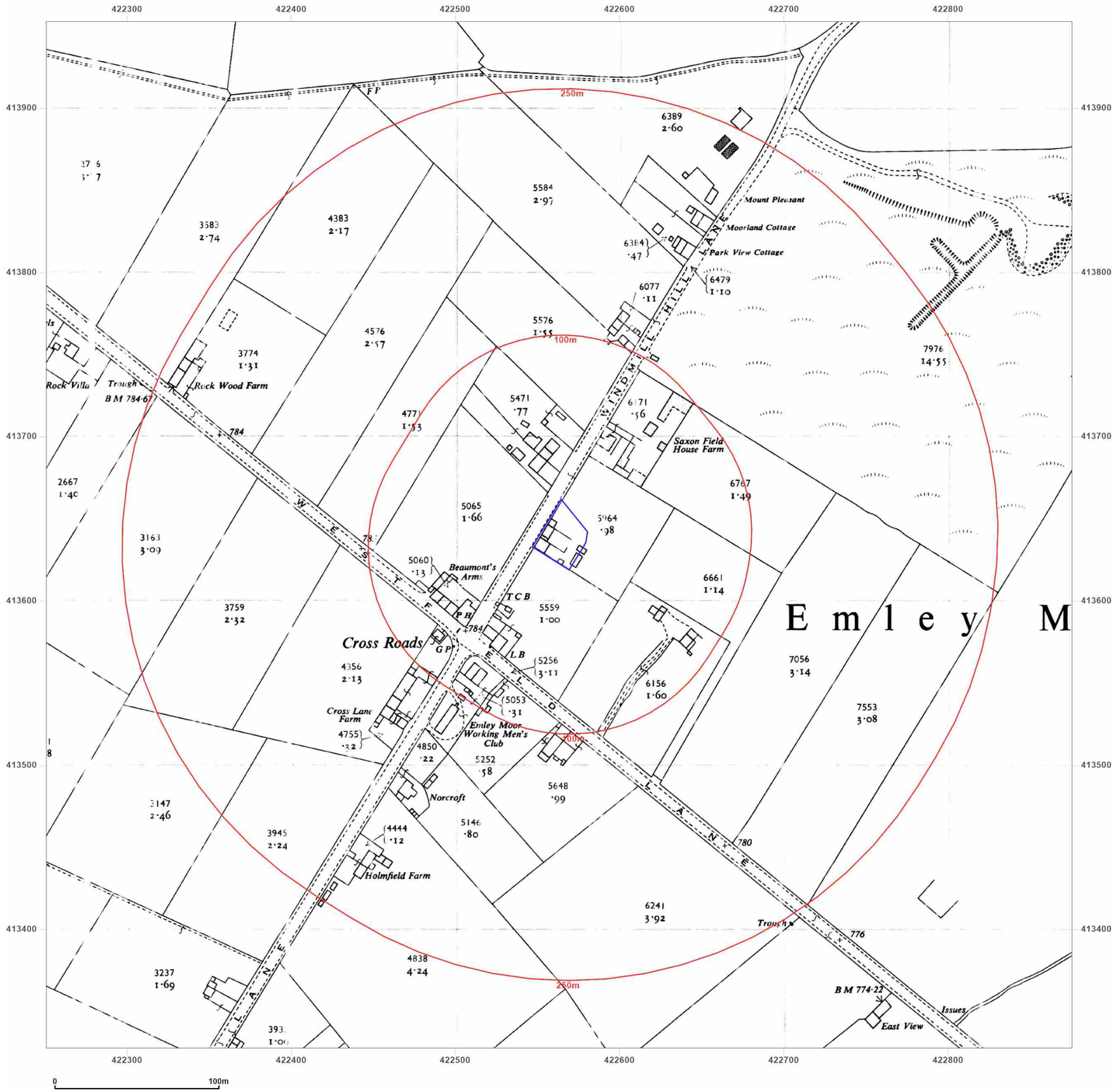
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

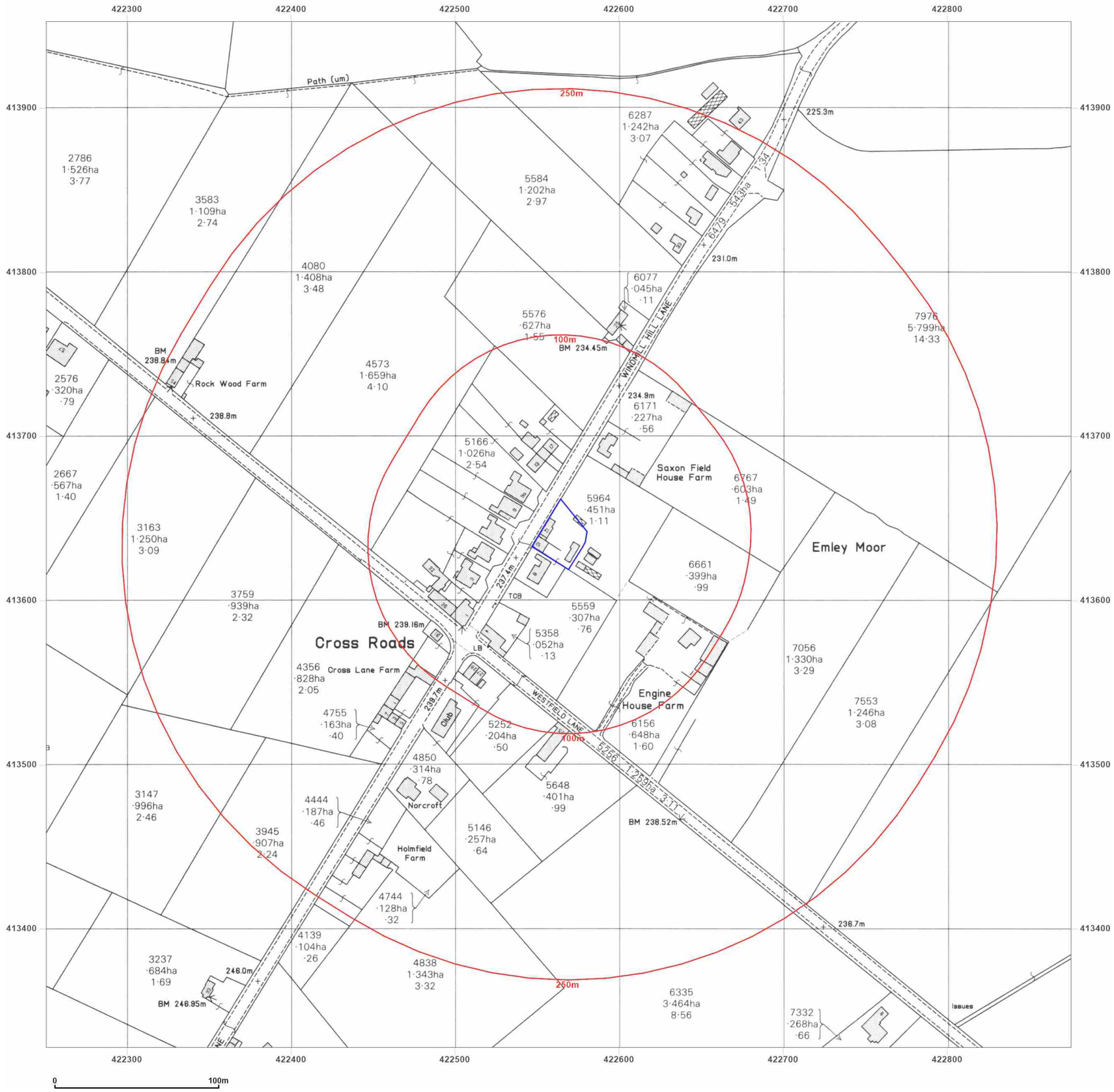
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **1987**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1987
Revised 1987
Edition N/A
Copyright 1988
Levelled 1963

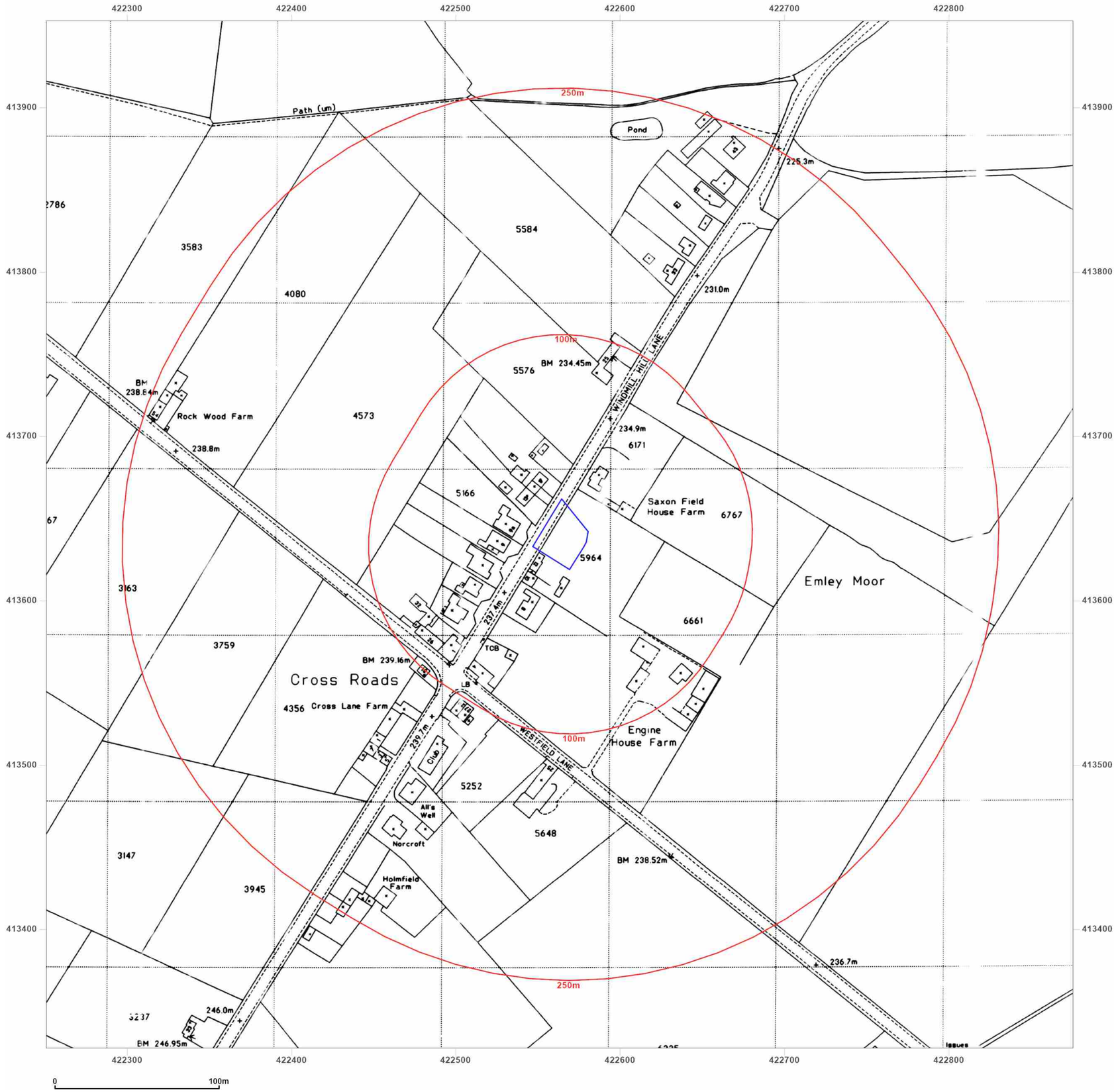
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **1992**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1992
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: LandLine

Map date: **2003**

Scale: 1:1,250

Printed at: 1:1,250

N
W E
S

2003

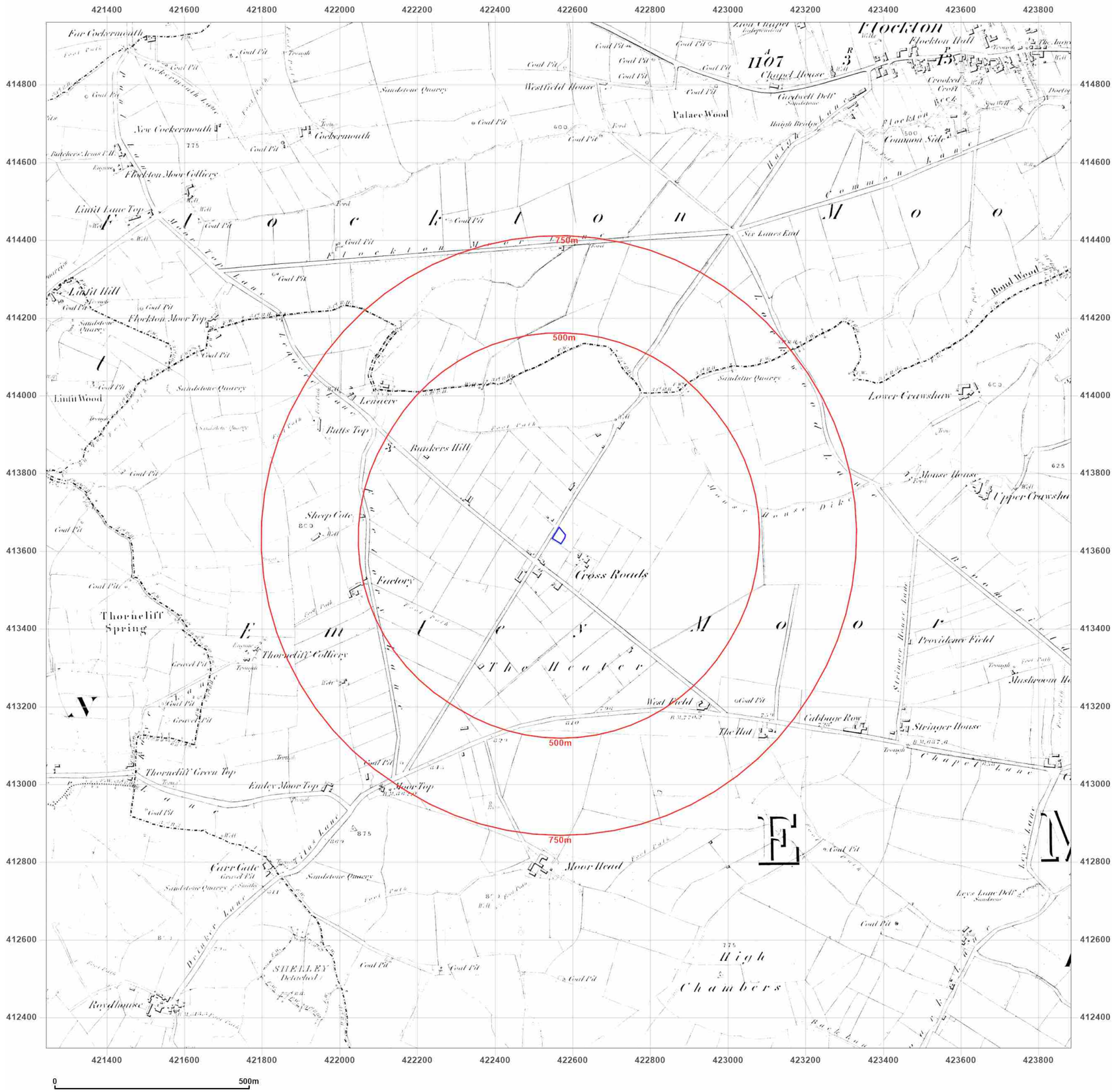
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1850
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

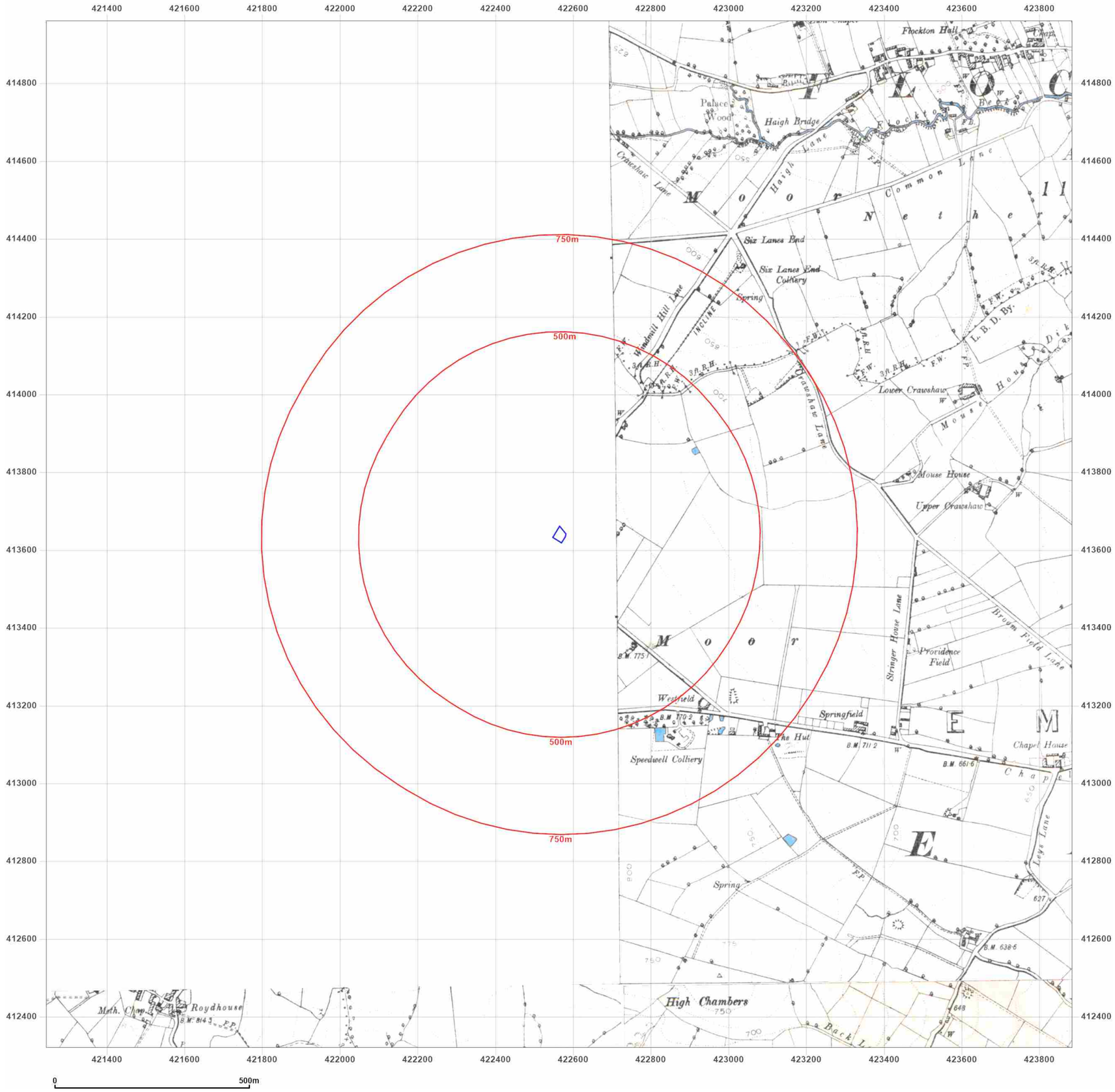
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1891-1892**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

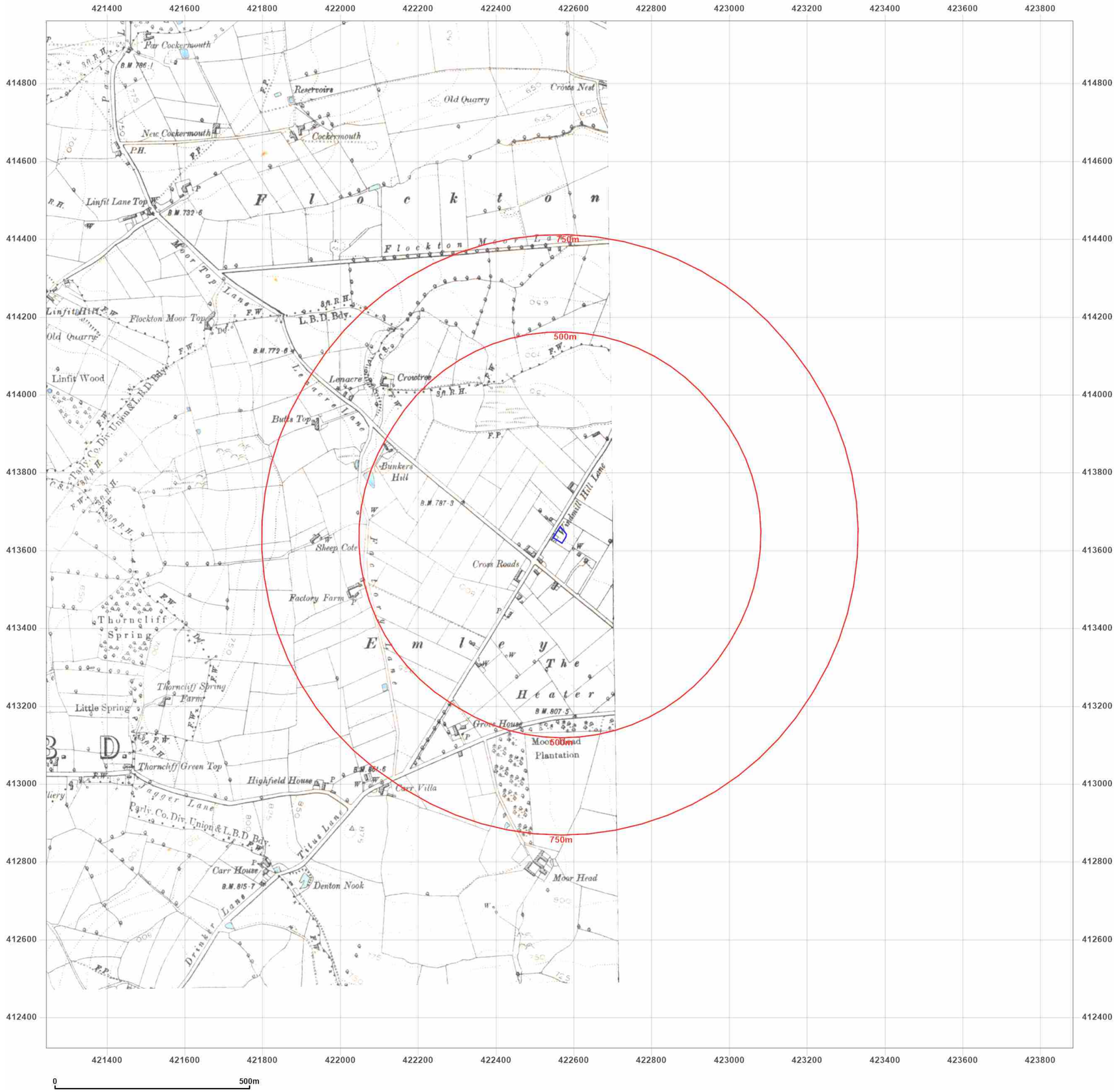
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1892**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

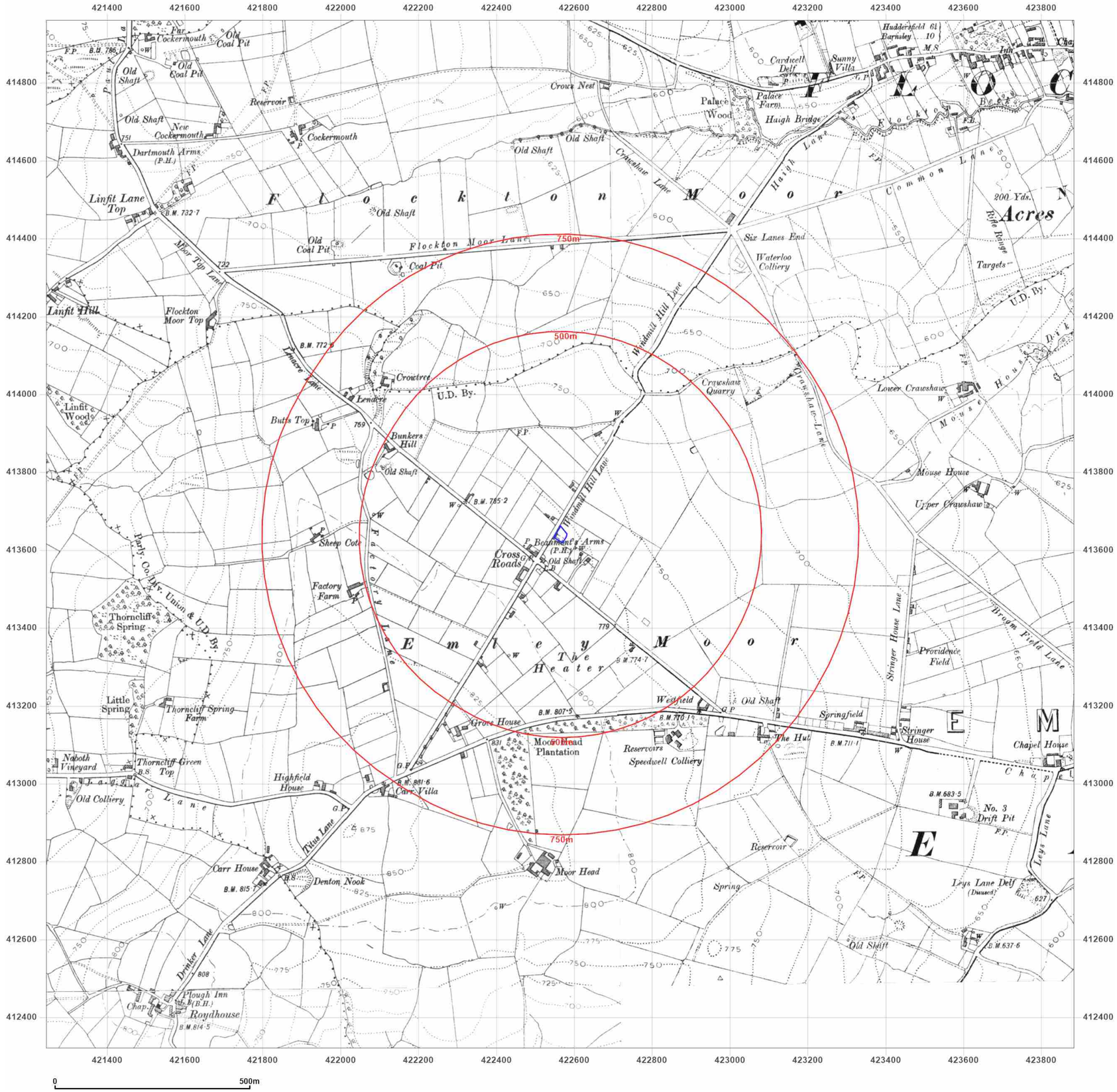
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1904**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1892
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

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

Surveyed 1892
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

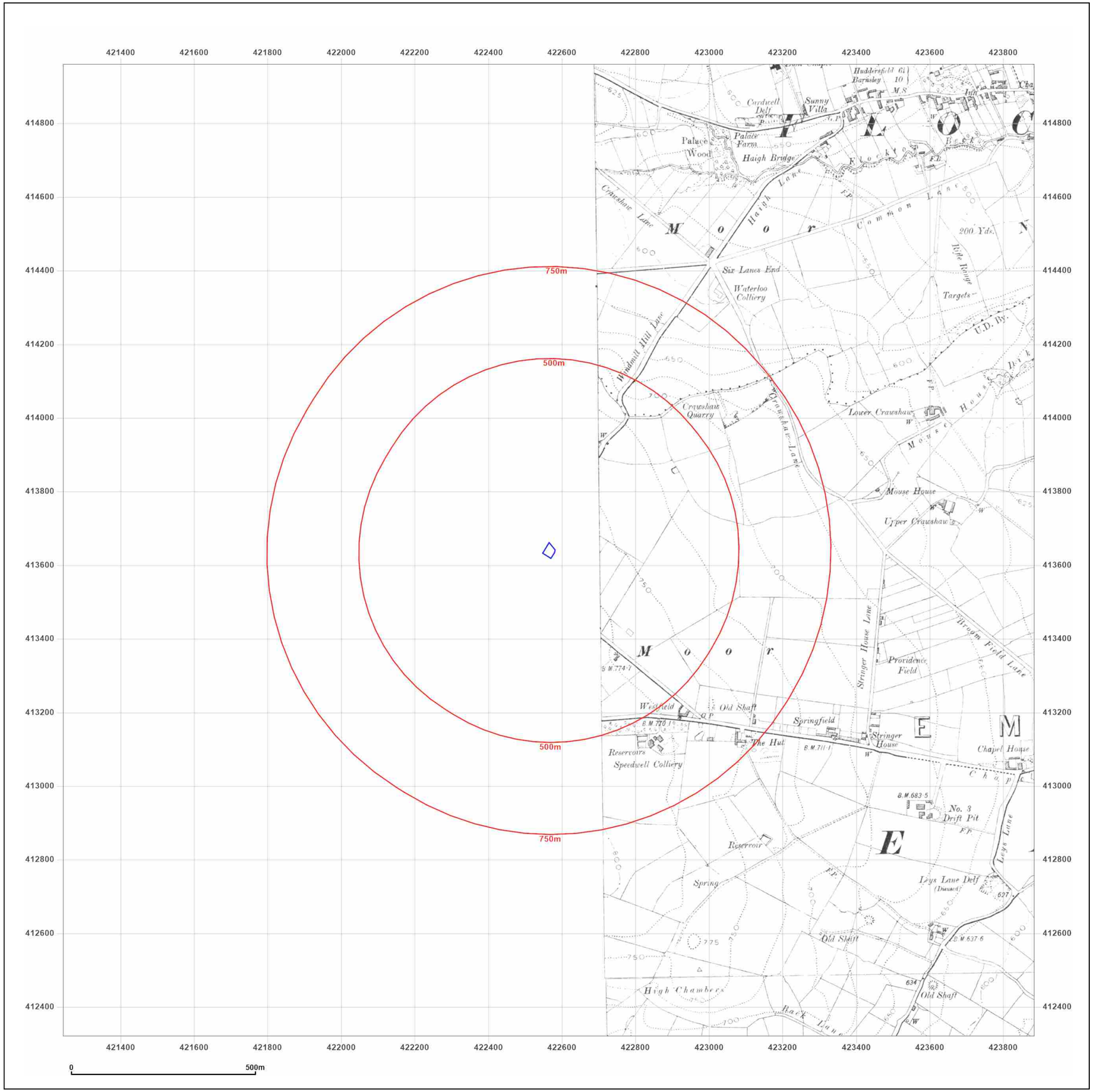
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1904-1907**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed N/A
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

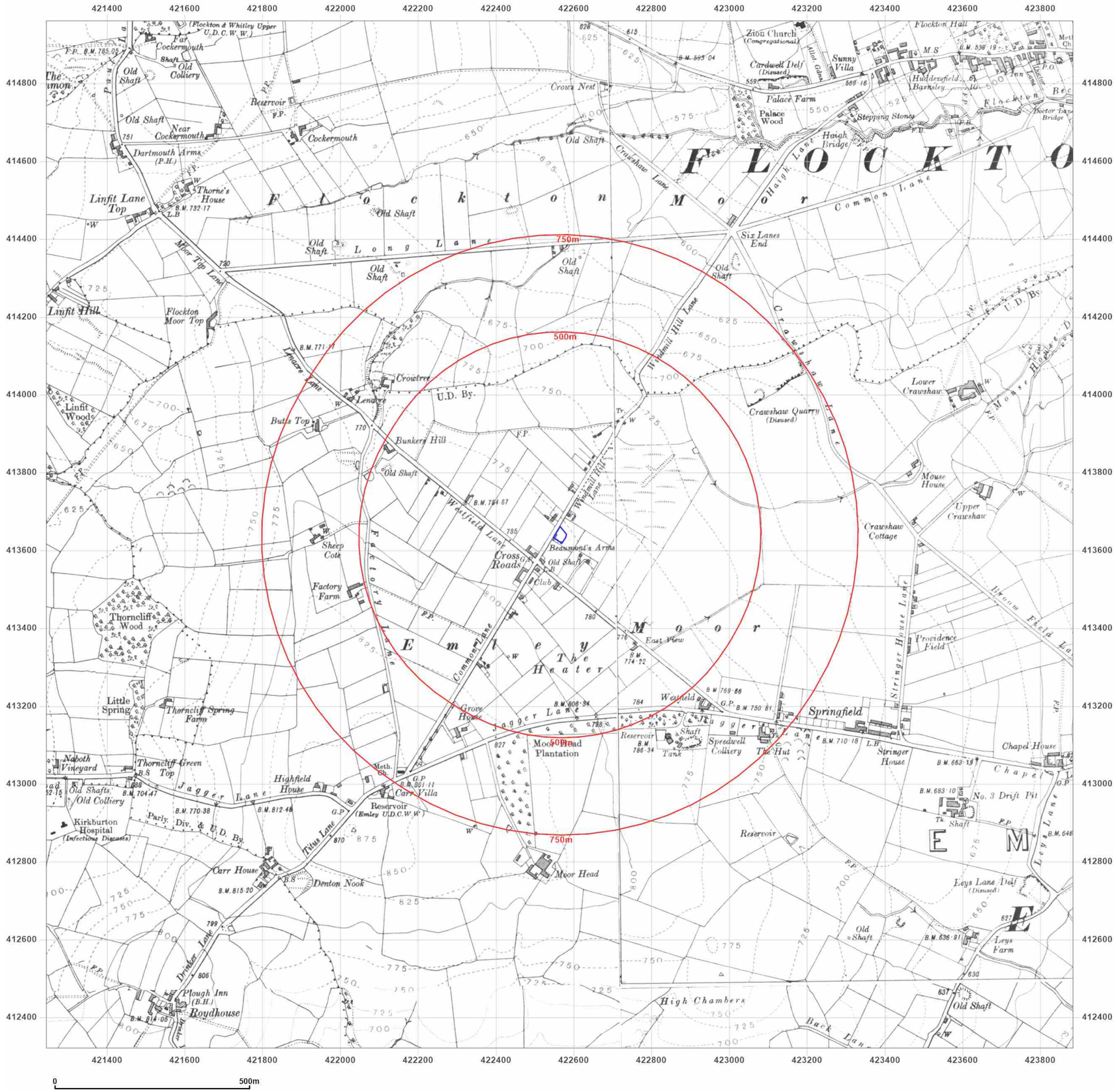
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1929-1932**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1851
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1932
Edition 1932
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

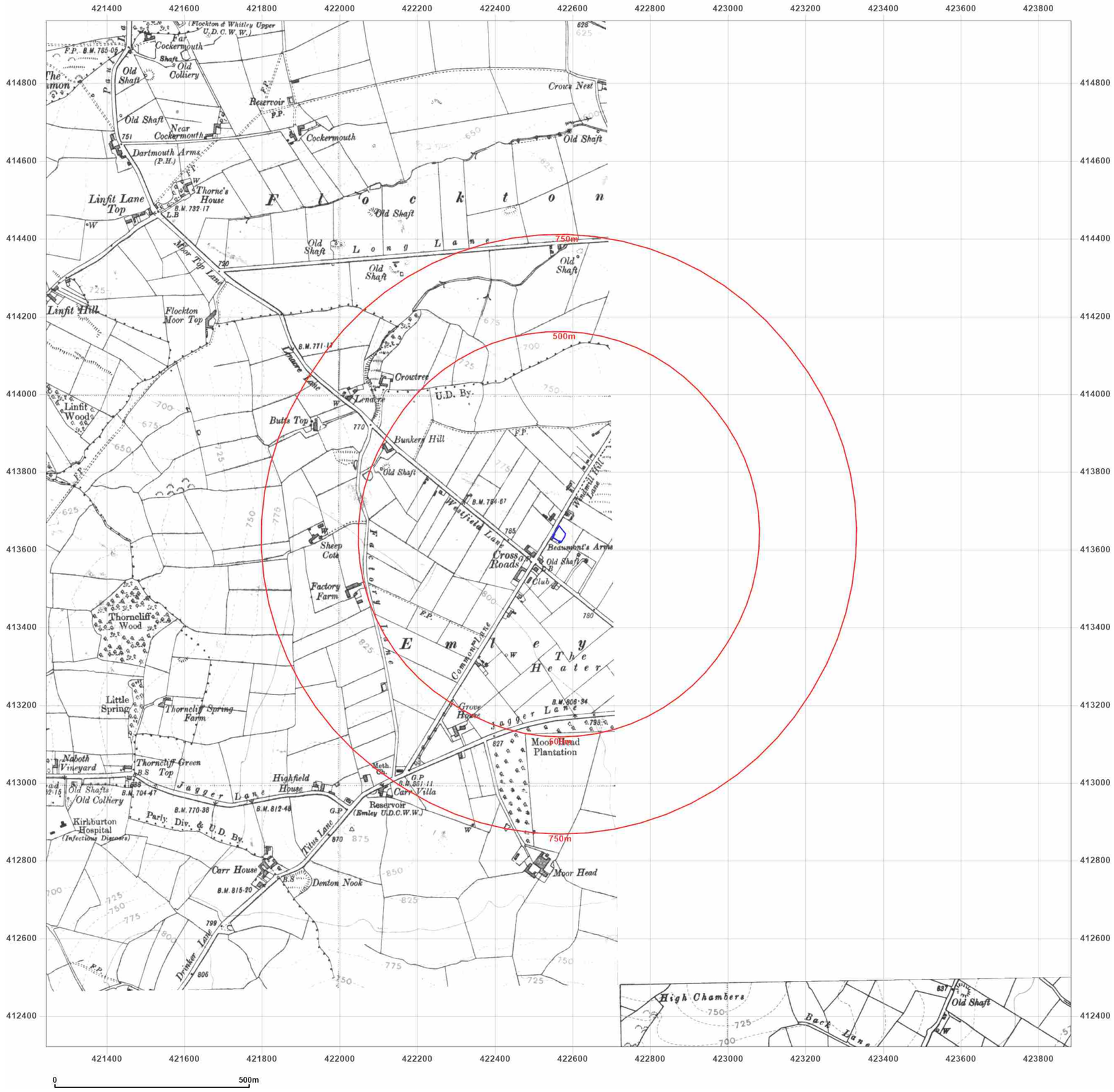
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1851
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

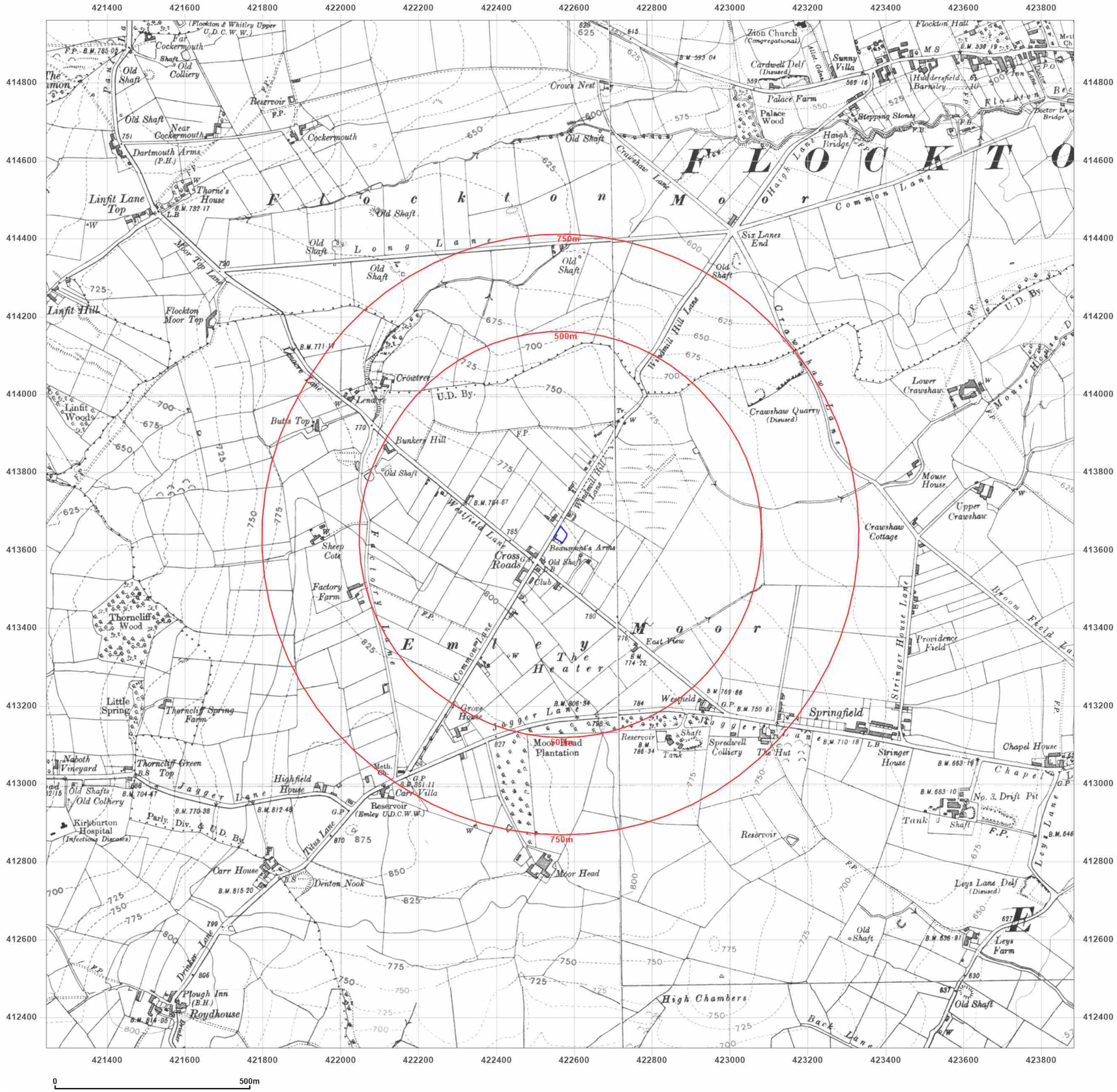
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1851
Revised 1948
Edition 1948
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

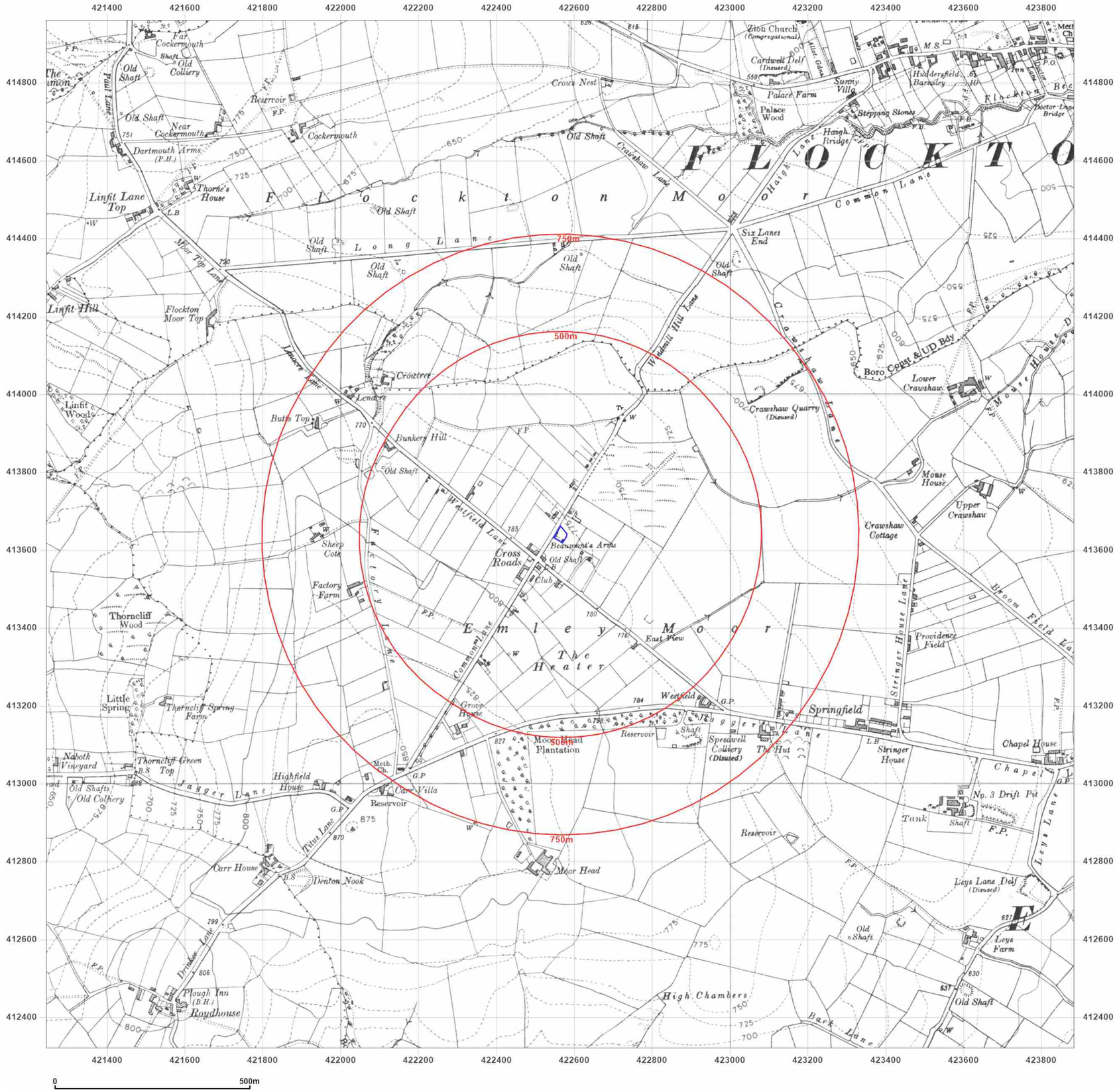
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: Provisional

Map date: **1955**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed N/A
Revised 1955
Edition N/A
Copyright 1955
Levelled N/A

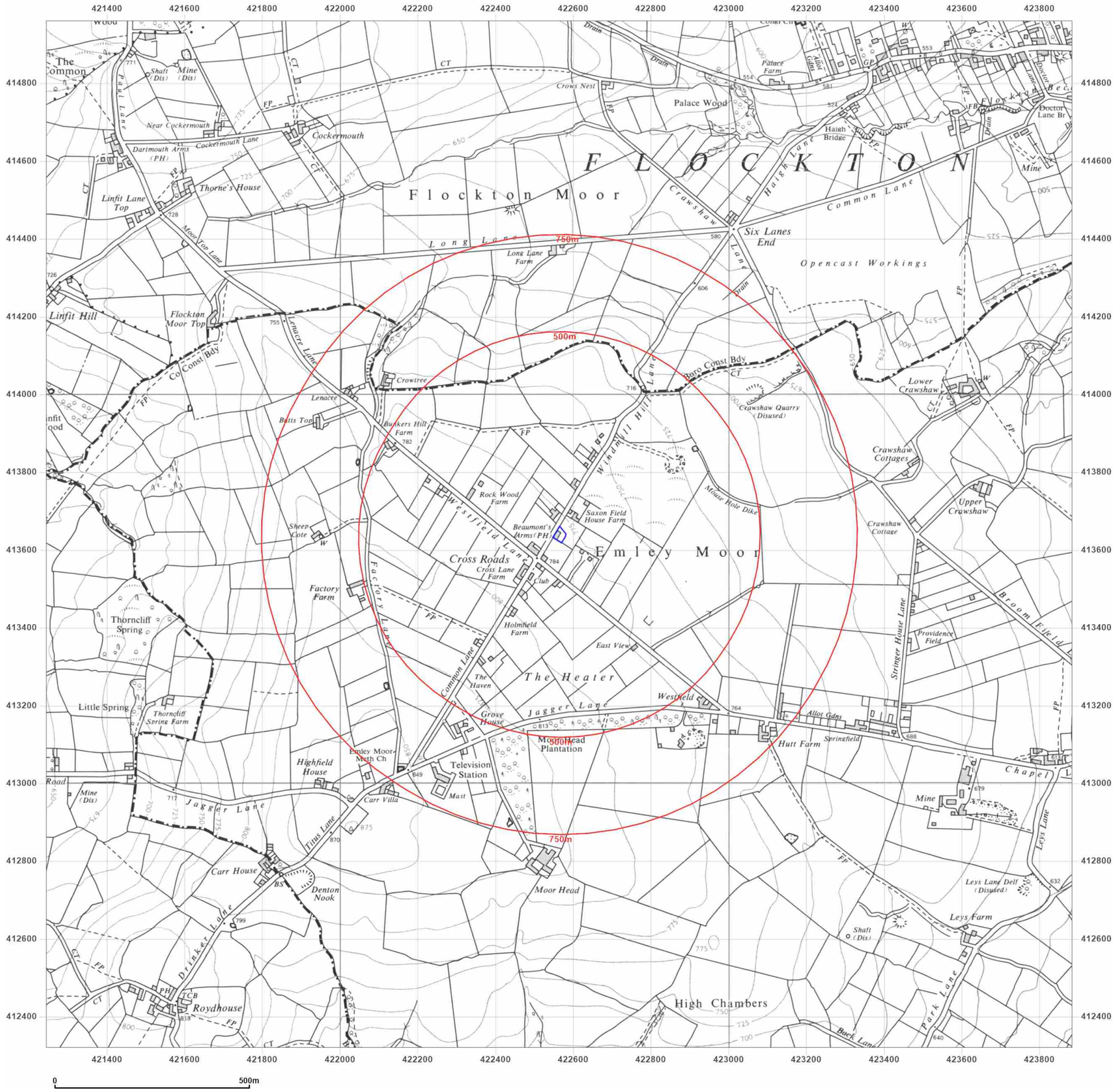
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: Provisional

Map date: **1967**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

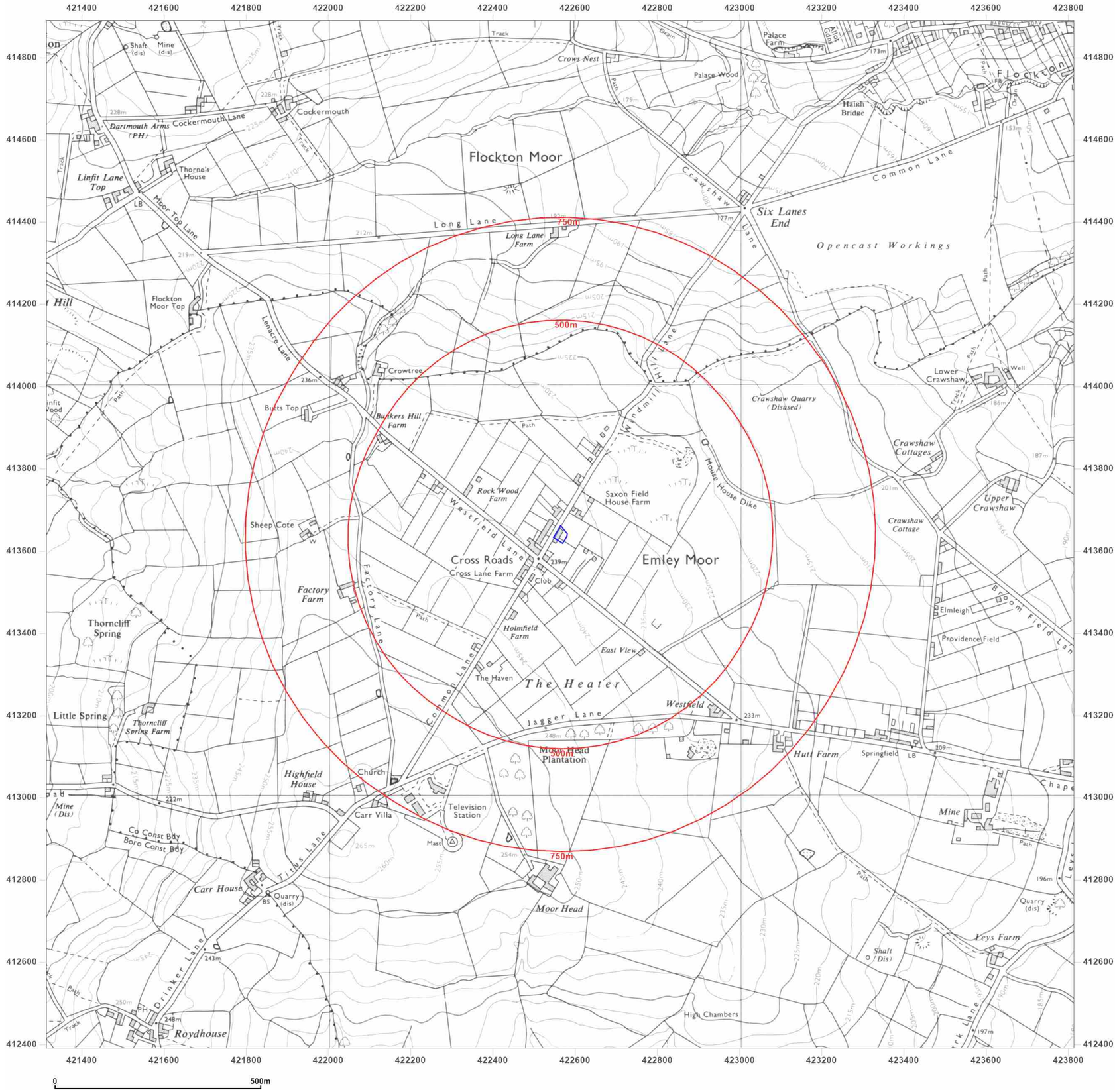
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **1979**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

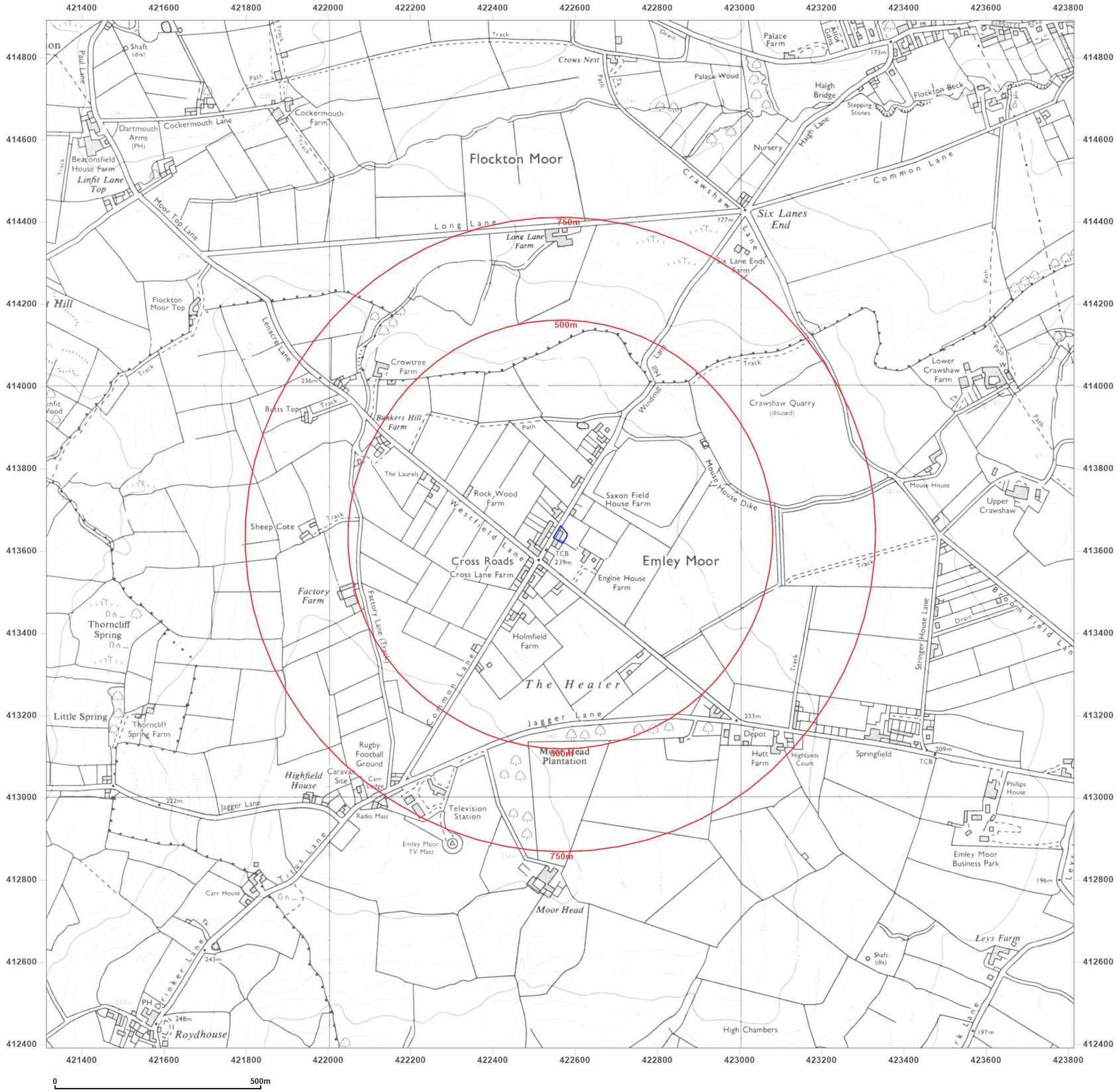
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **1993**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1990
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

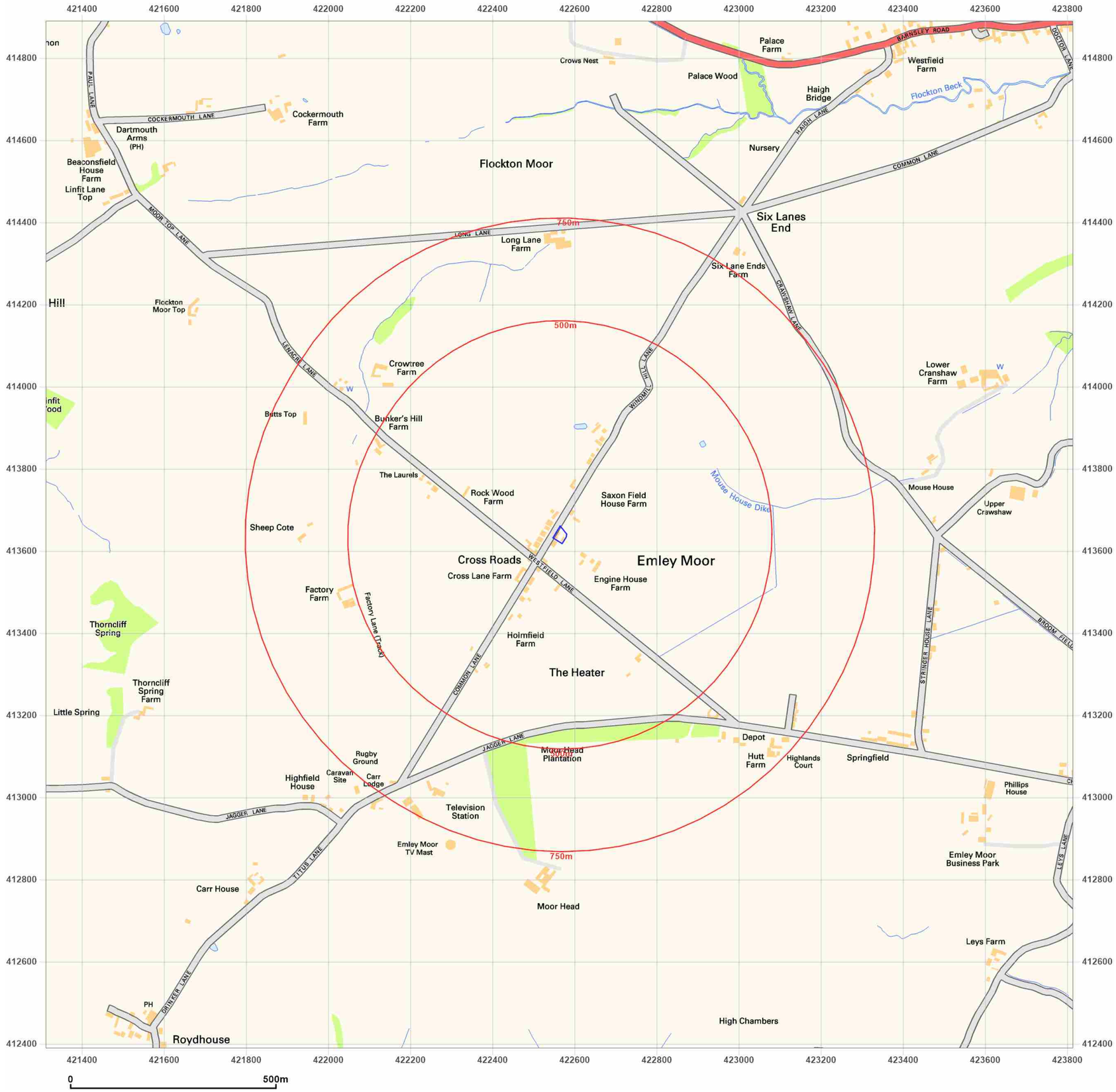
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2001

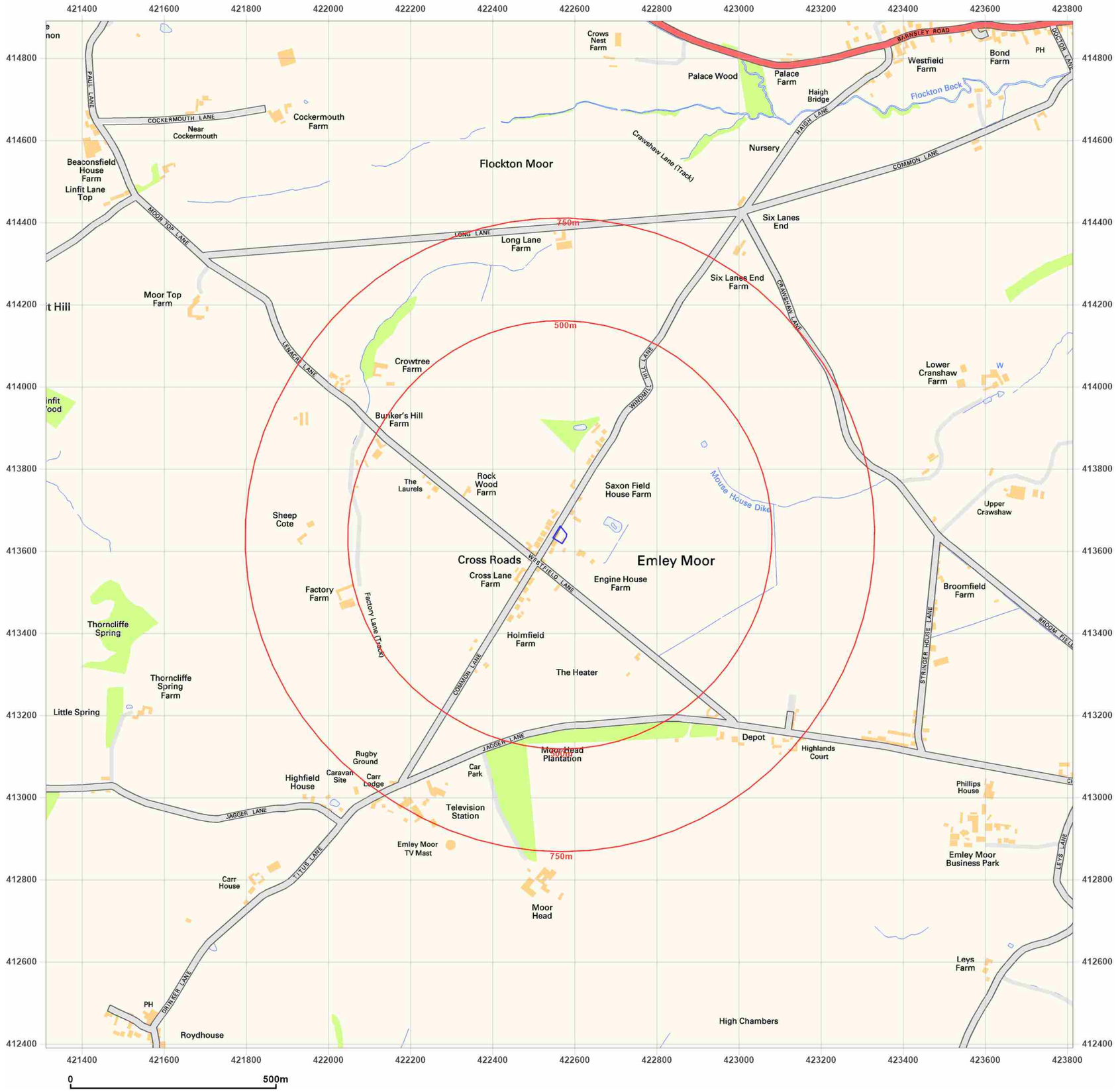
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2010

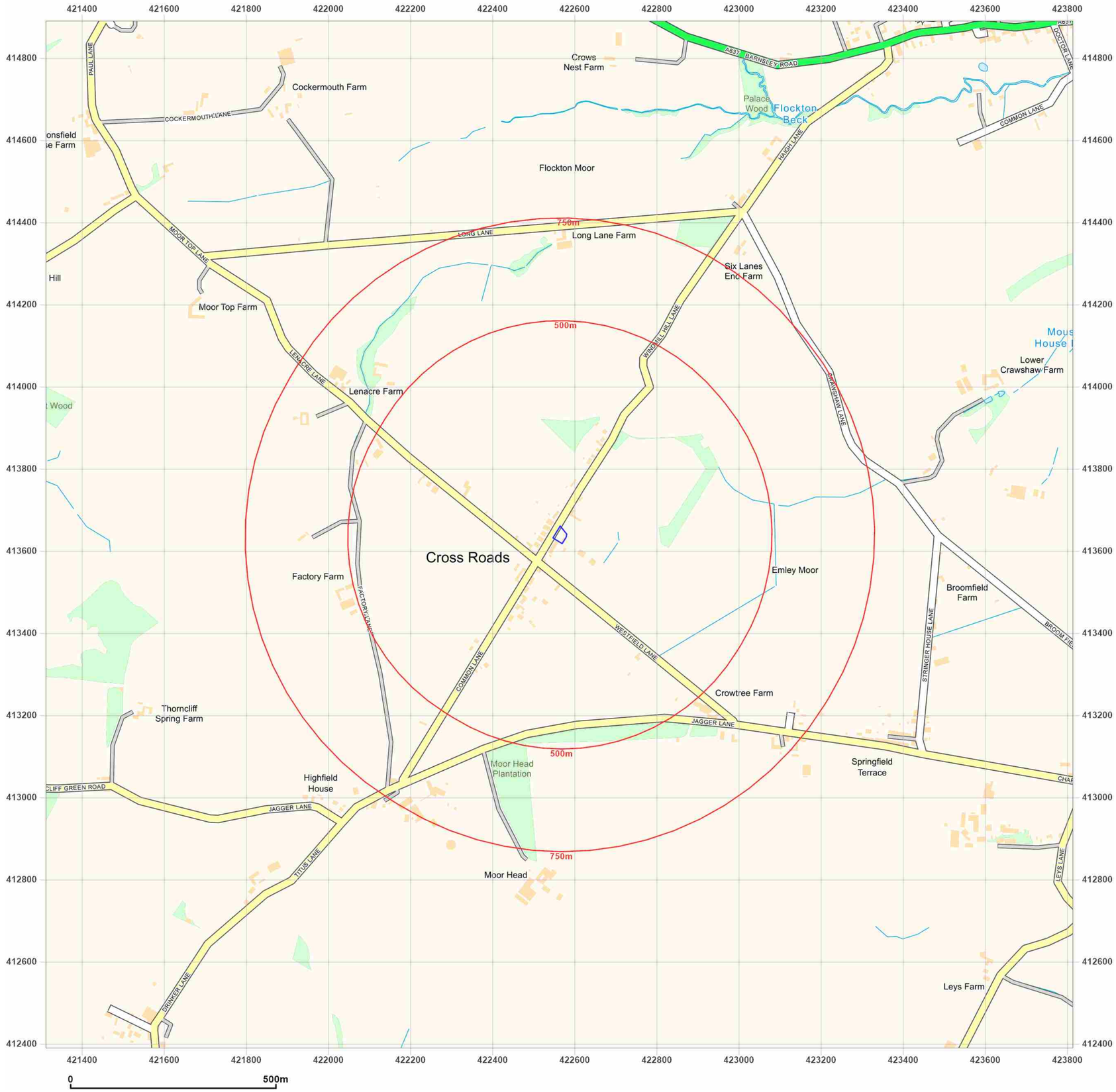
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

10 - 12, WINDMILL HILL LANE,
EMLEY MOOR, HUDDERSFIELD,
HD8 9TA

Client Ref: C4313_24_E_6607_PO-2954
Report Ref: GS-WHL-8RT-PRQ-7UZ
Grid Ref: 422563, 413640

Map Name: National Grid

Map date: **2024**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2024

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2024 Ordnance Survey 100035207

Production date: 23 April 2024

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

Appendix 3

Groundsure Reports

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

10 - 12, WINDMILL HILL LANE, EMLEY MOOR, HUDDERSFIELD, HD8 9TA

Order Details

Date: 23/04/2024

Your ref: C4313_24_E_6607_PO-2954

Our Ref: GS-ODN-CRE-DIC-ZHS

Site Details

Location: 422557 413641

Area: 0.08 ha

Authority: Kirklees Council ↗

© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Summary of findings p. 2 >

Aerial image p. 9 >

OS MasterMap site plan p.13 >

Insight User Guide ↗

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

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
14 >	1.1 >	Historical industrial land uses >	0	0	5	10	-
15	1.2	Historical tanks	0	0	0	0	-
15	1.3	Historical energy features	0	0	0	0	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
17 >	2.1 >	Historical industrial land uses >	0	0	7	13	-
18	2.2	Historical tanks	0	0	0	0	-
19	2.3	Historical energy features	0	0	0	0	-
19	2.4	Historical petrol stations	0	0	0	0	-
19	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
20	3.1	Active or recent landfill	0	0	0	0	-
20 >	3.2 >	Historical landfill (BGS records) >	0	0	1	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	1	0	-
21	3.5	Historical waste sites	0	0	0	0	-
22	3.6	Licensed waste sites	0	0	0	0	-
22 >	3.7 >	Waste exemptions >	0	7	7	5	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
24 >	4.1 >	Recent industrial land uses >	0	0	1	-	-
25	4.2	Current or recent petrol stations	0	0	0	0	-
25	4.3	Electricity cables	0	0	0	0	-
25	4.4	Gas pipelines	0	0	0	0	-
25	4.5	Sites determined as Contaminated Land	0	0	0	0	-

25	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
26	4.7	Regulated explosive sites	0	0	0	0	-
26	4.8	Hazardous substance storage/usage	0	0	0	0	-
26	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
26	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
26 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	1	0	-
27	4.12	Radioactive Substance Authorisations	0	0	0	0	-
27	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
27	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
28	4.16	List 1 Dangerous Substances	0	0	0	0	-
28	4.17	List 2 Dangerous Substances	0	0	0	0	-
28 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	0	1	0	-
28	4.19	Pollution inventory substances	0	0	0	0	-
29	4.20	Pollution inventory waste transfers	0	0	0	0	-
29	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
30	5.1	Superficial aquifer	None (within 500m)				
31 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
32 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
33	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
33	5.5	Groundwater vulnerability- local information	None (within 0m)				
34 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	0	7
36 >	**5.7 >**	**Surface water abstractions >**	0	0	0	0	1
37 >	**5.8 >**	**Potable abstractions >**	0	0	0	0	2
37	5.9	Source Protection Zones	0	0	0	0	-
38	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
39 >	**6.1 >**	**Water Network (OS MasterMap) >**	0	0	4	-	-

40 >	6.2 >	Surface water features >	0	0	2	-	-
40 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
41 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
41 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
42	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
42	7.2	Historical Flood Events	0	0	0	-	-
42	7.3	Flood Defences	0	0	0	-	-
43	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
43	7.5	Flood Storage Areas	0	0	0	-	-
44	7.6	Flood Zone 2	None (within 50m)				
44	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
45	8.1	Surface water flooding	Negligible (within 50m)				
Page	Section	Groundwater flooding >					
46 >	9.1 >	Groundwater flooding >	Negligible (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
47	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
48	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
48	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
48	10.4	Special Protection Areas (SPA)	0	0	0	0	0
48	10.5	National Nature Reserves (NNR)	0	0	0	0	0
49	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
49 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	3
49	10.8	Biosphere Reserves	0	0	0	0	0
50	10.9	Forest Parks	0	0	0	0	0
50	10.10	Marine Conservation Zones	0	0	0	0	0
50 >	10.11 >	Green Belt >	1	0	0	0	0
50	10.12	Proposed Ramsar sites	0	0	0	0	0

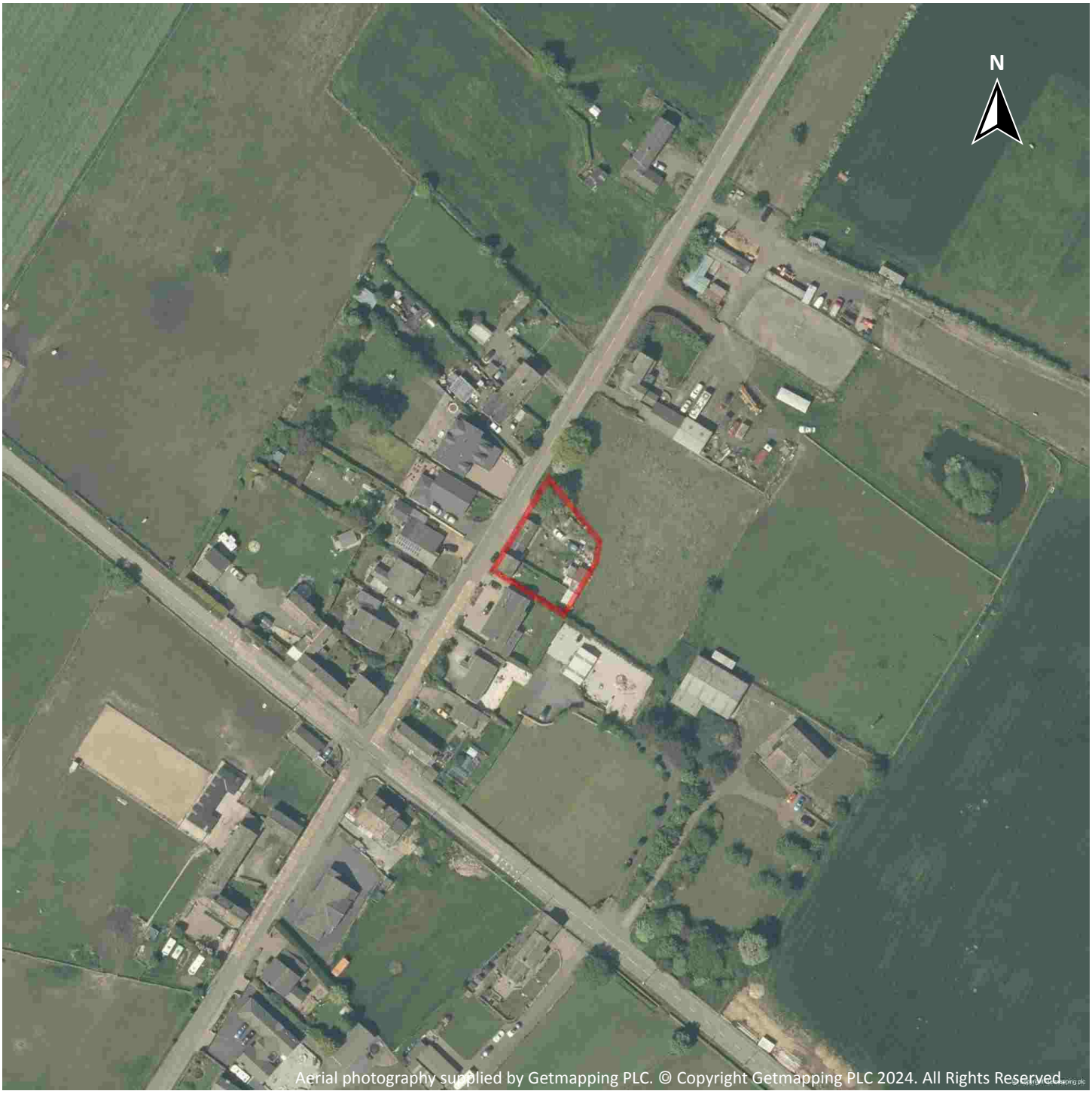
51	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
51	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
51	10.15	Nitrate Sensitive Areas	0	0	0	0	0
51 >	**10.16 >**	**Nitrate Vulnerable Zones >**	1	0	0	0	1
53 >	**10.17 >**	**SSSI Impact Risk Zones >**	1	-	-	-	-
54	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
55	11.1	World Heritage Sites	0	0	0	-	-
55	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
55	11.3	National Parks	0	0	0	-	-
55	11.4	Listed Buildings	0	0	0	-	-
56	11.5	Conservation Areas	0	0	0	-	-
56	11.6	Scheduled Ancient Monuments	0	0	0	-	-
56	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
57 >	**12.1 >**	**Agricultural Land Classification >**	Grade 4 (within 250m)				
58	12.2	Open Access Land	0	0	0	-	-
58	12.3	Tree Felling Licences	0	0	0	-	-
58	12.4	Environmental Stewardship Schemes	0	0	0	-	-
58	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	**Habitat designations >**	On site	0-50m	50-250m	250-500m	500-2000m
59 >	**13.1 >**	**Priority Habitat Inventory >**	0	0	2	-	-
60	13.2	Habitat Networks	0	0	0	-	-
60	13.3	Open Mosaic Habitat	0	0	0	-	-
60	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
61 >	**14.1 >**	**10k Availability >**	Identified (within 500m)				
62 >	**14.2 >**	**Artificial and made ground (10k) >**	0	0	6	4	-
64	14.3	Superficial geology (10k)	0	0	0	0	-

64	14.4	Landslip (10k)	0	0	0	0	-
65 >	14.5 >	Bedrock geology (10k) >	1	1	6	4	-
66 >	14.6 >	Bedrock faults and other linear features (10k) >	0	1	7	15	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
68 >	15.1 >	50k Availability >	Identified (within 500m)				
69 >	15.2 >	Artificial and made ground (50k) >	0	0	4	5	-
70	15.3	Artificial ground permeability (50k)	0	0	-	-	-
71	15.4	Superficial geology (50k)	0	0	0	0	-
71	15.5	Superficial permeability (50k)	None (within 50m)				
71	15.6	Landslip (50k)	0	0	0	0	-
71	15.7	Landslip permeability (50k)	None (within 50m)				
72 >	15.8 >	Bedrock geology (50k) >	1	1	5	9	-
73 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
74 >	15.10 >	Bedrock faults and other linear features (50k) >	0	1	6	9	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
75	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence >					
76 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
77 >	17.2 >	Running sands >	Negligible (within 50m)				
78 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
79 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
80 >	17.5 >	Landslides >	Very low (within 50m)				
81 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
83 >	18.1 >	BritPits >	0	0	1	0	-
84 >	18.2 >	Surface ground workings >	0	0	2	-	-
84 >	18.3 >	Underground workings >	0	0	3	3	22
86	18.4	Underground mining extents	0	0	0	0	-
86	18.5	Historical Mineral Planning Areas	0	0	0	0	-

86	18.6	Non-coal mining	0	0	0	0	0
86	18.7	JPB mining areas	None (within 0m)				
86	18.8	The Coal Authority non-coal mining	0	0	0	0	-
87	18.9	Researched mining	0	0	0	0	-
87	18.10	Mining record office plans	0	0	0	0	-
87	18.11	BGS mine plans	0	0	0	0	-
87 >	**18.12 >**	**Coal mining >**	Identified (within 0m)				
88	18.13	Brine areas	None (within 0m)				
88	18.14	Gypsum areas	None (within 0m)				
88	18.15	Tin mining	None (within 0m)				
88	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
89	19.1	Natural cavities	0	0	0	0	-
89	19.2	Mining cavities	0	0	0	0	0
89	19.3	Reported recent incidents	0	0	0	0	-
89	19.4	Historical incidents	0	0	0	0	-
90	19.5	National karst database	0	0	0	0	-
Page	Section	**Radon >**					
91 >	**20.1 >**	**Radon >**	Less than 1% (within 0m)				
Page	Section	**Soil chemistry >**	On site	0-50m	50-250m	250-500m	500-2000m
93 >	**21.1 >**	**BGS Estimated Background Soil Chemistry >**	1	2	-	-	-
93	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
93	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
94	22.1	Underground railways (London)	0	0	0	-	-
94	22.2	Underground railways (Non-London)	0	0	0	-	-
94	22.3	Railway tunnels	0	0	0	-	-
94	22.4	Historical railway and tunnel features	0	0	0	-	-
94	22.5	Royal Mail tunnels	0	0	0	-	-

95	22.6	Historical railways	0	0	0	-	-
95	22.7	Railways	0	0	0	-	-
95	22.8	Crossrail 1	0	0	0	0	-
95	22.9	Crossrail 2	0	0	0	0	-
95	22.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 30/05/2021

Site Area: 0.08ha

Recent site history - 2018 aerial photograph

Capture Date: 01/07/2018

Site Area: 0.08ha

Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 0.08ha

Recent site history - 1999 aerial photograph

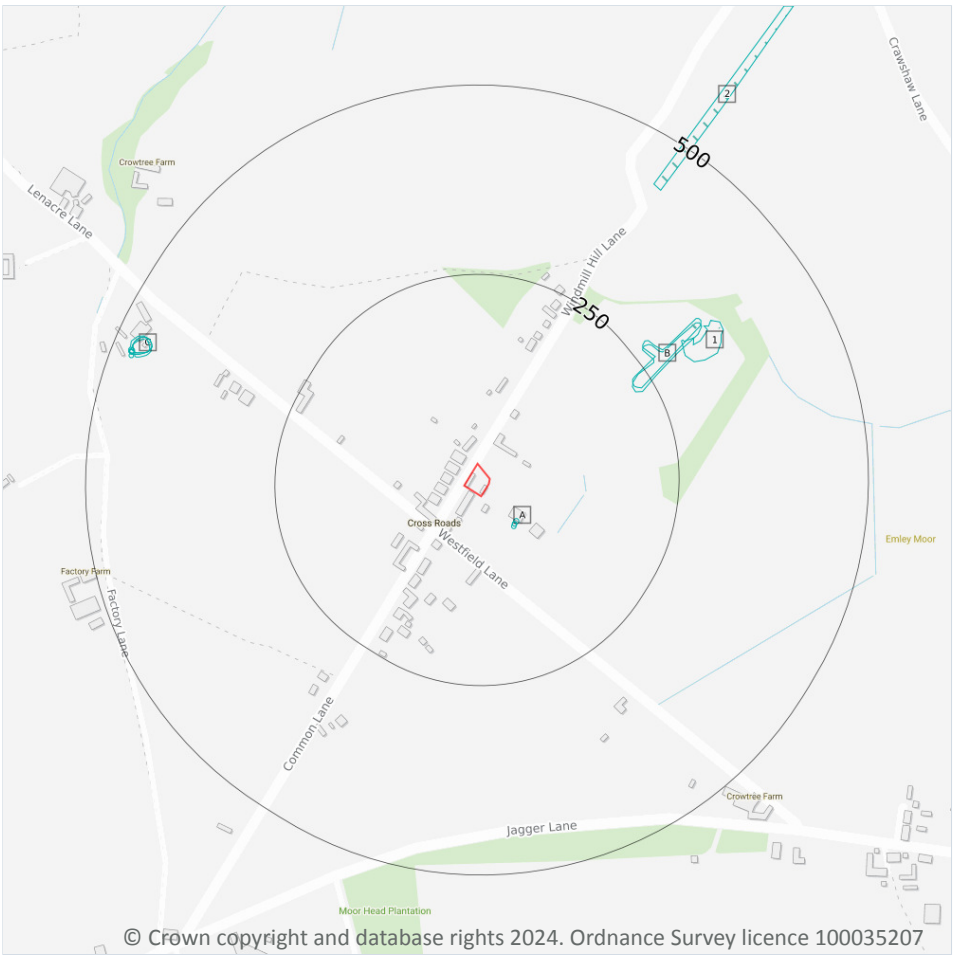
Capture Date: 10/07/1999

Site Area: 0.08ha

OS MasterMap site plan

Site Area: 0.08ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

1.1 Historical industrial land uses

Records within 500m	15

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

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

ID	Location	Land use	Dates present	Group ID
A	53m SE	Unspecified Old Shaft	1951	1477374

ID	Location	Land use	Dates present	Group ID
A	54m SE	Unspecified Old Shaft	1904	1509701
A	54m SE	Unspecified Old Shaft	1938 - 1948	1549534
B	224m NE	Unspecified Heaps	1948	1439515
B	227m NE	Unspecified Heap	1951	1415173
1	305m NE	Refuse Heap	1967 - 1979	1538995
2	435m NE	Railway Sidings	1891	1409306
C	450m W	Refuse Heap	1948	1509899
C	451m W	Refuse Heap	1938	1526107
C	451m W	Refuse Heap	1904	1545077
C	453m W	Refuse Heap	1951	1550546
C	469m W	Unspecified Old Shaft	1948	1507913
C	470m W	Unspecified Old Shaft	1938	1483843
C	470m W	Unspecified Old Shaft	1904	1488727
C	470m W	Unspecified Old Shaft	1951	1466888

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	0

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

grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

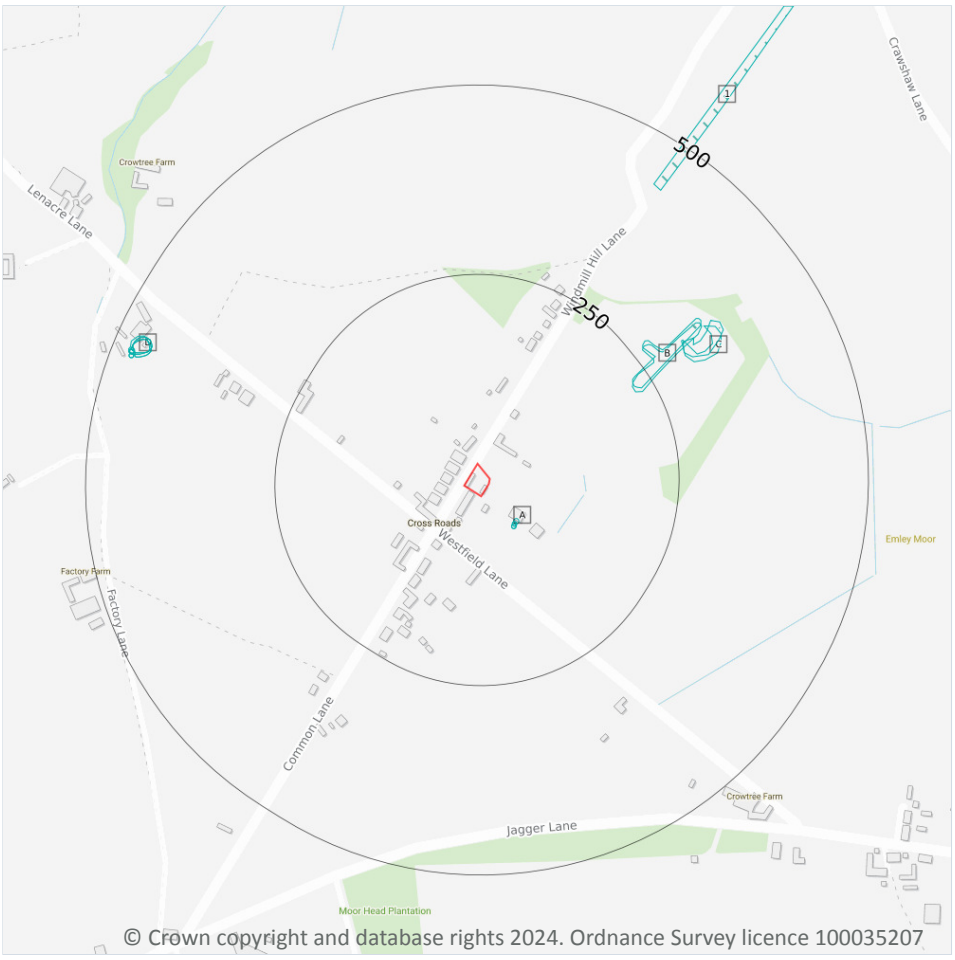
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

2.1 Historical industrial land uses

Records within 500m	20

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 17 >**

ID	Location	Land Use	Date	Group ID
A	53m SE	Unspecified Old Shaft	1951	1477374
A	54m SE	Unspecified Old Shaft	1938	1549534
A	54m SE	Unspecified Old Shaft	1904	1509701

ID	Location	Land Use	Date	Group ID
A	56m SE	Unspecified Old Shaft	1948	1549534
A	56m SE	Unspecified Old Shaft	1948	1549534
B	224m NE	Unspecified Heaps	1948	1439515
B	227m NE	Unspecified Heap	1951	1415173
C	305m NE	Refuse Heap	1967	1538995
C	306m NE	Refuse Heap	1979	1538995
1	435m NE	Railway Sidings	1891	1409306
D	450m W	Refuse Heap	1948	1509899
D	450m W	Refuse Heap	1948	1509899
D	451m W	Refuse Heap	1938	1526107
D	451m W	Refuse Heap	1904	1545077
D	453m W	Refuse Heap	1951	1550546
D	469m W	Unspecified Old Shaft	1948	1507913
D	469m W	Unspecified Old Shaft	1948	1507913
D	470m W	Unspecified Old Shaft	1938	1483843
D	470m W	Unspecified Old Shaft	1904	1488727
D	470m W	Unspecified Old Shaft	1951	1466888

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

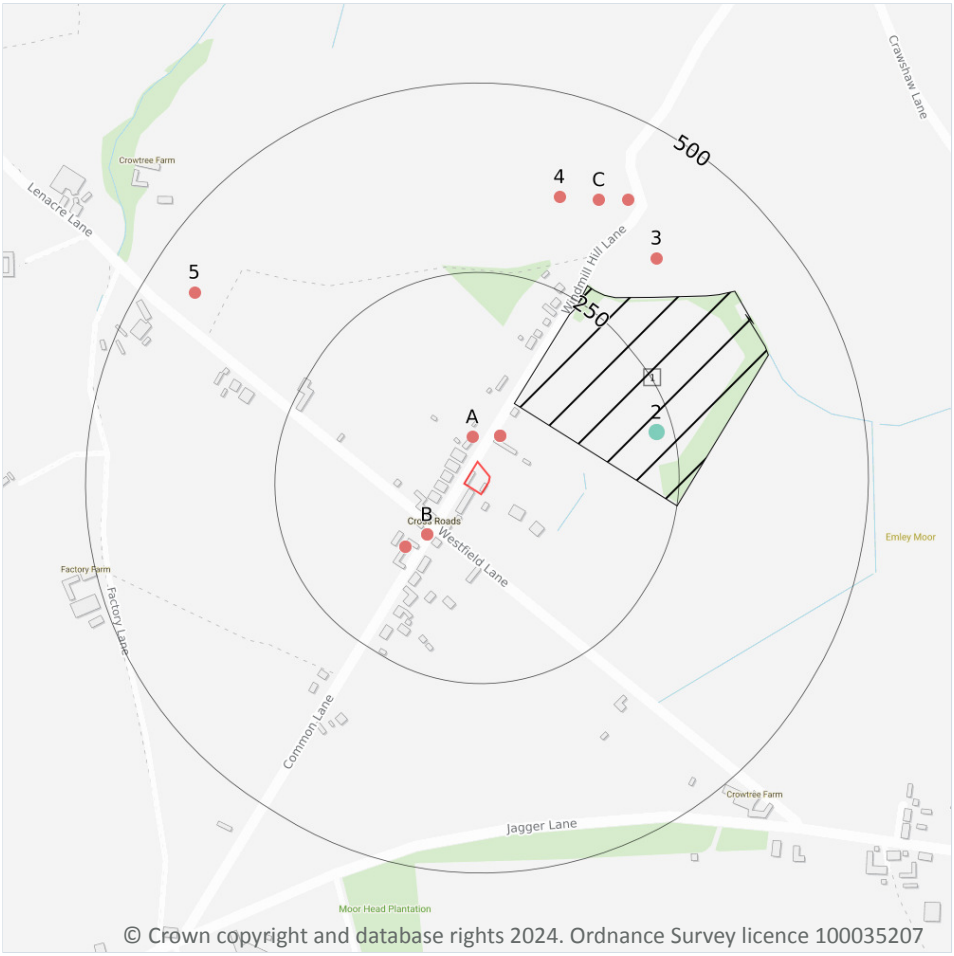
2.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical landfill (BGS)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 20 >**

ID	Location	Address	BGS Number	Risk	Waste Type
2	227m E	Fletcher Pk, Windmill Hill Lane, Huddersfield	1632	No risk to aquifer	N/A

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 20 >**

ID	Location	Details		
1	90m NE	Site Address: Fletcher Park, Windmill Hill Lane, Huddersfield, West Yorkshire Licence Holder Address: -	Waste Licence: Yes Site Reference: 4400/WY9 Waste Type: Inert, Industrial, Commercial, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 20/07/1977 Licence Surrender: -	Operator: West Yorkshire Metropolitan County Council Licence Holder: - First Recorded - Last Recorded: 31/12/1983

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	19

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

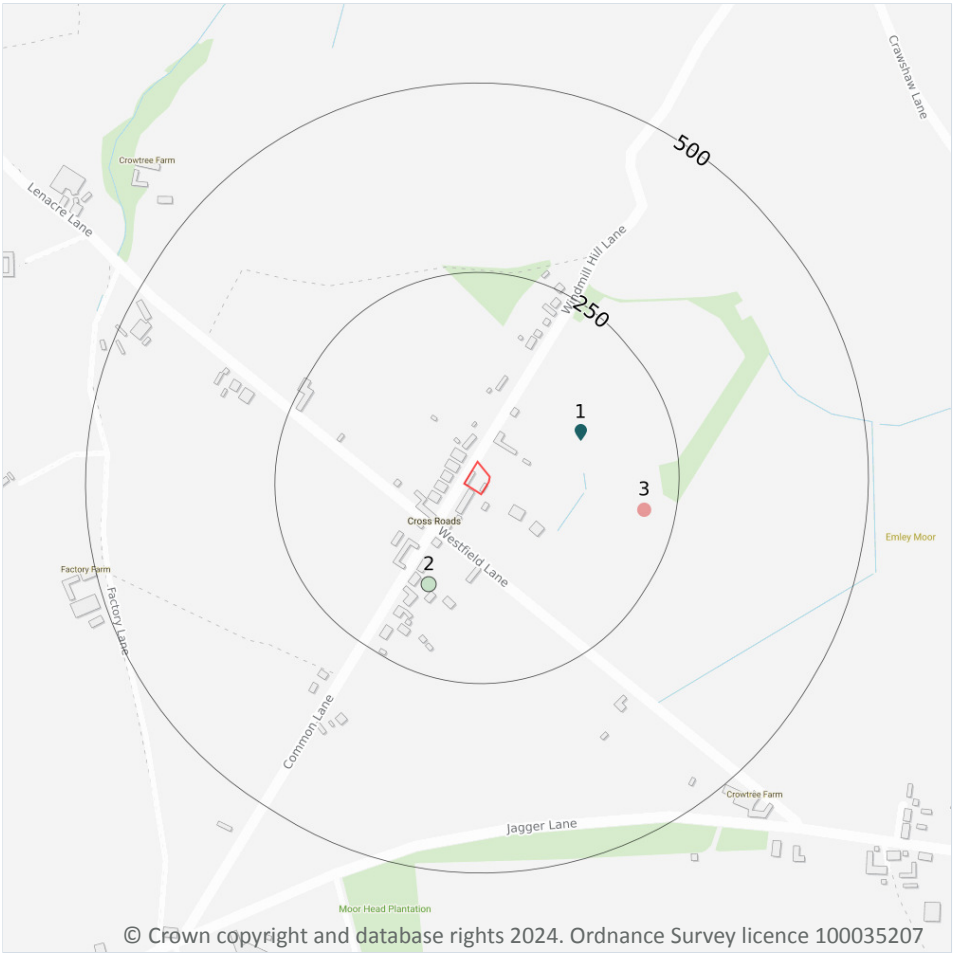
Features are displayed on the Waste and landfill map on **page 20 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	33m N	18 Windmill Hill Lane HUDDERSFIELD HD8 9TA	EPR/AH0470LC/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
A	45m NE	-	WEX263580	Using waste exemption	On a farm	Use of waste in construction
A	45m NE	18, WINDMILL HILL LANE, EMLEY MOOR, HUDDERSFIELD, HD8 9TA	WEX315808	Using waste exemption	On a farm	Use of waste in construction
A	45m NE	18, WINDMILL HILL LANE, EMLEY MOOR, HUDDERSFIELD, HD8 9TA	WEX186566	Using waste exemption	On a farm	Use of waste in construction
A	45m NE	18, WINDMILL HILL LANE, EMLEY MOOR, HUDDERSFIELD, HD8 9TA	WEX123943	Using waste exemption	On a farm	Use of waste in construction
A	45m NE	18, WINDMILL HILL LANE, EMLEY MOOR, HUDDERSFIELD, HD8 9TA	WEX012705	Using waste exemption	On a farm	Use of waste in construction
A	45m NE	18, WINDMILL HILL LANE, EMLEY MOOR, HUDDERSFIELD, HD8 9TA	WEX012705	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
B	84m SW	1 Common Lane HUDDERSFIELD HD8 9TB	EPR/EH0671VK/A001	Using waste exemption	Agricultural Waste Only	Use of waste for a specified purpose
B	84m SW	1 Common Lane HUDDERSFIELD HD8 9TB	EPR/EH0671VK/A001	Treating waste exemption	Agricultural Waste Only	Cleaning, washing, spraying or coating relevant waste

ID	Location	Site	Reference	Category	Sub-Category	Description
B	84m SW	1 Common Lane HUDDERSFIELD HD8 9TB	EPR/EH0671VK/A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
B	84m SW	1 Common Lane HUDDERSFIELD HD8 9TB	EPR/EH0671VK/A001	Using waste exemption	Agricultural Waste Only	Spreading waste on agricultural land to confer benefit
B	115m SW	1, COMMON LANE, EMLEY, HUDDERSFIELD, HD8 9TB	WEX322839	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
B	115m SW	1, COMMON LANE, EMLEY, HUDDERSFIELD, HD8 9TB	WEX189935	Using waste exemption	On a Farm	Spreading waste on agricultural land to confer benefit
B	115m SW	1, COMMON LANE, EMLEY, HUDDERSFIELD, HD8 9TB	WEX032356	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
3	357m NE	-	WEX386410	Storing waste exemption	On a farm	Storage of sludge
4	365m N	LOWER HALSTEAD, HALSTEAD LANE, THURSTONLAND, HUDDERSFIELD, HD4 6XT	WEX078009	Storing waste exemption	On a farm	Storage of sludge
C	380m NE	LOWER HALSTEAD, HALSTEAD LANE, THURSTONLAND, HUDDERSFIELD, HD4 6XT	WEX005312	Storing waste exemption	On a farm	Storage of sludge
C	398m NE	Lower Halstead Halstead Lane Huddersfield West Yorkshire HD4 6XT	EPR/HF0603UL/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge
5	436m NW	Lower Halstead Halstead Lane Huddersfield West Yorkshire HD4 6XT	EPR/BH0671RB/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge

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

4 Current industrial land use



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Recent industrial land uses

Licensed pollutant release (Part A(2)/B)

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	1

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 24 >**

ID	Location	Company	Address	Activity	Category
3	208m E	Wind Turbine	West Yorkshire, HD8	Energy Production	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

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

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	1

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 24 >**

ID	Location	Address	Details	
1	133m NE	Holgate Construction Ltd, Saxonfield House Farm, Windmill Hill Lane, Emley Moor, HD8 9TA	Process: Other Mineral Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

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

4.13 Licensed Discharges to controlled waters

Records within 500m	0

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

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	1

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

Features are displayed on the Current industrial land use map on **page 24 >**

ID	Location	Details	
2	137m SW	Incident Date: 10/05/2002 Incident Identification: 77821 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer

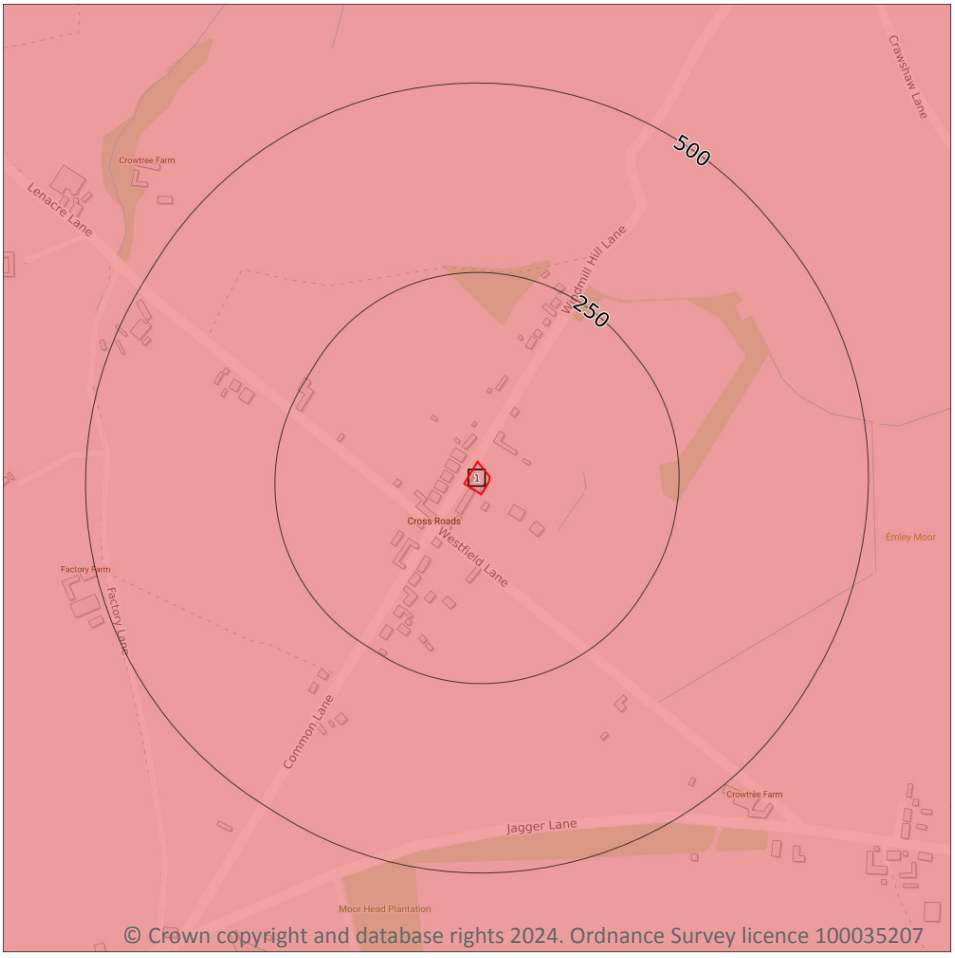
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	1

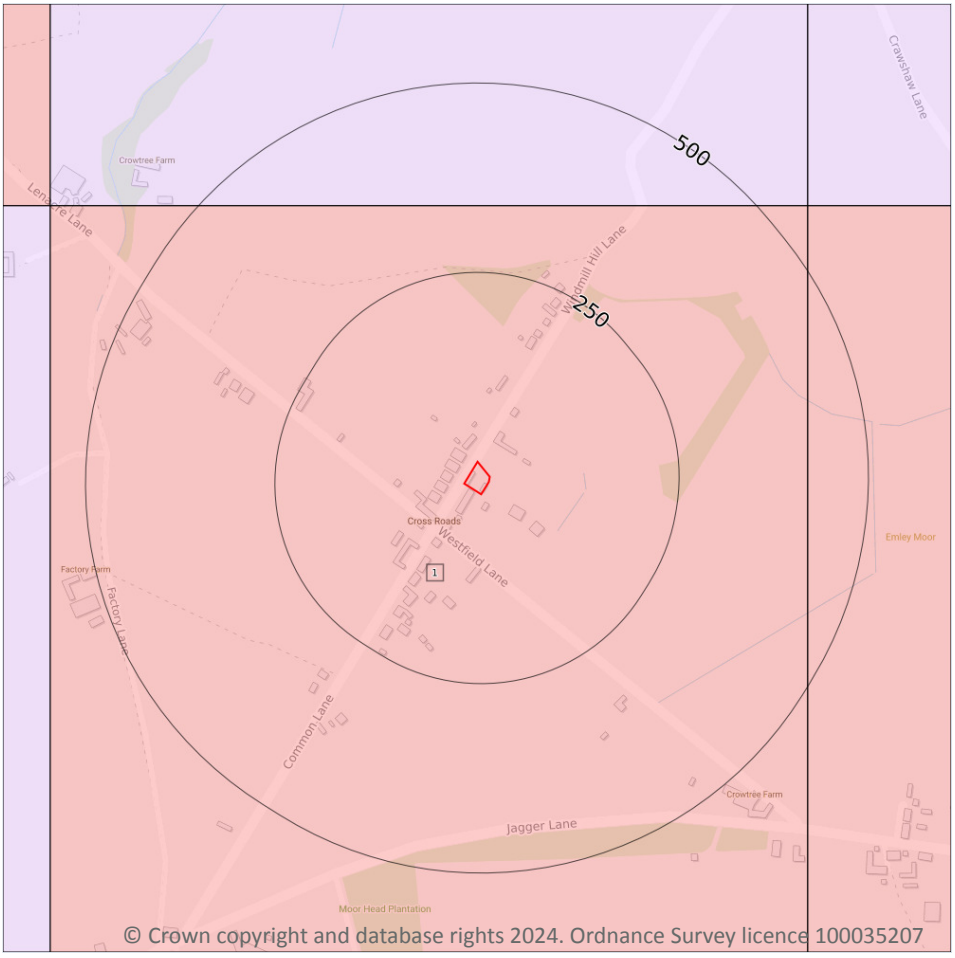
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 31 >**

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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability
- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability
- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 32 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

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

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

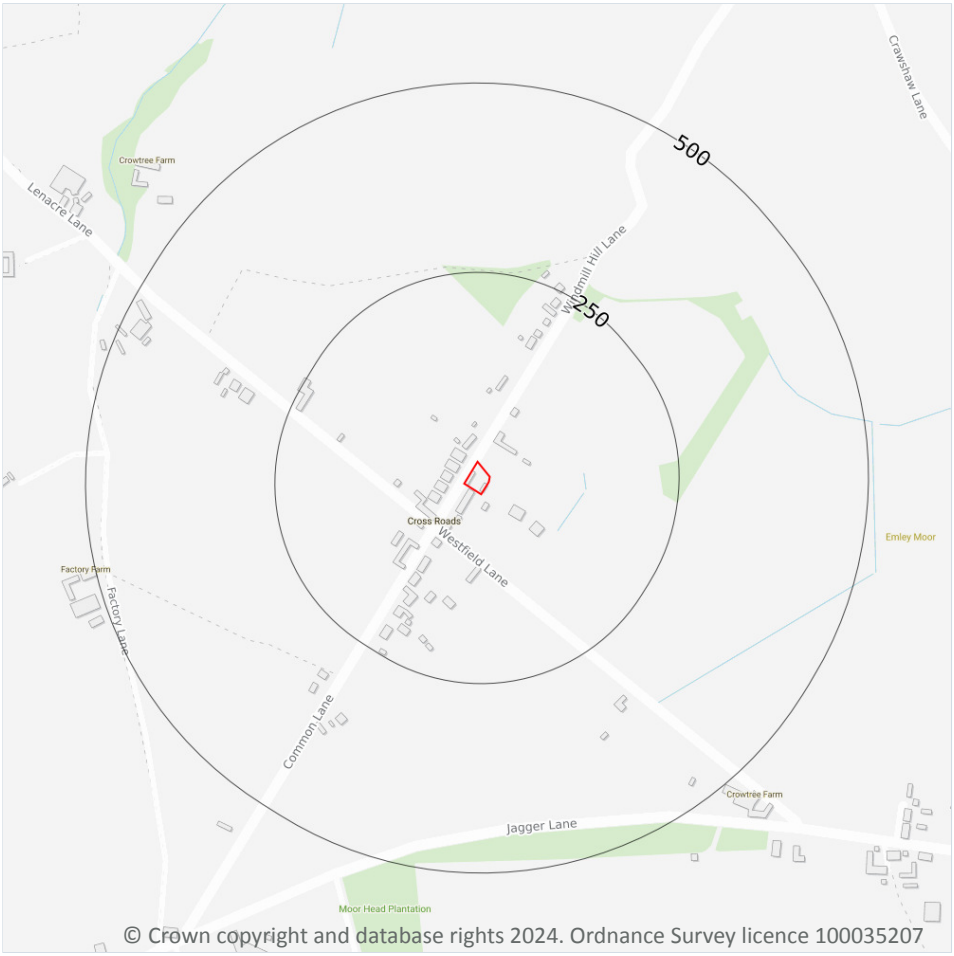
5.5 Groundwater vulnerability- local information

Records on site	0

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

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

Abstractions and Source Protection Zones



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	7

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 34 >**

ID	Location	Details	
-	1604m SW	Status: Active Licence No: 2/27/08/126 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - SHELLEY Data Type: Point Name: C & M HALL Easting: 421820 Northing: 412200	Annual Volume (m^3): 32225 Max Daily Volume (m^3): 89 Original Application No: NPS/WR/021610 Original Start Date: 11/10/2000 Expiry Date: - Issue No: 4 Version Start Date: 31/10/2016 Version End Date: -
-	1604m SW	Status: Historical Licence No: 2/27/08/126 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - HUDDERSFIELD Data Type: Point Name: T/A T R & C HALL Easting: 421820 Northing: 412200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 1 Version Start Date: 11/10/2000 Version End Date: -
-	1604m SW	Status: Historical Licence No: 2/27/08/126 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - HUDDERSFIELD Data Type: Point Name: T/A T R & C HALL Easting: 421820 Northing: 412200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 1 Version Start Date: 11/10/2000 Version End Date: -
-	1655m SW	Status: Historical Licence No: 2/27/08/126 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE- COAL MEASURES - HUDDERSFIELD Data Type: Point Name: T/A T R & C HALL Easting: 421750 Northing: 412180	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 1 Version Start Date: 11/10/2000 Version End Date: -
-	1655m SW	Status: Historical Licence No: 2/27/08/126 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: GROUNDWATERS Point: BOREHOLE- COAL MEASURES - HUDDERSFIELD Data Type: Point Name: T/A T R & C HALL Easting: 421750 Northing: 412180	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 1 Version Start Date: 11/10/2000 Version End Date: -

ID	Location	Details	
-	1989m SW	Status: Active Licence No: 2/27/08/126 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE- COAL MEASURES - SHELLEY Data Type: Point Name: C & M HALL Easting: 421550 Northing: 411910	Annual Volume (m^3): 32225 Max Daily Volume (m^3): 89 Original Application No: NPS/WR/021610 Original Start Date: 11/10/2000 Expiry Date: - Issue No: 4 Version Start Date: 31/10/2016 Version End Date: -
-	1989m SW	Status: Historical Licence No: 2/27/08/126 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: UNDERGROUND STRATA - COAL MEASURES Data Type: Point Name: T R & C HALL Easting: 421550 Northing: 411910	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 2 Version Start Date: 18/09/2002 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	1

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 34 >**

ID	Location	Details	
-	921m E	Status: Historical Licence No: 2/27/08/024 Details: General Farming & Domestic Direct Source: SURFACE WATER Point: MOUSE HOUSE DYKE Data Type: Point Name: H LODGE & SONS Easting: 423500 Northing: 413700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	2

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 34 >**

ID	Location	Details	
-	1604m SW	Status: Historical Licence No: 2/27/08/126 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - HUDDERSFIELD Data Type: Point Name: T/A T R & C HALL Easting: 421820 Northing: 412200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 1 Version Start Date: 11/10/2000 Version End Date: -
-	1655m SW	Status: Historical Licence No: 2/27/08/126 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: GROUNDWATERS Point: BOREHOLE- COAL MEASURES - HUDDERSFIELD Data Type: Point Name: T/A T R & C HALL Easting: 421750 Northing: 412180	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/10/2000 Expiry Date: - Issue No: 1 Version Start Date: 11/10/2000 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	0

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

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	4

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

Features are displayed on the Hydrology map on **page 39 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	111m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
B	124m E	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	124m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	125m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 39 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 39 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River**	**Bentley Brook from Source to River Dearne**	**GB104027063310**	**Dearne**	**Don and Rother**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 39 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	974m NW	River	Bentley Brook from Source to River Dearne	GB104027063310 ↗	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 39 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Don & Rother Millstone grit & Coal Measures**	**GB40402G992300 ↗**	**Poor**	**Poor**	**Good**	**2019**

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

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

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

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

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

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

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

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

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

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

8 Surface water flooding

8.1 Surface water flooding

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

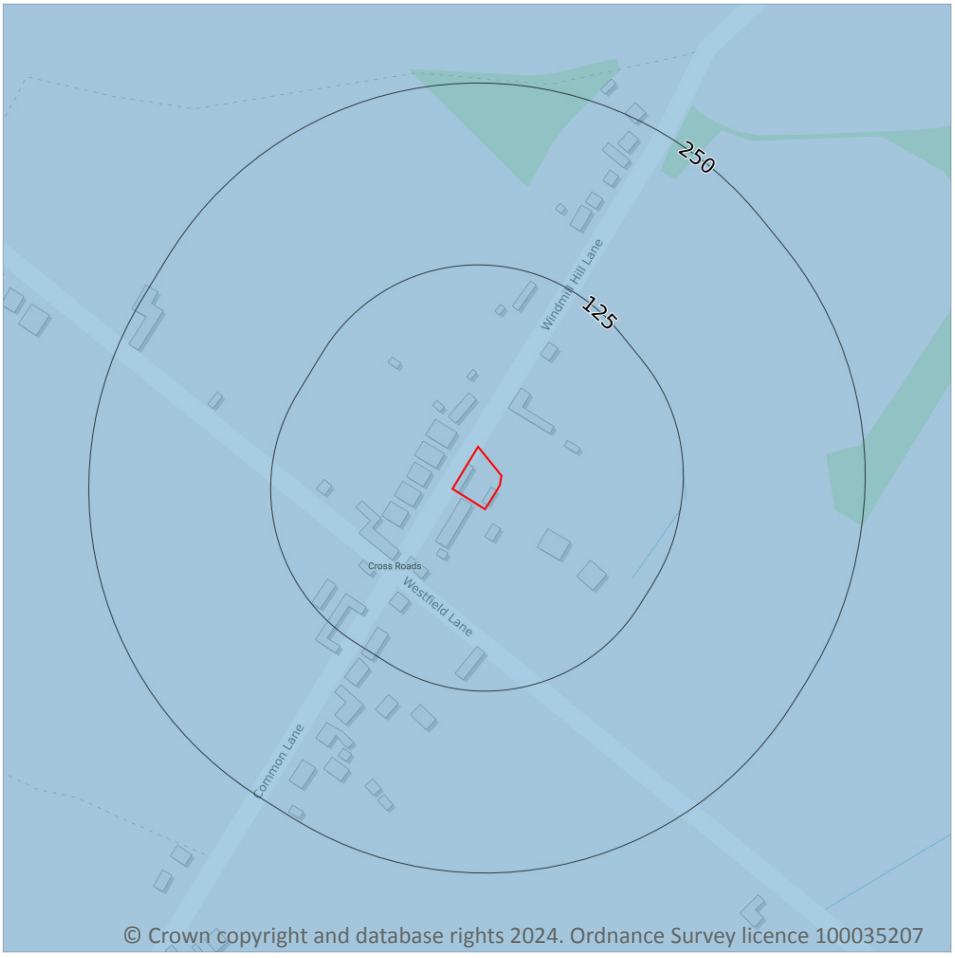
Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year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

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

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

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

9.1 Groundwater flooding

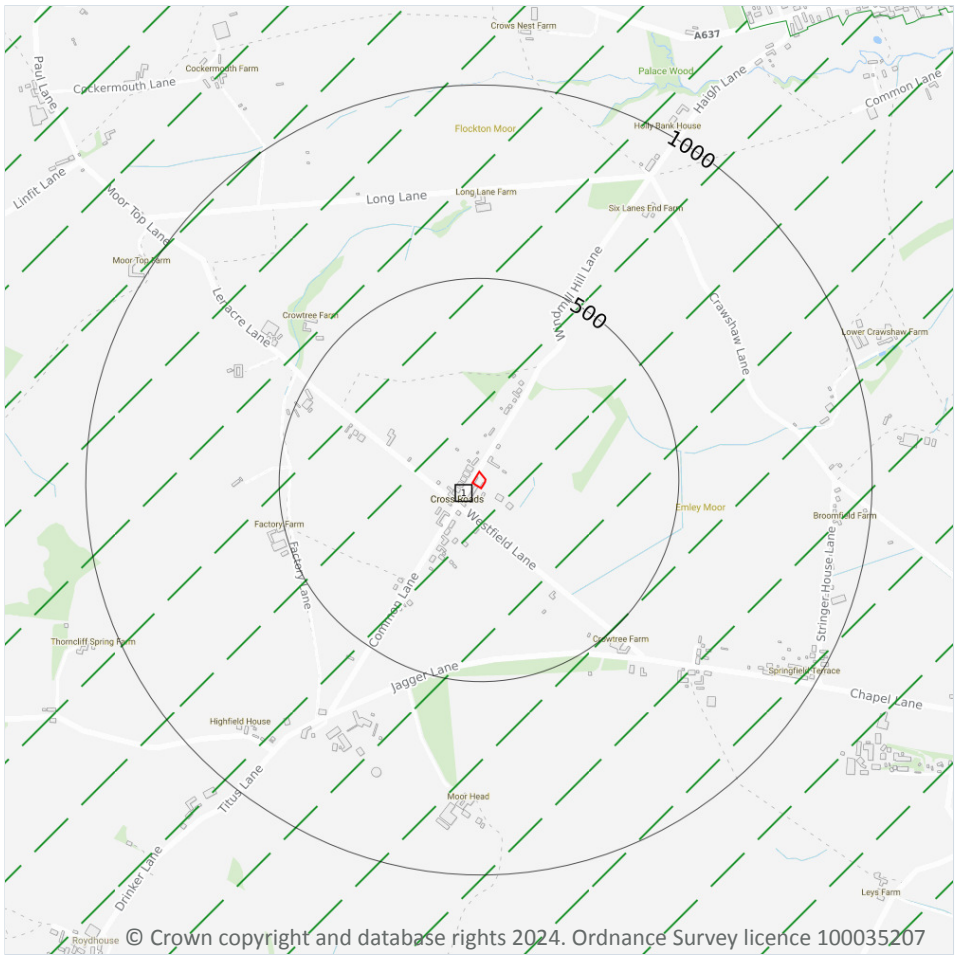
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 46 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

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

10.7 Designated Ancient Woodland

Records within 2000m	3

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 47 >**

ID	Location	Name	Woodland Type
-	1420m NE	Epley Wood	Ancient Replanted Woodland
-	1644m S	Lightcliff Wood/rough Piece	Ancient Replanted Woodland
-	1810m NE	Unknown	Ancient & Semi-Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

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

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

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

10.11 Green Belt

Records within 2000m	1

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 47 >**

ID	Location	Name	Local Authority name
1	**On site**	**South and West Yorkshire**	**Kirklees**

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	2

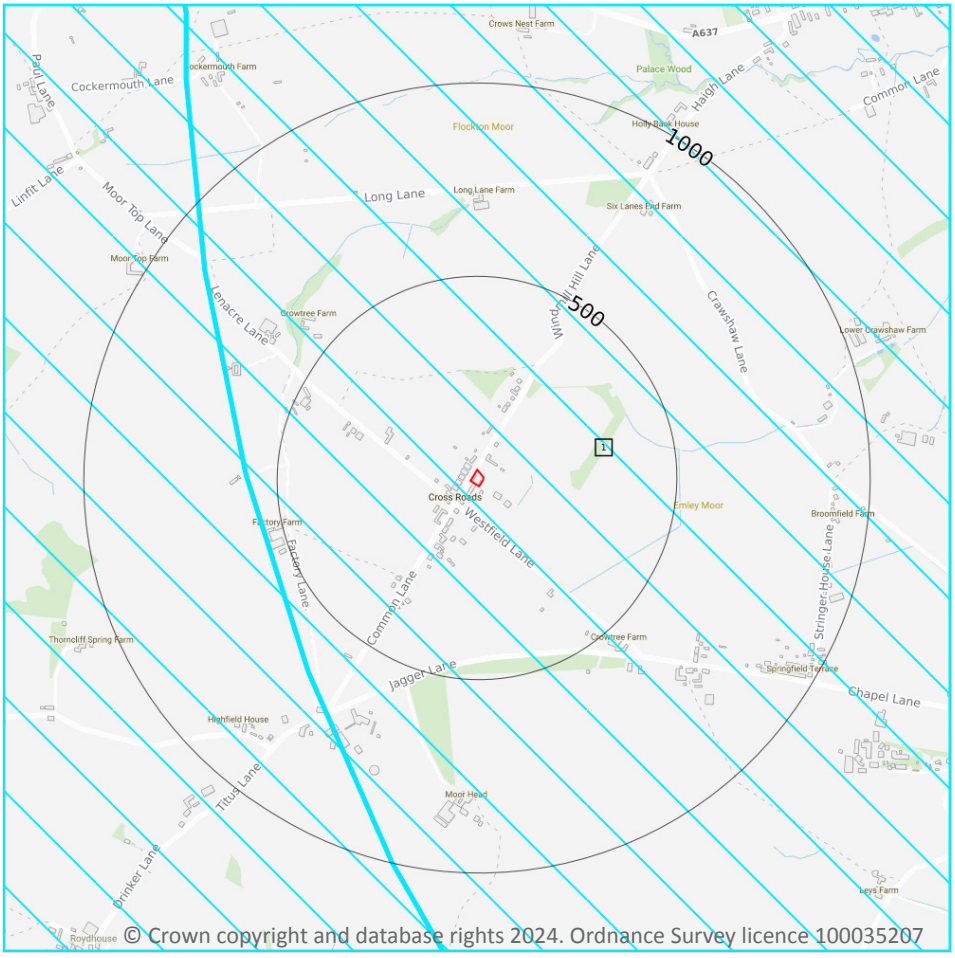
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	**River Dearne NVZ**	**Surface Water**	**278**	**Existing**

Location	Name	Type	NVZ ID	Status
1512m E	River Dearne NVZ	Surface Water	278	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

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

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 53 >**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Airports, helipads and other aviation proposals.** **Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).** **Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

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

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

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

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

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

11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

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

12 Agricultural designations

© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 57 >**

ID	Location	Classification	Description
1	**On site**	**Grade 4**	**Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.**

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	2

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

Features are displayed on the Habitat designations map on **page 59 >**

ID	Location	Main Habitat	Other habitats
1	181m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	237m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

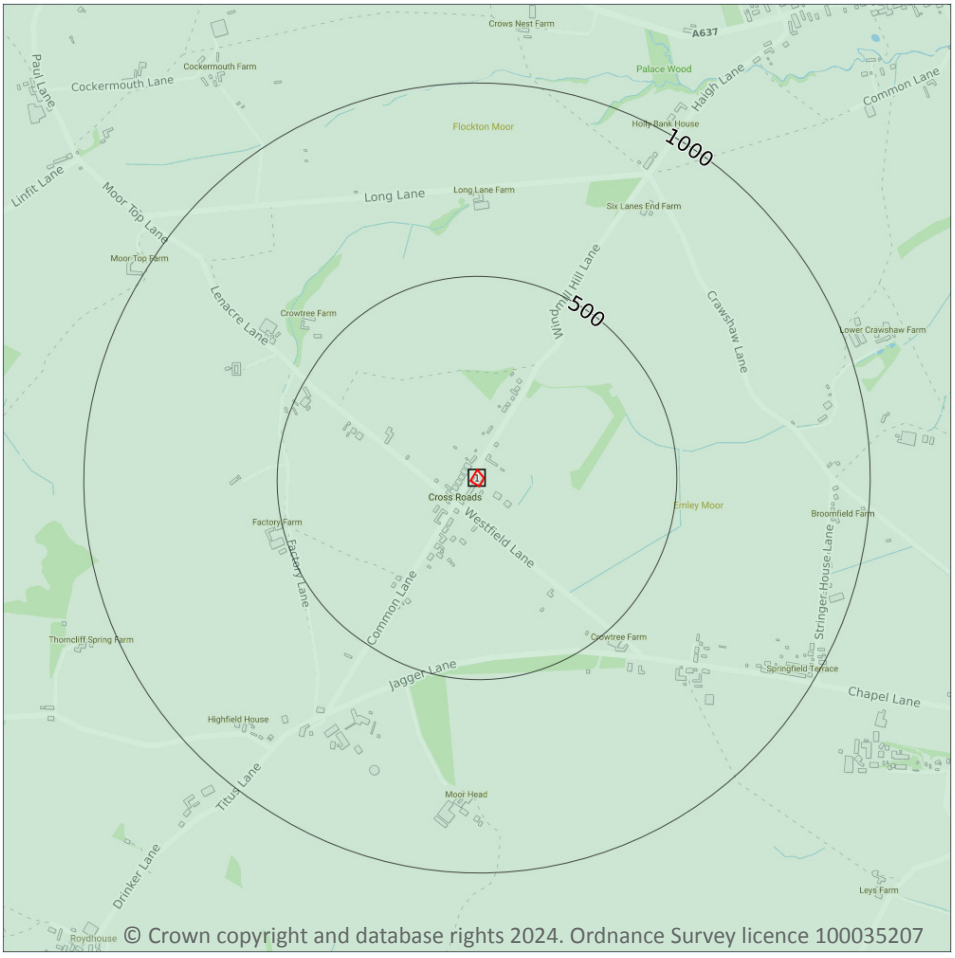
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	1

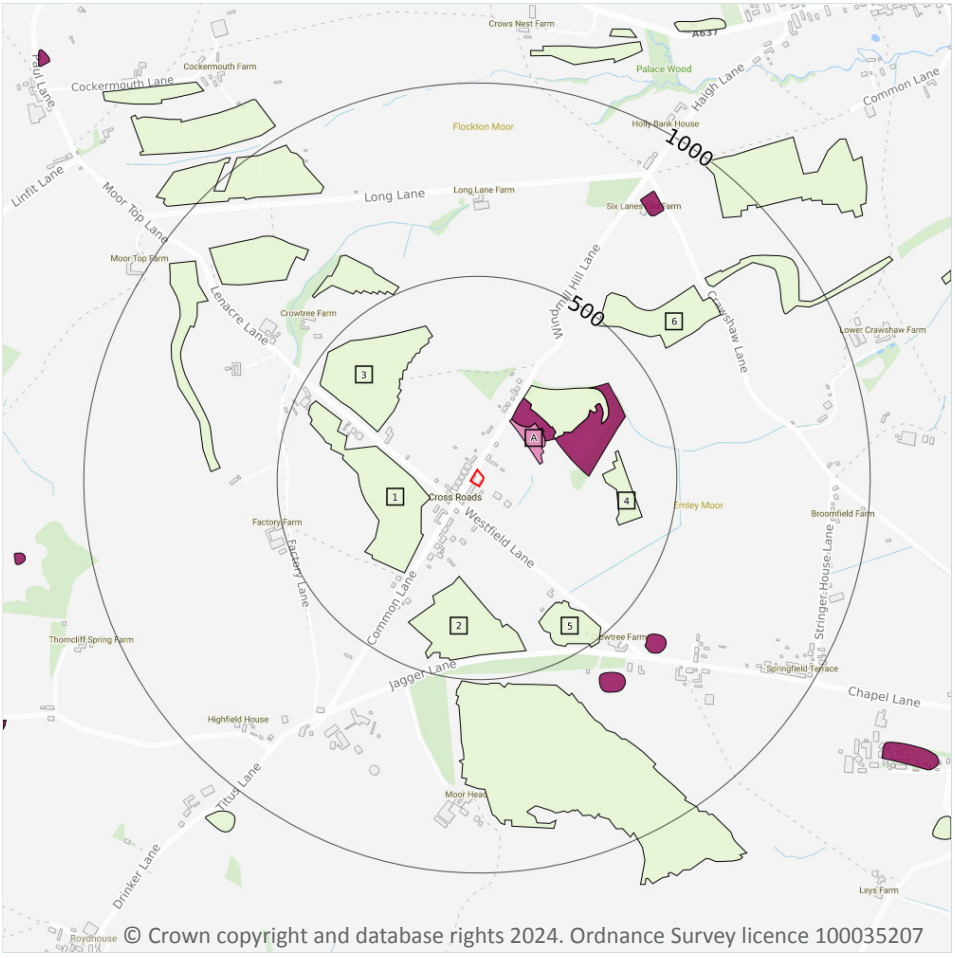
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 61 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE21SW**

This data is sourced from the British Geological Survey.

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



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

14.2 Artificial and made ground (10k)

Records within 500m	10

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 62 >**

ID	Location	LEX Code	Description	Rock description
1	113m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
A	140m NE	WGR-VOID	Worked Ground (Undivided)	Void
A	158m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	209m NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
A	211m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	238m S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
3	264m NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
4	308m E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
5	360m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	486m NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

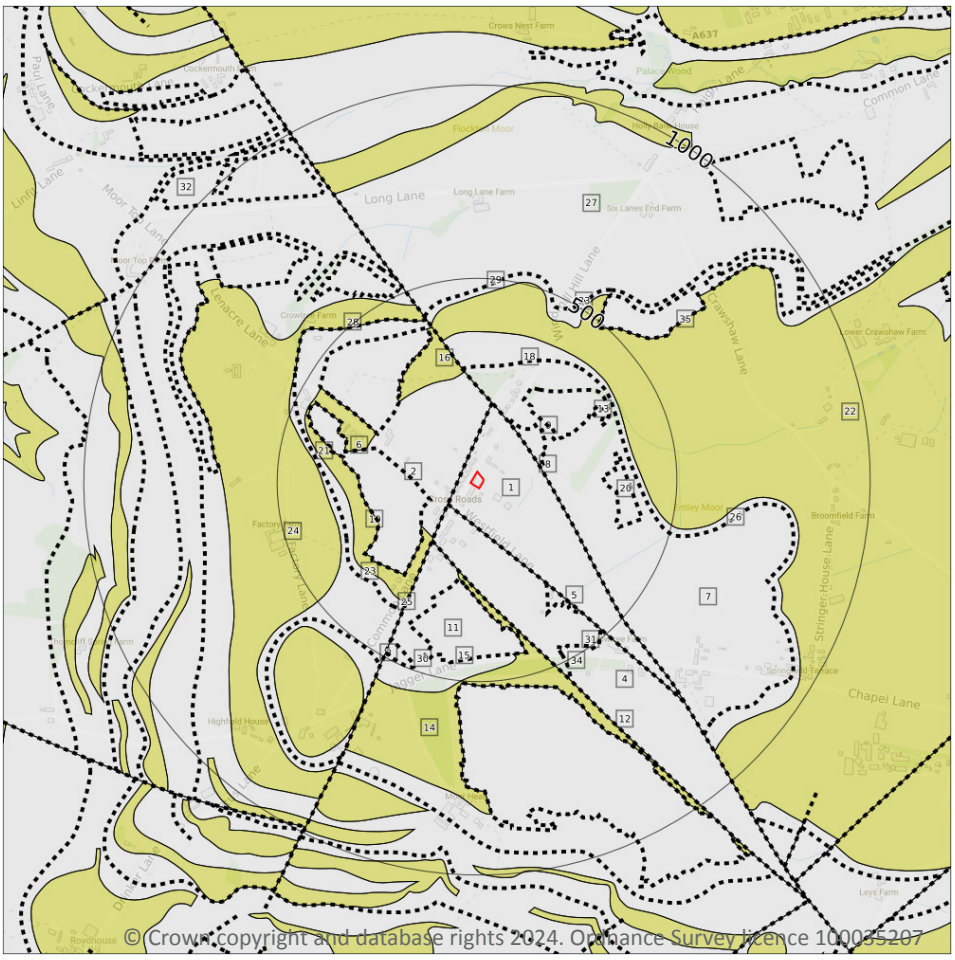
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	12

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 65 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSS**	**Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Langsettian Sub-age**
2	32m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
4	80m SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
7	140m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
10	169m SW	BRSR-SDST	Birstall Rock - Sandstone	Langsettian Sub-age
11	180m SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
14	218m S	BRSR-SDST	Birstall Rock - Sandstone	Langsettian Sub-age
16	248m N	BRSR-SDST	Birstall Rock - Sandstone	Langsettian Sub-age
22	350m N	ER-SDST	Emley Rock - Sandstone	Langsettian Sub-age
24	360m W	LPE-SDST	Lepton Edge Rock - Sandstone	Langsettian Sub-age
27	396m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
32	459m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**23**

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

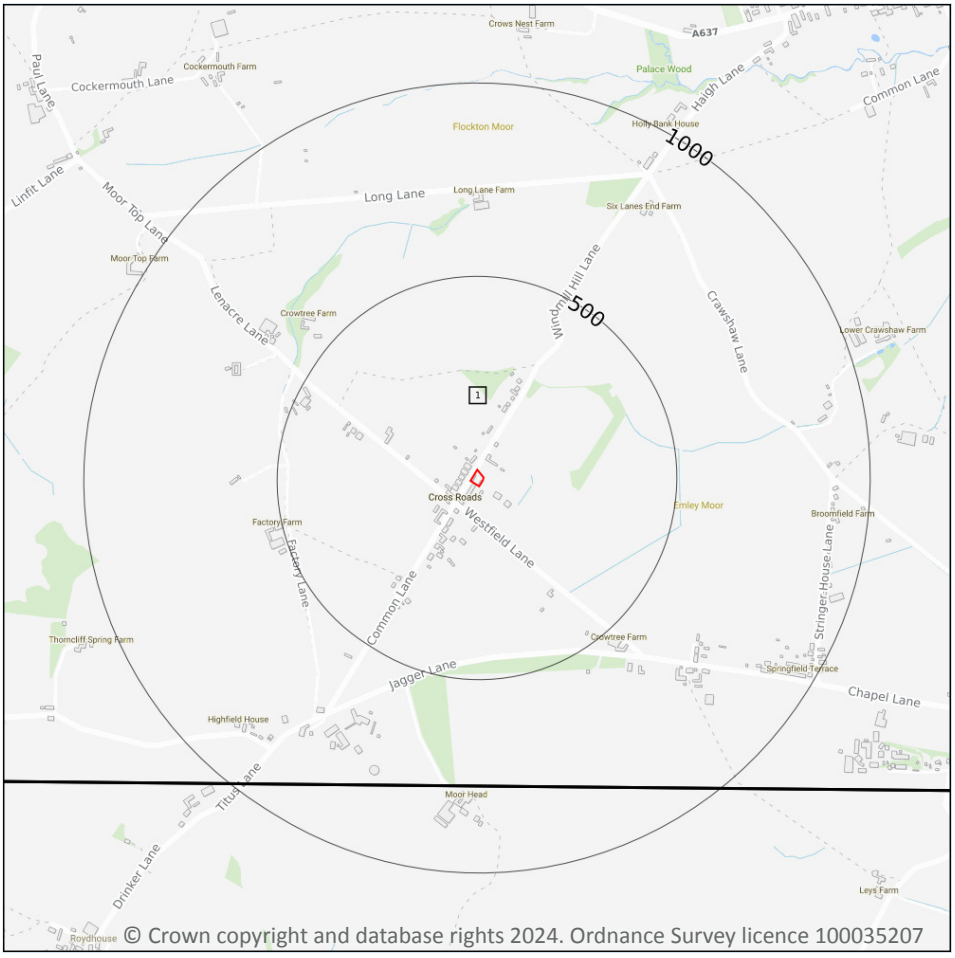
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 65 >**

ID	Location	Category	Description
3	32m W	FAULT	Normal fault, inferred; crossmarks on downthrow side
5	80m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
6	113m W	ROCK	Coal seam, observed
8	140m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
9	150m E	ROCK	Coal seam, observed
12	180m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
13	209m NE	ROCK	Coal seam, observed

ID	Location	Category	Description
15	238m S	ROCK	Coal seam, observed
17	264m NW	ROCK	Coal seam, observed
18	269m N	ROCK	Coal seam, observed
19	300m SE	ROCK	Coal seam, observed
20	308m E	ROCK	Coal seam, observed
21	344m W	ROCK	Coal seam, inferred
23	351m SW	ROCK	Coal seam, observed
25	370m SW	ROCK	Coal seam, inferred
26	374m E	ROCK	Coal seam, inferred
28	415m N	ROCK	Coal seam, inferred
29	424m N	ROCK	Coal seam, observed
30	450m SW	ROCK	Coal seam, inferred
31	456m SE	ROCK	Coal seam, observed
33	471m NE	ROCK	Coal seam, inferred
34	480m SE	ROCK	Coal seam, inferred
35	486m NE	ROCK	Coal seam, observed

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

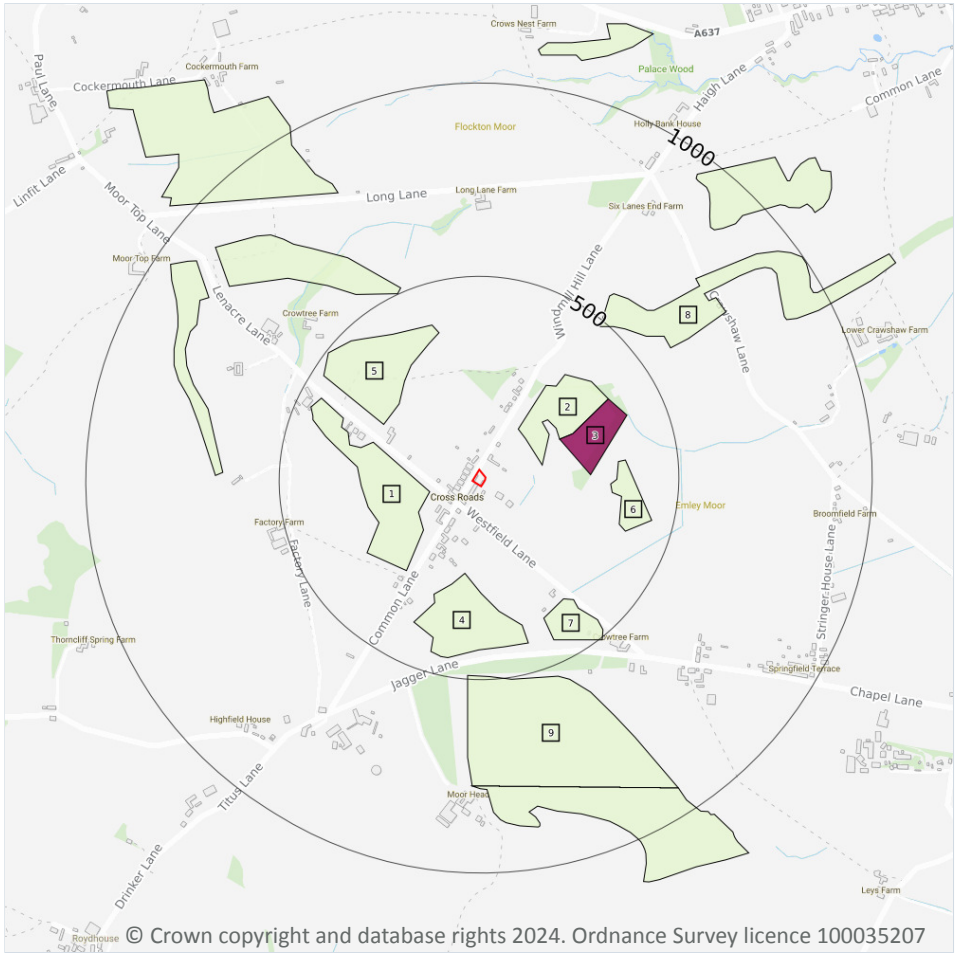
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 68 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW077_huddersfield_v4**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

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

15.2 Artificial and made ground (50k)

Records within 500m	9

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 69 >**

ID	Location	LEX Code	Description	Rock description
1	114m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
2	141m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	216m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	229m S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

ID	Location	LEX Code	Description	Rock description
5	268m NW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
6	324m E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
7	361m SE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
8	485m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
9	490m S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

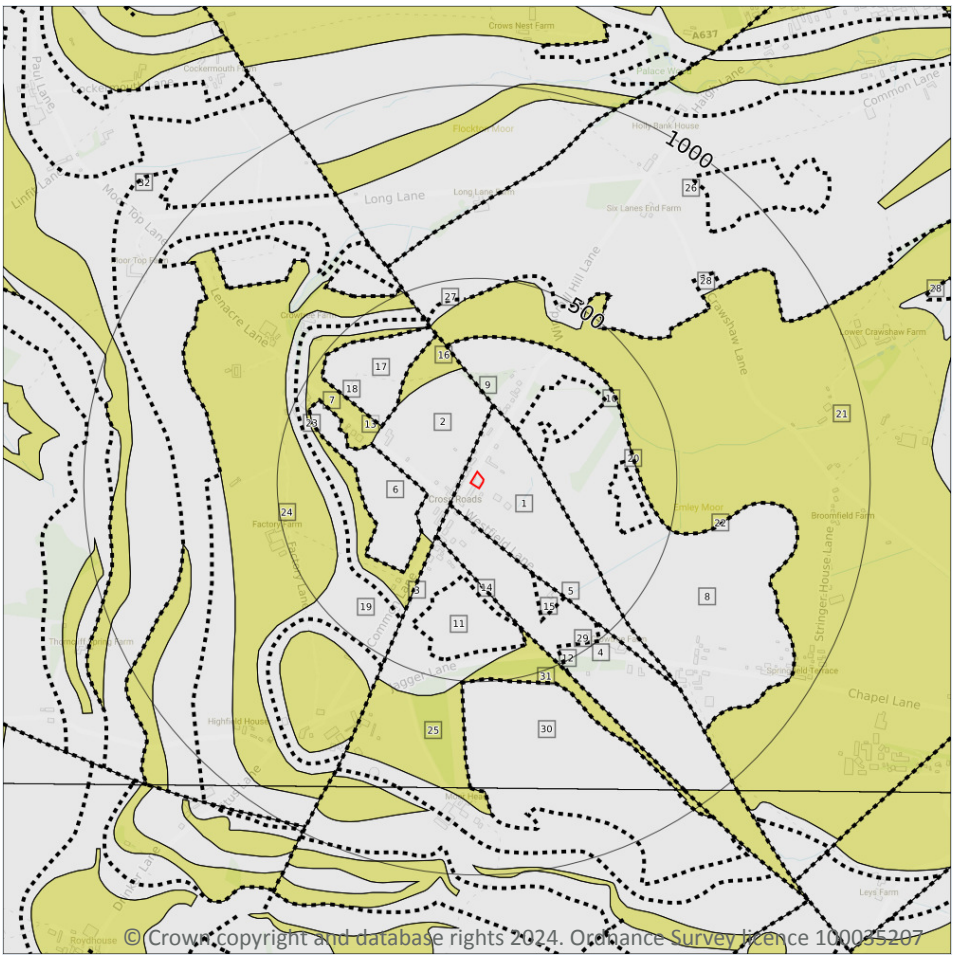
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m	16

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 72 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSS**	**PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
2	27m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
4	78m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	114m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	141m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	163m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
13	179m SW	BRSR-SDST	BIRSTALL ROCK - SANDSTONE	WESTPHALIAN
16	264m NW	BRSR-SDST	BIRSTALL ROCK - SANDSTONE	WESTPHALIAN
17	268m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
19	308m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	335m N	ER-SDST	EMLEY ROCK - SANDSTONE	WESTPHALIAN
24	372m W	LPE-SDST	LEPTON EDGE ROCK - SANDSTONE	WESTPHALIAN
25	374m S	BRSR-SDST	BIRSTALL ROCK - SANDSTONE	WESTPHALIAN
26	394m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
30	492m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
32	494m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**1**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	16

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 72 >**

ID	Location	Category	Description
3	27m W	FAULT	Fault, inferred
5	78m SW	FAULT	Fault, inferred
7	114m W	ROCK	Coal seam, inferred
9	141m NE	FAULT	Fault, inferred
10	146m NE	ROCK	Coal seam, inferred
12	163m SW	FAULT	Fault, inferred
14	229m S	ROCK	Coal seam, inferred
15	259m SE	ROCK	Coal seam, inferred
18	268m NW	ROCK	Coal seam, inferred
20	324m E	ROCK	Coal seam, inferred
22	335m N	ROCK	Coal seam, inferred
23	339m W	ROCK	Coal seam, inferred
27	408m N	ROCK	Coal seam, inferred
28	447m N	ROCK	Coal seam, inferred
29	456m SE	ROCK	Coal seam, inferred
31	492m S	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

16 Boreholes

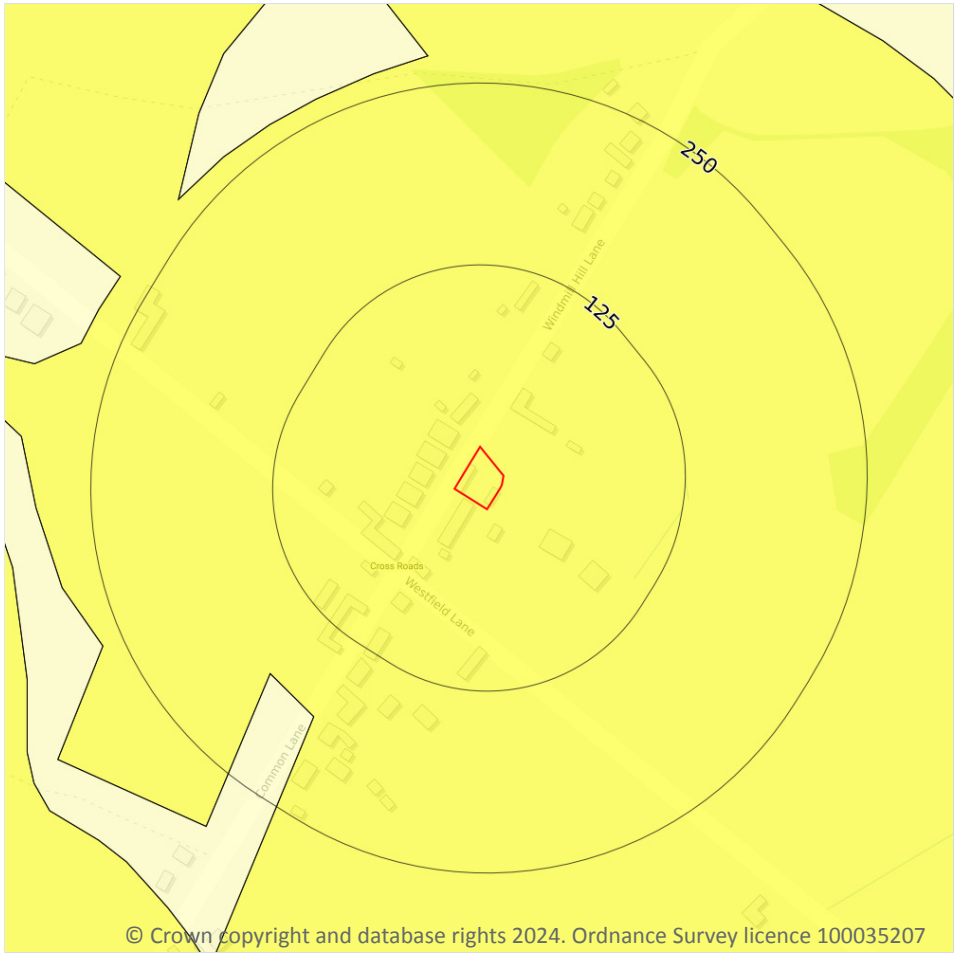
16.1 BGS Boreholes

Records within 250m	0

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

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

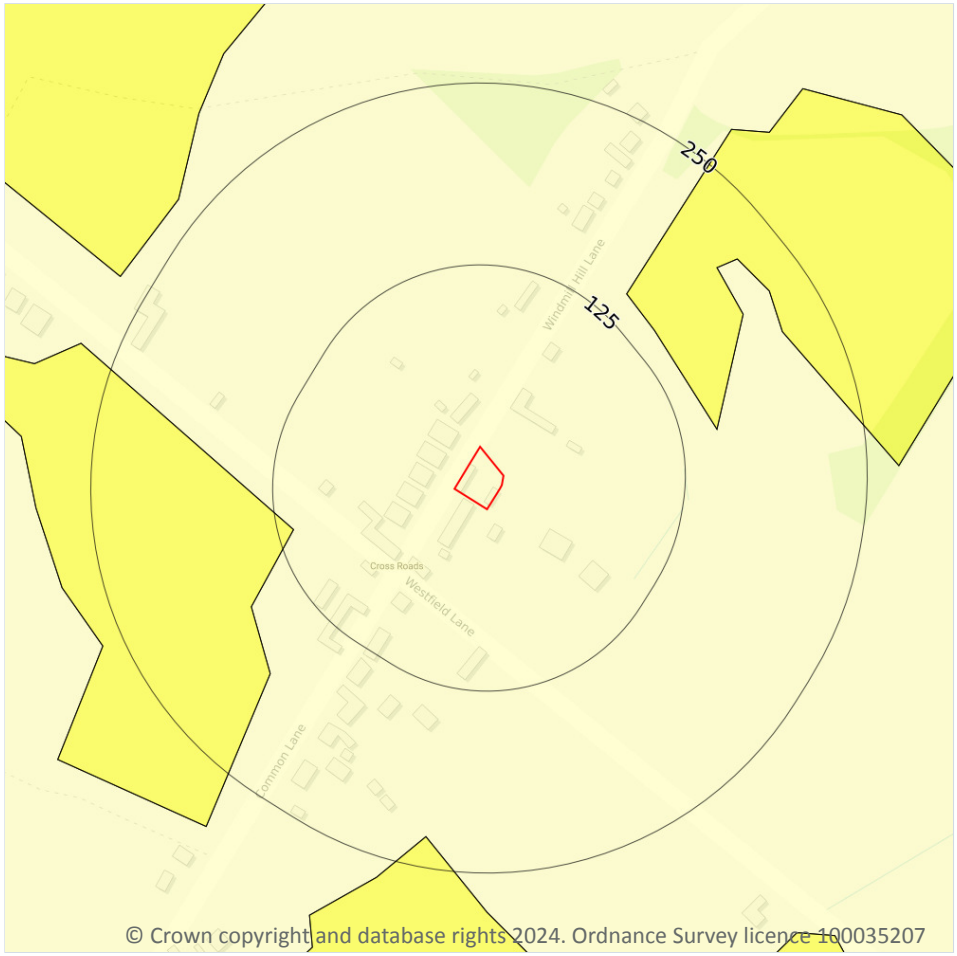
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 76 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

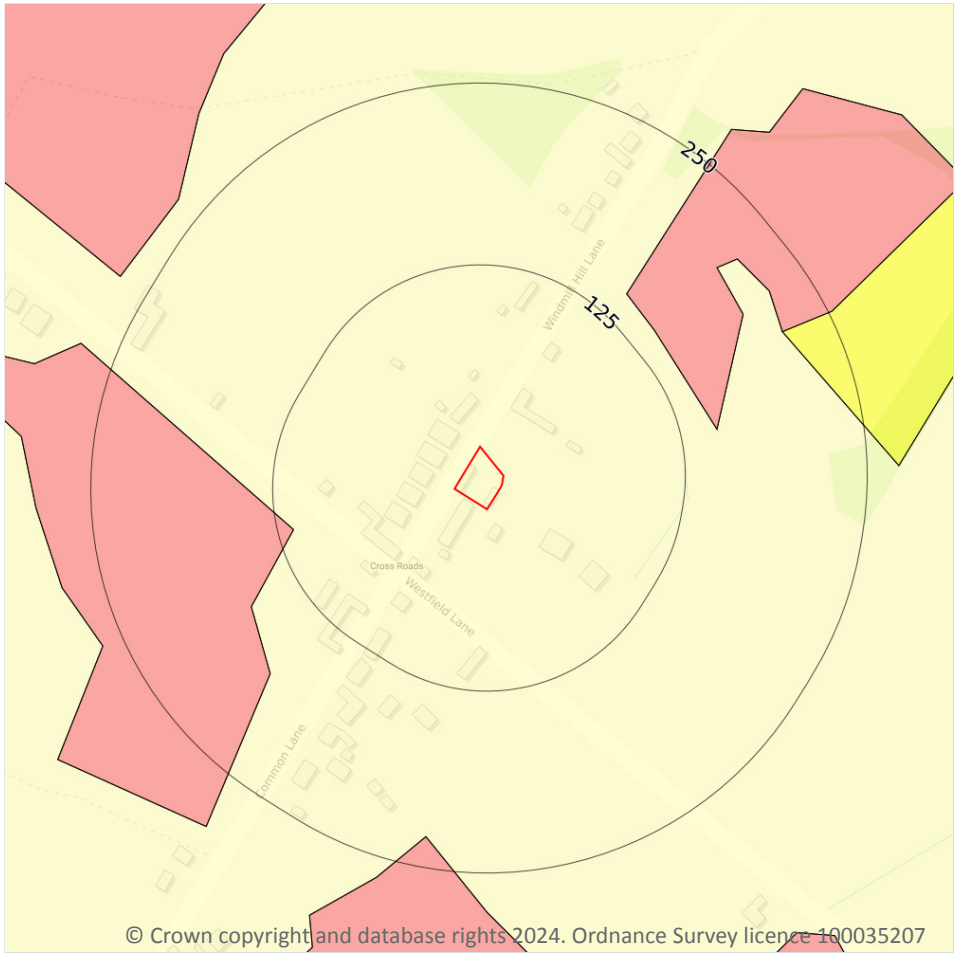
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 77 >**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

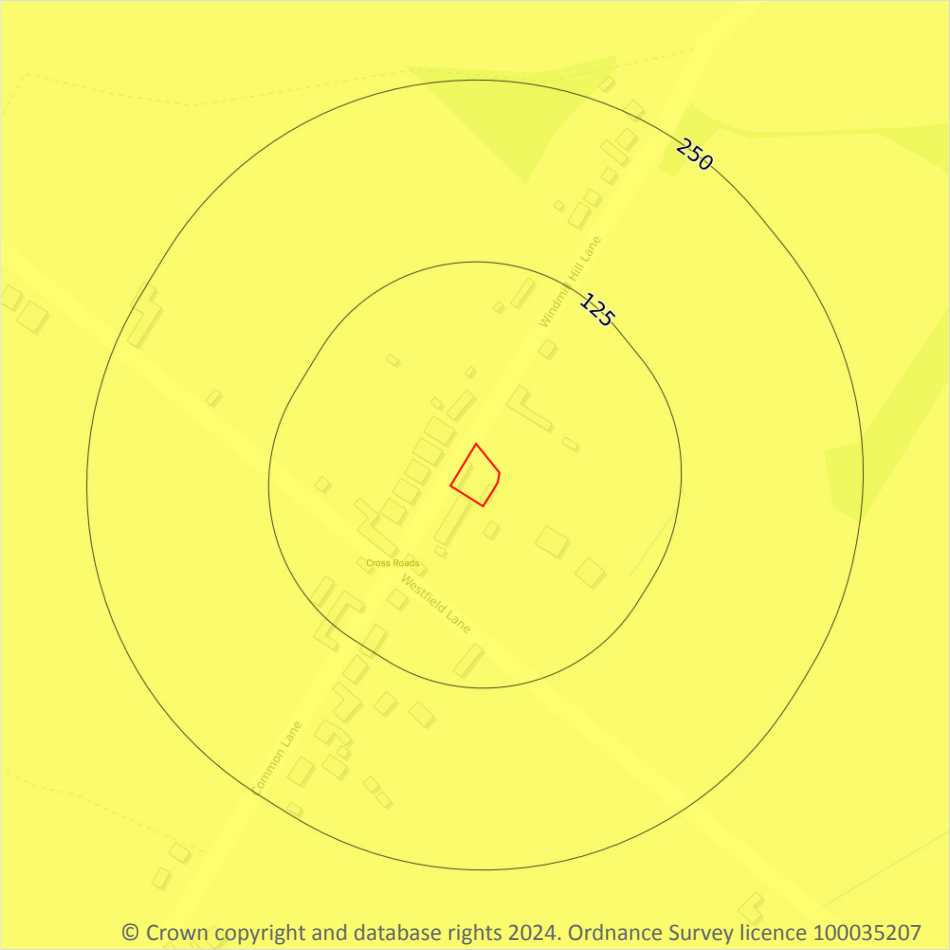
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 78 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

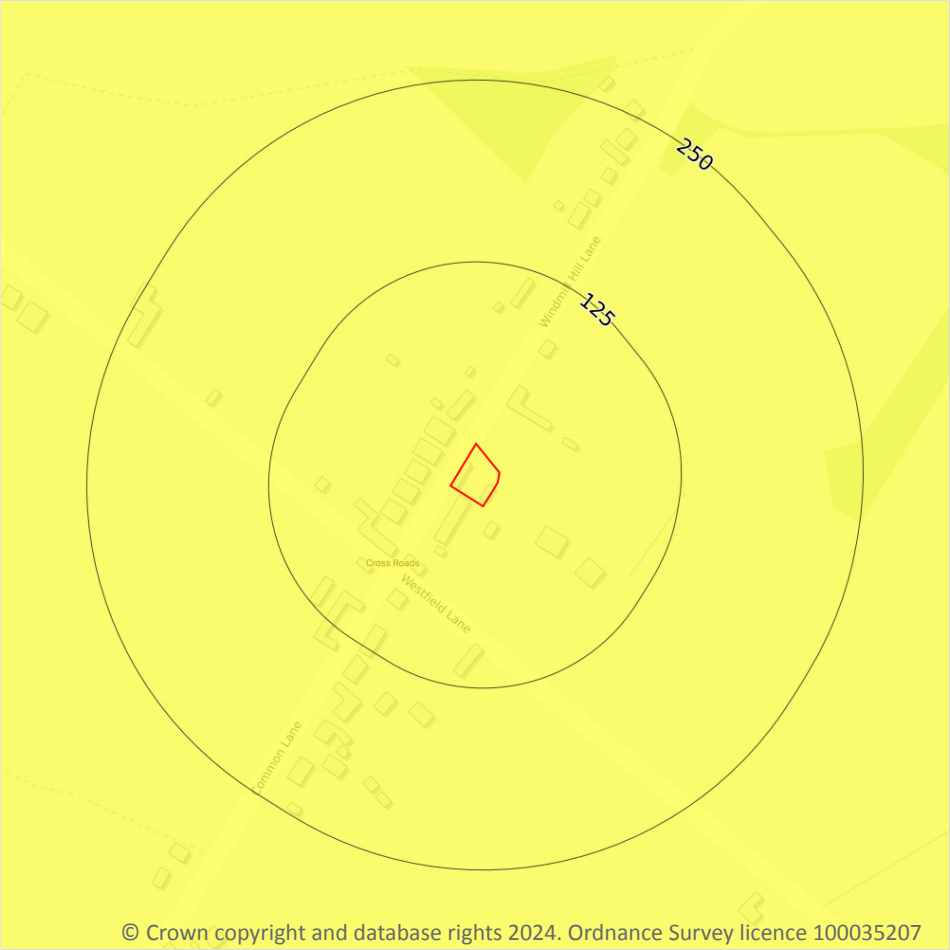
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 79 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

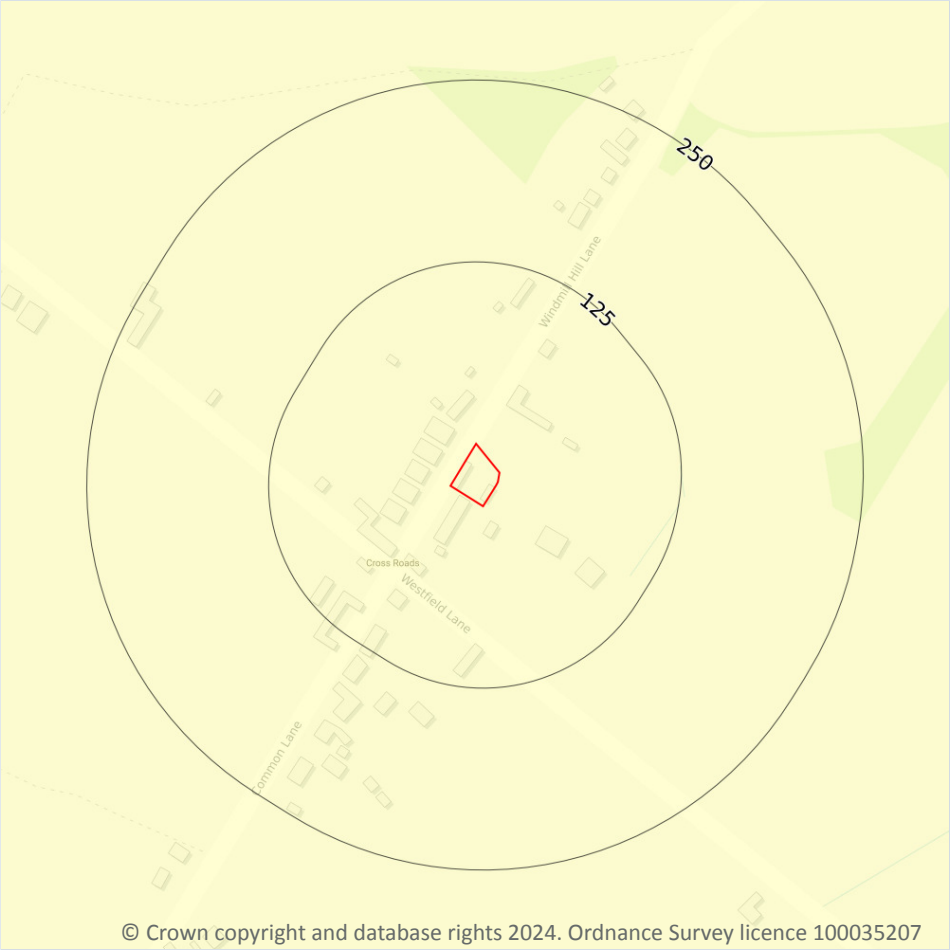
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 80 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

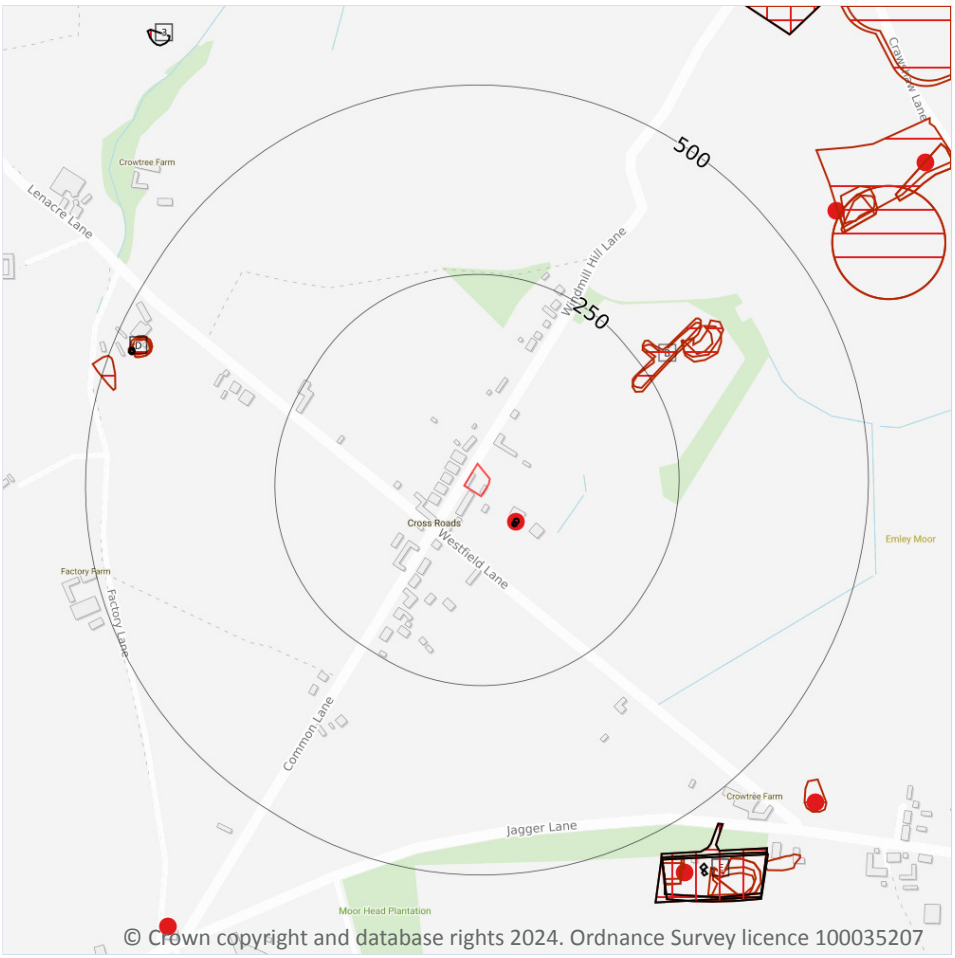
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 81 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

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

18.1 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on **page 83 >**

ID	Location	Details	Description
A	57m SE	Name: Cross Roads Coal Pit Address: Emley, HUDDERSFIELD, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: 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) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	2

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

Features are displayed on the Mining and ground workings map on **page 83 >**

ID	Location	Land Use	Year of mapping	Mapping scale
B	224m NE	Unspecified Heaps	1948	1:10560
B	227m NE	Unspecified Heap	1951	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	28

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

Features are displayed on the Mining and ground workings map on **page 83 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	53m SE	Unspecified Old Shaft	1951	1:10560
A	54m SE	Unspecified Old Shaft	1938	1:10560
A	54m SE	Unspecified Old Shaft	1904	1:10560
D	470m W	Unspecified Old Shaft	1938	1:10560
D	470m W	Unspecified Old Shaft	1904	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
D	470m W	Unspecified Old Shaft	1951	1:10560
E	529m SE	Disused Colliery	1951	1:10560
E	533m SE	Colliery	1891	1:10560
E	536m SE	Colliery	1930	1:10560
E	567m SE	Unspecified Shaft	1951	1:10560
E	575m SE	Unspecified Shaft	1930	1:10560
-	690m N	Unspecified Old Shaft	1938	1:10560
3	691m NW	Coal Pit	1904	1:10560
-	696m N	Unspecified Old Shaft	1951	1:10560
K	700m NE	Colliery	1891	1:10560
-	761m NW	Unspecified Old Shaft	1951	1:10560
-	778m NW	Coal Pit	1904	1:10560
-	786m NW	Unspecified Old Shaft	1938	1:10560
-	790m NW	Unspecified Old Shaft	1951	1:10560
-	813m NE	Unspecified Shaft	1930	1:10560
-	817m NE	Unspecified Old Shaft	1951	1:10560
-	922m NW	Unspecified Old Shaft	1938	1:10560
-	923m NW	Old Coal Pit	1904	1:10560
-	924m NW	Unspecified Old Shaft	1951	1:10560
-	938m NW	Unspecified Old Shaft	1938	1:10560
-	938m NW	Unspecified Old Shaft	1904	1:10560
-	940m NW	Unspecified Old Shaft	1951	1:10560
-	977m N	Unspecified Old Shaft	1904	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

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

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

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

Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

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

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

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

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

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

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

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

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

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

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

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

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

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

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

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

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

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

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

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

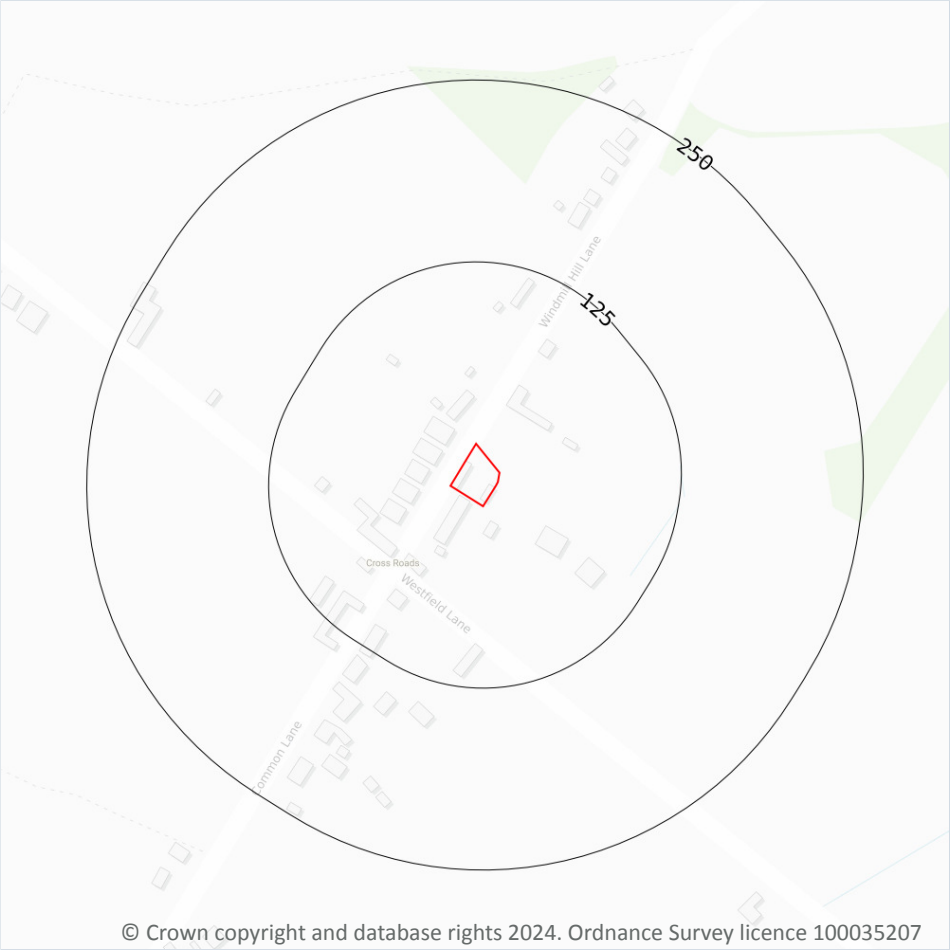
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

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

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

This data is sourced from the British Geological Survey.

20 Radon



© Crown copyright and database rights 2024. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

20.1 Radon

Records on site	1

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

Features are displayed on the Radon map on **page 91 >**

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

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

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	3

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**25 - 35 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
27m W	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
47m W	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects

22.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.

Appendix 4

Photographs

Photo 1: Image shows access gate to the site off Windmill Hill Lane

Photo 2: Image shows rear garden area

RGS Environmental Geotechnical Specialists	Site Name: **10-12 Windmill Hill Lane, Emley Moor**	Job No: **C4313/24/E/6607**	**t. 0843 50 666 87** **www.rogersgeotech.co.uk**

Photo 3: Image shows a further image of the rear yard area

Photo 4: Image shows shed to rear yard

RGS Environmental Geotechnical Specialists	Site Name: **10-12 Windmill Hill Lane, Emley Moor**	Job No: **C4313/24/E/6607**	**t. 0843 50 666 87** **www.rogersgeotech.co.uk**

Appendix 5

Coal Authority Report – Coal Mining Risk Assessment

The Coal Authority

Coal Mining Risk Assessment

For development at:

10/12 Windmill Hill Lane, Emley Moor, Huddersfield, HD8 9TA

For proposal:

2No. detached residential dwellings with associated access and parking

Assessment Summary

Assessment Result	MEDIUM RISK
Recommended Further Work	INTRUSIVE GROUND INVESTIGATION

The Coal Authority works to resolve the impacts of mining by growing its expertise, innovation, organisational capability and efficiency.

It manages the effects of past coal mining, including subsidence damage claims which are not the responsibility of licensed coal mine operators and is an executive non-departmental public body, sponsored by the Department for Energy Security and Net Zero. This report is valid for 90 days.

Limit of liability

This report is provided for the applicant and is in respect of the property identified on its face. Any conclusions or recommendations made are those based on information obtained for the report and our current knowledge and practices. The information and data set out in this report is based on information provided by or obtained from third parties which is held by the Coal Authority. Any limitations of the data are identified within the report. The Coal Authority does not accept liability for the accuracy of third party data. Should new data or information become available these results, conclusions and recommendations may require amending. The Authority is not and cannot be liable for any harm, loss or damage of whatever nature, including consequential loss, occasioned to any third party by the inaccuracy of the information set out in this report and any person seeking to rely upon it should if necessary undertake their own investigations and professional advice. The report should only be used in the stated context.

Copyright

Copyright in materials supplied is owned by the Coal Authority. You may not copy or adapt this publication, or provide it to a third party, without first obtaining the Coal Authority's permission © The Coal Authority 2017. All rights reserved.

Maps and diagrams that use topography based on Ordnance Survey mapping contains Ordnance Survey date © Crown copyright and database right 2011.

Any advice provided in this report does not prejudice our position as a statutory consultee.

Version	Compiled	Checked	Date
1.1	HB	PB	29/09/2023

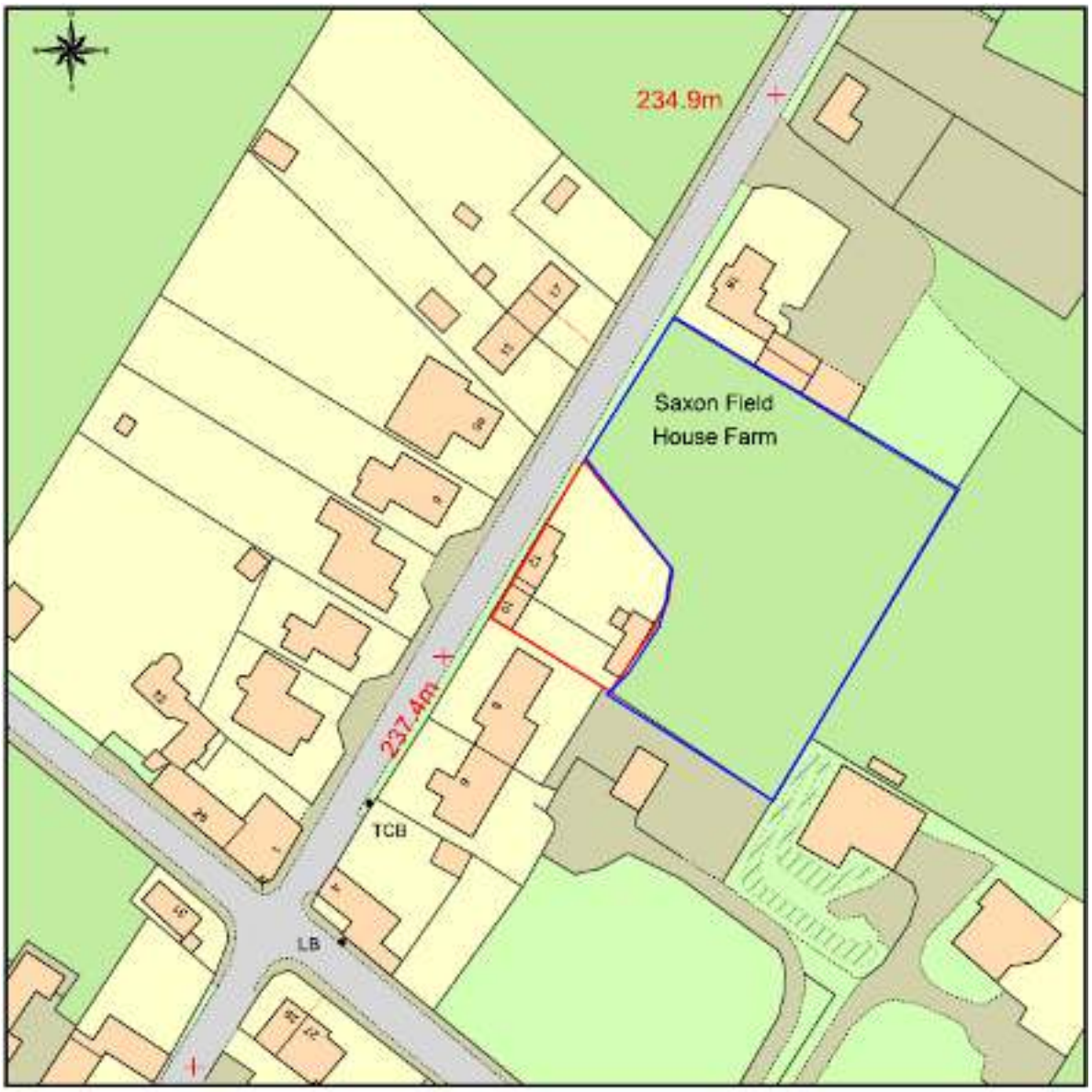
Section 1 – Description of site and proposed development

a) Site location and Description

The Coal Authority has been commissioned to prepare a Coal Mining Risk Assessment Report for a proposed development at 10/12 Windmill Hill Lane, Emley Moor, Huddersfield, HD8 9TA (see Figure 1), in order to provide the Local Planning Authority with information on coal mining and an assessment of its impact on land stability.

The approximate site centre co-ordinates are E422564, N413638. The proposed development area requires access via Windmill Hill Lane. The site has an approximate elevation of 236m AOD.

Figure 1: Site location plan



b) Description and layout of proposed development

The Coal Authority understands that the developer plans to demolish the existing dwellings and construct two new, detached dwellings with associated access and parking (see appendix A).

c) Scope of coal mining risk assessment

The purpose of this Coal Mining Risk Assessment Report is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site.
- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues.
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Any works that intersect coal mine workings, mine entries or coal seams may have implications for mine gas, spontaneous combustion and surface collapse. Coal Authority permission is required prior to any such works taking place. Further detailed advice can be provided upon request.

The Coal Authority's adopted policies regarding building over or close to mine entries and managing gas risks can be viewed at:

www.gov.uk/government/publications/building-on-or-within-the-influencing-distance-of-mine-entries

www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases

Section 2 – Sources of information used to inform this report

Source reviewed	Yes	No	Remarks
Coal mining report	X		Consultants Coal Mining Report (Appendix B)
Other mining records	X		Abandonment plans – NE193, NE380
Geological plans	X		OS Geological Sheet SE21SW (2003), County Geological Sheets Yorkshire 261 (1854), 261NW (1908) and 261NW (1933)
BGS Boreholes		X	
Other	X		BGS GeoIndex

The above information sources have been used to provide an assessment of the potential mining risk within the remainder of the report.

Section 3 – Identification and assessment of site specific coal mining related risks

The Coal Authority's search of its detailed coal mining information identifies the following site specific coal mining legacy risks to the site.

Coal mining issue	Reported		Risk assessment	
	Yes	No	Rating	Comment
a) Underground coal mining (recorded at shallow depths)		X	Low risk	None recorded at shallow depth
b) Underground coal mining (probable at shallow depths)	X		Medium risk	Potential unrecorded shallow workings in Old Hards and Stone seams
c) Mine entries (shafts and adits)	X		Low risk	Two shafts within 100m, not considered to pose a risk to development
d) Coal mining geology (faults and fissures)		X	Medium risk	Faulting recorded adjacent to development
e) Record of past mine gas emissions or potential		X	Medium risk	All mine workings pose a potential gas risk which should be considered in any future investigations and development
f) Recorded coal mining surface hazard		X	Medium risk	Two settled subsidence claims located 230m southeast of site
g) Surface mining (opencast workings)	X		Low risk	Multiple local opencast site, closest located 125m west of site

A desk based study of the coal mining information has been used to risk assess the coal mining features above. A summary of the risk posed by these features is summarised after thorough analysis of the information sources. Comment on each specific coal mining issue follows below:

a) Underground Coal Mining (recorded at shallow depths)

Coal mining at depths shallower than 30m beneath ground level can typically pose challenges to ground stability at the surface. The magnitude of this effect depends upon the exact depth of any workings, the thickness of competent rock cover and the extraction thickness of any coal mine workings.

The Coal Authority Consultants Coal Mining Report in Appendix B states that the development site is not in an area of recorded shallow coal mine workings. The Consultants Report indicates that three seams of coal have been worked beneath or in proximity of the development site at depths of 62-146m bgl. The shallowest of these is the Middleton Main seam, recorded to have been worked beneath the development site at 62m bgl, with an extraction thickness of 0.58m and last worked in 1885.

Due to the significant depth of these recorded workings, the risk to the proposed development is considered to be low.

b) Underground coal mining (probable at shallow depths)

Areas of probable shallow coal mine workings are identified as part of the Development High Risk Area for which no recorded plan exists, but where it is likely that workable coal at shallow depths has been mined before records were kept. The data has been estimated from available mining records by qualified mining surveyors. Since 1872 there has been a law that requires all coal mine operators to deposit working plans of the mine with the government following the cessation of operations. Prior to this date the plans were often destroyed or kept in private ownership.

Where the extraction of coal has occurred there is the potential for voids to remain long after mining has ceased. The depth of workings generally dictates the length of time that significant voids may remain, but other factors including the size of mine roof supports and the competency of overlying strata can influence the time for natural consolidation to occur. Waste material produced during mining was sometimes used to backfill abandoned sections of mine workings, therefore reducing the volume of open cavities or voids that remain. The method of backfilling workings is typically not recorded and cannot be relied upon as a satisfactory form of remediation.

The Coal Authority Consultants Coal Mining Report in Appendix B states that the development site is in an area of probable shallow coal mine workings.

The closest coal seam outcrops recorded in proximity to the development site are the Green Lane seam, shown on the County Geological Sheets Yorkshire 261 (1854), 261NW (1908) and 261NW (1933) to outcrop 725m west of site and the New Hards seam 830m west of site, striking broadly north-south.

The various editions of the County Geological sheets record a number of faults locally to the site, including; 45m west, 90m northwest, adjacent to the southwest and 70m southeast, all orientated northeast-southwest and indicated to be in the Wheatley Lime, and faults taken to be more extensive and located 45m southeast orientated northeast-southwest, downthrown to the southeast and 90m northeast orientated northwest-southeast, downthrown to the northeast.

It is of note that the OS Geological Sheet SE21SW (2003) records a fault approximately 30m northwest of site, orientated northeast-southwest and downthrown to the southeast. No outcrops are recorded within the same fault block as the site on this sheet.

An extract of the generalised vertical section (GVS) of the OS Geological SE21SW is summarised below for reference:

Seam	Thickness	Separation to seam above
Old Hards (Second Brown Metal)	0.4-0.7m	N/A
Stone (Third Brown Metal)	0.5-0.6m	12m
Green Lane (Middleton Little)	0.3-0.7m	16m
New Hards (Middleton Main)	0.4-0.8m	18m
Wheatley Lime	0.8-1.0m	20m

A number of former opencast sites are known to exist in the local area, with two of these sites providing further information as to the likely seams present at shallow depth locally to the site:

Heater opencast (plan NE193): Old Hards 1ft 11in (0.58m) thick and Stone 1ft 7in (0.48m) thick extracted, with old workings encountered in the Stone seam. A rate of dip of 1 in 14 (4.0°) NE in the Stone seam is recorded. A level records the Stone seam at 770.5ft (234.8m) AOD, 270m SW of site. Based on this rate of dip and seam level the Stone seam can be estimated to be present at 216m AOD (20m bgl) at the development site. Although the Old Hards seam is not recorded extracted within the same fault block as the development site from the Heater opencast site, based on the seam separation from the Stone seam of 12m taken from the OS Geological Sheet GVS, the Old Hards seam can be estimated to be present at 8m bgl at the development site.

Bunkers Hill opencast (plan NE380): Stone coal 1ft 7in (0.48m) thick extracted, with old workings at closest 200m west of the development site. A rate of dip of 1 in 15 (3.8°)ENE is recorded. A level records the Stone seam at 757.7ft (230.0m) AOD, 120m west of site. Based on this rate of dip and seam level the Stone seam can be estimated to be present at 222m AOD (14m bgl) at the development site.

It is possible that roadways within old workings may extend to greater than the height of the seam, nominally 1.5m, to facilitate access.

Based on the available records it is considered possible that the Old Hards and Stone seams may both be present at shallow depth beneath the site and both seams may contain old workings. Seams beneath the Stone seam are not considered likely to be of influence to the development.

Accordingly the risk to the proposed development from unrecorded shallow mine workings in the Old Hards and Stone seams is considered to be medium.

c) Mine entries (shafts and adits)

The Coal Authority Consultants Coal Mining Report in Appendix B shows two mine entries (both shafts) are recorded within 100m of the development site. The closest of these is located 61m southeast of the development.

The Coal Authority seeks to ensure that development is avoided above, or within the zone of influence of, all mine entries where possible. The zone of influence can be calculated as the sum of the departure value (up to 10m to account for discrepancies in source material), plus the local depth to rockhead (discussed in 3d below as likely to be up to 4.8m), plus the entry radius (nominally assumed to be 1.25m unless proven otherwise). On the basis of the above the zone of influence for these entries can be assumed to be a distance of 16.05m from the recorded positions detailed above. Based on the distance of these entries from the site boundary, the risk to the development from recorded mine entries is considered to be low.

The development site sits within a historical mining area and therefore there is a residual risk of unrecorded mine entries to be present on site. All site operatives should be made aware of this potential risk and a watching brief should be maintained during site works.

d) Coal mining geology (Faults and fissures)

The development site sits upon the Pennine Lower Coal Measures Formation. The closest indication as to the likely nature and thickness of superficial deposits to the development site may be taken from the opencast records for the local Bunkers Hill and Heater opencast sites (located 125m west and 240m south of site), with sections recording top soil and clay to depths of 0.9-1.2m (Bunkers Hill) and 3.0-4.8m (Heater). Ground conditions at the development site may vary.

The various editions of the County Geological sheets record a number of faults locally to the site, including; 45m west, 90m northwest, adjacent to the southwest and 70m southeast, all orientated northeast-southwest and indicated to be in the Wheatley Lime, and faults taken to be more extensive and located 45m southeast orientated northeast-southwest, downthrown to the southeast and 90m northeast orientated northwest-southeast, downthrown to the northeast.

It is of note that the OS Geological Sheet SE21SW (2003) records a fault approximately 30m northwest of site, orientated northeast-southwest and downthrown to the southeast. No outcrops are recorded within the same fault block as the site on this sheet.

OS county mapping for the area records a well to be present approximately 35m southeast of the development site boundary.

Faults can act as pathways for gas and water, cause surface instability and result in dissimilar coal conditions/hazards due to their relative displacement of strata.

e) Record of past mine gas emissions or potential

There are no recorded past gas emissions recorded in the surrounding area, however, coal seams and coal mine workings pose a potential gas risk which should be considered in any future investigations and development. At development sites with shallow coal workings, probable shallow coal mine workings, or pathway features such as mine entries and geological disturbances on or nearby the site, the Coal Authority recommends that a more detailed gas risk assessment to be undertaken in accordance with relevant guidance.

No seam mentioned in this report is recorded as being prone to spontaneous combustion.

f) Recorded coal mining surface hazard

The Consultants Coal Mining Report in Appendix B does not record any surface hazards to exist in proximity to the development site, however it is understood that two Subsidence Claims exist 225m southeast of the development site; one dated June 1995 and one dated April 1998 (both settled with repairs). These claims are indicative of historical ground movement in the area associated with mining activities.

g) Surface mining (opencast workings)

The Consultants Coal Mining Report in Appendix B indicates multiple former opencast sites to exist in proximity to the development. The closest of these is the Bunkers Hill site, located at closest 125m west and 260m northwest of site.

None of the local opencast sites intersect with the development site boundary and therefore the risk to the propose development is considered to be low.

Section 4 – Proposed mitigation strategy

a) Site investigation and/or remediation

Due to the potential for unrecorded shallow mine workings in the Old Hards and Stone seams, an intrusive site investigation will be required.

The site investigations will need to be carried out by a competent contractor, taking into account the findings of this report. The results should be interpreted by a qualified and competent person so that an appropriate remedial strategy can be developed.

Guidance on drilling or piling through coal can be found at:

www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases

Due to the difficulties in identifying coal related gas hazards, it may be prudent to consider completing a gas risk assessment for the development site. This may recommend basic gas protection measures within the foundation design, which are resistant to permanent gases (carbon dioxide, methane, carbon monoxide) and comparable to that suggested in BR211, as commonly used to protect against radon in residential properties.

Where development is proposed over areas of coal or past coal workings at shallow depth, developers should consider wherever possible removing any remnant shallow coal. This will enable the ground to be stabilised and remove a hazard prior to construction of any foundations associated with the development. Prior extraction of surface coal requires an Incidental Coal Agreement from the Coal Authority. Further information can be found at:

www.gov.uk/get-a-licence-for-coal-mining

The occurrence of unrecorded mine entries across the whole of the site cannot be discounted and consequently in areas of new build development a watching brief should be maintained throughout the site works to identify this risk. As a result all site operatives should be made aware of this potential risk. Where mine entries exist close to the boundary the developer should be aware that this could complicate treatment if they straddle the boundary or works needed to treat them require access to land owned by third parties.

Should coal seams be found, at or near the depth of the development's foundations, they may pose a risk of spontaneous combustion if exposed to air or may act as pathways for ground gases to reach the development. A competent engineer should be consulted if coal is encountered in, or adjacent to, the foundations of the proposed development.

Concrete, cements and renders may be susceptible to attack from elevated levels of

sulfates in the ground. The Building Research Establishment reports that most cases of sulfate attack occur in and adjacent to coal field areas and related industrial centres. It would be prudent for the issue of sulfate attack to be considered during the foundation design to ensure they comply with the Building Regulations 2010.

You may also wish to refer to the Construction Industry Research and Information Association (CIRIA) publication C758 "Abandoned Mine Workings Manual".

b) Coal Authority permit

Any intrusive activities, including initial site investigation boreholes and any subsequent treatment of coal mine workings/coal mine entries for ground stability purposes require the prior written permission of the Coal Authority. Application forms for Coal Authority permission and further guidance on this matter can be obtained from the Coal Authority's website at:

www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property

Follow on services can be requested using the details in the contacts section.

Section 5 – Conclusions

This report has identified that the proposed development site may have been subject to past coal mining activity which could influence the development, namely the potential for unrecorded shallow mine workings in the Old Hards and Stone seams. The risk to the site from legacy mining features is medium.

Nevertheless, subject to the undertaking of appropriate site investigations and any potential necessary remedial measures as outlined in Section 4a of this report, the Coal Authority considers that the site may be made safe and stable for future development and the risk to the development reduced to low. The recorded coal mining legacy issues present within the site do not pose any particular implications for the layout of the proposed development.

The Coal Authority advises the developer undertake a detailed Gas Risk Assessment where proposed development occurs over shallow coal reserves as is the case here.

Section 6 – Contacts

Planning and Local Authority Liaison Service

Tel: 01623 637 119

Email: planningconsultation@coal.gov.uk

Website: www.gov.uk/planning-applications-coal-mining-risk-assessments

Surface Hazards Emergency Service

Tel: 0800 288 4242 (open 24 hours a day, 7 days a week)

24-hour number for reporting public safety hazards and incidents associated with coal mining

Mining Reports Service

To purchase site specific coal mining information go to our website;

www.groundstability.com

Licensing and Permitting Service

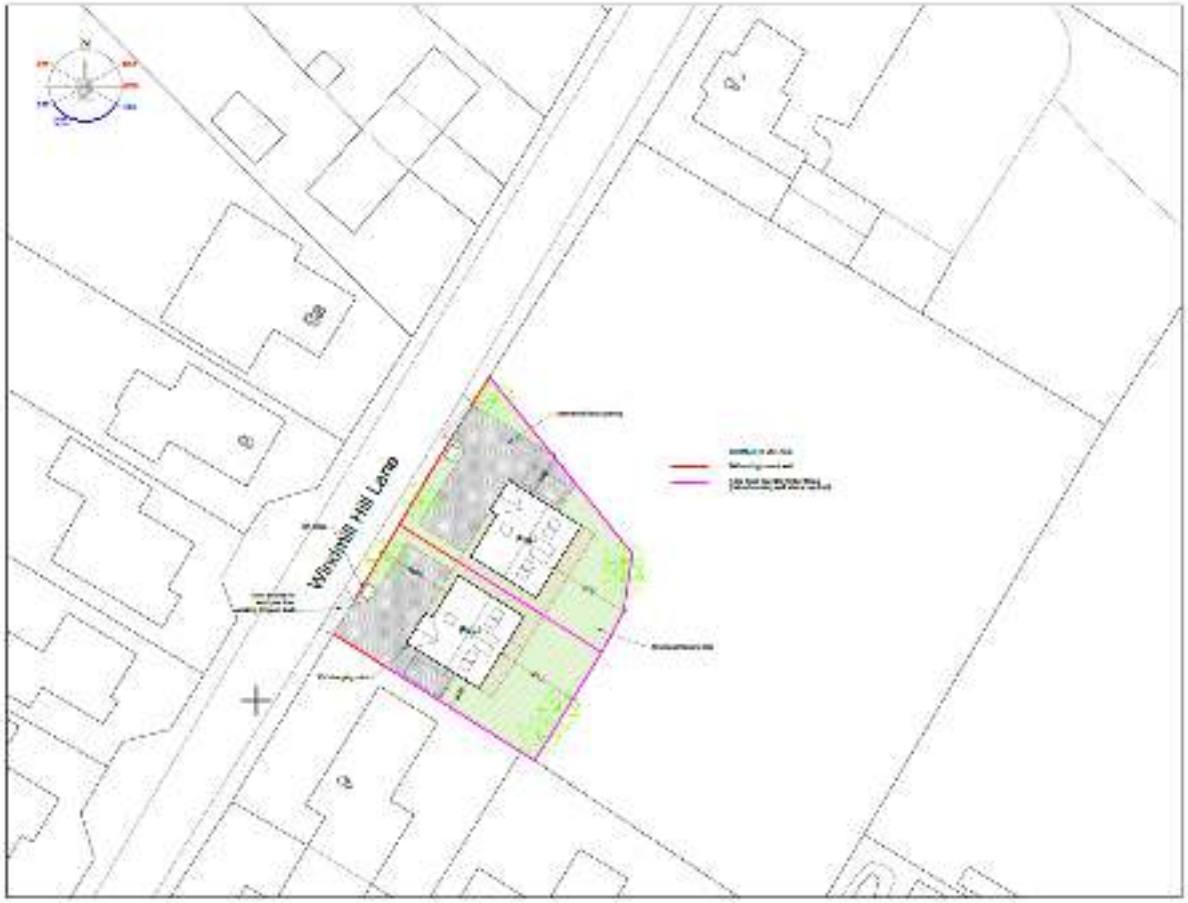
Email: permissions@coal.gov.uk

Tel: 01623 637 320

For permission to enter or disturb coal mine entries and coal seams.

Section 7 – Appendices

Appendix A – Plan showing proposed development layout



Appendix B – Non-Residential Coal Mining Consultants Report

The Coal Authority

Consultants

Coal Mining Report

10 /12 Windmill Hill Lane
Emley Moor
Huddersfield
Kirklees
HD8 9TA

Date of enquiry:	**29 September 2023**
Date enquiry received:	**29 September 2023**
Issue date:	**29 September 2023**
Our reference:	**71009701117001**
Your reference:	

Consultants

Coal Mining Report

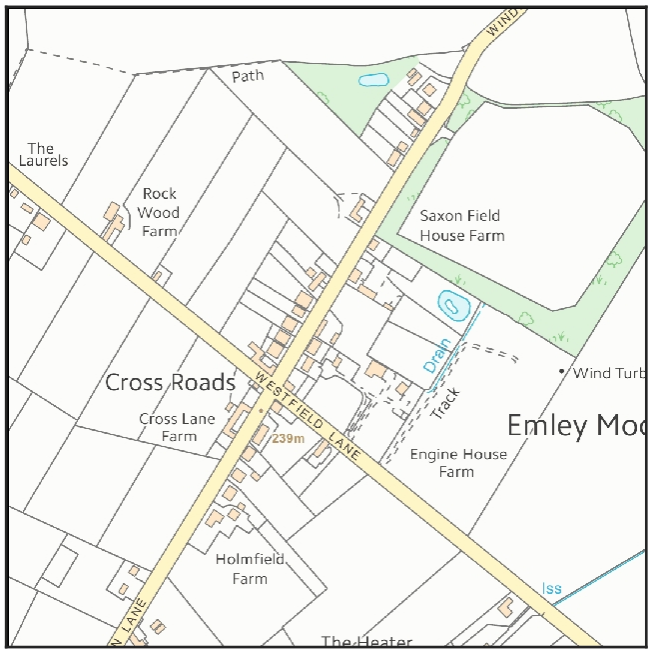
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

CMRA THE COAL AUTHORITY

Enquiry address

10 /12 Windmill Hill Lane
Emley Moor
Huddersfield
Kirklees
HD8 9TA



Approximate position of property

Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2018. All rights reserved.

Ordnance Survey Licence number: 100020315

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	MIDDLETON MAIN	Coal	62X6	62	Beneath Property	2.6	North-East	58	1885
UNAMED	WHEATLEY LIME	Coal	62X9	72	Beneath Property	2.8	North-East	82	1901
unnamed	TOP BEESTON	Coal	62XC	146	North-West	2.4	North-East	56	1938

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	422413-003	422620 413584	has been capped to an unknown specification	Coal	
Shaft	422413-004	422634 413585	has been filled to an unknown specification	Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

NE766	1286	NE380
R3	6837	8791
BE42	14072	6069

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Copyright © 2023 The Coal Authority

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Copyright © 2023 The Coal Authority

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Copyright © 2023 The Coal Authority

Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is in an area where a notice to withdraw support was given in 1982.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Copyright © 2023 The Coal Authority

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Copyright © 2023 The Coal Authority

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Copyright © 2023 The Coal Authority

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Copyright © 2023 The Coal Authority

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

Copyright © 2023 The Coal Authority

The Coal Authority

Summary of findings

Reproduced by permission of Ordnance Survey on behalf of HMSO.
© Crown copyright and database right 2018. All rights reserved.
Ordnance Survey Licence number: 100020315

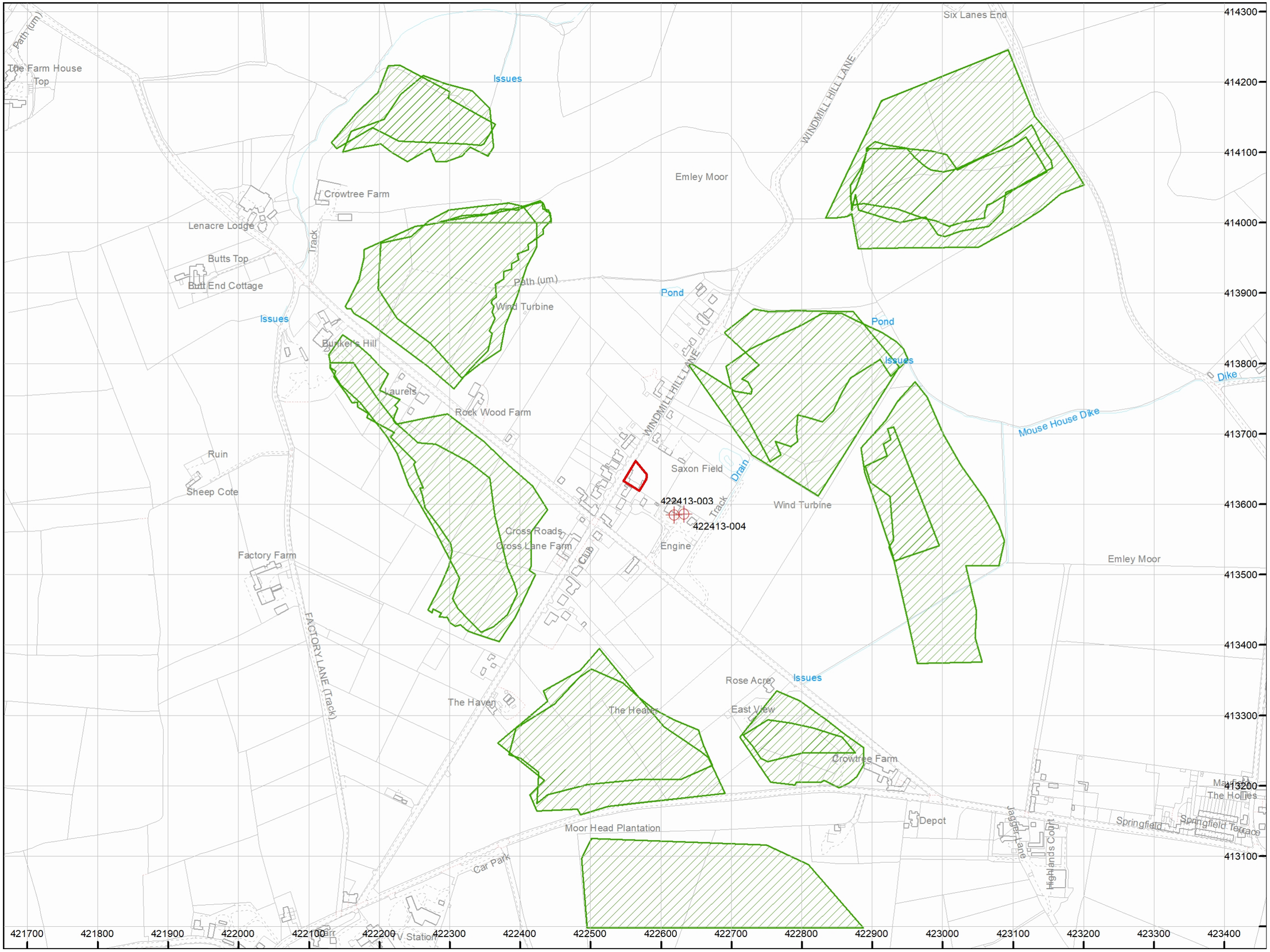
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Disused mine shaft

Unlicensed opencast site



How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com