



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Geo-environmental Ground Investigation Report

ON

PROPOSED RESIDENTIAL DEVELOPMENT

AT

LAND OFF MOOR LANE, GOMERSAL

FOR

BINKS EXECUTIVE HOMES LTD

AUGUST 2023

E22/7944/R002

INDEX

0.0	Executive Summary	Page 4
1.0	Introduction	Page 7
2.0	The Site	Page 9
3.0	Site History	Page 10
4.0	Site Geology and Mining	Page 11
5.0	Environmental Considerations	Page 12
5.1	Radon	Page 12
5.2	Landfill Sites	Page 12
5.3	Flood Risk	Page 12
5.4	Groundwater	Page 12
6.0	Preliminary Site Conceptual Model	Page 13
7.0	Fieldwork	Page 14
8.0	Results of the Investigation	Page 17
8.1	Geotechnical Investigation	Page 17
8.2	Groundwater	Page 19
8.3	Gas Monitoring	Page 20
9.0	Contamination	Page 22
9.1	Human Health Risk Assessment	Page 22
9.2	Contamination Results	Page 22
9.3	Qualitative Risk Assessment	Page 25
10.0	Conclusions and Recommendations	Page 29
10.1	Geotechnical Assessment	Page 29
10.2	Mining	Page 30
10.3	Ground Floor Slab – Gas Measures	Page 32
10.4	Contamination Assessment	Page 32
10.5	Surface Water Drainage	Page 33

11.0 Suggested Further Work Page 34

12.0 Approvals Page 35

Appendix A Site Location Plan
Site Investigation Plan
Typical Site Conceptual Model
Section Through Site

Appendix B Trial Hole Logs
Bore Hole Logs

Appendix C Chemical Analysis of Samples
Statistical Analysis of Samples
CLEA derivation of Site Specific SGV for Arsenic
Geotechnical Analysis of Samples

Appendix D Infiltration Testing Report Reference
E22/7944/MD/003A dated 18th February 2022

Appendix E Coal Authority Report

Appendix F Groundsure Report
Historical Plans

0.0 **EXECUTIVE SUMMARY**

SITE	The site is located to the north of residential properties on Moor Lane, Gomersal. There are residential properties to all four sides of the site. The properties to the north have decking raised approximately 2m above the site, and the site is retained 0.5-1.0m above the land to the east. The site is overgrown with mature and semi-mature tree growth noted throughout. Standing water has been noted on site after prolonged rainfall events. The site falls predominantly from west to east.
HISTORY	The site has been shown as undeveloped since 1854. There has been residential development to the boundaries of the site from pre-1854 to the present day.
GEOLOGY	No superficial deposits or artificial ground are recorded on the site. The site is underlain by the Pennine Lower Coal Measures consisting of Mudstone, Siltstone and Sandstone. There are no fault lines shown crossing the site. The site work has generally proved a shallow depth of topsoil overlying up to 4.0m of firm natural clays with a mudstone bedrock encountered at 1.6-4.0m below existing ground levels. Thin bands of sandstone were encountered at the base of the clay in the western half of the site. Three seams of coal were encountered in the clays and mudstones.
MINING/QUARRYING	The Coal Authority Report states that the site is in a surface area that could be affected by historic underground mining mining in 1 seam of coal at 120-130m depth, last worked in 1953 and that it is an area where there is believed to be coal at or near the surface. The Coal Authority Interactive Online Map indicates that the site is in an area of probable shallow mine workings. The rotary borehole investigation has proven three coal seams beneath the site. The uppermost coal seam was only in the western half and was 0.3m thick at a depth of 7.6-7.9m. The middle coal seam was 0.2-0.3m thick and encountered at depths of 1.5-14.1m across the entire site. The lower coal seam was 2.0m thick and encountered at 21.0-23.0m below ground levels in the east of the site. In the middle of the site, 3.1m of broken ground was encountered at 25.8-28.9m indicating this coal seam had been worked.

HYDROLOGY	Standing water has been noted on site following significant rainfall events. No significant surface water features recorded within 250m of the site. The site is not located within any Environment Agency defined flood zones or shown to be at risk of flooding from rivers or the sea.
HYDROGEOLOGY	The groundwater vulnerability map for the area indicates that the site overlies rocks designated as a Secondary 'A' Aquifer. minor aquifer. A single trial pit recorded groundwater within a band of sandstone at 2.2m depth. No groundwater was recorded during the borehole investigations. Groundwater has been recorded at 1.15-2.10m below existing ground levels during the gas monitoring.
HAZARDOUS GAS	The property is in where no Radon Protective Measures are necessary. Gas monitoring is ongoing and recorded no methane and a maximum carbon dioxide concentration of 3.4%. Due to the low levels of carbon dioxide levels and flow rates on site, we would recommend the gas regime on this site be currently classified as CS1 by BS 8485:2015 Table 2. The gas monitoring is ongoing and a final report confirming any gas protection measures required will be prepared when the monitoring is completed.
CONTAMINATION	A single elevated level of Lead of 410mg/kg was recorded in the topsoil of TP103.
REMEDIATION	The lead hotspot should be removed from site and further samples taken from the perimeter and base of the excavation to confirm the removal of the contaminated material from site. Following the removal of the hotspot, it is recommended that the existing topsoil is scraped and stockpiled behind protective fencing prior to development commencing on site. The topsoil should be screened to remove any unsuitable materials prior to being re-laid on site. Due to the presence of shallow mine workings on site, ground stabilisation works through drilling and grouting will need to be undertaken. Due to the potential of combustion, a minimum of 1m clean inert cover should be provided to the shallow coal seams where they are encountered on site.

FOUNDATIONS

Based on the information available to date, we would recommend that the proposed residential properties are constructed with strip/trench fill footings extending down to the firm clay strata.

These will need to be heavily reinforced where the plots are affected by mine workings.

If the coal strata is encountered within the foundation, the coal seam should be immediately sealed to prevent spontaneous combustion. Any foundations should be taken beneath the coal seam to the underlying natural strata.

The foundation widths will vary dependent upon the line loadings calculated.

A review of the proposed foundations should be undertaken following the completion of the stabilisation works.

DRAINAGE

Infiltration methods have proved unsuitable for use on site. A discharge rate and point of connection must be agreed with Yorkshire Water and the LLFA.

1.0 INTRODUCTION

- 1.1 As requested by Binks Executive Ltd, this practice carried out ground and contamination investigation works for the proposed residential development on land off Moor Lane, Gomersal.
- 1.2 Limited investigation works have previously been undertaken on site to determine if infiltration methods would be a suitable form of surface water disposal. Haigh Huddleston & Associates undertook infiltration testing on 19th December 2022 and the results are discussed in their letter report reference E22/7944/MD/003A dated 11th January 2023. This is included in Appendix D. The results of this previous investigation have been incorporated into this report.
- 1.3 The purpose of the report was to:-
 - 1.3.1 Identify the nature of the near surface strata, in order to enable recommendations to be made as to the most economic foundation solution for the proposed residential development.
 - 1.3.2 To identify any areas of contaminated ground.
 - 1.3.3 Propose a suitable outline remediation strategy, which will enable the site to be developed safely, to the satisfaction of the overseeing regulators and in compliance with the current environmental standards.
 - 1.3.4 Determine if ground gas migration from infilled land in the vicinity of the site would adversely affect the property.
 - 1.3.5 Determine if infiltration methods would be a suitable long term drainage strategy.
- 1.4 Soil sampling was undertaken via trial pits to determine the near surface strata. Distributed samples were taken for testing to ascertain the nature of the soils and fills present.
- 1.5 The conclusions and recommendations made in this report are limited to the findings of the preliminary Geotechnical Survey. The report is made on condition that Haigh Huddleston Associates will not in any circumstances be liable for loss, arising directly or indirectly from ground conditions encountered between trial pits and bore holes, which have not been revealed by the investigation.
- 1.6 Any opinion given on the possible configuration of strata between trial pit and bore hole locations and below maximum depth of the investigation is for guidance only.

Any remarks on groundwater conditions made are based solely on observations made at the time of investigation. Kindly note that levels may differ from those reported due to seasonal variations or other influences.

- 1.7 Furthermore, there is the possibility that any trial pits or bore holes undertaken as part of the investigatory works may be within the influence of existing or proposed foundations or excavations. Haigh Huddleston Associates cannot be held responsible for any failure of any excavations, foundations or structures within the influence of the trial pits or boreholes.

2.0 THE SITE

- 2.1 The site is located to the north of residential properties on Moor Lane, Gomersal and is situated around Ordnance Survey grid reference 420773, 426782. A site location plan is included in Appendix A.
- 2.2 The site is a rectangular patch of land surrounded on all four sides by residential properties. Access to the site is from Moor Lane via a narrow 3.4m wide grassed track between Nos.25 and 27 Moor Lane on the southern boundary. The area of the development is approximately 0.43ha.
- 2.3 The site consists of an overgrown disused rectangular patch of land surrounded by the gardens to the adjacent residential properties. Mature tree growth is noted in the north western corner, south eastern corner and adjacent the northern boundary. During site visits, standing water was noted on site after prolonged rainfall events.
- 2.4 The boundary of the site is formed by wooden, concrete post and wood panel, chain link fences and blockwork walls to the adjacent properties with the occasional brickwork shed. The eastern boundary is retained approximately 0.5-1.0m above the properties to the east, while to the north of the site there is raised decking approximately 2.0m above existing ground levels.
- 2.5 The site falls from west to east at an average grade of 1 in 13.5 from a high point of approximately 132.8m AOD on the western boundary to a low point of 123.6m on the eastern boundary. The access to the site falls southwards towards Moor Lane at an average grade of 1 in 28 to a level of 129.3m AOD at the back of the footpath.

3.0 SITE HISTORY

A number of historical Ordnance Survey plans from 1854-2021 have been consulted. These are contained for reference within Appendix C to the rear of the report. Below is a brief description outlining the significant developments that may affect future construction of the site.

Date	Historical uses on site	Historical findings within 100m perimeter of the site	Historical findings further than 100m perimeter of the site
1854	i) Site shown as open field.	i) Residential properties to west and south east of site.	i) Coal pit 150m east of site.
1892	i) The on-site features are similar to the previous sheet.	i) No significant developments within 100m of the site.	i) Coal pit no longer shown 150m east of the site.
1905	i) The on-site features are similar to the previous sheet.	i) Railway line and tunnel 100m south of the site.	i) Railway station 150m east of the site.
1932-1955	i) The on-site features are similar to the previous sheet.	i) Ventnor Works shown 100m north of the site.	i) Gomersal Colliery 300m east of site.
1966-1974	i) The on-site features are similar to the previous sheet.	i) Residential development to south of site. i) Ventnor Works has extended to within 50m of the site. ii) Railway line 100m south has been abandoned.	i) Railway station 150m east now labelled as mills.
1983-1994	i) The on-site features are similar to the previous sheet.	i) No significant developments within 100m of the site.	i) Colliery no longer shown. ii) Former railway station/mills now shown as residential development.
2001-2022	i) The on-site features are similar to the previous sheet.	i) Ventnor Works demolished and replaced by residential development extending to northern boundary of site. ii) Residential development to east of site.	i) No significant developments within 500m of the site.

4.0 SITE GEOLOGY & MINING

- 4.1 The BGS Digital Geological Map of Great Britain at 1:10,000 and 1:50,000 scale have been consulted and we would report as follows:-
- 4.2 No artificial or superficial strata is shown overlying the site.
- 4.3 The site is shown to be underlain by the Pennine Lower Coal Measures Formation consisting of Mudstone, Siltstone and Sandstone.
- 4.4 No fault lines are shown in the vicinity of the site.
- 4.5 A Coal Authority Report is included in Appendix E and states that the property is in a surface area that could be affected by underground coal mining in 1 seams of coal at 120 to 130m depth, and last worked in 1953. In addition to this, the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past.
- 4.6 The property is not in area where the Coal Authority has granted, or plans to grant, a licence to remove or otherwise work coal using underground methods. However, reserves of coal are thought to exist in the local area which could be worked at some time in the future.
- 4.7 There are no recorded mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.
- 4.8 The Coal Authority Interactive Map Viewer shows a coal outcrop approximately 60m east of the site. Probably shallow mine workings associated with this outcrop extend beneath the site.
- 4.9 There are no available deep BGS borehole records in the immediate vicinity of the site.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Radon

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

No Radon Protective Measures are necessary.

5.2 Landfill Sites

There are no historical or active/recent landfills recorded within 250m of the site.

5.3 Flood Risk

The site is not an area at risk of flooding from rivers or the sea. The site is not located in an Environment Agency designated Flood Zone.

5.4 Groundwater

The bedrock underlying the site is classed as a Secondary A Aquifer. These are Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

There is a single licensed discharge to controlled waters recorded within 250m of the site.

This is a storm sewer overflow located 240m east of the site.

There are no recorded groundwater, surface water or potable water extractions within 250m of the site.

There are no recorded pollution incidents to controlled waters within 250m of the site.

The site is not located in a source protection zone.

The nearest recorded surface water feature is an unnamed watercourse 132m south east of the site. This is an inland river not influenced by normal tidal action.

6.0 PRELIMINARY CONCEPTUAL SITE MODEL

- 6.1 The initial stage in assessing the risks posed from contaminated land during the redevelopment of a site is to prepare a conceptual model. A generalised conceptual model can be developed highlighting the main pollutant linkages through a contaminant ► pathway ► receptor model for a residential development. In order to prepare the conceptual model for a particular site the following parameters need to be reviewed as discussed below.
- 6.2 Contamination of existing land can be caused by a number of factors, including:-
- i) Possible historical/current industrial activities.
 - ii) Disposal of waste materials.
 - iii) Storage of materials.
 - iv) A number of natural processes can also lead to hazardous gases and elevated heavy metals.
- 6.3 Potential pathways can include ground and surface water, permeable strata, existing services providing a conduit and voided ground. Potential receptors can include human health, ecosystems, controlled waters and building structures. There are a number of ways that a receptor can be exposed to the contaminant these include, inhalation, direct contact, ingestion, dermal contact and uptake.
- 6.4 The site has been shown as undeveloped since 1854, with primarily residential developments immediately adjacent the site. There is therefore the risk of contamination from the following sources:
- i) Potential shallow coal workings beneath the site.
 - ii) Possible ground gas migration from potential shallow mine workings.
- There is therefore considered to be a low risk of ground contamination present.
- 6.5 Considering the proposed residential end use, there will be two possible human receptor groups exposed to the existing onsite contamination:-
- a) Site operatives during development.
 - b) End users, future site visitors (the critical receptor is a 6 year old female).

- 6.6 Human receptors may be exposed to site contamination by a number of possible pathways. These pathways are summarised in Table 1 below.

Table 1- Potential Human Exposure Pathways

<u>Human Exposure Pathway</u>	<u>Site Visitors</u>	<u>Construction Workers</u>
Soil Ingestion	YES	YES
Consumption of Home Grown Vegetables	YES	NO
Dermal Contact	YES	YES
Dust Inhalation	YES	YES
Gases/Vapours	YES	NO

- 6.7 The construction workers will come into contact with any contaminated soil to a far greater extent than future residents. The exposure pathways are generally through dermal contact and indirect ingestion. However their exposure will be for a limited time and the provision and correct use of personnel protective equipment and adequate welfare facilities during construction should restrict their risks to acceptable levels.
- 6.8 The risk of pollution to controlled waters by existing contamination is considered low. There has been no historical usage of the site likely to generate contaminants and there has been no recorded pollution incidents involving the historical uses of the site.
- 6.9 No specific areas of ecological importance have been identified in the initial desk top study. Therefore the site is considered to be in a low risk environmental setting. The potential for phototoxic materials to exist at shallow depth should be considered, these could pose a potential risk to new planting and soft landscaping areas within the proposed development.
- 6.10 The proposed planning drawings show detached, semi-detached and terraced houses, with private garden and car parking areas. The presence of elevated sulphates and hydrocarbons could affect the long term integrity of buried concrete structures, including foundations and drainage pipes. Plastic water supply pipes can also be damaged by the presence of hydrocarbon contamination.

7.0 FIELDWORK

- 7.1 As mentioned previously, Haigh Huddleston & Associates undertook infiltration testing on 19th December 2022 and the results are discussed in their letter report reference E22/7944/MD/003A dated 11th January 2023. Four trial pits were undertaken using an 8 tonne tracked excavator for the sole purpose of undertaking infiltration testing, with samples taken for chemical and geotechnical analysis.
- 7.2 A rotary borehole investigation and three additional trial pit excavations were undertaken on the 7th June 2023 using a 8 tonne tracked excavator with 600mm wide bucket. A total of seven rotary boreholes were undertaken in accordance with Coal Authority permit 26704- to a maximum depth of 30m. Three of these boreholes were only undertaken to a depth of 3m to allow the installation of standpipes for gas monitoring.
- 7.3 Materials encountered in the trial pits were examined and categorised. Trial pit and borehole logs are contained within Appendix B of the report.
- 7.4 The soakaway tests were undertaken in accordance with the method specified in BRE Digest 365 Soakaway Design. An instantaneous supply of water was provided via an IBC. In general, the trial pits were filled and the water levels were recorded against time as the water permeated into the natural strata. The water level was monitored over an extended time period to determine the infiltration rate for the natural strata.
- 7.5 The site investigation works were designed to achieve comprehensive site coverage within the proposed development area. However, the investigations were limited by the existing trees on site.
- 7.6 A total of nine soil samples were removed from the natural ground deposits within the trial pits for chemical analysis during both investigation works. The samples were removed by operatives wearing gloves and placed into airtight clean plastic containers and glass bottles for transportation to the laboratory.
- 7.7 The testing was carried out by a UKAS accredited laboratory to nationally or accredited in-house methods. The results of the contamination testing are contained within Appendix C of this report.

- 7.8 A suite of common potential contaminants consisting of heavy metals, phytotoxic metals, sulphates, sulphides and poly-aromatic hydrocarbons was analysed for, including asbestos.
- 7.9 All samples were stored in airtight containers within cool boxes at approximately 4°C until delivery to the laboratory within 48 hours.

8.0 RESULTS OF THE INVESTIGATION

8.1 GEOTECHNICAL INVESTIGATION

- 8.1.1 A copy of the trial hole and borehole logs providing a complete record of strata encountered beneath the proposed development is presented in Appendix B.
- 8.1.2 The fieldwork generally proved a relatively shallow depth of topsoil clays overlying a mudstone bedrock. Three seams of coal were encountered within the clays and mudstone.
- 8.1.3 The surface of the trial pits consisted of rough grass and brambles over 0.25-0.7m of dark grey topsoil containing numerous rootlets. In TP02 and TP103 the occasional brick was noted at the surface of the topsoil.
- 8.1.4 Beneath the topsoil was a 0.9-2.6m thick layer of soft to firm brown mottled grey sandy clay with occasional angular mudstone/sandstone gravels and cobbles. This became harder to excavate with depth. At the base of the clay in TP101 there was a 0.3m thick layer of intact immature coal encountered at 2.8m below existing ground levels.
- 8.1.5 In TP01, TP02, TP101, TP102 and TP103, a moderately weak light grey mudstone excavated as angular gravels and flaggy cobbles in a clay matrix was encountered at depths of 1.6-3.1m below existing ground levels and extended to the base of the trial pits. The mudstone was noted to become stronger with depth and became difficult to excavate.
- 8.1.6 In TP03, a moderately strong weathered sandstone was encountered at 2.2m below existing ground levels that proved difficult to excavate with the bladed bucket. The trial pit was terminated in this strata at 2.3m below existing ground levels.
- 8.1.7 In TP04, the soft to firm clay was underlain by layer of firm to stiff grey clay becoming highly weathered mudstone with depth. A band of moderately strong sandstone was encountered in the northern half of the trial pit at a depth of 1.8-2.0m below existing ground levels. The trial pit terminated in the weathered mudstone strata at a depth of 2.3m below existing ground levels.

8.1.8 The rotary boreholes undertaken on site proved 2.2-4.0m of sandy clay overlying a mudstone bedrock that extended to 30.0m below existing ground levels.

8.1.9 Within the clay and mudstone strata, three separate coal seams were encountered between the boreholes:

- Upper coal seam – 0.3m thick coal seam encountered at depth 7.6-7.9m in BH04 in the west of the site. Likely outcrops between BH04 and BH03.
- Middle coal seam – 0.2-0.3m thick coal seam encountered at depths of 1.5-14.1m in TP101, BH01, BH02 and BH04. Likely outcrops near the eastern boundary and passed below BH03 which only extended to 10m in depth.
- Lower coal seam – 2.0m thick coal seam encountered at depth of 21.0-23.0m in BH01. A 3.1m depth of broken ground was encountered in BH02 at 25.8-28.9m below existing ground levels indicating that this seam had been worked. Due to the dip of the coal and the gradient of the site, this was below the depth of BH03 and BH04.

A section through the site showing the strata encountered is included in Appendix A.

8.1.10 The results of the borehole investigation are summarised in Table 2 below:

Table 2 Summary of rotary borehole investigation

BH No.	Sandy Clay	Coal	Mudstone	Coal	Broken Ground	Mudstone/ Solid strata	Rock Cover
1	0-4.0m	1.5-1.8m	4.0-21.0m	21.0-23.0m	-	23.0-30.0m	0m 17.0m
1A	0-3.0m	1.5-1.8m	-	-	-	-	-
2	0-2.2m	3.9-4.1m	2.2-25.8m	-	25.8-28.9m	28.9-30.0m	1.7m 21.7m
3	0-3.0m	-	3.0-10.0m	-	-	-	-
3A	0-3.0m	-	-	-	-	-	-
4	0-2.9m	7.6-7.9m	2.9-13.8m	13.8-14.1m	-	14.1-30.0m	4.7m
4A	0-2.9m	-	2.9-3.0m	-	-	-	-

8.1.11 As discussed previously, during the initial investigation works, TP01-TP04 were used to carry out soakaway tests in order to obtain an infiltration rate for the development.

8.1.12 The infiltration rate has been calculated between the 75% and 25% full values as recommended in the BRE Digest 365. The soakaway results are included in Appendix D and are summarised Table 3 below:-

Table 3 Summary of infiltration rates

SOAKAWAY NUMBER	INFILTRATION RATE
	m/s x10 ⁻⁶
TP01	ABANDONED DUE TO STATIONARY WATER LEVELS
TP02	ABANDONED DUE TO STATIONARY WATER LEVELS
TP03	ABANDONED DUE TO RISING WATER LEVELS
TP04	ABANDONED DUE TO STATIONARY WATER LEVELS

8.1.13 The stationary water levels recorded throughout the site during the tests, in addition to the groundwater encountered within TP03, indicate that in this instance infiltration methods will not be a suitable method of surface water disposal for the development.

8.1.14 The result of the geotechnical analysis undertaken on the samples of clayey soil indicates the clay to be of medium plasticity (Plasticity Index 22-24%). If the modified results are calculated, taking into account the percentage of material retained on a 425micron sieve, the results correspond to a medium shrinkage clay. The test certificate is contained in Appendix C.

8.2 GROUNDWATER

8.2.1 During the site investigation works, groundwater was only encountered in one of the seven trial pits. This was at a depth of 2.2m beneath existing ground levels within a sandstone band and is likely perched groundwater trapped within the clays and mudstone strata.

8.2.2 No groundwater was noted during the rotary borehole investigation, however this was undertaken using water flush methods due to the proximity of the adjacent properties. During the gas monitoring, groundwater has been measured at 1.15-2.10m below existing ground levels.

8.2.3 During site visits, standing water has been noted on site after prolonged rainfall events.

8.2.4 It should be recognised that ground water levels may vary throughout the year. During periods of heavy rainfall the groundwater levels may be substantially higher than the results revealed in these investigations.

8.3 **GAS MONITORING**

8.3.1 As discussed previously BH01A, BH03A and BH04A were installed with gas standpipes and lockable covers. Gas testing is currently being undertaken on site and to-date the wells have been monitored on three occasions following the installation of the standpipes.

8.3.2 A standard gas monitoring procedure has been followed in accordance with CIRIA guidance, including measurement of the following:-

- i) Methane, Oxygen and Carbon Dioxide concentrations.
- ii) Atmospheric Pressure.
- iii) Gas Flow Rate.
- iv) Standing water level.

8.3.3 The result of the monitoring undertaken to-date is summarised in Table 4 below. A complete set of results will be reported on completion of the intended testing programme.

Table 4 - Summary of Recorded Gas Levels.

Borehole No.	Date	Oxygen %	Carbon Dioxide %	Methane %	Flow Rate (l/hr)	Depth to Water (m)	Atmospheric Pressure (mb)
BH01A	23.06.23	16.8	2.4	ND	ND	2.10	1007
	07.07.23	18.2	3.4	ND	ND	2.30	999
	26.07.23	17.9	2.3	ND	ND	2.40	1001
BH03A	23.06.23	21.1	0.0	ND	ND	1.15	1007
	07.07.23	21.3	0.0	ND	ND	1.60	1000
	26.07.23	20.9	0.1	ND	ND	1.60	1002
BH04A	23.06.23	18.4	0.7	ND	ND	1.50	1006
	07.07.23	20.4	0.6	ND	ND	1.90	1000
	26.07.23	20.2	0.6	ND	ND	2.00	1002

8.3.4 During the monitoring to date, a maximum carbon dioxide concentration of 3.4% has been recorded in BH01A. No methane or flow rates have been recorded on site.

- 8.3.5 Borehole 1A intercepted the 0.3m thick immature coal at a depth of 1.5m below existing ground levels. It is likely the monitoring station has created a pathway for air to the coal seam, causing it to degrade and produce ground gases.
- 8.3.6 Due to the low levels of carbon dioxide levels and flow rates on site, we would recommend the gas regime on this site be currently classified as **CS1** by BS 8485:2015 Table 2.
- 8.3.7 The gas monitoring is ongoing and a final report confirming any gas protection measures required will be prepared when the monitoring is completed.

9.0 CONTAMINATION

9.1 HUMAN HEALTH RISK ASSESSMENT

9.1.1 The appraisal of contaminated land within the UK is based on a risk assessment approach. The method involves the principle of defining a source ► pathway ► receptor, linkage to establish a human health risk. For any risk to exist to a potential receptor from an identified contaminant there must be an unbroken source ► pathway ► target relationship.

9.1.2 In the first instance site data for the contaminant levels are compared against guidance such as the CLEA values published by DEFRA. Should the site values exceed the guidance criteria, the contamination levels are recognised to have the potential to pose a risk to human health. Two scenarios are then available:-

- a) To break or remove one of the source ► pathway ► receptor linkages, by specifying an appropriate level of remedial work. Examples of remedial action may include the removal of the contaminated material or alternatively specifying a sufficient capping layer.
- b) The alternative approach is to provide a more detailed human health site specific risk assessment. This will involve examining factors such as soil properties, exposure assumptions, groundwater flows and contamination composition.

9.2 CONTAMINATION RESULTS

9.2.1 As stated above, in order to put the analytical results into context, the data has in the first instance been assessed in relation to several sets of guidelines: -

9.2.2 The analytical results have been assessed via an initial screening assessment with regard to the current Contaminated Land Exposure Assessment model (CLEA UK) for human health, which has been produced for the Environment Agency and the Department of Environment, Food and Rural Affairs (DEFRA). The CLEA model provides Soil Guideline Values (SGVs) for a limited range of contaminants only, and these are based on risk to human health. As such they do not take into account potential risks to other receptors eg groundwater and third party land.

- 9.2.3 It is proposed to redevelop the site for residential properties with private garden areas. Soil results have therefore been assessed against Generic Assessment Criteria (GAC) based on guidelines from the Chartered Institute of Environmental Health (CIEH) and Land Quality Management Ltd (LQM) S4UL document. Where there is no GAC, guidance limits have been adopted from sources referenced in the table below.
- 9.2.4 In addition to the above, the calculation of SGVs based on an acceptably low level of risk is currently being undertaken. These Category 4 Screening Levels (C4SL) have been calculated for six substances to date by modifying the toxicological/exposure parameters within CLEA. C4SLs have been used as tier 1 trigger levels within this assessment, superseding the previous CIEH and LQM SGVs.
- 9.2.5 Assessment of risk is considered as a tiered approach. Assessment based on non intrusive means is considered Tier 1 assessment, comparison against SGVs and GACs is a Tier 2 assessment, and the generation of and comparison with Site Specific Assessment Criteria (SSAC) is a Tier 3 assessment and is conducted where deemed appropriate following the Tier 2 assessment.
- 9.2.6 The sulphate and acid concentrations have been compared against the BRE digest "Concrete in Aggressive Ground" parts 1-4. This will enable the concrete class to be specified in relation to possible contact with aggressive soils.
- 9.2.7 The results of the chemical analysis are presented on the laboratory analysis sheets with Appendix C. A summary of the significance of the results is presented in Table 5.

Table 5**Comparison of contaminant against accepted guidance values for residential use with plant uptake**

CONTAMINANT	SGV MG/KG	CONCENTRATION IN ALL SOILS. MG/KG	No. OF SAMPLES EXCEEDING GUIDANCE VALUES	PERCENTAGE OF SAMPLES EXCEEDING GUIDELINE VALUE
Arsenic	37 (4)	7.4-57	2/9	22.2%
Cadmium	22 (4)	<0.1-0.5	0/9	
Chromium (Total)	130 (2)	14-30	0/9	
Lead	200 (4)	16-410	1/9	11.1%
Mercury (Total)	40 (1,5)	<0.05-0.37	0/9	
Selenium	250 (1)	<0.5-0.5	0/9	
Copper	2400 (1)	15-150	0/9	
Nickel	180 (1)	17-67	0/9	
Zinc	3700 (1)	56-170	0/9	
Sulphate	0.24 (3)	0.03-0.23	0/9	
Thiocyanate	50	0.8-8.1	0/9	
Sulphide	250	<10-27	0/9	
Naphthalene	2.3 (1)	<0.1-0.2	0/9	
Benzo(a)pyrene	5 (4)	<0.1-1.5	0/9	
PAH (Total)	40	<1.6-18	0/9	
Phenols	760 (1)	<0.3-1.8	0/9	
Asbestos	No fibres	None	0/9	
pH	6-8	5.3-7.0	3/9	33.3%

(1) Copyright Land Quality Management Ltd reproduced with permission; Publication Number S4UL3499. All rights reserved.

(2) DEFRA CLR SGV's withdrawn used for initial comparison

(3) BS 8110 1985 Table 6.1

(4) Category 4 Screening Levels

(5) Unless there is considered to be historical site usage that would result in elemental and methylmercury compounds to be present, the inorganic mercury SGV is used as this is the most prevalent for of mercury present in the natural environment.

9.2.8 Marginally elevated levels of Arsenic were recorded in the topsoil from TP101 and TP103. Bio-accessibility testing has been undertaken on these samples and confirmed that only 4.2% of the Arsenic was available for ingestion.

9.2.9 A single elevated level of Lead was recorded in the topsoil of TP103.

9.2.10 There were no elevated levels of PAH (Total) or individual PAH compounds recorded in the samples taken on site.

9.2.11 There was no asbestos recorded in the samples taken from site.

9.2.12 No elevated levels of sulphate were recorded on site, however pH values as low as 5.3 were recorded. This corresponds to a design sulphate class DS-1, ACEC class AC-2z, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

9.3 QUALITATIVE RISK ASSESSMENT

9.3.1 The Qualitative Risk Assessment is based upon the previously discussed source ► pathway ► receptor principle. In relation to the proposed site these may be described as follows:-

9.3.2 SOURCE

- i) Minorly elevated levels of Arsenic in two samples of topsoil
- ii) Elevated levels of Lead in a single sample of topsoil
- iii) No elevated levels of ground gases.

9.3.3 PATHWAYS

- i) Ingestion of contamination material.
- ii) Inhalation of contaminated particles.
- iii) Dermal contact with the known contamination.
- iv) Leaching to controlled waters.

9.3.4 RECEPTORS

- i) Residential site users.
- ii) Construction and maintenance workers.
- iii) Controlled waters.
- iv) The building structure.

9.3.5 Each of the receptors will now be appraised and attribute the likely risks involved:

i) Residential site users.

Based on the chemical results obtained it is considered that there is currently a **low** risk to end users from ground contamination on-site.

Marginally elevated levels of Arsenic were recorded in the topsoil from TP101 and TP103. Bio-accessibility testing has been undertaken on these samples and confirmed that only 4.2% of the Arsenic was available for ingestion.

A single elevated level of Lead was recorded in the topsoil of TP103.

There were no elevated levels of PAH (Total) or individual PAH compounds recorded in the samples taken on site.

No asbestos was recorded in the samples taken from site.

As stated above, the bio-accessibility of Arsenic testing undertaken for samples from this site proved a maximum of 4.2% of the available arsenic was available for ingestion. From Oomen et al. (2006), the oral bio-accessibility of Arsenic is equal to the relative bio-availability.

Using the bio-accessibility value of 4.2%, the CLEA software has calculated a site specific SGV tier 1 trigger level of 85 mg/kg. As the maximum value of Arsenic of 57 mg/kg is below this, we would consider that the Arsenic is a negligible risk to future site residents. The CLEA software results are included in Appendix C.

Based on the Lead values recorded on site, statistical analysis included in Appendix C confirms that 95% of the Lead values will be below 266mg/kg and that the value of 410mg/kg can be considered an outlier and be treated as a hotspot. Furthermore, if the outlier is discounted from the calculations, 95% of the Lead values will be below 139 mg/kg which is below the tier 1 trigger level. It is recommended this hotspot is removed from site and further samples taken from the perimeter and base of the excavation to confirm the removal of the contaminated material from site.

It is recommended that following the removal of the contamination hotspot, the remaining topsoils on site are scraped and excavated to the underlying clays on site

and stockpiled behind protective fencing during the demolition and construction works to prevent cross contamination.

Based on the site area of 4050m², and an average topsoil depth of 0.32m, there is $4050 \times 0.32 = 1296\text{m}^3$ of topsoil on site. To achieve a sampling rate of 1 per 250m³, $1296/250 = 5.17$, 6 samples total would be required. As 6 samples of topsoil have already been tested, with one being ruled as an outlier, the further samples required to validate the removal of the contamination hotspot would provide a robust sample set confirming the suitability of the topsoil to remain on site.

Due to the low levels of carbon dioxide recorded on site, and based on a high sensitivity end use, the GSV value corresponds to the site being characterised as **CS1** by BS 8485:2015.

ii) Construction and Maintenance Workers.

It is considered that there is a **low** risk to construction and maintenance workers from the redevelopment of the site.

Construction workers should always wear PPE including overalls, boots and gloves when handling the contaminated materials onsite. In addition eating, drinking and smoking should be restricted to designated areas where the above hygiene facilities are available.

iii) Controlled Waters

No elevated levels of contaminants have been proved on site and there are no surface water features recorded in the immediate vicinity of the site. It is therefore considered unlikely that there is a risk to groundwater and controlled waters from existing contamination on site.

iv) Building Structures.

Service providers should be forwarded the final validated chemical levels in order for them to provide an accurate specification for the apparatus to be provided. New services should be surrounded and backfilled with clean material to afford some protection to the apparatus and allow any future maintenance work to be undertaken in clean material.

No elevated levels of sulphate were recorded on site, however pH values as low as 5.3 were recorded. This corresponds to a design sulphate class DS-1, ACEC class

AC-2z, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 GEOTECHNICAL ASSESSMENT

- 10.1.1 The fieldwork generally proved a shallow depth of soils and clays overlying a mudstone bedrock. For initial design purposes we would envisage a safe bearing capacity of 100kN/m² where foundations are cited into the firm clay strata and 150kN/m² where foundations are extended onto the weathered mudstone strata.
- 10.1.2 We would therefore initially suggest that the proposed two storey residential constructions should be constructed on strip/trench fill footings founded entirely onto the clay strata. These will need to be heavily reinforced where the plots are affected by mine workings, see Section 10.2 for details. Where mudstone is encountered within the excavations, the foundations should be deepened to lie entirely onto the mudstone strata to avoid differential settlement. The foundation widths will vary dependent upon the line loadings calculated.
- 10.1.3 Based on the investigation work undertaken to date, there is more than 5m of competent rock cover to the shallow mine workings and heavily reinforced strip foundations will be suitable. A review of the proposed foundations should be undertaken on completion of the stabilisation works.
- 10.1.4 Due to the level of shallow workings encountered during the investigation works, we would recommend that movement joints and brick-tor should be considered for the superstructure.
- 10.1.5 If the coal strata is encountered within the foundation, service or drainage excavations, the coal seam should be immediately sealed to prevent spontaneous combustion. All trenches to be infilled with inert material. Any foundations should be taken beneath the coal seam to the underlying natural strata.
- 10.1.6 All foundations should be placed below a line of 45° drawn up from the base of any services or other structures.
- 10.1.7 Where existing foundations or structures are encountered during construction, these should be totally removed from the excavations to enable the new foundations to be constructed without obstructions.

- 10.1.8 At present it is not anticipated that excessive ground water control measures will be required. Please note that ground water flows can vary throughout the year and a further assessment should be undertaken if construction work is proposed following a prolonged rainfall event.
- 10.1.9 No elevated levels of sulphate were recorded on site, however pH values as low as 5.3 were recorded. This corresponds to a design sulphate class DS-1, ACEC class AC-2z, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.
- 10.1.10 Wherever any foundations are located near existing or proposed new trees, their foundations must be sited below the root growth zone. Reference should be made to the NHBC standards Chapter 4.2 “Building Near Trees” which provides guidance on foundation criteria, depths and construction. All services should be similarly protected. Plasticity testing of the clays on site has shown them to be of medium volume change potential.
- 10.1.11 Numerous mature trees were noted on site, and to the site boundaries. It is therefore recommended that a tree survey is undertaken on site to determine the effect these will have on the proposed foundation depths.

10.2 **MINING**

- 10.2.1 The Coal Authority Report is included in Appendix D and states that the property is in a surface area that could be affected by underground coal mining in 1 seams of coal at 120 to 130m depth, and last worked in 1953. In addition to this, the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past.
- 10.2.2 The rotary boreholes on site 2.2-4.0m of sandy clay overlying a mudstone bedrock that extended to 30.0m below existing ground levels. Within the clay and mudstone strata, three separate coal seams were encountered between the boreholes.
- Upper coal seam – 0.3m thick coal seam encountered at depth 7.6-7.9m in BH04 in the west of the site. Likely outcrops between BH04 and BH03.

- Middle coal seam – 0.2-0.3m thick coal seam encountered at depths of 1.5-14.1m in TP101, BH01, BH02 and BH04. Likely outcrops near the eastern boundary and passed below BH03 which only extended to 10m in depth.
- Lower coal seam – 2.0m thick coal seam encountered at depth of 21.0-23.0m in BH01. A 3.1m depth of broken ground was encountered in BH02 at 25.8-28.9m below existing ground levels indicating that this seam had been worked. Due to the dip of the coal and the gradient of the site, this was below the depth of BH03 and BH04.

10.2.3 As less than ten times the workings thickness of competent rock cover has been proved beneath the eastern half of the site, we would recommend the site is drilled and grouted on a 3x3m grid extending beyond the proposed property footprints, roads and shared drive areas starting from the eastern boundary. The extent of site requiring stabilization works may be extended dependent on the results of the drilling works. Where the seam and workings are below 30m beneath existing ground levels, there is sufficient competent rock cover that treatment works will not be required.

10.2.4 Additional boreholes may be requested should voids be encountered during the drilling process. In addition, the installation of a curtain grouting system to the perimeter utilising sand and pea gravel material as necessary to seal any large voids prior to infill grouting may be required.

10.2.5 Following completion of any grouting works, the foundation designs should be re-assessed on a plot by plot basis and incorporate heavily reinforced strip footings/raft designed to span 3m void where affected by mine workings.

10.2.6 In addition to the above, a site scrape of the topsoil should be undertaken to expose the underlying natural strata. This should then be inspected for evidence of surface mining features.

10.2.7 Due to the potential of combustion, a minimum of 1m clean inert cover should be provided to the shallow coal seams where they are encountered on site. If the final proposed levels do not allow for 1m cover to be provided within soft landscaped areas, the coal should be excavated to a minimum of 1m below proposed ground levels prior to clean capping being installed. It should be noted that during the investigation works, the coal seam was encountered at a minimum depth of 1.5m below existing ground levels.

10.3 GROUND FLOOR SLAB – GAS MEASURES

- 10.3.1 As discussed previously, gas monitoring stations were installed in three of the borehole locations on site due to the possibility of ground gas migration from shallow mine workings.
- 10.3.2 A maximum carbon dioxide concentration of 3.4% has been recorded on site. No methane has been recorded. No steady flow rates have been detected during the monitoring.
- 10.3.3 The proposed development consists of low rise residential housing and therefore the gas regime has been characterised in accordance with Type A buildings as defined in BS 8485:2015 Table 3. Due to the low carbon dioxide levels on site, we would recommend the gas regime on this site be currently classified as CS1 by BS 8485:2015 Table 2.
- 10.3.4 No Radon Protection measures are required for the site.
- 10.3.5 A detailed analysis of the results and any gas protection measures required will be confirmed on completion of the on-site gas testing in a separate report.

10.4 CONTAMINATION ASSESSMENT

- 10.4.1 Marginally elevated levels of Arsenic were recorded in the topsoil from TP101 and TP103 when compared to generic SGVs. However bio-accessibility testing of the Arsenic has proven only 4.2% is available for ingestion and all Arsenic values are below the CLEA software generated site specific value of 85 mg/kg.
- 10.4.2 A single elevated level of Lead was recorded in the topsoil of TP103.
- 10.4.3 There were no elevated levels of PAH (Total) or individual PAH compounds recorded in the samples taken on site.
- 10.4.4 No asbestos was recorded in the samples taken from site.
- 10.4.5 Based on the Lead values recorded on site, the statistical analysis included in Appendix C confirms that 95% of the Lead values will be below 266mg/kg and that

the value of 410mg/kg can be considered an outlier and be treated as a hotspot. It is recommended this hotspot is removed from site and further samples taken from the perimeter and base of the excavation to confirm the removal of the contaminated material from site.

10.4.6 It is recommended that following the removal of the contamination hotspot, the remaining topsoils on site are scraped and excavated to the underlying clays on site and stockpiled behind protective fencing during the construction works to prevent cross contamination.

10.4.7 Based on the site area of 4050m², and an average topsoil depth of 0.32m, there is $4050 \times 0.32 = 1296\text{m}^3$ of topsoil on site. To achieve a sampling rate of 1 per 250m³, $1296/250 = 5.17$, 6 samples total would be required. As 6 samples of topsoil have already been tested, with one being ruled as an outlier, the further samples required to validate the removal of the contamination hotspot would provide a robust sample set confirming the suitability of the topsoil to remain on site.

10.4.8 Should any suspected areas of contamination be exposed during site strip/construction, an engineer should be contacted to determine if additional chemical testing should be undertaken. The on-site staff should maintain a photographic record and dates of any exposed contaminated material.

10.5 SURFACE WATER DRAINAGE

10.5.1 The stationary water levels recorded throughout the site during the tests, in addition to the groundwater encountered within TP03, indicate that in this instance infiltration methods will not be a suitable method of surface water disposal for the development.

10.5.2 We would therefore propose a 3.5 l/s discharge rate to the adopted surface water sewer in Moor Lane to the south of the site. The exact location and the invert level of the adopted sewer will need to be confirmed prior to undertaking a detailed design. The discharge rate and point of connection to the existing adoptable sewer network will need to be agreed with Yorkshire Water and the LLFA.

11.0 SUGGESTED FURTHER WORK

- 11.1 Gas monitoring to be completed and gas regime for the site confirmed.
- 11.2 Lead contamination hotspot to be removed from site.
- 11.3 Stabilisation works through drilling and grouting to be undertaken on the shallow mine workings on site.

12.0 APPROVALS

12.1 Proposals for the remediation of contaminated land may require the approval of numerous bodies.

These include:

- a) Kirklees City Council Environmental Health Department as required by the building and planning regulations.
- b) The NHBC or similar as they will provide the insurance costs to cover the property.
- c) The Environment Agency if there are risks of contamination to ground or surface water systems. They will also require notification if material is removed from site and taken to an appropriate tip.
- d) Relevant highways and drainage authorities and other service companies may also wish to know about the level of contaminants.

Prepared by

M.Dean. BSc(Hons) HND

Checked by

M. Huddleston. MEng

August 2023

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Binks Executive Homes in respect of the proposals described.

APPENDIX A

Site Location Plan

Site Investigation Plan

Typical Site Conceptual Model

Section through site

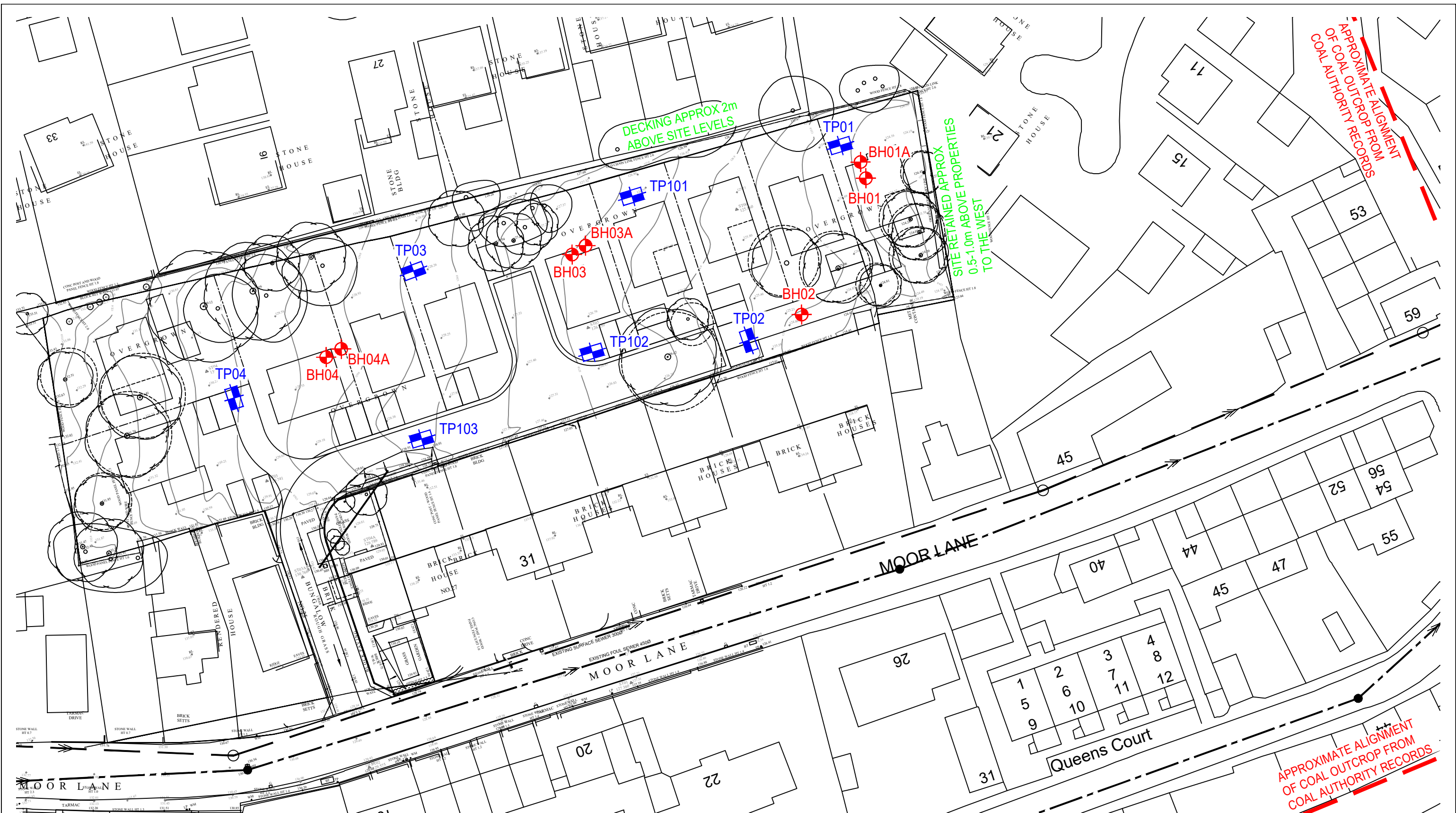


MOOR LANE

GOMERSAL

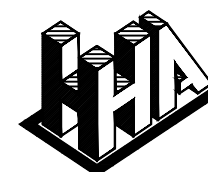
KIRKLEES

BD19 4LF



- SOAKAWAY LOCATION
- TRIAL PIT LOCATION
- PROPOSED BOREHOLE LOCATION

BOREHOLE LOCATIONS SUBJECT TO CHANGE DEPENDENT ON ACCESS AROUND SITE AND FINDINGS WITHIN BOREHOLES.

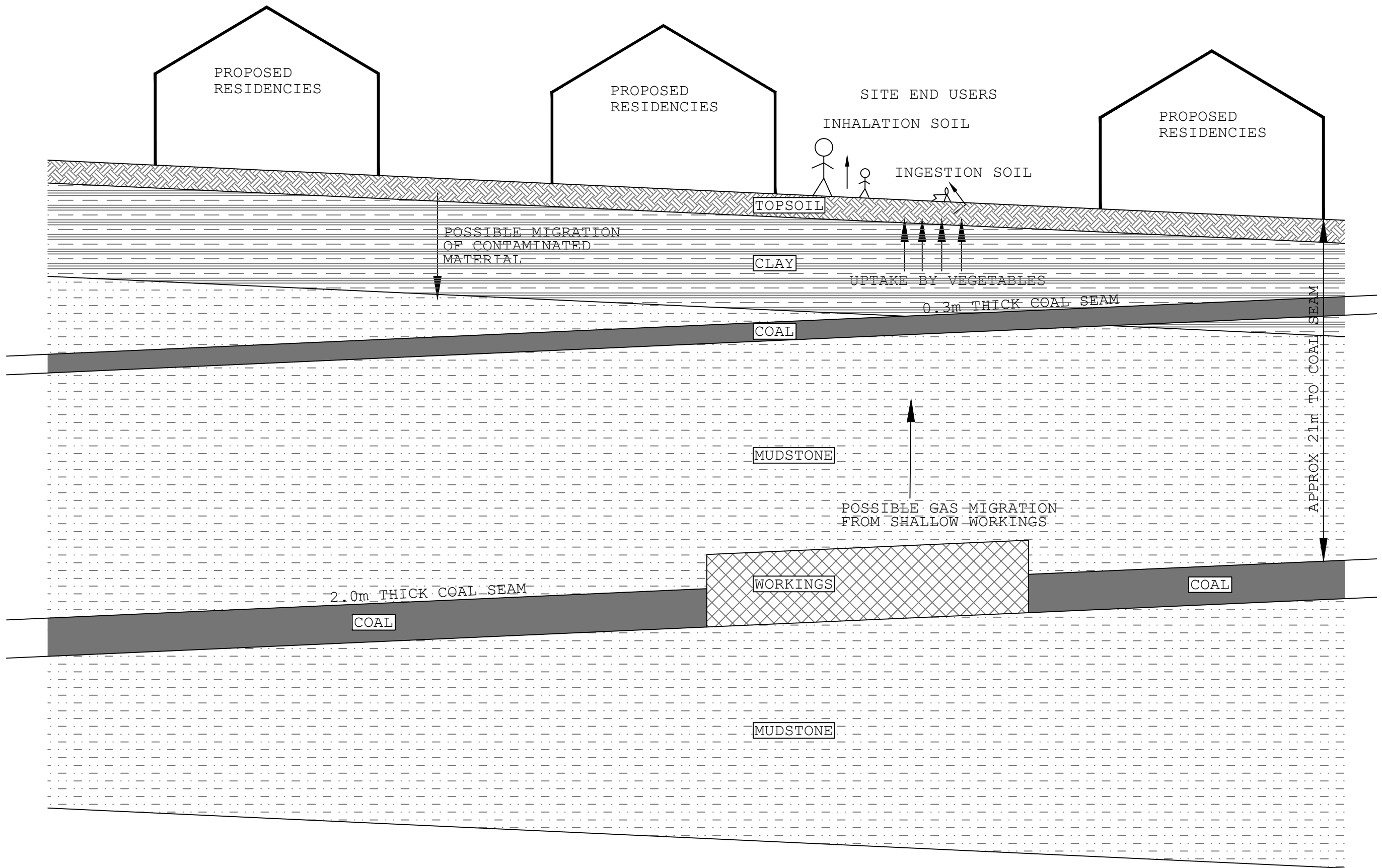


Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662
e martin@haighhuddleston.co.uk

Client	Binks Executive Homes			
Project	Moor Lane, Gomersal			
Detail	Proposed Borehole Plan			
Scale	Dwn	Chkd	Date	Dwg No.
1:500@A3	MD		Apr'23	E22/7944/03/02A



Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662
e martin@haighhuddleston.co.uk

Client	Binks Executive Homes
Project	Moor Lane, Gomersal
Detail	Typical Site Conceptual Model
Scale	NTS
Dwn	MD
Chkd	
Date	Aug'23
Dwg No.	E22/7944/32

APPENDIX B

Trial Hole Logs

Borehole Logs

TRIAL HOLE NO. 1



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.3	Sample taken at 0.1m. Rough grass and brambles over dark grey soil with numerous rootlets.
0.5	0.9	Soft to firm light brown mottled grey clay with occasional angular sandstone cobbles. Sample taken at 0.9m.
1.0	2.2	Moderately weak highly weathered light grey/brown mudstone excavated as small angular gravels and flaggy cobbles in a clay matrix.
1.5	2.8	Difficult to excavate. Sides stable.
2.0	3.5	
2.2	4.0	

REMARKS:

Ground water encountered during excavation

NO

Sample taken

YES at 0.1 & 0.9m.

Sides of excavation remained stable

YES

Level

.....

NOTES:

.....
.....

TRIAL HOLE NO. 2



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.3	Sample taken at 0.1m. Rough grass over dark grey topsoil with numerous rootlets and occasional brick.
0.5	0.7	Soft to firm orange mottled grey clay with occasional angular gravels and cobbles. Sample taken at 0.7m.
1.0		
1.5		
2.0		Becoming harder to excavate with depth.
	2.2	
	2.3	Moderately weak highly weathered grey mudstone excavated as small angular gravels in a clay matrix.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation

NO

Sample taken

YES @ 0.1 & 0.7m

Sides of excavation remained stable

YES

Level

.....

NOTES:

.....
.....

TRIAL HOLE NO. 3



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.25	Rough grass and brambles over dark grey topsoil with numerous rootlets. Sample taken at 0.1m.
0.5		Soft to firm orange mottled grey slightly sandy clay with angular gravels.
	0.7	Sample taken at 0.7m.
1.0		
1.5		
2.0		
	2.2	
	2.3	Moderately strong light brown sandstone. Difficult to excavate. Groundwater seeping from base.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation YES
 Sample taken YES @ 0.1 & 0.7m.
 Sides of excavation remained stable YES
 Level

NOTES:

.....

TRIAL HOLE NO. 4



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
		Sample taken at 0.1m. Rough grass and brambles over dark grey topsoil with numerous rootlets.
	0.3	
0.5		Soft to firm orange mottled grey slightly sandy clay with gravels.
1.0		
	1.3	Sample taken at 1.3m.
1.5		Firm to stiff grey clay with gravels becoming highly weathered mudstone excavated as small angular gravels.
2.0		Moderately strong sandstone difficult to excavate at 1.8 – 2.0m.
	2.3	
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation

NO

Sample taken

YES at 0.1 & 1.3m.

Sides of excavation remained stable

YES

Level

.....

NOTES:

.....
.....

TRIAL HOLE NO. 101



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	7th June 2023

0.0		
	0.2	Rough grass and shrubs over dark brown topsoil.
0.5		Soft light brown/grey slightly sandy clay.
	0.8	
1.0		Soft light brown/grey sandy clay with occasional weathered mudstone gravels.
1.5		
2.0		
2.5		
	2.8	
3.0		Black weak coal.
	3.1	
		Moderately weak light brown/grey sandy mudstone becoming firm with depth.
	3.4	
3.5		
4.0		

REMARKS:

Ground water encountered during excavation NO
 Sample taken YES
 Sides of excavation remained stable YES
 Level

NOTES:

.....

TRIAL HOLE NO. 102



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	8th June 2023

0.0		
	0.2	Rough grass and shrubs over dark brown topsoil.
	0.5	Soft light brown/grey slightly sandy clay.
	0.9	Soft light brown/grey sandy clay with occasional weathered mudstone gravels.
	1.0	
	1.5	
	2.0	
	2.4	Moderately weak light brown/grey sandy mudstone becoming firm and difficult to excavate with depth.
	2.5	
	3.0	
	3.0	
	3.5	
	4.0	

REMARKS:

Ground water encountered during excavation NO
Sample taken YES
Sides of excavation remained stable YES
Level

NOTES:

.....
.....

TRIAL HOLE NO. 103



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	8th June 2023

0.0		
0.5		
	0.7	Rough grass over dark brown topsoil with occasional bricks and pottery.
1.0		
1.5		
	1.6	Soft light brown/grey slightly sandy clay.
2.0		
2.5		
3.0	3.0	Weak light grey/orange shaley mudstone within a sandy clayey matrix becoming difficult to excavate with depth.
3.5		
4.0		

REMARKS:

Ground water encountered during excavation NO
Sample taken YES
Sides of excavation remained stable YES
Level

NOTES:

.....
.....

Tel: 01924 464342
Fax: 01924 450662



Civil Structural Engineering Consultants

Equipment & Methods		Client: BINKS EXECUTIVE HOMES						
		Site: MOOR LANE, GOMERSAL						
BOREHOLE No. 01		Ground Level						Date: 08.06.2023
Co-ordinates:								
Description	Reduced Level	Legend	Depth (thick)	Sample/Tests				
				Depth	Sample			Test
Type	No.							
Sandy clay			1.5 (1.5)					
Coal			1.8 (0.3)					
Sandy clay			4.0 (2.2)					
Grey mudstone			21.0 (17.0)					
Coal			23.0 (2.0)					
Grey mudstone			30.0 (7.0)					
Remarks								Logged by
								Scale
								FIG

Tel: 01924 464342
Fax: 01924 450662



Civil Structural Engineering Consultants

Equipment & Methods		Client: BINKS EXECUTIVE HOMES						
		Site: MOOR LANE, GOMERSAL						
BOREHOLE No. 02		Ground Level					Date: 08.06.2023	
Co-ordinates:								
Description	Reduced Level	Legend	Depth (thick)	Sample/Tests				
				Depth	Sample		Test	
					Type	No.		
Sandy clay			2.2 (2.2)					
Grey mudstone			3.9 (1.7)					
Coal			4.1 (0.2)					
Grey mudstone			18.0 (13.9)					
Grey mudstone			25.8 (7.8)					
Broken ground			28.9 (3.1)					
Solid			30.0 (1.1)					
Remarks								Logged by
								Scale
								FIG

Tel: 01924 464342
Fax: 01924 450662



Civil Structural Engineering Consultants

Equipment & Methods		Client: BINKS EXECUTIVE HOMES														
		Site: MOOR LANE, GOMERSAL														
BOREHOLE No. 03		Ground Level						Date: 08.06.2023								
Co-ordinates:																
Description	Reduced Level	Legend	Depth (thick)	Sample/Tests												
				Depth	Sample		Test									
					Type	No.										
Sandy clay			3.0 (3.0)													
Grey mudstone			10.0 (7.0)													
Remarks																
									Logged by							
									Scale							
FIG																

Tel: 01924 464342
Fax: 01924 450662



Civil Structural Engineering Consultants

Equipment & Methods	Client: BINKS EXECUTIVE HOMES							
	Site: MOOR LANE, GOMERSAL							
BOREHOLE No. 04	Ground Level							Date: 08.06.2023
Co-ordinates:								
Description	Reduced Level	Legend	Depth (thick)	Sample/Tests				
				Depth	Sample		Test	
					Type	No.		
Sandy clay			2.9 (2.9)					
Grey mudstone			7.6 (4.7)					
Coal			7.9 (0.3)					
Grey mudstone			13.8 (5.9)					
Coal			14.1 (0.3)					
Grey mudstone/siltstone			30.0 (15.9)					
Remarks								Logged by
								Scale
								FIG

APPENDIX C

Chemical Analysis of Samples

Statistical Analysis of Samples

CLEA Derivation of Site Specific SGV for Arsenic

Geotechnical Analysis of Samples



Certificate of Analysis

Certificate Number 22-26765

Issued: 05-Jan-23

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference 22-26765

Client Reference 7944

Order No (not supplied)

Contract Title MOOR LANE

Description 4 Soil samples.

Date Received 22-Dec-22

Date Started 22-Dec-22

Date Completed 05-Jan-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Kirk Bridgewood
General Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 22-26765

Client Ref 7944

Contract Title MOOR LANE

Sample ID	Depth	Lab No	Completed	Matrix Description
TP01	0.1	2102970	05/01/2023	Brown gravelly, sandy CLAY
TP02	0.1	2102971	05/01/2023	Brown sandy CLAY including some rootlets
TP03	0.7	2102972	05/01/2023	Brown sandy CLAY
TP04	0.1	2102973	05/01/2023	Brown sandy CLAY including some rootlets

Summary of Chemical Analysis

Soil Samples

Our Ref 22-26765

Client Ref 7944

Contract Title MOOR LANE

Lab No	2102970	2102971	2102972	2102973
Sample ID	TP01	TP02	TP03	TP04
Depth	0.10	0.10	0.70	0.10
Other ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sampling Date	19/12/2022	19/12/2022	19/12/2022	19/12/2022
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	26	29	7.4	27
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.3	< 0.1	0.4
Chromium	DETSC 2301#	0.15	mg/kg	17	17	14	18
Copper	DETSC 2301#	0.2	mg/kg	59	47	15	47
Lead	DETSC 2301#	0.3	mg/kg	84	120	16	120
Mercury	DETSC 2325#	0.05	mg/kg	0.25	0.37	< 0.05	0.35
Nickel	DETSC 2301#	1	mg/kg	17	17	18	17
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	150	100	56	120
Inorganics							
pH	DETSC 2008#		pH	6.4	6.0	6.1	6.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	8.1	4.5	0.8	6.6
Total Organic Carbon	DETSC 2084#	0.5	%	11	7.5	< 0.5	11
Sulphide	DETSC 2024*	10	mg/kg	< 10	< 10	< 10	12
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.14	0.12	0.03	0.10
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Fluorene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1	0.3
Phenanthrene	DETSC 3301	0.1	mg/kg	0.6	0.1	< 0.1	2.4
Anthracene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	0.6
Fluoranthene	DETSC 3301	0.1	mg/kg	1.3	1.1	< 0.1	3.2
Pyrene	DETSC 3301	0.1	mg/kg	1.3	0.9	< 0.1	3.2
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.7	0.3	< 0.1	1.4
Chrysene	DETSC 3301	0.1	mg/kg	0.6	0.3	< 0.1	1.4
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.5	0.2	< 0.1	1.0
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.3	0.2	< 0.1	0.6
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.7	0.3	< 0.1	1.5
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.5	0.3	< 0.1	1.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.2	0.1	< 0.1	0.3
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.4	0.2	< 0.1	0.8
PAH 16 Total	DETSC 3301	1.6	mg/kg	7.4	3.9	< 1.6	18
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	1.8	1.3	< 0.3	1.2

Summary of Asbestos Analysis Soil Samples

Our Ref 22-26765

Client Ref 7944

Contract Title MOOR LANE

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2102970	TP01 0.10	SOIL	NAD	none	Ben Rose
2102971	TP02 0.10	SOIL	NAD	none	Ben Rose
2102972	TP03 0.70	SOIL	NAD	none	Ben Rose
2102973	TP04 0.10	SOIL	NAD	none	Ben Rose

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-26765
 Client Ref 7944
 Contract MOOR LANE

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2102970	TP01 0.10 SOIL	19/12/22	GJ 250ml, PT 1L		
2102971	TP02 0.10 SOIL	19/12/22	GJ 250ml, PT 1L		
2102972	TP03 0.70 SOIL	19/12/22	GJ 250ml, PT 1L		
2102973	TP04 0.10 SOIL	19/12/22	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report



Certificate of Analysis

Certificate Number 23-13860

Issued: 22-Jun-23

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference 23-13860

Client Reference 7944

Order No (not supplied)

Contract Title GOMERSAL

Description 5 Soil samples.

Date Received 13-Jun-23

Date Started 13-Jun-23

Date Completed 22-Jun-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Kirk Bridgewood
General Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 23-13860

Client Ref 7944

Contract Title GOMERSAL

Sample ID	Depth	Lab No	Completed	Matrix Description
TP101	0.15	2185564	22/06/2023	Brown sandy CLAY
TP102	0.1	2185565	22/06/2023	Brown sandy CLAY
TP102	0.75	2185566	22/06/2023	Brown gravelly, sandy CLAY
TP103	0.3	2185567	22/06/2023	Dark brown gravelly, sandy CLAY including odd rootlets
TP103	1.2	2185568	22/06/2023	Brown gravelly, sandy CLAY

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13860

Client Ref 7944

Contract Title GOMERSAL

Lab No	2185564	2185565	2185566	2185567	2185568
Sample ID	TP101	TP102	TP102	TP103	TP103
Depth	0.15	0.10	0.75	0.30	1.20
Other ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	07/06/2023	08/06/2023	08/06/2023	08/06/2023	08/06/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Metals								
Arsenic	DETSC 2301#	0.2	mg/kg	40	32	5.3	57	4.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.4	0.2	< 0.1	0.4	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	18	16	13	30	13
Copper	DETSC 2301#	0.2	mg/kg	75	40	15	150	15
Lead	DETSC 2301#	0.3	mg/kg	150	110	8.8	410	14
Mercury	DETSC 2325#	0.05	mg/kg	0.36	0.27	< 0.05	0.28	< 0.05
Nickel	DETSC 2301#	1	mg/kg	18	15	15	67	20
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	130	75	37	170	52
Inorganics								
pH	DETSC 2008#		pH	5.7	5.3	5.4	6.9	7.0
Thiocyanate	DETSC 2130#	0.6	mg/kg	5.7	4.9	0.9	5.3	5.2
Total Organic Carbon	DETSC 2084#	0.5	%	8.8	8.1	< 0.5	8.9	0.6
Sulphide	DETSC 2024*	10	mg/kg	12	< 10	< 10	27	< 10
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.10	0.23	0.03	0.10	0.02
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	0.2	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	0.3	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	1.2	0.8	< 0.1	0.8	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.3	0.3	< 0.1	0.2	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	2.1	1.1	0.2	1.7	0.2
Pyrene	DETSC 3301	0.1	mg/kg	1.8	0.8	< 0.1	1.3	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.9	0.6	< 0.1	0.9	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	1.1	0.7	< 0.1	0.6	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.6	0.3	< 0.1	0.5	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.5	0.3	< 0.1	0.4	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	1.0	0.6	< 0.1	0.9	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	1.0	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	11	5.7	< 1.6	7.6	< 1.6
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	1.1	0.9	< 0.3	1.0	0.5

Summary of Asbestos Analysis Soil Samples

Our Ref 23-13860

Client Ref 7944

Contract Title GOMERSAL

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2185564	TP101 0.15	SOIL	NAD	none	Robertas Ciparis
2185565	TP102 0.10	SOIL	NAD	none	Robertas Ciparis
2185566	TP102 0.75	SOIL	NAD	none	Robertas Ciparis
2185567	TP103 0.30	SOIL	NAD	none	Robertas Ciparis
2185568	TP103 1.20	SOIL	NAD	none	Robertas Ciparis

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-13860
 Client Ref 7944
 Contract GOMERSAL

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2185564	TP101 0.15 SOIL	07/06/23	GJ 250ml, PT 1L		
2185565	TP102 0.10 SOIL	08/06/23	GJ 250ml, PT 1L		
2185566	TP102 0.75 SOIL	08/06/23	GJ 250ml, PT 1L		
2185567	TP103 0.30 SOIL	08/06/23	GJ 250ml, PT 1L		
2185568	TP103 1.20 SOIL	08/06/23	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report



Certificate of Analysis

Certificate Number 23-16189

Issued: 31-Jul-23

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference 23-16189

Client Reference 7944

Order No (not supplied)

Contract Title GOMERSAL

Description 2 Soil samples.

Date Received 13-Jun-23

Date Started 06-Jul-23

Date Completed 31-Jul-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 23-16189
 Client Ref 7944
 Contract Title GOMERSAL

Lab No	2198816	2198817
Sample ID	TP101	TP103
Depth	0.15	0.30
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	07/06/2023	08/06/2023
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic Gastric % Bioaccessible (% of Total As)	DETSC 2400*	0	%	2.4	2.1
Arsenic Gastric mg/kg Bioaccessible	DETSC 2400*	0.5	mg/kg	0.9	0.8
Arsenic Gastro Intestinal % Bioaccessible (% of Total As)	DETSC 2400*	0	%	1.8	1.3
Arsenic Gastro Intestinal mg/kg Bioaccessible	DETSC 2400*	0.5	mg/kg	0.7	< 0.5
Arsenic	DETSC 2301#	0.2	mg/kg	37	36

Information in Support of the Analytical Results

Our Ref 23-16189
Client Ref 7944
Contract GOMERSAL

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Hold time exceeded for tests	Inappropriate container for tests
2198816	TP101 0.15 SOIL	07/06/23	GJ 250ml, PT 1L		
2198817	TP103 0.30 SOIL	08/06/23	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Tier 1 trigger level for Lead = 200 mg/kg
(Including Suspected Outlier)

Levels of Arsenic recorded on site	Total
84 120 120 150 110 410	994

Number of samples (n) =

Average (mean) =

recorded value	value-mean	(value-mean) ²
84	-81.6667	6669.444
120	-45.6667	2085.444
120	-45.6667	2085.444
150	-15.6667	245.4444
110	-55.6667	3098.778
410	244.3333	59698.78
Total		73883.33

Variance

Standard Deviation

for (n-1) = 5, student's t =

Upper 95% confidence limit = $165.6667 + ((2.015 * 121.5593) / \sqrt{6})$

=

Tier 1 trigger level for Lead = 200 mg/kg

(Excluding Outlier)

Levels of Lead recorded on site	Total
150 110 84 120 120	584

Number of samples (n) =

Average (mean) =

recorded value	value-mean	(value-mean) ²
150	33.2	1102.24
110	-6.8	46.24
84	-32.8	1075.84
120	3.2	10.24
120	3.2	10.24
Total		2244.8

Variance

Standard Deviation

for (n-1) = 4, student's t =

Upper 95% confidence limit = 116.8 + ((2.132*23.68966)/√5)

=

CLEA Software Version 1.071

Page 1 of 11

Report generated 02-Aug-23

Report title Moor Lane, Gomersal

Created by Michael Dean at Haigh Huddleston Associates



RESULTS

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

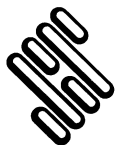
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



STRUCTURAL SOILS LTD
TEST REPORT



Report No. 785357 r1

Date 10-January-2023 Contract Moor Lane

Client Haigh Huddleston Associates
Address Firth Building
99-101 Leeds Road
Dewsbury
WF12 7BU

For the Attention of Dean Huddleston

Samples submitted by client 05/01/2023
Testing Started 05/01/2023
Testing Completed 10/01/2023

Client Reference
Client Order No.
Instruction Type Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests Undertaken

Moisture Content (oven drying method) BS EN ISO 17892-1
Liquid Limit (definitive method) BS EN ISO 17892-12
Plastic Limit BS EN ISO 17892-12
Plasticity Index Derivation BS EN ISO 17892-12

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.

Test were undertaken on samples 'as received' unless otherwise stated.

Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977 552255. E-mail mark.athorne@soils.co.uk

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
TP01	1	D	0.90	17.1	47	23	24	98	Light brown grey CLAY with roots
TP04	1	D	1.30	19.9	43	21	22	98	Dark brown CLAY

SYMBOLS: * denotes BS 1377

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



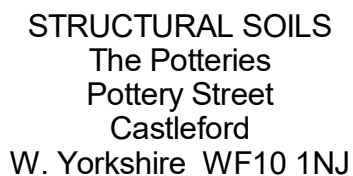
Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)



Moor Lane

785357

10/01/23



TESTING VERIFICATION CERTIFICATE



1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **12/01/2023 10:07:14**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Luke Fisher (Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

Moor Lane

Job No:

785357



TESTING VERIFICATION CERTIFICATE



1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **12/01/2023 10:07:14**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Luke Fisher (Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

Moor Lane

Job No:

785357



APPENDIX D

Infiltration Testing Report reference E22/7944/MD/003A

dated Jan 2023



E22/7944/MD/L003A

11 January 2023

FAO Helen Davies

Binks Executive Homes Limited
Cawthorne House
19 Tivy Dale
Cawthorne
Barnsley
S75 4EJ

Dear Helen,

Re : Proposed Development off Moor Lane, Gomersal, Cleckheaton

Further to our letter reference E22/7944/MH/002 dated 16 June 2022, and subsequent correspondence with Yorkshire Water, further investigation works have been undertaken in accordance with NPPG drainage hierarchy to determine if surface water disposal by infiltration or discharge to a water body would be feasible for the above development.

1. INFILTRATION

Haigh Huddleston & Associates have undertaken investigation works to confirm whether soak-a-ways would be a suitable long term method of surface water dispersal.

1.1 FIELDWORK

- 1.1.1 The fieldwork comprised of four trial holes undertaken using an 8 tonne tracked excavator equipped with a 600mm wide bucket. The trial pit locations were set by possible soak-a-way locations. The locations of the trial pits are indicated on drawing E22/7944/03 at the rear of the report.
- 1.1.2 Materials encountered within the trial pits were examined and categorised. The trial pit logs are at the rear of the report.
- 1.1.3 The soak-a-way tests were undertaken in accordance with the method specified in BRE Digest 365 Soak-a-way Design. An instantaneous supply of water was provided via an IBC. The trial pit was filled and the water levels were recorded against time as the water permeated into the natural strata.
- 1.1.4 The water level was monitored over an extended time period to determine the infiltration rate for the natural strata. The infiltration rate has been calculated in each case between the 75% and 25% full values as recommended in the BRE Digest 365.
- 1.1.5 The soak-a-way test results are attached to the rear of this report.

1.2 RESULTS OF THE INVESTIGATION

- 1.2.1 The surface of the trial pits consisted of rough grass and brambles over 0.25-0.3m of dark grey topsoil containing numerous rootlets. In TP02 the occasional brick was noted at the surface of the topsoil.
- 1.2.2 Beneath the topsoil was a 1.0-1.95m thick layer of soft to firm brown mottled grey clay with occasional angular sandstone gravels and cobbles. This became harder to excavate with depth.
- 1.2.3 In TP01 and TP02 in the southern half of the site, a moderately weak light grey mudstone excavated as angular gravels and flaggy cobbles in a clay matrix was encountered at 2.2m below existing ground levels and extended to the base of the trial pits.
- 1.2.4 In TP03, a moderately strong weathered sandstone was encountered at 2.2m below existing ground levels that proved difficult to excavate with the bladed bucket. The trial pit was terminated in this strata at 2.3m below existing ground levels.
- 1.2.5 In TP04, this was underlain by layer of firm to stiff grey clay becoming highly weathered mudstone with depth. A band of moderately strong sandstone was encountered in the northern half of the trial pit at a depth of 1.8-2.0m below existing ground levels. The trial pit terminated in the weathered mudstone strata at a depth of 2.3m below existing ground levels.
- 1.2.6 Ground water was only encountered in TP03. This was seepage from the base of the trial pit.
- 1.2.7 All four trial pits were used for infiltration testing. The infiltration rates calculated are summarised in the table below. The calculation sheets are included to the rear of the report along with the soak-a-way location plan.

SOAK-A-WAY TEST	INFILTRATION RATE (m/s x10 ⁻⁶)
TP01	ABANDONED DUE TO STATIONARY WATER LEVELS
TP02	ABANDONED DUE TO STATIONARY WATER LEVELS
TP03	ABANDONED DUE TO RISING WATER LEVELS
TP04	ABANDONED DUE TO STATIONARY WATER LEVELS

- 1.2.8 The stationary water levels recorded throughout the site during the tests, in addition to the groundwater encountered within TP03, indicate that in this instance infiltration methods will not be a suitable method of surface water disposal for the development.

2. DISCHARGE TO A WATER BODY

- 2.1 We have been in communication with Leeds City Council FRM regarding the existing culvert recorded to the east of the site. A plan showing the LCC Flood Risk Assets detailing the location of the culvert is attached to the rear of this letter.
- 2.2 The head of the watercourse is shown in the rear garden of 15 Summerdale, and is recorded as being a 450x450mm stone culvert that is 1m deep. There are no records of any connections into the head of the run.
- 2.3 The shallow recorded depth of the culverted watercourse, and its distance from the site, indicate that a gravity connection to this watercourse may not be achievable. We understand that due to the risk of flooding, a surface water pumping station serving the development is unacceptable to Kirklees Council.
- 2.4 As Yorkshire Water will not requisition sewers to watercourses, to get a connection from site to the head of the watercourse, we would have to get the agreement of plots 15, 17, 19 and 21 Summerdale to lay new sewers within their land. It is unlikely the existing residents will agree to this as there is no material benefit to them from the laying of the new sewer through their land, and the construction and future maintenance will cause considerable inconvenience. In addition to this, there is no straight route to the watercourse due to the existing buildings, and it looks like there will be insufficient space for the required easements to an adoptable sewer. Our client has undertaken a letter drop to the affected properties regarding the proposals and to date there has been no response.
- 2.5 Finally, although the site and existing culvert are located with Kirklees Council's boundary, the culvert serves the Calder-Batley Beck catchment area, which ultimately discharges into Leeds City Council assets. An application would therefore be need to make to both councils for them to agree to a discharge rate and works to facilitate the proposed connection.
- 2.6 It is therefore considered that a gravity connection to the existing 450x450 culvert indicated on the attached plan is not a feasible method of discharging the surface water run-off from the development.

3. DISCHARGE TO THE ADOPTABLE SEWER NETWORK

- 3.1 The proposed access to the site from Moor Lane is located in the higher south west corner of the site, where it will not be possible to make a gravity connection for the surface water sewer serving the entire site due to the topography.
- 3.2 However, we understand that Kirklees Council own 41, Moor Lane at the lower southern end of the site. They are amenable to a gravity sewer being constructed through their land from site to the existing adopted surface water sewer in Moor Lane.
- 3.3 As infiltration methods and a discharge to an existing water body are not feasible in this instance, we are pursuing an agreement with Yorkshire Water to discharge to the existing adopted surface water sewer in Moor Lane to the south of the site at a rate of 3.5 l/s.

I trust that the above is acceptable to yourself, but should you have any queries please do not hesitate to contact me.

Yours sincerely

MICHAEL DEAN BSc (Hons) HND
m.dean@haighhuddleston.co.uk

SITE INVESTIGATION WORKS

TRIAL HOLE NO. 1



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.3	Sample taken at 0.1m. Rough grass and brambles over dark grey soil with numerous rootlets.
0.5	0.9	Soft to firm light brown mottled grey clay with occasional angular sandstone cobbles. Sample taken at 0.9m.
1.0	2.2	Moderately weak highly weathered light grey/brown mudstone excavated as small angular gravels and flaggy cobbles in a clay matrix. Difficult to excavate. Sides stable.
1.5	3.5	
2.0	4.0	

REMARKS:

Ground water encountered during excavation

NO

Sample taken

YES at 0.1 & 0.9m.

Sides of excavation remained stable

YES

Level

.....

NOTES:

.....
.....

TRIAL HOLE NO. 2



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.3	Sample taken at 0.1m. Rough grass over dark grey topsoil with numerous rootlets and occasional brick.
0.5	0.7	Soft to firm orange mottled grey clay with occasional angular gravels and cobbles. Sample taken at 0.7m.
1.0		
1.5		
2.0		Becoming harder to excavate with depth.
	2.2	
	2.3	Moderately weak highly weathered grey mudstone excavated as small angular gravels in a clay matrix.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation

NO

Sample taken

YES @ 0.1 & 0.7m

Sides of excavation remained stable

YES

Level

.....

NOTES:

.....
.....

TRIAL HOLE NO. 3



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.25	Rough grass and brambles over dark grey topsoil with numerous rootlets. Sample taken at 0.1m.
	0.7	Soft to firm orange mottled grey slightly sandy clay with angular gravels. Sample taken at 0.7m.
0.5		
1.0		
1.5		
2.0		
2.2		
	2.3	Moderately strong light brown sandstone. Difficult to excavate. Groundwater seeping from base.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation YES
 Sample taken YES @ 0.1 & 0.7m.
 Sides of excavation remained stable YES
 Level

NOTES:

.....

TRIAL HOLE NO. 4



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Client :	BINKS EXECUTIVE HOMES	Job No :	7944
Site :	MOOR LANE, GOMERSAL	Date :	19 DECEMBER 2022

0.0		
	0.3	Sample taken at 0.1m. Rough grass and brambles over dark grey topsoil with numerous rootlets.
0.5		Soft to firm orange mottled grey slightly sandy clay with gravels.
1.0		
	1.3	Sample taken at 1.3m.
1.5		Firm to stiff grey clay with gravels becoming highly weathered mudstone excavated as small angular gravels.
2.0		Moderately strong sandstone difficult to excavate at 1.8 – 2.0m.
	2.3	
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation

NO

Sample taken

YES at 0.1 & 1.3m.

Sides of excavation remained stable

YES

Level

.....

NOTES:

.....
.....

Soil Permeability test

TP01

Site Moor Lane, Gomersal

Date

Dec'22

Client Binks Executive Homes

Job No.

E22/7944

Pit dimensions m
 Length 2.4
 Width 0.65
 Depth 2.8

Time	Time into Test Mins	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
10.48	0	1900	1.40400		7.05000	
10.50	2	1900	1.40400	0.00000	7.05000	0.00000
10.55	7	1900	1.40400	0.00000	7.05000	0.00000
11.00	12	1900	1.40400	0.00000	7.05000	0.00000
12.15	87	1900	1.40400	0.00000	7.05000	0.00000
13.29	161	1900	1.40400	0.00000	7.05000	0.00000
14.27	219	1900	1.40400	0.00000	7.05000	0.00000

ABANDONED DUE TO STATIONARY WATER LEVEL

Average Permeability Value: 0.000000000 lit/ sq.m/sec

Soil Permeability test

TP02

Site Moor Lane, Gomersal

Date

Dec'22

Client Binks Executive Homes

Job No.

E22/7944

Pit dimensions m
 Length 2.7
 Width 0.65
 Depth 2.3

Time	Time into Test Mins	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
11.50	0	1560	1.29870		6.71300	
11.55	5	1570	1.28115	0.01755	6.64600	0.00876
12.00	10	1570	1.28115	0.00000	6.64600	0.00000
13.27	97	1570	1.28115	0.00000	6.64600	0.00000
14.00	130	1570	1.28115	0.00000	6.64600	0.00000
14.50	180	1570	1.28115	0.00000	6.64600	0.00000

ABANDONED DUE TO STATIONARY WATER LEVEL

Average Permeability Value: 0.001751628 lit/ sq.m/sec

Soil Permeability test

TP03

Site Moor Lane, Gomersal

Date

Dec'22

Client Binks Executive Homes

Job No.

E22/7944

Pit dimensions m
 Length 2.7
 Width 0.7
 Depth 2.7

Time	Time into Test Mins	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
12.43	0	1560	2.15460		9.64200	
12.45	2	1570	2.13570	0.01890	9.57400	0.01639
12.50	7	1570	2.13570	0.00000	9.57400	0.00000
13.32	49	1550	2.17350	-0.03780	9.71000	-0.00156
14.02	79	1550	2.17350	0.00000	9.71000	0.00000
15.05	142	1550	2.17350	0.00000	9.71000	0.00000

ABANDONED DUE TO RISING WATER LEVEL

Average Permeability Value: 0.002967379 lit/ sq.m/sec

Soil Permeability test

TP04

Site Moor Lane, Gomersal

Date

Dec'22

Client Binks Executive Homes

Job No.

E22/7944

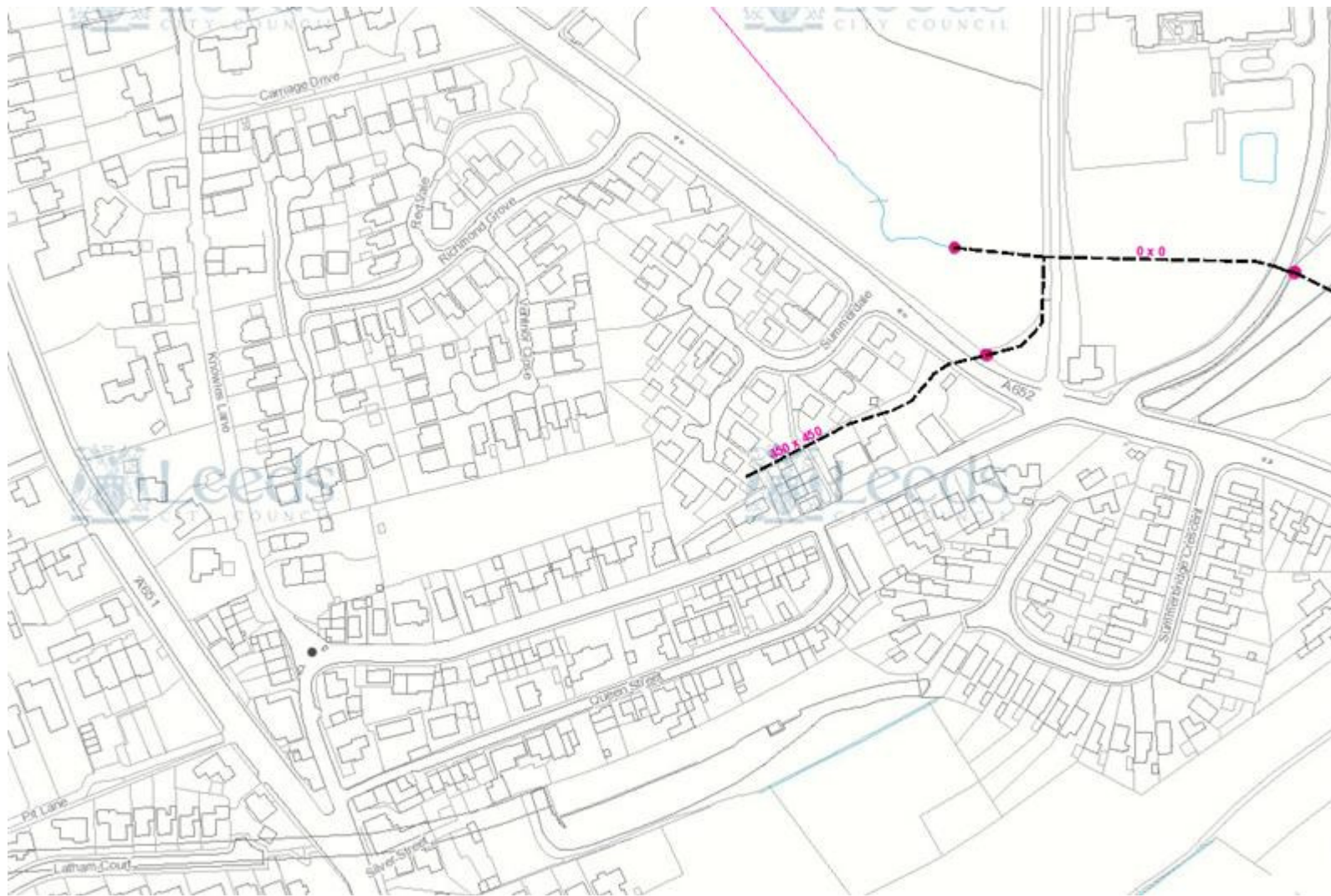
Pit dimensions	m
Length	3.1
Width	0.7
Depth	2.3

Time	Time into Test Mins	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
13.20	0	1660	1.38880		7.03400	
13.25	5	1660	1.38880	0.00000	7.03400	0.00000
13.30	10	1660	1.38880	0.00000	7.03400	0.00000
14.04	44	1660	1.38880	0.00000	7.03400	0.00000
15.20	120	1660	1.38880	0.00000	7.03400	0.00000

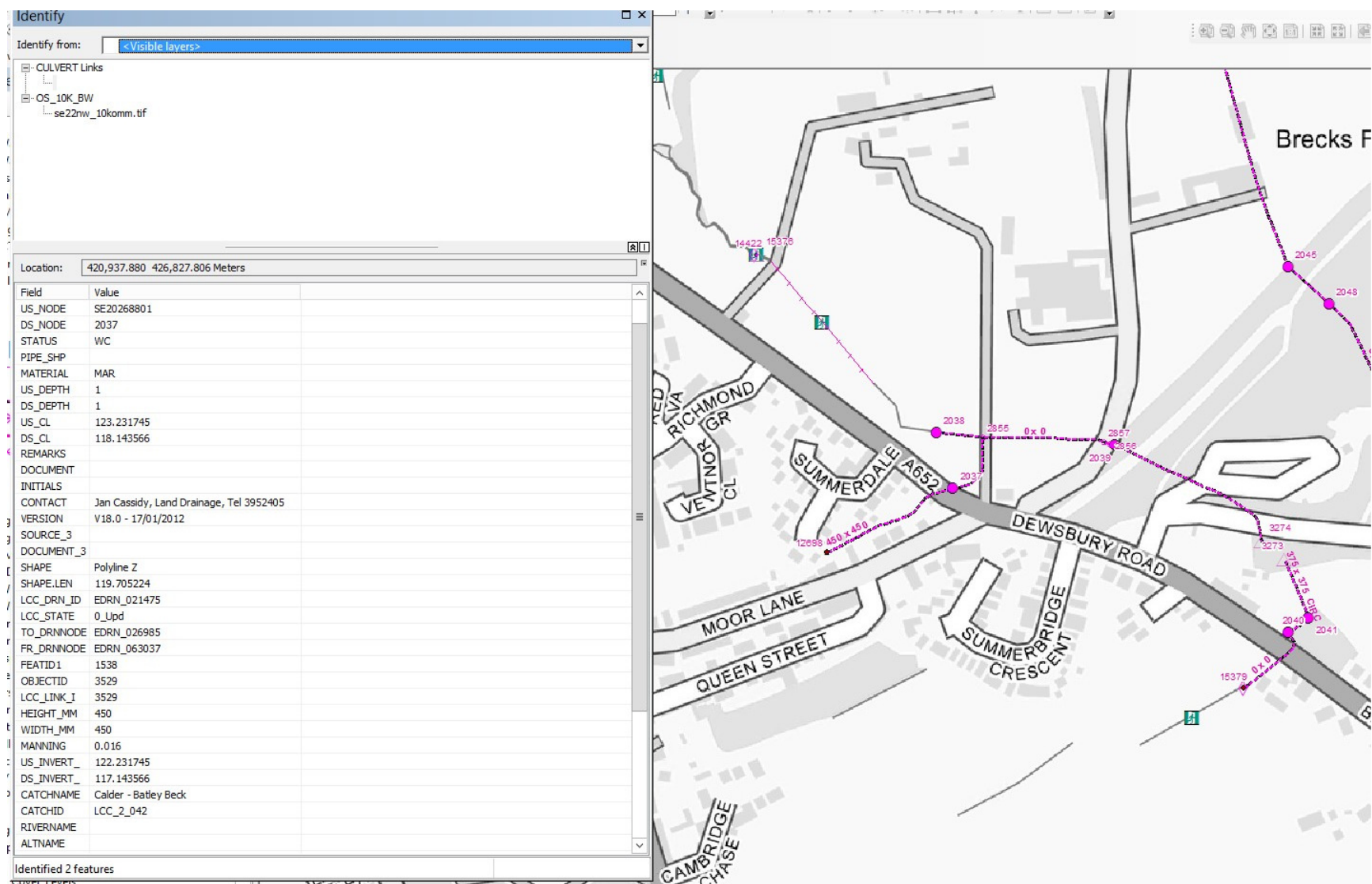
ABANDONED DUE TO STATIONARY WATER LEVEL

Average Permeability Value: 0.000000000 lit/ sq.m/sec

EXISTING WATERCOURSE



Haigh Huddleston Associates is the trading name of Haigh Huddleston Associates Limited
Registered Office: Firth Buildings, 99-101 Leeds Road, Dewsbury, WF12 7BU
Registered in England Number 6458196



Haigh Huddleston Associates is the trading name of Haigh Huddleston Associates Limited
Registered Office: Firth Buildings, 99-101 Leeds Road, Dewsbury, WF12 7BU
Registered in England Number 6458196

APPENDIX E

Coal Authority Report



The Coal
Authority

CON29M

coal mining report

MOOR LANE, GOMERSAL, CLECKHEATON, KIRKLEES, BD19 4LF



Known or potential coal mining risks

Past underground coal mining	Page 4
Future underground coal mining	Page 4
Mine entries	Page 5
Withdrawal of support	Page 6



Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit
www.groundstability.com



Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. In view of the coal mining circumstances we would recommend that any planned or future development should follow detailed technical advice before beginning work on site. Please see **page 3** for further details on **Future development**.

Your reference: **7944 BINKS**
Our reference: **51003163791001**
Date: **23 May 2022**

Client name:
**HAIGH HUDDLESTON &
ASSOCIATES**

If you require any further assistance please
contact our experts on:
0345 762 6848
groundstability@coal.gov.uk



The Law
Society

Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is
on the coalfield

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

This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.



Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Professional opinion



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. 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.

If you are looking to develop, or undertake works, within a coal mining development high risk area your Local Authority planning department may require a Coal Mining Risk Assessment to be undertaken by a qualified mining geologist or engineer. Should you require any additional information then please contact the Coal Authority on **0345 762 6848** or email **cmra@coal.gov.uk**.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

The Coal Authority owns the copyright in this report and the information used to produce this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 1 seam of coal at 120m to 130m depth, and last worked in 1953.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

In addition the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered, particularly prior to any site works or future development activity, as ground movement could still be a risk. Your attention is drawn to the Professional opinion sections of the report.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

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

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

This information is based on the information that the Coal Authority has at the time of this enquiry.

Based on the Coal Authority's knowledge of the mining circumstances at the time of this enquiry, there may be unrecorded mine entries in the local area that do not appear on Coal Authority records.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 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.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is in an area where a notice to withdraw support was given in 1947.

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.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 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.

Statutory cover



Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.

www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **0800 288 4242**. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary



Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings

APPENDIX F

Groundsure Report

Historical Plans

MOOR LANE, GOMERSAL, CLECKHEATON, BD19 4LF

Order Details

Date: 23/05/2022

Your ref: 7944

Our Ref: GS-8768561

Site Details

Location: 420773 426782

Area: 0.43 ha

Authority: [Kirklees Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	1	1	27	57	-
17	1.2	Historical tanks	0	0	5	29	-
18	1.3	Historical energy features	0	0	8	13	-
19	1.4	Historical petrol stations	0	0	0	0	-
20	1.5	Historical garages	0	0	0	1	-
20	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
21	2.1	Historical industrial land uses	1	3	39	83	-
26	2.2	Historical tanks	0	0	5	48	-
28	2.3	Historical energy features	0	0	21	30	-
30	2.4	Historical petrol stations	0	0	0	0	-
31	2.5	Historical garages	0	0	0	2	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
32	3.1	Active or recent landfill	0	0	0	0	-
32	3.2	Historical landfill (BGS records)	0	0	0	0	-
33	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
33	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
33	3.5	Historical waste sites	0	0	0	0	-
33	3.6	Licensed waste sites	0	0	0	0	-
33	3.7	Waste exemptions	0	0	0	12	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
35	4.1	Recent industrial land uses	0	0	4	-	-
36	4.2	Current or recent petrol stations	0	0	0	0	-
36	4.3	Electricity cables	0	0	0	0	-
36	4.4	Gas pipelines	0	0	0	0	-
36	4.5	Sites determined as Contaminated Land	0	0	0	0	-



36	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
37	4.7	Regulated explosive sites	0	0	0	0	-
37	4.8	Hazardous substance storage/usage	0	0	0	0	-
37	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
37	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
37	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
38	4.12	Radioactive Substance Authorisations	0	0	0	0	-
38	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	1	2	-
38	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
39	4.15	Pollutant release to public sewer	0	0	0	0	-
39	4.16	List 1 Dangerous Substances	0	0	0	0	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
39	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	0	1	-
40	4.19	Pollution inventory substances	0	0	0	0	-
40	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
41	5.1	Superficial aquifer	None (within 500m)				
42	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
43	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
44	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
44	5.5	Groundwater vulnerability- local information	None (within 0m)				
45	5.6	<u>Groundwater abstractions</u>	0	0	0	0	5
47	5.7	<u>Surface water abstractions</u>	0	0	0	0	3
48	5.8	Potable abstractions	0	0	0	0	0
48	5.9	Source Protection Zones	0	0	0	0	-
48	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
49	6.1	<u>Water Network (OS MasterMap)</u>	0	0	7	-	-



50	6.2	<u>Surface water features</u>	0	0	3	-	-
50	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
51	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
51	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
52	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
52	7.2	Historical Flood Events	0	0	0	-	-
52	7.3	Flood Defences	0	0	0	-	-
53	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
53	7.5	Flood Storage Areas	0	0	0	-	-
54	7.6	Flood Zone 2	None (within 50m)				
54	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
55	8.1	Surface water flooding	Negligible (within 50m)				
Page	Section	Groundwater flooding					
56	9.1	<u>Groundwater flooding</u>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
57	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
58	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
58	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
58	10.4	Special Protection Areas (SPA)	0	0	0	0	0
58	10.5	National Nature Reserves (NNR)	0	0	0	0	0
59	10.6	<u>Local Nature Reserves (LNR)</u>	0	0	1	0	0
59	10.7	<u>Designated Ancient Woodland</u>	0	0	0	0	1
59	10.8	Biosphere Reserves	0	0	0	0	0
60	10.9	Forest Parks	0	0	0	0	0
60	10.10	Marine Conservation Zones	0	0	0	0	0
60	10.11	<u>Green Belt</u>	0	0	1	0	1
60	10.12	Proposed Ramsar sites	0	0	0	0	0



61	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
61	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
61	10.15	Nitrate Sensitive Areas	0	0	0	0	0
61	10.16	<u>Nitrate Vulnerable Zones</u>	0	0	0	1	1
63	10.17	SSSI Impact Risk Zones	0	-	-	-	-
63	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
64	11.1	World Heritage Sites	0	0	0	-	-
65	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
65	11.3	National Parks	0	0	0	-	-
65	11.4	<u>Listed Buildings</u>	0	1	2	-	-
66	11.5	<u>Conservation Areas</u>	0	1	0	-	-
66	11.6	Scheduled Ancient Monuments	0	0	0	-	-
66	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
67	12.1	<u>Agricultural Land Classification</u>	Grade 3 (within 250m)				
68	12.2	Open Access Land	0	0	0	-	-
68	12.3	Tree Felling Licences	0	0	0	-	-
68	12.4	Environmental Stewardship Schemes	0	0	0	-	-
68	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
69	13.1	<u>Priority Habitat Inventory</u>	0	0	9	-	-
70	13.2	Habitat Networks	0	0	0	-	-
70	13.3	Open Mosaic Habitat	0	0	0	-	-
70	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
71	14.1	<u>10k Availability</u>	Identified (within 500m)				
72	14.2	<u>Artificial and made ground (10k)</u>	0	0	5	8	-
74	14.3	Superficial geology (10k)	0	0	0	0	-

74	14.4	Landslip (10k)	0	0	0	0	-
75	14.5	<u>Bedrock geology (10k)</u>	1	1	0	2	-
76	14.6	<u>Bedrock faults and other linear features (10k)</u>	0	0	2	2	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
77	15.1	<u>50k Availability</u>	Identified (within 500m)				
78	15.2	<u>Artificial and made ground (50k)</u>	0	0	1	2	-
79	15.3	Artificial ground permeability (50k)	0	0	-	-	-
80	15.4	Superficial geology (50k)	0	0	0	0	-
80	15.5	Superficial permeability (50k)	None (within 50m)				
80	15.6	Landslip (50k)	0	0	0	0	-
80	15.7	Landslip permeability (50k)	None (within 50m)				
81	15.8	<u>Bedrock geology (50k)</u>	1	1	0	2	-
82	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
82	15.10	<u>Bedrock faults and other linear features (50k)</u>	0	0	2	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
83	16.1	<u>BGS Boreholes</u>	0	4	8	-	-
Page	Section	Natural ground subsidence					
85	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
86	17.2	<u>Running sands</u>	Negligible (within 50m)				
87	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
88	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
89	17.5	<u>Landslides</u>	Very low (within 50m)				
90	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
91	18.1	Natural cavities	0	0	0	0	-
92	18.2	<u>BritPits</u>	0	0	1	4	-
93	18.3	<u>Surface ground workings</u>	0	0	14	-	-
93	18.4	<u>Underground workings</u>	0	0	6	16	9
95	18.5	Historical Mineral Planning Areas	0	0	0	0	-



95	18.6	Non-coal mining	0	0	0	0	0
95	18.7	Mining cavities	0	0	0	0	0
95	18.8	JPB mining areas	None (within 0m)				
96	18.9	<u>Coal mining</u>	Identified (within 0m)				
96	18.10	Brine areas	None (within 0m)				
96	18.11	Gypsum areas	None (within 0m)				
96	18.12	Tin mining	None (within 0m)				
96	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
97	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
98	20.1	<u>BGS Estimated Background Soil Chemistry</u>	1	1	-	-	-
98	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
98	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
99	21.1	Underground railways (London)	0	0	0	-	-
99	21.2	Underground railways (Non-London)	0	0	0	-	-
100	21.3	Railway tunnels	0	0	0	-	-
100	21.4	<u>Historical railway and tunnel features</u>	0	0	28	-	-
101	21.5	Royal Mail tunnels	0	0	0	-	-
101	21.6	<u>Historical railways</u>	0	0	2	-	-
102	21.7	Railways	0	0	0	-	-
102	21.8	Crossrail 1	0	0	0	0	-
102	21.9	Crossrail 2	0	0	0	0	-
102	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 30/05/2021

Site Area: 0.43ha



Recent site history - 2018 aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 02/07/2018

Site Area: 0.43ha



Recent site history - 2012 aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 26/03/2012

Site Area: 0.43ha



Recent site history - 1999 aerial photograph



Capture Date: 10/07/1999

Site Area: 0.43ha



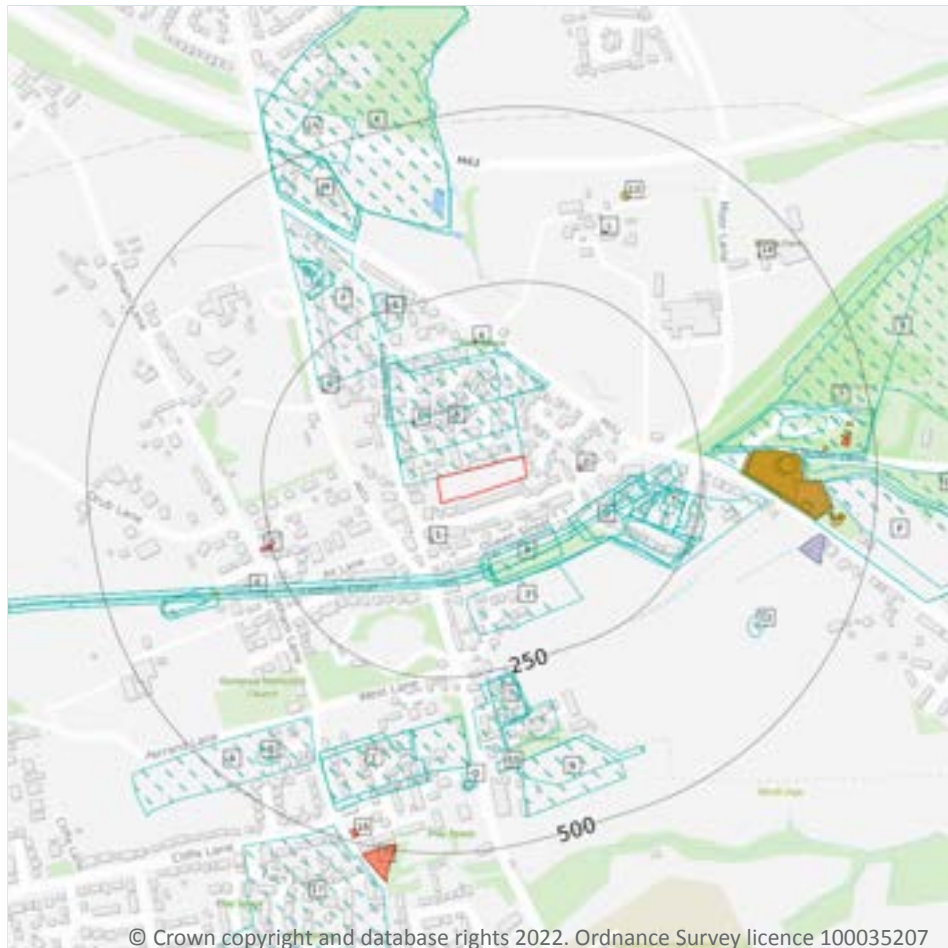
OS MasterMap site plan



Site Area: 0.43ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

1.1 Historical industrial land uses

Records within 500m

86

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 13**

ID	Location	Land use	Dates present	Group ID
A	On site	Engineering Works	1966	1423618



ID	Location	Land use	Dates present	Group ID
A	38m N	Unspecified Works	1974 - 1994	1542410
B	80m S	Cuttings	1966 - 1994	1463954
B	80m S	Cuttings	1951	1481918
D	84m SE	Cuttings	1951	1504012
D	84m SE	Railway Sidings	1951	1524272
A	87m N	Unspecified Works	1948 - 1951	1459851
B	88m S	Cuttings	1938 - 1948	1516231
B	88m S	Cuttings	1905	1555638
D	97m SE	Railway Sidings	1966	1488857
D	100m SE	Railway Sidings	1905	1501945
E	100m S	Tunnel	1966	1490855
E	100m S	Tunnel	1951	1550253
D	106m SE	Railway Sidings	1938 - 1948	1521534
E	107m S	Tunnel	1905	1536148
E	107m S	Tunnel	1938 - 1948	1555585
D	123m E	Railway Station	1951	1498756
D	125m E	Railway Station	1938 - 1948	1520437
D	125m E	Railway Station	1905	1555578
3	133m S	Unspecified Depot	1974 - 1994	1547964
D	136m E	Unspecified Mills	1892	1554321
D	155m E	Unspecified Pit	1905	1452213
D	179m E	Railway Buildings	1905	1442129
F	180m NW	Colliery	1892	1411952
D	194m E	Railway Building	1938 - 1948	1523279
D	199m E	Unspecified Mills	1966 - 1974	1516648
6	220m N	Unspecified Works	1974	1438513
D	222m E	Unspecified Pit	1948	1528550
D	222m E	Unspecified Pit	1905	1552042



ID	Location	Land use	Dates present	Group ID
H	254m E	Sewage Works	1951	1423752
I	259m S	Unspecified Foundry	1951	1529005
I	259m S	Unspecified Foundry	1966	1536263
I	262m S	Unspecified Foundry	1985	1505382
I	262m S	Unspecified Foundry	1948	1551603
H	267m E	Colliery	1951	1554257
H	267m E	Colliery	1938 - 1948	1522695
7	275m E	Colliery	1966	1527518
J	305m S	Unspecified Yards	1966	1467053
J	305m S	Unspecified Yards	1951	1555229
H	309m E	Refuse Heap	1892	1437400
H	309m E	Gas Works	1892 - 1905	1486936
H	309m E	Unspecified Commercial/Industrial	1938 - 1948	1490646
F	311m NW	Unspecified Pit	1892	1452214
F	313m NW	Refuse Heap	1905	1437402
I	313m S	Unspecified Foundry	1938	1463309
J	326m S	Unspecified Yards	1892 - 1905	1472140
J	326m S	Unspecified Yards	1938 - 1948	1511452
F	327m NW	Unspecified Heap	1938 - 1948	1468053
K	332m N	Colliery	1938 - 1948	1525548
F	337m NW	Unspecified Heap	1951	1524579
K	343m N	Colliery	1951	1458592
K	343m N	Colliery	1966	1547582
F	344m NW	Unspecified Old Shaft	1938 - 1948	1466744
E	347m SW	Unspecified Heap	1905	1521015
E	347m SW	Unspecified Heap	1938 - 1951	1557761
E	351m W	Unspecified Heap	1966	1495390
H	354m E	Unspecified Tank	1966 - 1974	1488386



ID	Location	Land use	Dates present	Group ID
H	354m E	Unspecified Tank	1951	1492580
M	357m N	Unspecified Mill	1938 - 1948	1467698
M	357m N	Unspecified Mill	1892 - 1905	1506097
8	359m SW	Colliery	1892	1411921
H	359m E	Gasometer	1905	1420680
H	359m E	Unspecified Tank	1892	1484845
H	359m E	Unspecified Tank	1938 - 1948	1547914
E	365m SW	Unspecified Heap	1974 - 1985	1545671
H	366m E	Refuse Heap	1951	1437401
M	367m N	Unspecified Mill	1951	1552885
9	375m E	Refuse Heap	1966 - 1974	1477337
N	375m S	Burial Ground	1994	1503795
N	375m S	Burial Ground	1974 - 1985	1546059
10	376m S	Police Station	1985	1440518
11	377m SE	Refuse Heap	1948 - 1951	1476359
O	387m S	Police Station	1966 - 1985	1485772
H	390m E	Unspecified Tank	1951	1477199
O	398m S	Police Station	1994	1505480
13	398m E	Disposal Sewage Works	1974	1418606
H	399m E	Gasometer	1892 - 1905	1502757
H	399m E	Unspecified Tank	1938 - 1948	1514246
P	415m E	Sewage Works	1905	1462246
P	415m E	Sewage Works	1938 - 1948	1479789
P	426m E	Sewage Works	1966	1528256
Q	428m SW	Unspecified Heap	1892	1415266
Q	440m SW	Unspecified Old Shaft	1905	1418179
H	448m E	Unspecified Shafts	1938 - 1948	1554692
15	466m N	Cuttings	1974 - 1994	1462314



ID	Location	Land use	Dates present	Group ID
17	485m S	Unspecified Mills	1948	1474407

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	34
----------------------------	-----------

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 ungrouped 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 13**

ID	Location	Land use	Dates present	Group ID
1	53m S	Unspecified Tank	1908	224035
D	210m E	Unspecified Tank	1967	243721
D	210m E	Unspecified Tank	1956	245472
D	210m E	Unspecified Tank	1967	249539
D	210m E	Unspecified Tank	1956	250040
H	305m E	Gas Works	1894 - 1922	248413
H	313m E	Gasholder Station	1956	235787
H	313m E	Gasholder Station	1967	247389
H	314m E	Gasholder Station	1956 - 1967	237586
L	339m N	Unspecified Tank	1892	245637
L	341m N	Unspecified Tank	1933	248062
L	341m N	Unspecified Tank	1922	248642
E	343m W	Unspecified Tank	1967 - 1990	244459
H	355m E	Unspecified Tank	1938	224037
H	355m E	Gasometer	1894 - 1922	234487
H	360m E	Gasholder	1956 - 1967	237923
H	361m E	Gasometer	1956 - 1967	243601

ID	Location	Land use	Dates present	Group ID
12	394m N	Unspecified Tank	1908	224034
H	395m E	Unspecified Tank	1938	224038
H	395m E	Gasometer	1894 - 1922	233569
H	424m E	Unspecified Tank	1938	224043
H	434m E	Tanks	-	222606
H	435m E	Tanks	1956	234810
H	440m E	Tanks	1922 - 1938	248434
14	441m NE	Unspecified Tank	1922	224046
H	441m E	Tanks	1956 - 1967	239309
H	446m E	Tanks	1967	237204
H	448m E	Disused Tank	1988 - 1993	243748
H	448m E	Tanks	1956 - 1967	249494
H	449m E	Disused Tanks	-	222761
H	450m E	Tanks	1956	245264
H	452m E	Unspecified Tank	1938	224045
H	459m E	Unspecified Tank	1956	240254
H	462m E	Tanks	1956 - 1967	245414

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

21

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 ungrouped 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 13**

ID	Location	Land use	Dates present	Group ID
2	73m E	Electricity Substation	1967 - 1997	146382



ID	Location	Land use	Dates present	Group ID
C	84m N	Electricity Substation	1975	132934
C	85m N	Electricity Substation	1988	132194
C	85m N	Electricity Substation	1986	132566
C	85m N	Electricity Substation	1986	133663
4	173m N	Electricity Substation	1967 - 1988	139236
5	202m NW	Electricity Substation	1996 - 1997	137945
G	250m W	Electricity Substation	1972	133983
G	251m W	Electricity Substation	1990	133077
H	305m E	Gas Works	1894 - 1922	137054
H	313m E	Gasholder Station	1956 - 1967	134840
H	313m E	Gasholder Station	1967	142245
H	355m E	Gasometer	1894 - 1922	135363
H	360m E	Gasholder	1956 - 1967	142275
H	361m E	Gasometer	1956 - 1967	134673
H	395m E	Gasometer	1894 - 1922	143610
H	453m E	Electricity Substation	1956 - 1967	145114
H	453m E	Electricity Substation	1956 - 1967	142122
16	481m S	Electricity Substation	1971 - 1988	145810
R	491m S	Electricity Substation	1971	138789
R	492m S	Electricity Substation	1986 - 1988	139615

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 ungrouped 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

1

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 ungrouped 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 13**

ID	Location	Land use	Dates present	Group ID
H	402m E	Garage	1988 - 1993	44516

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

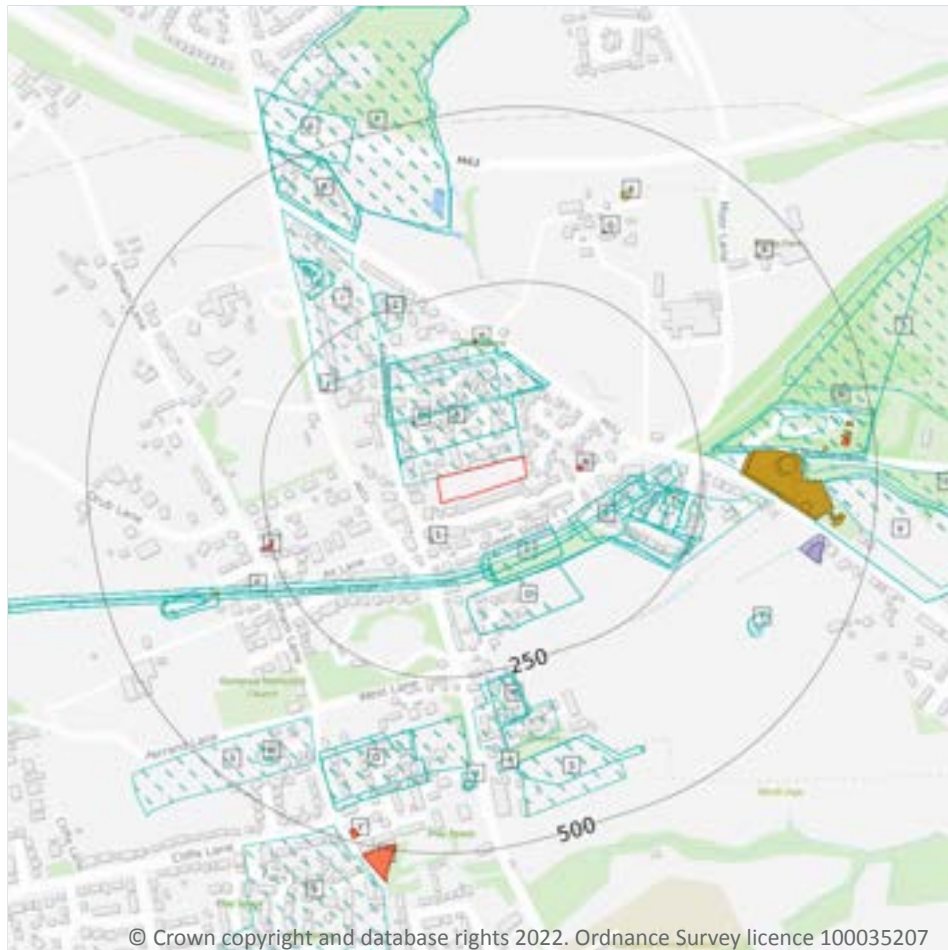
0

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

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



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

2.1 Historical industrial land uses

Records within 500m

126

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 21**

ID	Location	Land Use	Date	Group ID
A	On site	Engineering Works	1966	1423618
A	38m N	Unspecified Works	1994	1542410
A	38m N	Unspecified Works	1974	1542410

ID	Location	Land Use	Date	Group ID
A	38m N	Unspecified Works	1985	1542410
C	80m S	Cuttings	1994	1463954
C	80m S	Cuttings	1974	1463954
C	80m S	Cuttings	1985	1463954
C	80m S	Cuttings	1966	1463954
C	80m S	Cuttings	1951	1481918
E	84m SE	Cuttings	1951	1504012
E	84m SE	Railway Sidings	1951	1524272
A	87m N	Unspecified Works	1948	1459851
C	88m S	Cuttings	1948	1516231
C	88m S	Cuttings	1938	1516231
C	88m S	Cuttings	1905	1555638
A	91m N	Unspecified Works	1951	1459851
E	97m SE	Railway Sidings	1966	1488857
E	100m SE	Railway Sidings	1905	1501945
F	100m S	Tunnel	1966	1490855
F	100m S	Tunnel	1951	1550253
E	106m SE	Railway Sidings	1948	1521534
E	106m SE	Railway Sidings	1938	1521534
F	107m S	Tunnel	1948	1555585
F	107m S	Tunnel	1938	1555585
F	107m S	Tunnel	1905	1536148
E	123m E	Railway Station	1951	1498756
E	125m E	Railway Station	1948	1520437
E	125m E	Railway Station	1938	1520437
E	125m E	Railway Station	1905	1555578
G	133m S	Unspecified Depot	1994	1547964
G	133m S	Unspecified Depot	1974	1547964

ID	Location	Land Use	Date	Group ID
G	133m S	Unspecified Depot	1985	1547964
E	136m E	Unspecified Mills	1892	1554321
E	155m E	Unspecified Pit	1905	1452213
E	179m E	Railway Buildings	1905	1442129
I	180m NW	Colliery	1892	1411952
E	194m E	Railway Building	1948	1523279
E	194m E	Railway Building	1938	1523279
E	199m E	Unspecified Mills	1974	1516648
E	199m E	Unspecified Mills	1966	1516648
2	220m N	Unspecified Works	1974	1438513
E	222m E	Unspecified Pit	1948	1528550
E	222m E	Unspecified Pit	1905	1552042
L	254m E	Sewage Works	1951	1423752
M	259m S	Unspecified Foundry	1966	1536263
M	259m S	Unspecified Foundry	1951	1529005
M	262m S	Unspecified Foundry	1985	1505382
M	262m S	Unspecified Foundry	1948	1551603
L	267m E	Colliery	1951	1554257
L	267m E	Colliery	1948	1522695
L	267m E	Colliery	1938	1522695
N	275m E	Colliery	1966	1527518
O	305m S	Unspecified Yards	1966	1467053
O	305m S	Unspecified Yards	1951	1555229
L	309m E	Gas Works	1892	1486936
L	309m E	Refuse Heap	1892	1437400
L	309m E	Unspecified Commercial/Industrial	1948	1490646
L	309m E	Unspecified Commercial/Industrial	1938	1490646
L	309m E	Gas Works	1905	1486936



ID	Location	Land Use	Date	Group ID
I	311m NW	Unspecified Pit	1892	1452214
I	313m NW	Refuse Heap	1905	1437402
M	313m S	Unspecified Foundry	1938	1463309
O	326m S	Unspecified Yards	1892	1472140
O	326m S	Unspecified Yards	1948	1511452
O	326m S	Unspecified Yards	1938	1511452
O	326m S	Unspecified Yards	1905	1472140
I	327m NW	Unspecified Heap	1948	1468053
I	327m NW	Unspecified Heap	1938	1468053
P	332m N	Colliery	1948	1525548
P	332m N	Colliery	1938	1525548
I	337m NW	Unspecified Heap	1951	1524579
P	343m N	Colliery	1966	1547582
P	343m N	Colliery	1951	1458592
I	344m NW	Unspecified Old Shaft	1948	1466744
I	344m NW	Unspecified Old Shaft	1938	1466744
F	347m SW	Unspecified Heap	1948	1557761
F	347m SW	Unspecified Heap	1938	1557761
F	347m SW	Unspecified Heap	1905	1521015
F	351m W	Unspecified Heap	1966	1495390
F	351m W	Unspecified Heap	1951	1557761
L	354m E	Unspecified Tank	1974	1488386
L	354m E	Unspecified Tank	1966	1488386
L	354m E	Unspecified Tank	1951	1492580
R	357m N	Unspecified Mill	1892	1506097
R	357m N	Unspecified Mill	1948	1467698
R	357m N	Unspecified Mill	1938	1467698
R	357m N	Unspecified Mill	1905	1506097

ID	Location	Land Use	Date	Group ID
3	359m SW	Colliery	1892	1411921
L	359m E	Unspecified Tank	1892	1484845
L	359m E	Unspecified Tank	1948	1547914
L	359m E	Unspecified Tank	1938	1547914
L	359m E	Gasometer	1905	1420680
F	365m SW	Unspecified Heap	1974	1545671
F	365m SW	Unspecified Heap	1985	1545671
L	366m E	Refuse Heap	1951	1437401
R	367m N	Unspecified Mill	1951	1552885
N	375m E	Refuse Heap	1966	1477337
S	375m S	Burial Ground	1994	1503795
S	375m S	Burial Ground	1974	1546059
S	375m S	Burial Ground	1985	1546059
4	376m S	Police Station	1985	1440518
T	377m SE	Refuse Heap	1951	1476359
T	378m SE	Refuse Heap	1948	1476359
5	386m E	Refuse Heap	1974	1477337
U	387m S	Police Station	1974	1485772
U	387m S	Police Station	1985	1485772
U	387m S	Police Station	1966	1485772
L	390m E	Unspecified Tank	1951	1477199
U	398m S	Police Station	1994	1505480
7	398m E	Disposal Sewage Works	1974	1418606
L	399m E	Gasometer	1892	1502757
L	399m E	Unspecified Tank	1948	1514246
L	399m E	Unspecified Tank	1938	1514246
L	399m E	Gasometer	1905	1502757
V	415m E	Sewage Works	1948	1479789



ID	Location	Land Use	Date	Group ID
V	415m E	Sewage Works	1938	1479789
V	415m E	Sewage Works	1905	1462246
V	426m E	Sewage Works	1966	1528256
W	428m SW	Unspecified Heap	1892	1415266
W	440m SW	Unspecified Old Shaft	1905	1418179
L	448m E	Unspecified Shafts	1948	1554692
L	448m E	Unspecified Shafts	1938	1554692
X	466m N	Cuttings	1994	1462314
X	466m N	Cuttings	1974	1462314
X	466m N	Cuttings	1985	1462314
9	485m S	Unspecified Mills	1948	1474407

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

53

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

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
1	53m S	Unspecified Tank	1908	224035
E	210m E	Unspecified Tank	1967	243721
E	210m E	Unspecified Tank	1956	245472
E	210m E	Unspecified Tank	1967	249539
E	210m E	Unspecified Tank	1956	250040
L	305m E	Gas Works	1894	248413
L	305m E	Gas Works	1908	248413
L	305m E	Gas Works	1922	248413
L	313m E	Gasholder Station	1967	247389



ID	Location	Land Use	Date	Group ID
L	313m E	Gasholder Station	1956	235787
L	314m E	Gasholder Station	1967	237586
L	314m E	Gasholder Station	1956	237586
Q	339m N	Unspecified Tank	1892	245637
Q	341m N	Unspecified Tank	1922	248642
Q	341m N	Unspecified Tank	1933	248062
F	343m W	Unspecified Tank	1967	244459
F	343m W	Unspecified Tank	1972	244459
F	344m W	Unspecified Tank	1990	244459
L	355m E	Gasometer	1894	234487
L	355m E	Gasometer	1908	234487
L	355m E	Gasometer	1922	234487
L	355m E	Unspecified Tank	1938	224037
L	360m E	Gasholder	1967	237923
L	360m E	Gasholder	1956	237923
L	361m E	Gasometer	1967	243601
L	361m E	Gasometer	1956	243601
6	394m N	Unspecified Tank	1908	224034
L	395m E	Gasometer	1894	233569
L	395m E	Gasometer	1908	233569
L	395m E	Gasometer	1922	233569
L	395m E	Unspecified Tank	1938	224038
L	424m E	Unspecified Tank	1938	224043
L	434m E	Tanks	-	222606
L	435m E	Tanks	1956	234810
L	440m E	Tanks	1938	248434
8	441m NE	Unspecified Tank	1922	224046
L	441m E	Tanks	1967	239309



ID	Location	Land Use	Date	Group ID
L	441m E	Tanks	1956	239309
L	443m E	Tanks	1922	248434
L	446m E	Tanks	1967	237204
L	448m E	Tanks	1967	249494
L	448m E	Disused Tank	1988	243748
L	448m E	Tanks	1956	249494
L	449m E	Disused Tanks	-	222761
L	449m E	Disused Tank	1993	243748
L	450m E	Tanks	1956	245264
L	452m E	Unspecified Tank	1938	224045
L	459m E	Unspecified Tank	1956	240254
L	460m E	Unspecified Tank	1956	240254
L	462m E	Tanks	1967	245414
L	462m E	Tanks	1956	245414
L	463m E	Tanks	1967	245414
L	463m E	Tanks	1956	245414

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

51

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

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
B	73m E	Electricity Substation	1986	146382
B	73m E	Electricity Substation	1986	146382
B	73m E	Electricity Substation	1988	146382
B	74m E	Electricity Substation	1997	146382



ID	Location	Land Use	Date	Group ID
B	74m E	Electricity Substation	1996	146382
B	74m E	Electricity Substation	1967	146382
B	74m E	Electricity Substation	1975	146382
B	75m E	Electricity Substation	1967	146382
D	84m N	Electricity Substation	1975	132934
D	85m N	Electricity Substation	1986	132566
D	85m N	Electricity Substation	1986	133663
D	85m N	Electricity Substation	1988	132194
H	173m N	Electricity Substation	1967	139236
H	173m N	Electricity Substation	1975	139236
H	173m N	Electricity Substation	1986	139236
H	173m N	Electricity Substation	1986	139236
H	173m N	Electricity Substation	1988	139236
H	173m N	Electricity Substation	1967	139236
J	202m NW	Electricity Substation	1997	137945
J	202m NW	Electricity Substation	1996	137945
K	250m W	Electricity Substation	1972	133983
K	251m W	Electricity Substation	1990	133077
L	305m E	Gas Works	1894	137054
L	305m E	Gas Works	1908	137054
L	305m E	Gas Works	1922	137054
L	313m E	Gasholder Station	1967	142245
L	313m E	Gasholder Station	1956	134840
L	314m E	Gasholder Station	1967	134840
L	314m E	Gasholder Station	1956	134840
L	355m E	Gasometer	1894	135363
L	355m E	Gasometer	1908	135363
L	355m E	Gasometer	1922	135363



ID	Location	Land Use	Date	Group ID
L	360m E	Gasholder	1967	142275
L	360m E	Gasholder	1956	142275
L	361m E	Gasometer	1967	134673
L	361m E	Gasometer	1956	134673
L	395m E	Gasometer	1894	143610
L	395m E	Gasometer	1908	143610
L	395m E	Gasometer	1922	143610
L	453m E	Electricity Substation	1956	145114
L	453m E	Electricity Substation	1956	142122
L	458m E	Electricity Substation	1967	145114
L	459m E	Electricity Substation	1967	142122
Y	481m S	Electricity Substation	1971	145810
Y	482m S	Electricity Substation	1986	145810
Y	482m S	Electricity Substation	1988	145810
Y	482m S	Electricity Substation	1986	145810
Z	491m S	Electricity Substation	1971	138789
Z	492m S	Electricity Substation	1986	139615
Z	492m S	Electricity Substation	1988	139615
Z	492m S	Electricity Substation	1986	139615

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

2

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

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
L	402m E	Garage	1988	44516
L	413m E	Garage	1993	44516

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m**0**

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m**0**

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

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

3.5 Historical waste sites

Records within 500m**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**12**

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 32**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	457m NE	126, MOOR LANE, GOMERSAL, CLECKHEATON, BD19 4LJ	WEX198854	Using waste exemption	On a Farm	Spreading waste on agricultural land to confer benefit



ID	Location	Site	Reference	Category	Sub-Category	Description
A	457m NE	126, MOOR LANE, GOMERSAL, CLECKHEATON, BD19 4LJ	WEX198854	Using waste exemption	On a Farm	Burning of waste as a fuel in a small appliance
A	457m NE	126, MOOR LANE, GOMERSAL, CLECKHEATON, BD19 4LJ	WEX198854	Using waste exemption	On a Farm	Use of waste in construction
A	457m NE	126, MOOR LANE, GOMERSAL, CLECKHEATON, BD19 4LJ	WEX046174	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of waste from dredging of inland waters
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Treating waste exemption	Agricultural Waste Only	Cleaning, washing, spraying or coating relevant waste
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Using waste exemption	Agricultural Waste Only	Use of waste in construction
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Using waste exemption	Agricultural Waste Only	Use of waste for a specified purpose
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	469m NE	Brecks Farm Moor Lane CLECKHEATON West Yorkshire BD19 4LJ	EPR/YE5883UF /A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

4

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 35**

ID	Location	Company	Address	Activity	Category
1	70m E	Electricity Sub Station	West Yorkshire, BD19	Electrical Features	Infrastructure and Facilities
2	172m S	Pump	West Yorkshire, BD19	Water Pumping Stations	Industrial Features
3	188m SW	Bryon Lewis Haulage	10, Latham Court, Gomersal, Cleckheaton, West Yorkshire, BD19 4DE	Distribution and Haulage	Transport, Storage and Delivery



ID	Location	Company	Address	Activity	Category
4	200m NW	Electricity Sub Station	West Yorkshire, BD19	Electrical Features	Infrastructure and Facilities

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**0**

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.

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

3

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991. Features are displayed on the Current industrial land use map on **page 35**

ID	Location	Address	Details	
5	240m E	MOOR LANE SSO, SWINCLIFFE, BIRKENSHAW, BRADFORD, WEST YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: WADC1150 Permit Version: 1 Receiving Water: SMITHIES BECK	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 18/09/1989 Effective Date: 18/09/1989 Revocation Date: 25/04/2005
6	287m E	BIRKENSHAW CSO, MOOR LANE, BIRKENSHAW, BRADFORD	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: WRA8486 Permit Version: 1 Receiving Water: NUTTER BECK	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2005 Effective Date: 31/03/2005 Revocation Date: -
7	312m NW	OXFORD ROAD CSO, OXFORD ROAD, BIRKENSHAW, BRADFORD, WEST YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: YWUCD2/8 Permit Version: 1 Receiving Water: TRIBUTARY OF NUTTER BECK	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/11/1997 Effective Date: 12/11/1997 Revocation Date: -

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 35**

ID	Location	Details	
8	482m NE	Incident Date: 14/12/2001 Incident Identification: 48124 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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.

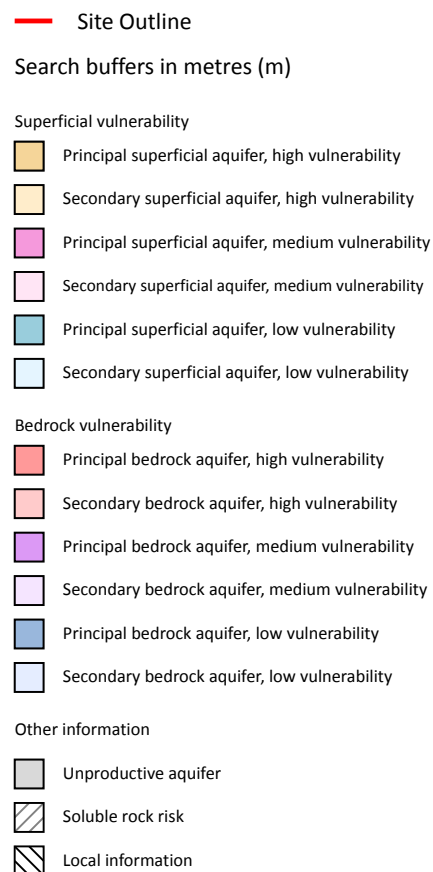
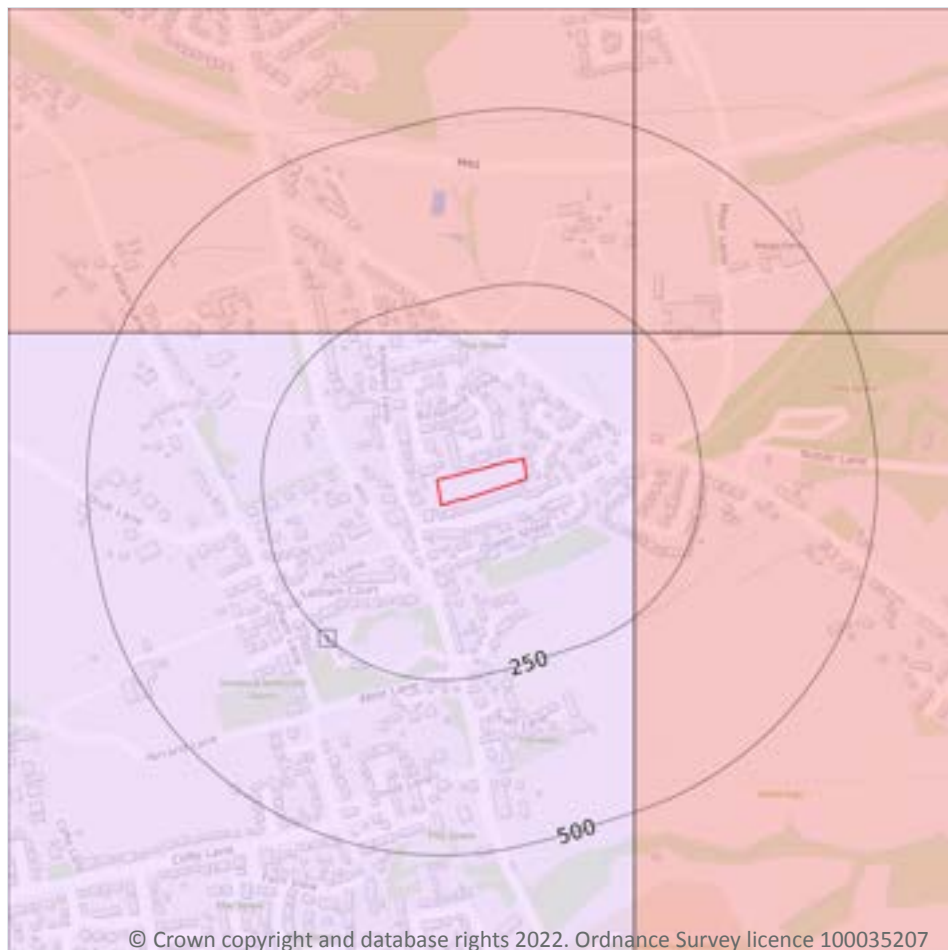
Features are displayed on the Bedrock aquifer map on **page 42**

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



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 43**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: Medium 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



- 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
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

5

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 45**

ID	Location	Details	
-	690m S	Status: Historical Licence No: 2/27/13/001 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLES X 2 Data Type: Point Name: GOMERSAL MILLS LTD Easting: 420500 Northing: 426100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 28/02/1997 Version End Date: -
-	690m S	Status: Historical Licence No: 2/27/13/001 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLES X 2 - COAL MEASURES Data Type: Point Name: GOMERSAL MILLS LTD Easting: 420500 Northing: 426100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/12/1965 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2002 Version End Date: -
-	1761m SE	Status: Historical Licence No: 2/27/13/190 Details: General use relating to Secondary Category (High Loss) Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: KALON GROUP LIMITED Easting: 422230 Northing: 425700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/04/1997 Expiry Date: 31/12/2006 Issue No: 100 Version Start Date: 30/04/1997 Version End Date: -
-	1761m SE	Status: Historical Licence No: 2/27/13/190 Details: General use relating to Secondary Category (High Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - BATLEY Data Type: Point Name: SIGMAKALON UK LTD Easting: 422230 Northing: 425700	Annual Volume (m ³): 50000 Max Daily Volume (m ³): 240 Original Application No: - Original Start Date: 30/04/1997 Expiry Date: 31/12/2006 Issue No: 103 Version Start Date: 13/03/2006 Version End Date: -



ID	Location	Details	
-	1761m SE	Status: Historical Licence No: 2/27/13/220 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - BATLEY Data Type: Point Name: SIGMAKALON UK LTD Easting: 422230 Northing: 425700	Annual Volume (m ³): 50000 Max Daily Volume (m ³): 240 Original Application No: - Original Start Date: 01/01/2007 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 01/01/2007 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	3
-----------------------------	----------

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 45**

ID	Location	Details	
-	1206m E	Status: Historical Licence No: 2/27/13/153 Details: General use relating to Secondary Category (Low Loss) Direct Source: SURFACE WATER Point: NOVA BECK Data Type: Point Name: KIRKLEES METROPOLITAN COUNCIL Easting: 421980 Northing: 427220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 26/04/1982 Expiry Date: - Issue No: 100 Version Start Date: 26/04/1982 Version End Date: -
-	1206m E	Status: Historical Licence No: 2/27/13/153 Details: Make-Up or Top Up Water Direct Source: SURFACE WATER Point: NOVA BECK Data Type: Point Name: KIRKLEES METROPOLITAN COUNCIL Easting: 421980 Northing: 427220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 26/04/1982 Expiry Date: - Issue No: 100 Version Start Date: 26/04/1982 Version End Date: -



ID	Location	Details	
-	1206m E	Status: Historical Licence No: 2/27/13/153 Details: Make-Up Or Top Up Water Direct Source: SURFACE WATER Point: NOVA BECK Data Type: Point Name: KIRKLEES METROPOLITAN COUNCIL Easting: 421980 Northing: 427220	Annual Volume (m ³): 9500 Max Daily Volume (m ³): 36 Original Application No: - Original Start Date: 26/04/1982 Expiry Date: - Issue No: 100 Version Start Date: 26/04/1982 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0
-----------------------------	----------

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.

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

7

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 49**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	132m 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
A	133m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	134m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	146m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	147m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	157m NE	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
C	225m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

3

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 49**

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 49**



ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	On site	River	Batley Beck from Source to River Calder	GB104027062670	Calder Lower	Aire and Calder

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 49**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	653m E	River	Batley Beck from Source to River Calder	GB104027062670	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 49**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	GB40402G700400	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.

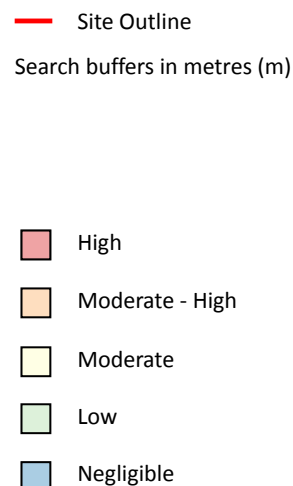
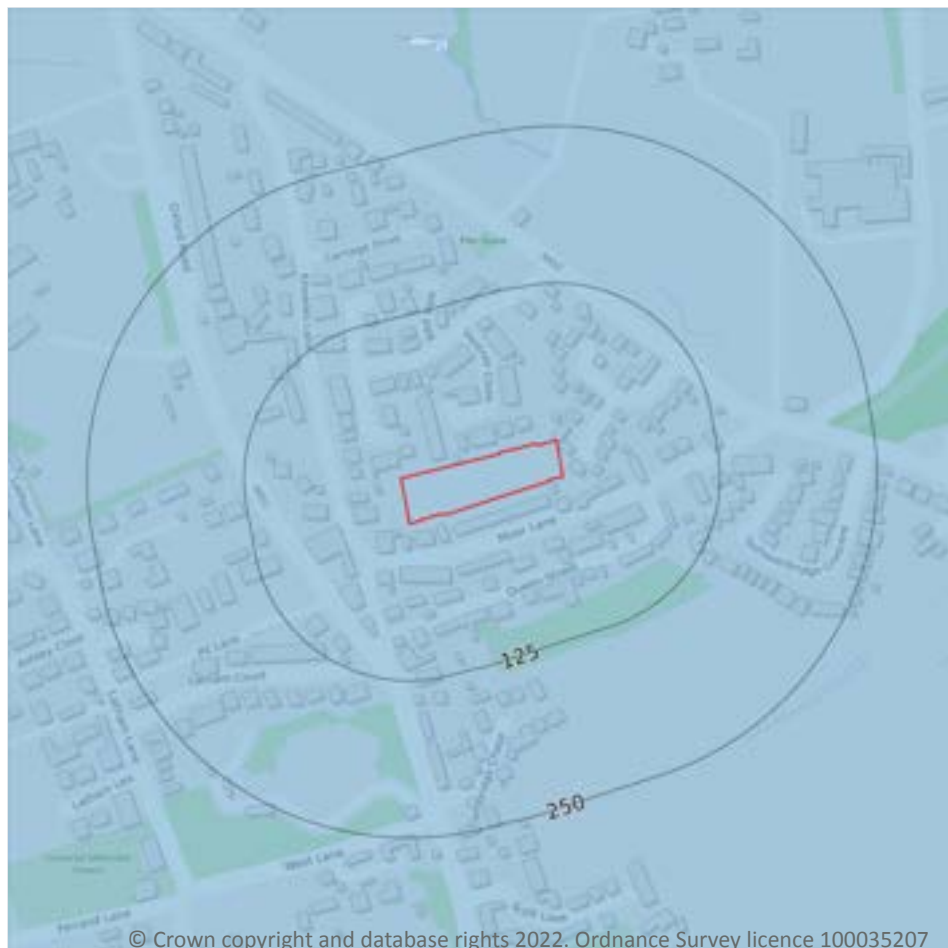
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site. The table below shows the maximum flood depths for a range of return periods for the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



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 56**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- + Local Nature Reserves (LNR)
- ▨ 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

1

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.

Features are displayed on the Environmental designations map on **page 57**

ID	Location	Name	Data source
2	214m E	Oakwell Park	Natural England

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

10.7 Designated Ancient Woodland

Records within 2000m

1

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 57**

ID	Location	Name	Woodland Type
3	1051m SW	Fusden Wood	Ancient Replanted 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**2**

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

Features are displayed on the Environmental designations map on **page 57**

ID	Location	Name	Local Authority name
1	118m NE	South and West Yorkshire	Kirklees
-	1754m NE	South and West Yorkshire	Leeds

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
280m NW	Spenn Beck from Source to River Calder NVZ	Surface Water	271	Existing



Location	Name	Type	NVZ ID	Status
775m S	Spen Beck from Source to River Calder NVZ	Surface Water	271	Existing

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



SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0
-----------------	---

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.

This data is sourced from Natural England.

10.18 SSSI Units

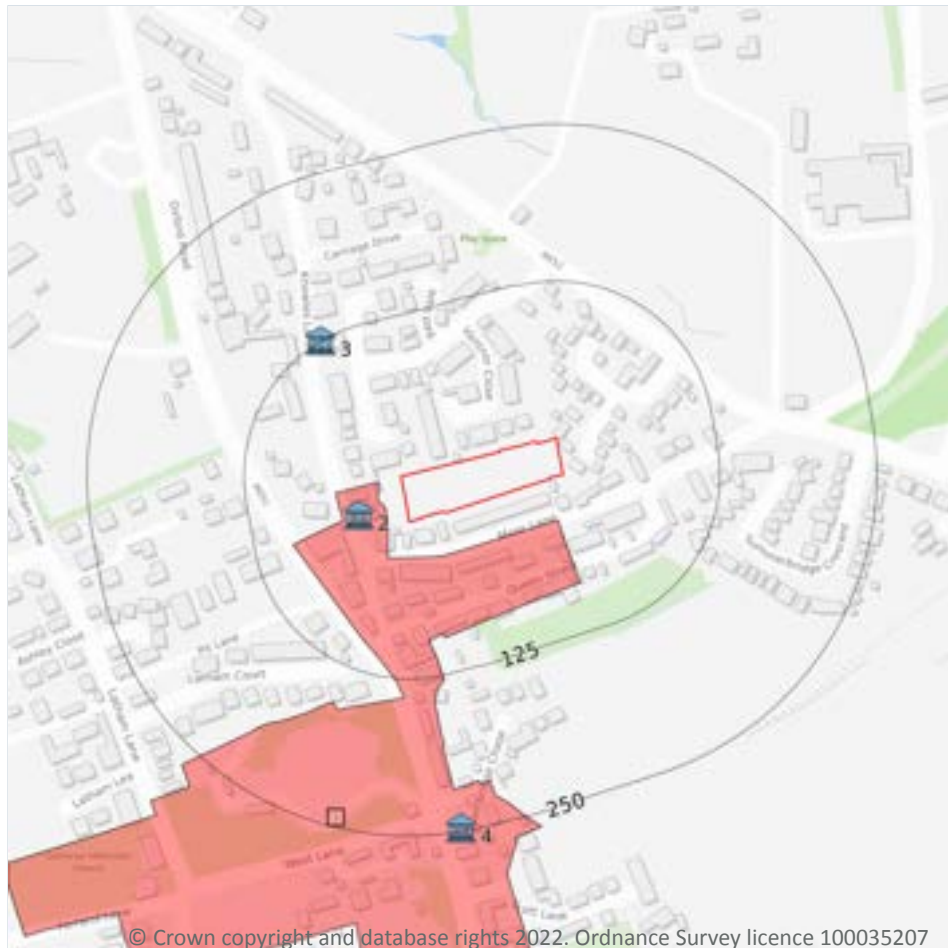
Records within 2000m	0
----------------------	---

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

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



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

3

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

Features are displayed on the Visual and cultural designations map on **page 64**

ID	Location	Name	Grade	Reference Number	Listed date
2	39m W	Manor House Peel House, Birstall and Birkenshaw, Kirklees, BD19	II*	1184378	12/01/1967
3	125m NW	office Building To Ventor Works, Birstall and Birkenshaw, Kirklees, BD19	II	1134604	13/01/1984
4	248m S	Sigston House, Liversedge and Gomersal, Kirklees, BD19	II	1135401	13/01/1984

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



11.5 Conservation Areas

Records within 250m

1

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

Features are displayed on the Visual and cultural designations map on **page 64**

ID	Location	Name	District	Date of designation
1	17m W	Gomersal	Kirklees	31/07/1978

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

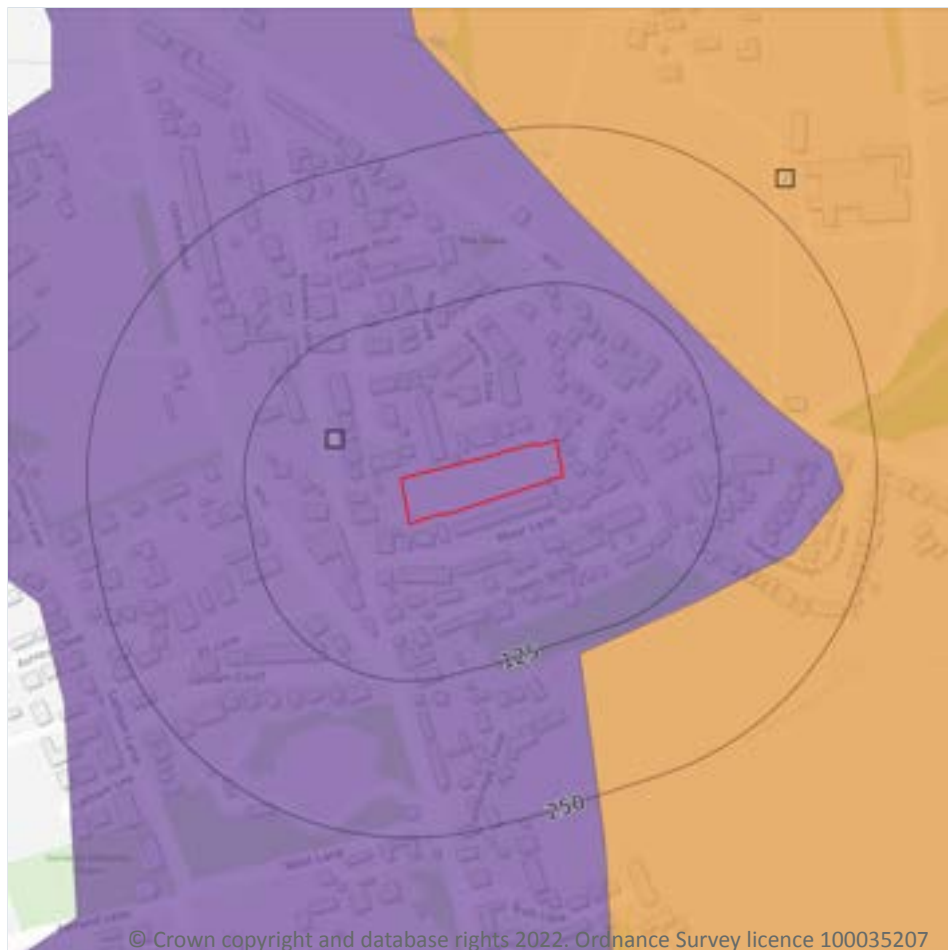
Records within 250m

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



- 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

© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

12.1 Agricultural Land Classification

Records within 250m

2

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 67**

ID	Location	Classification	Description
1	On site	Urban	-
2	134m SE	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

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



- 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

9

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 69**

ID	Location	Main Habitat	Other habitats
1	85m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	142m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	189m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	201m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



ID	Location	Main Habitat	Other habitats
5	212m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
6	212m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	213m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
8	214m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
9	234m E	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 71**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SE22NW

This data is sourced from the British Geological Survey.



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



- Site Outline**
- Search buffers in metres (m)**
- Reclaimed ground
 - Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

13

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 72**

ID	Location	LEX Code	Description	Rock description
1	85m SE	WGR-VOID	Worked Ground (Undivided)	Void
2	125m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	208m NE	WGR-VOID	Worked Ground (Undivided)	Void
3	215m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit



ID	Location	LEX Code	Description	Rock description
A	222m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	339m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	346m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	354m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
7	401m N	WGR-VOID	Worked Ground (Undivided)	Void
8	445m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
9	465m N	WGR-VOID	Worked Ground (Undivided)	Void
10	470m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
11	486m NE	MGR-ARTDP	Made Ground (Undivided)	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

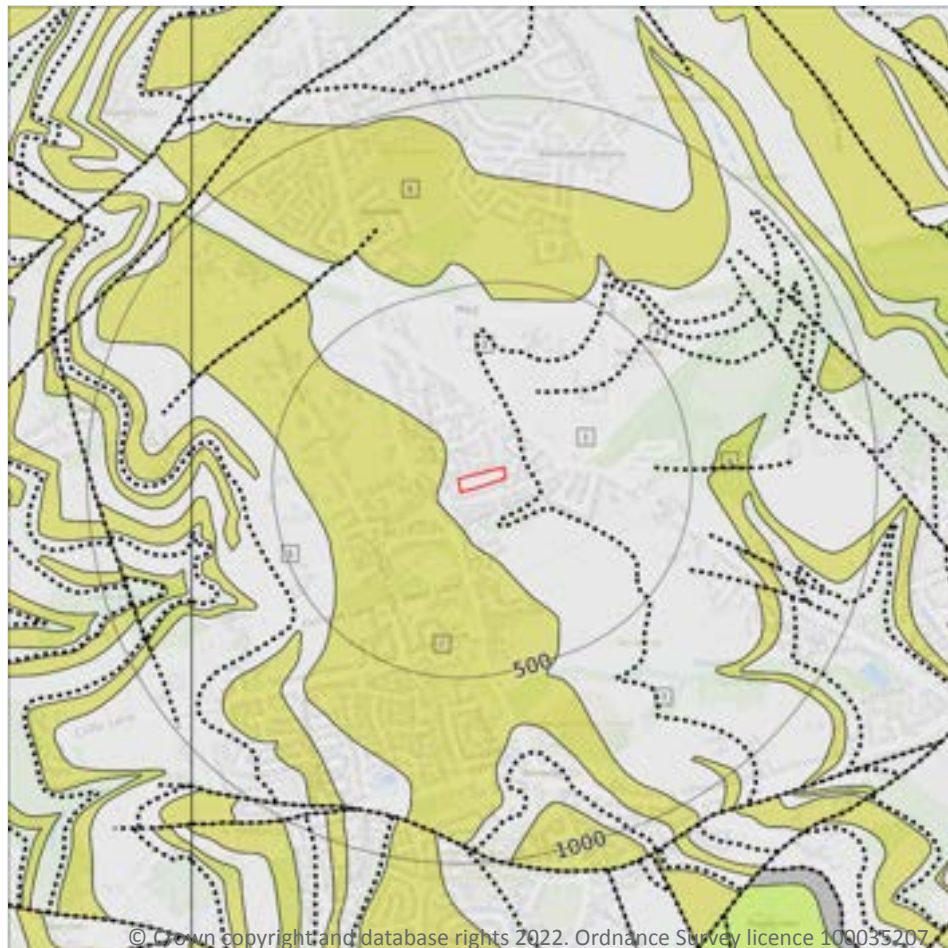
0

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

4

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 75**

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	42m W	LPE-SDST	Lepton Edge Rock - Sandstone	Langsettian Sub-age
5	377m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age



ID	Location	LEX Code	Description	Rock age
8	453m N	LPE-SDST	Lepton Edge Rock - 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

4

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 75**

ID	Location	Category	Description
3	59m NE	ROCK	Coal seam, inferred
4	224m NE	ROCK	Coal seam, inferred
6	402m E	FAULT	Normal fault, inferred
7	445m SE	ROCK	Coal seam, inferred

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 77**

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

3

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 78**

ID	Location	LEX Code	Description	Rock description
1	212m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	341m N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	468m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	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

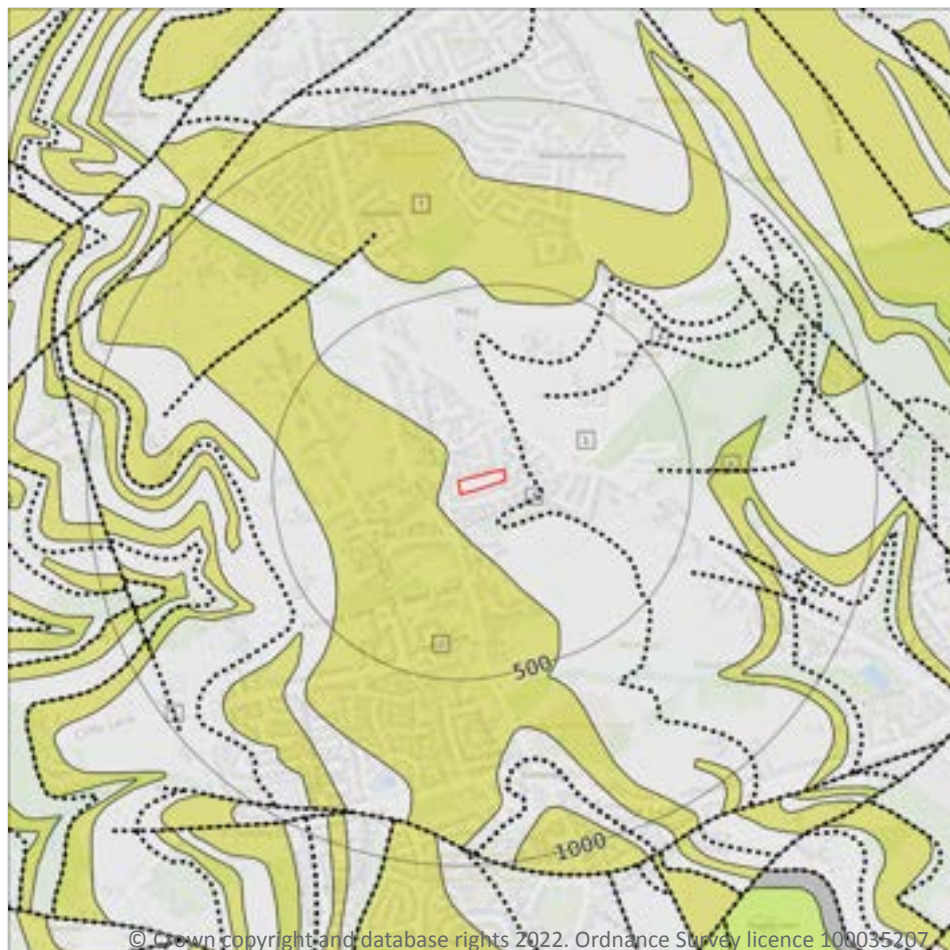
0

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



— 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

4

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 81**

ID	Location	LEX Code	Description	Rock age
1	On site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	41m W	LPE-SDST	LEPTON EDGE ROCK - SANDSTONE	WESTPHALIAN
5	378m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN



ID	Location	LEX Code	Description	Rock age
7	451m N	LPE-SDST	LEPTON EDGE ROCK - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2
---------------------------	----------

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
41m SW	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	3
----------------------------	----------

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.

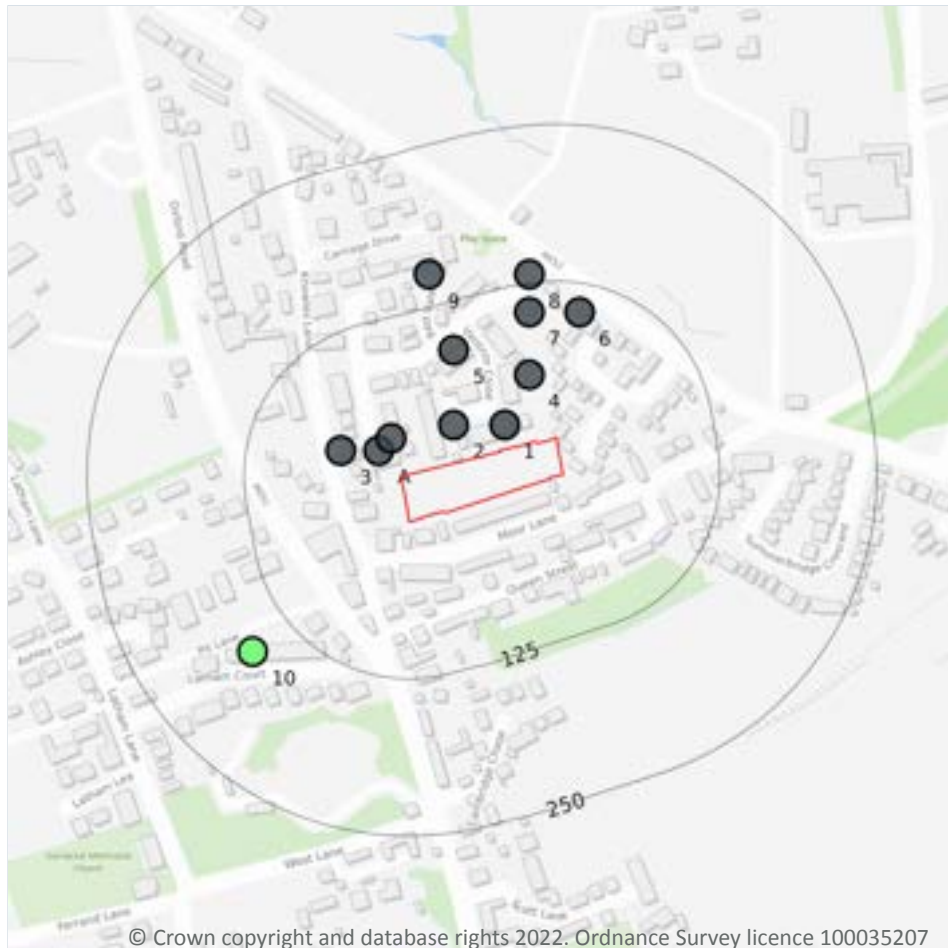
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 81**

ID	Location	Category	Description
3	57m NE	ROCK	Coal seam, inferred
4	223m NE	ROCK	Coal seam, inferred
6	403m E	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m

12

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

Features are displayed on the Boreholes map on **page 83**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	19m N	420800 426830	DEWSBURY ROAD GOMERSAL 4	-	Y	N/A
A	27m NW	420700 426810	DEWSBURY ROAD GOMERSAL 7	-	Y	N/A
2	29m N	420760 426830	DEWSBURY ROAD GOMERSAL 5	-	Y	N/A

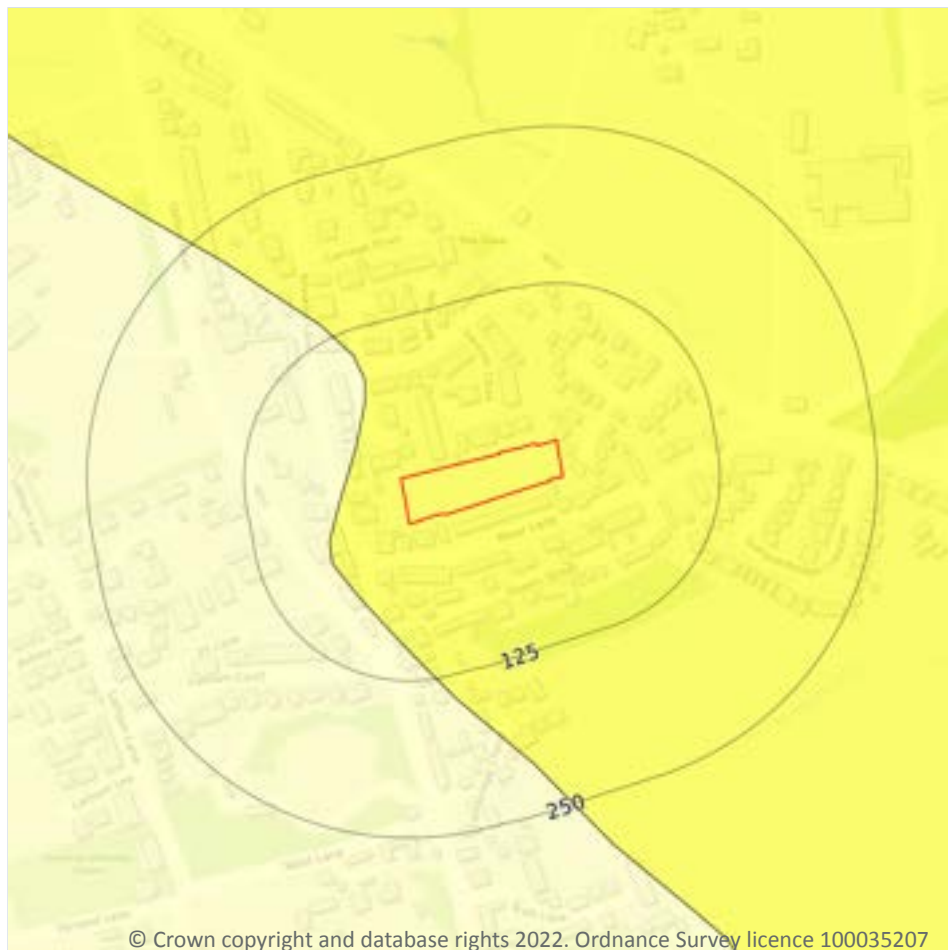


ID	Location	Grid reference	Name	Length	Confidential	Web link
A	32m N	420710 426820	DEWSBURY ROAD GOMERSAL 6	-	Y	N/A
3	52m NW	420670 426810	DEWSBURY ROAD GOMERSAL 8	-	Y	N/A
4	53m N	420820 426870	DEWSBURY ROAD GOMERSAL 3	-	Y	N/A
5	88m N	420760 426890	DEWSBURY ROAD GOMERSAL 11	-	Y	N/A
6	102m N	420860 426920	DEWSBURY ROAD GOMERSAL 1	-	Y	N/A
7	103m N	420820 426920	DEWSBURY ROAD GOMERSAL 2	-	Y	N/A
8	132m N	420820 426950	DEWSBURY ROAD GOMERSAL 9	-	Y	N/A
9	151m N	420740 426950	DEWSBURY ROAD GOMERSAL 10	-	Y	N/A
10	162m SW	420600 426650	GOMERSAL PIT	21.84	N	18526505

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

2

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).

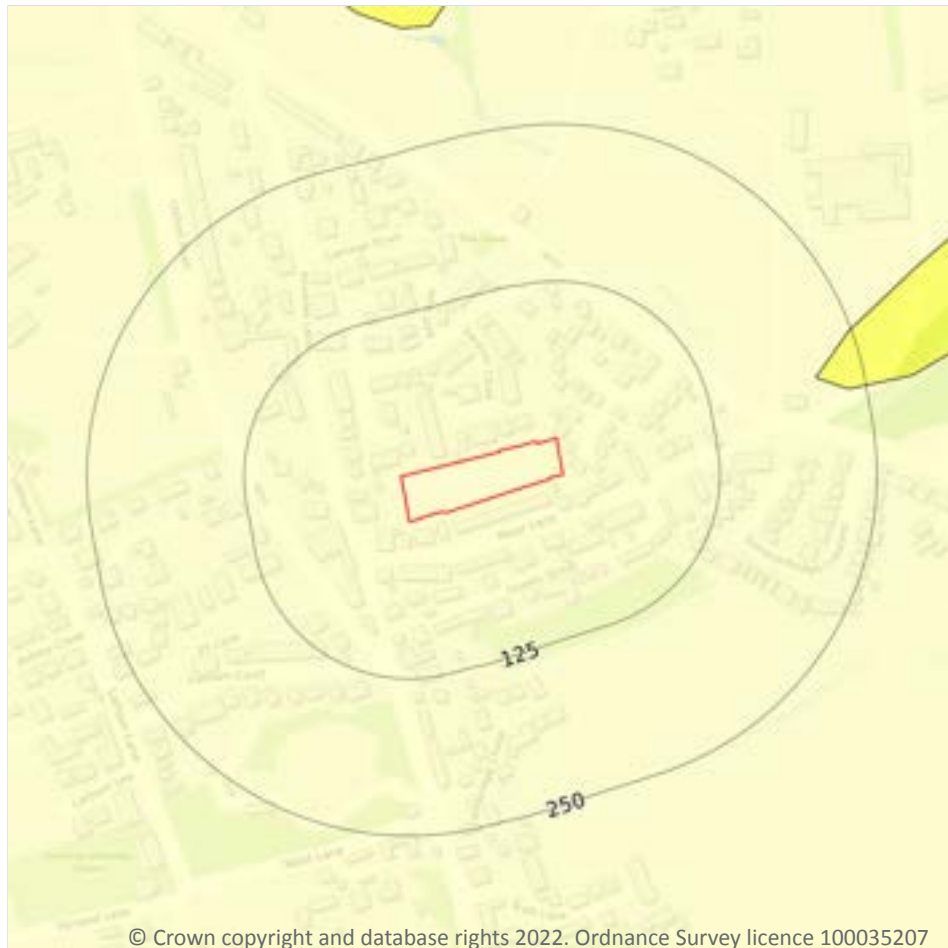
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 85**

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.
41m W	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

1

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

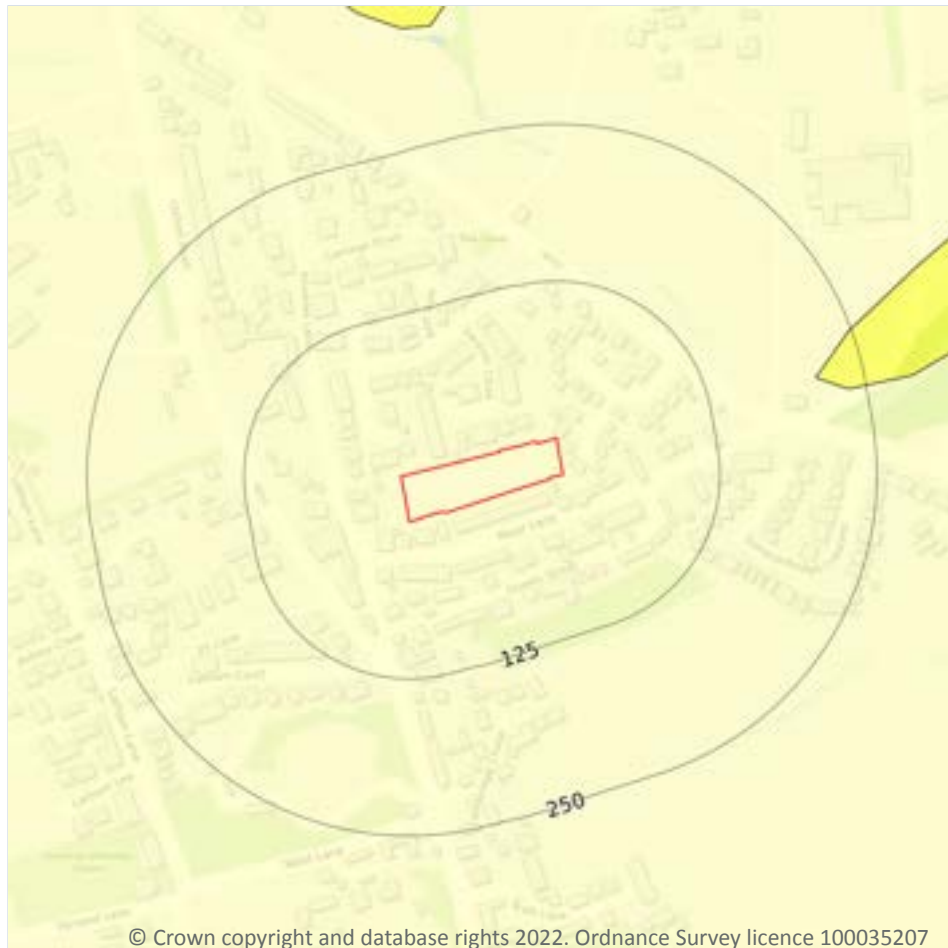
Features are displayed on the Natural ground subsidence - Running sands map on **page 86**

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.

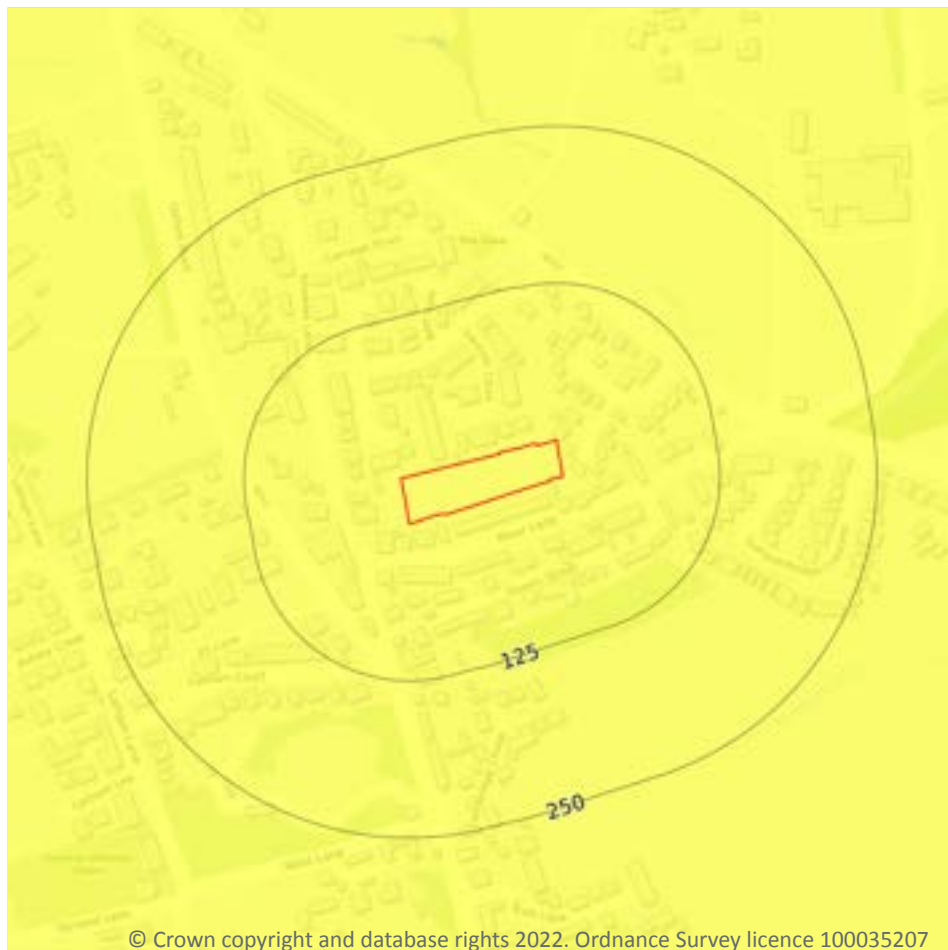
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 87**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

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

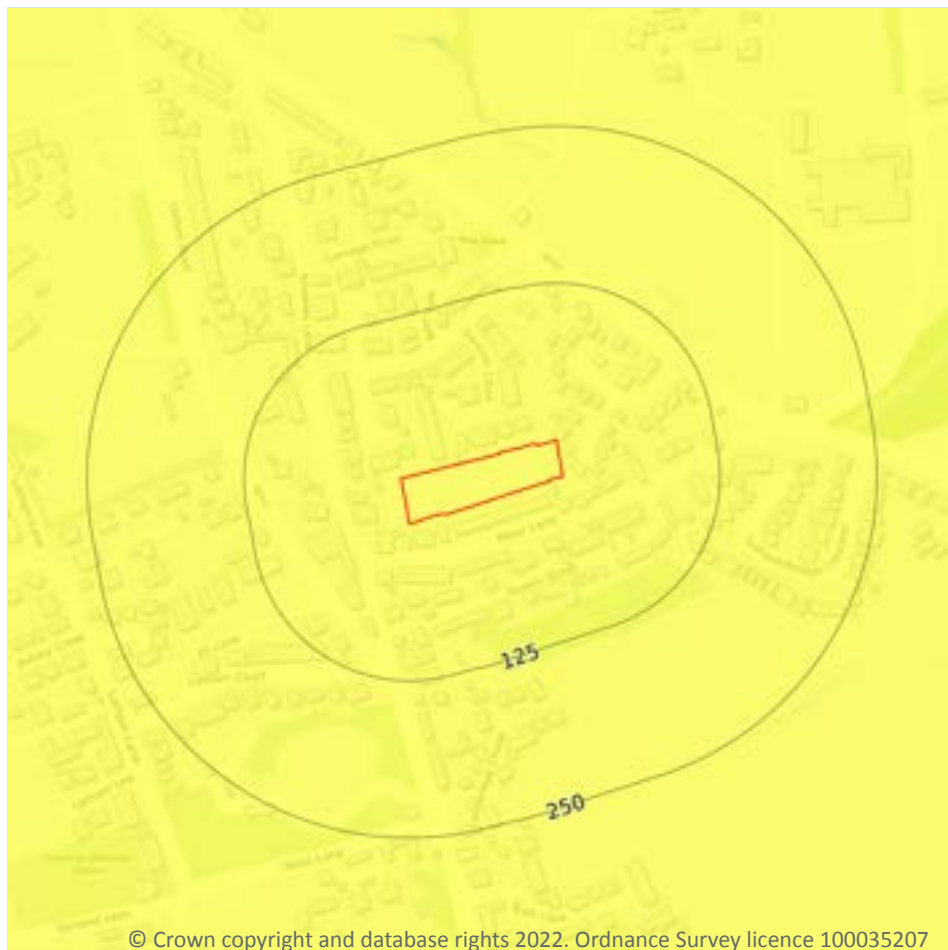
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 88**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

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 89**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 90**

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, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

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.

18.2 BritPits

Records within 500m

5

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 91**

ID	Location	Details	Description
2	112m E	Name: Lower House Address: Gomersal, CLECKHEATON, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site 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
4	307m N	Name: Wheatley Hall Address: Gomersal, CLECKHEATON, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site 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
C	358m NW	Name: New House Address: Wheatleys Farm, LEEDS, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site 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
E	384m E	Name: Gomersal Coal Pit Address: Gomersal, Oakwell, LEEDS, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site 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
O	424m SW	Name: West Lane Address: Gomersal, CLECKHEATON, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.



18.3 Surface ground workings

Records within 250m

14

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, ground workings and natural cavities map on **page 91**

ID	Location	Land Use	Year of mapping	Mapping scale
A	80m S	Cuttings	1994	1:10000
A	80m S	Cuttings	1974	1:10000
A	80m S	Cuttings	1985	1:10000
A	80m S	Cuttings	1966	1:10560
A	80m S	Cuttings	1951	1:10560
1	84m SE	Cuttings	1951	1:10560
A	88m S	Cuttings	1948	1:10560
A	88m S	Cuttings	1938	1:10560
A	88m S	Cuttings	1905	1:10560
3	155m E	Unspecified Pit	1905	1:10560
C	180m NW	Colliery	1892	1:10560
D	222m E	Unspecified Pit	1948	1:10560
D	222m E	Unspecified Pit	1905	1:10560
D	225m E	Ponds	1892	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

31

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, ground workings and natural cavities map on **page 91**

ID	Location	Land Use	Year of mapping	Mapping scale
B	100m S	Tunnel	1966	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
B	100m S	Tunnel	1951	1:10560
B	107m S	Tunnel	1948	1:10560
B	107m S	Tunnel	1932	1:10560
B	107m S	Tunnel	1905	1:10560
C	180m NW	Colliery	1892	1:10560
F	267m E	Colliery	1951	1:10560
F	267m E	Colliery	1948	1:10560
F	267m E	Colliery	1932	1:10560
G	275m E	Colliery	1966	1:10560
I	332m N	Colliery	1948	1:10560
I	332m N	Colliery	1932	1:10560
I	343m N	Colliery	1966	1:10560
I	343m N	Colliery	1951	1:10560
C	344m NW	Unspecified Old Shaft	1948	1:10560
C	344m NW	Unspecified Old Shaft	1932	1:10560
B	345m W	Air Shaft	1966	1:10560
B	345m W	Air Shaft	1951	1:10560
J	359m SW	Colliery	1892	1:10560
O	440m SW	Unspecified Old Shaft	1905	1:10560
F	448m E	Unspecified Shafts	1948	1:10560
F	448m E	Unspecified Shafts	1932	1:10560
11	638m SW	Colliery	1892	1:10560
X	639m N	Unspecified Shafts	1948	1:10560
X	639m N	Unspecified Shafts	1932	1:10560
-	910m SW	Unspecified Old Shaft	1951	1:10560
-	914m SW	Unspecified Old Shaft	1948	1:10560
-	914m SW	Unspecified Old Shaft	1932	1:10560
-	914m SW	Unspecified Old Shaft	1905	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
-	981m NW	Disused Colliery	1932	1:10560
-	981m NW	Disused Colliery	1905	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

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 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.

18.8 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.



18.9 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.

18.10 Brine areas

Records on site	0
-----------------	---

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

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

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

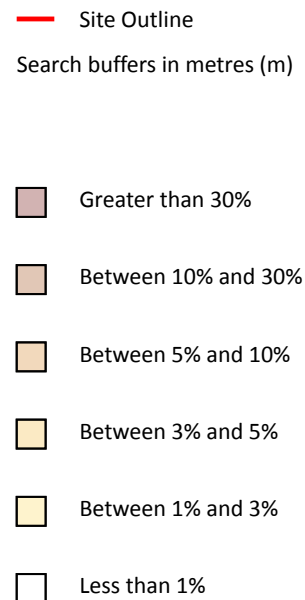
Records on site	0
-----------------	---

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

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



19 Radon



19.1 Radon

Records on site

1

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

Features are displayed on the Radon map on **page 97**

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

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



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

2

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². 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 km²; 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	35 - 45 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
41m SW	35 - 45 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

28

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.

Features are displayed on the Railway infrastructure and projects map on **page 99**

Location	Land Use	Year of mapping	Mapping scale
84m SE	Railway Sidings	1955	10560
97m SE	Railway Sidings	1966	10560
100m SE	Railway Sidings	1905	10560
100m S	Tunnel	1966	10560
100m S	Tunnel	1955	10560
100m SE	Railway Sidings	1956	1250
102m SE	Railway Sidings	1948	10560
102m S	Disused Tunnel	1997	1250
102m S	Disused Tunnel	1996	1250
103m S	Tunnel	1956	2500
103m S	Tunnel	1956	1250
104m S	Tunnel	1948	10560
105m S	Railway Sidings	1956	2500
106m SE	Railway Sidings	1908	2500
106m SE	Railway Sidings	1922	2500
106m SE	Railway Sidings	1948	10560
106m SE	Railway Sidings	1938	10560



Location	Land Use	Year of mapping	Mapping scale
107m S	Tunnel	1948	10560
107m S	Tunnel	1938	10560
107m S	Tunnel	1905	10560
107m SE	Railway Sidings	1938	2500
108m S	Tunnel	1908	2500
108m S	Tunnel	1922	2500
108m S	Tunnel	1938	2500
164m E	Railway Sidings	1956	1250
164m E	Railway Sidings	1956	2500
171m SE	Railway Sidings	1956	1250
171m SE	Railway Sidings	1956	2500

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

2

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

Features are displayed on the Railway infrastructure and projects map on **page 99**

Location	Description
102m S	Abandoned
102m SE	Abandoned

This data is sourced from OpenStreetMap.



21.7 Railways

Records within 250m**0**

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

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

This data is sourced from HS2 Ltd.

Data providers

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

Terms and conditions

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1854

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

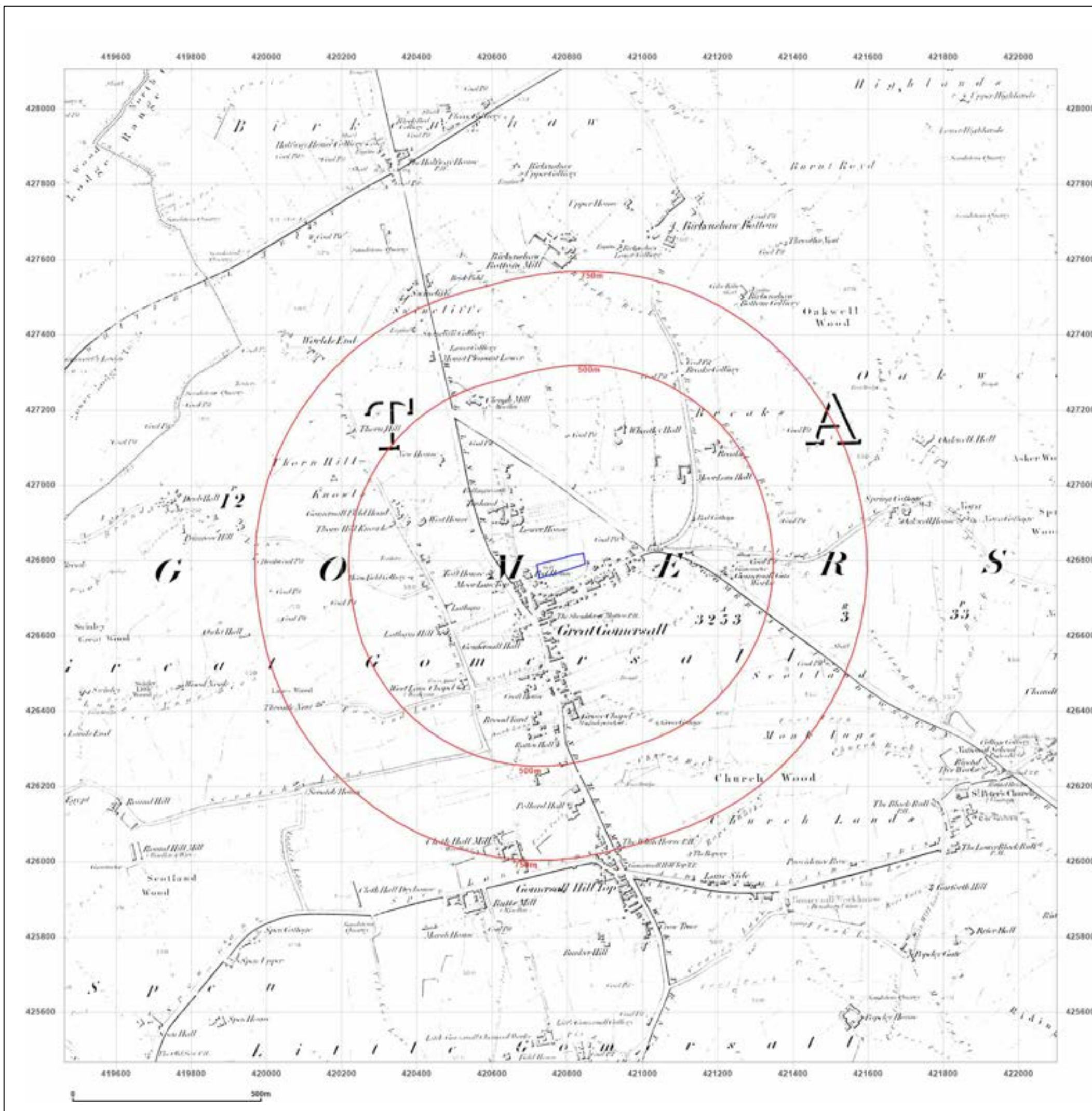


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1892

Scale: 1:10,560

Printed at: 1:10,560



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

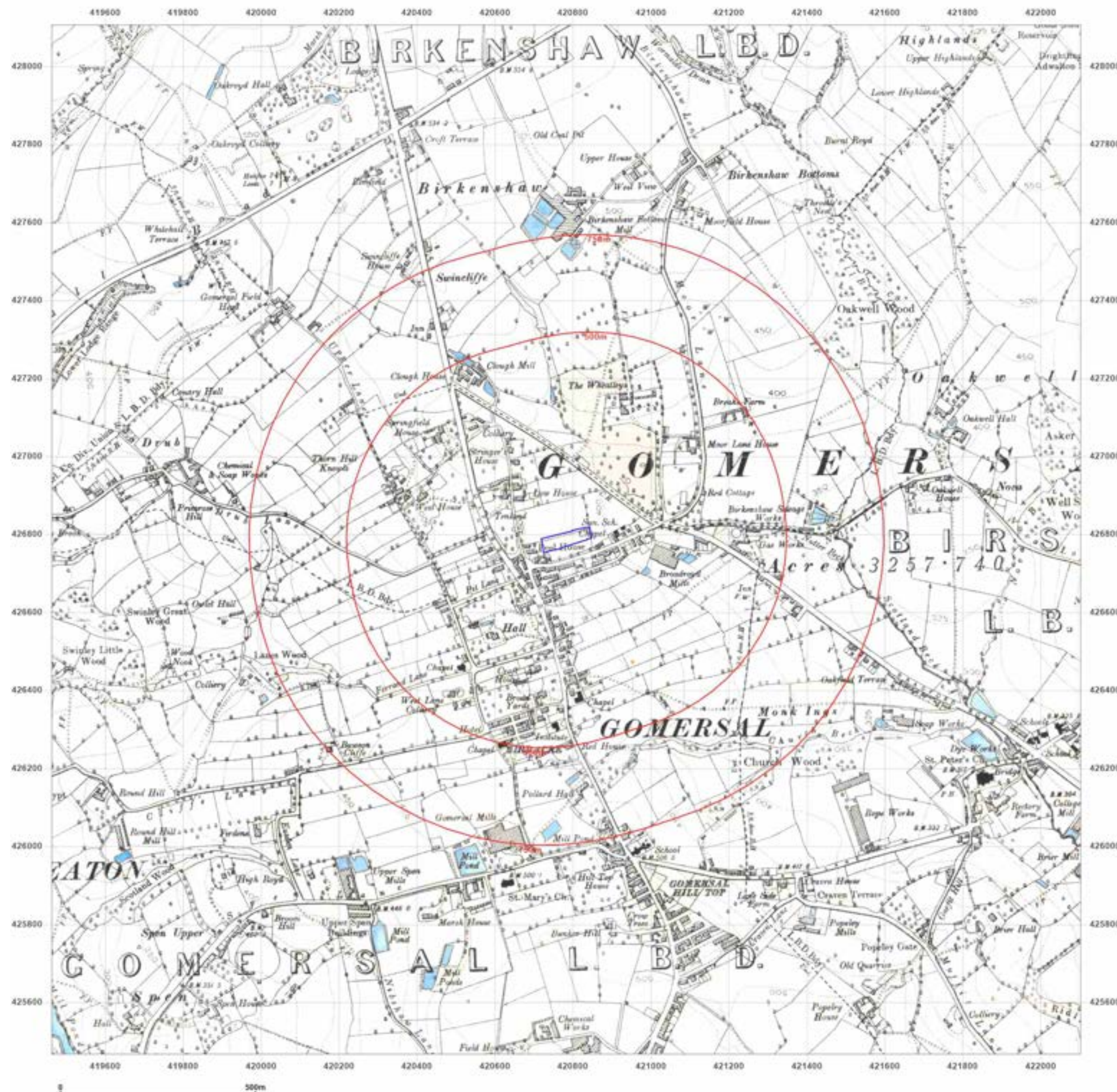


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1905

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1889
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

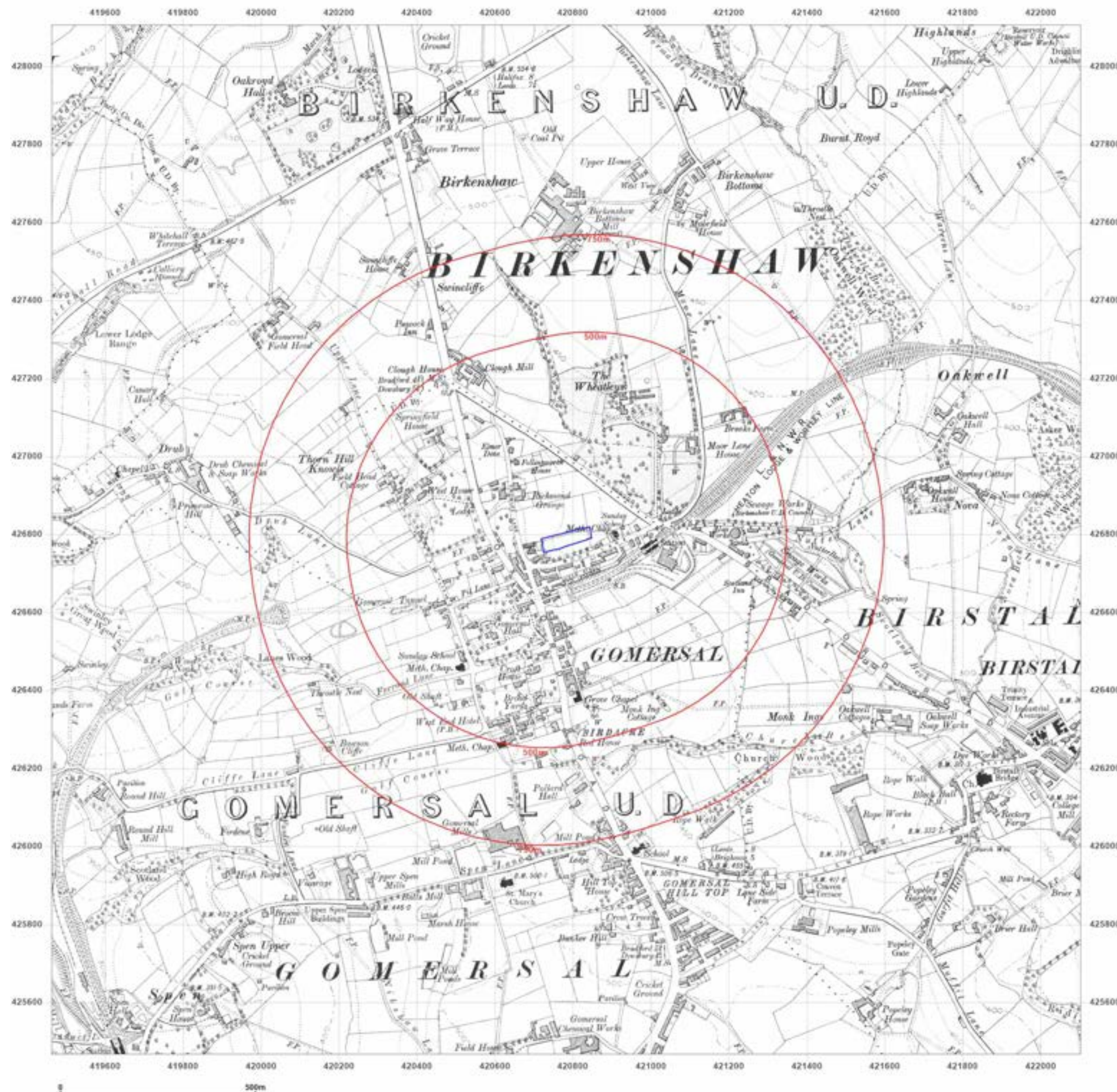


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1932

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

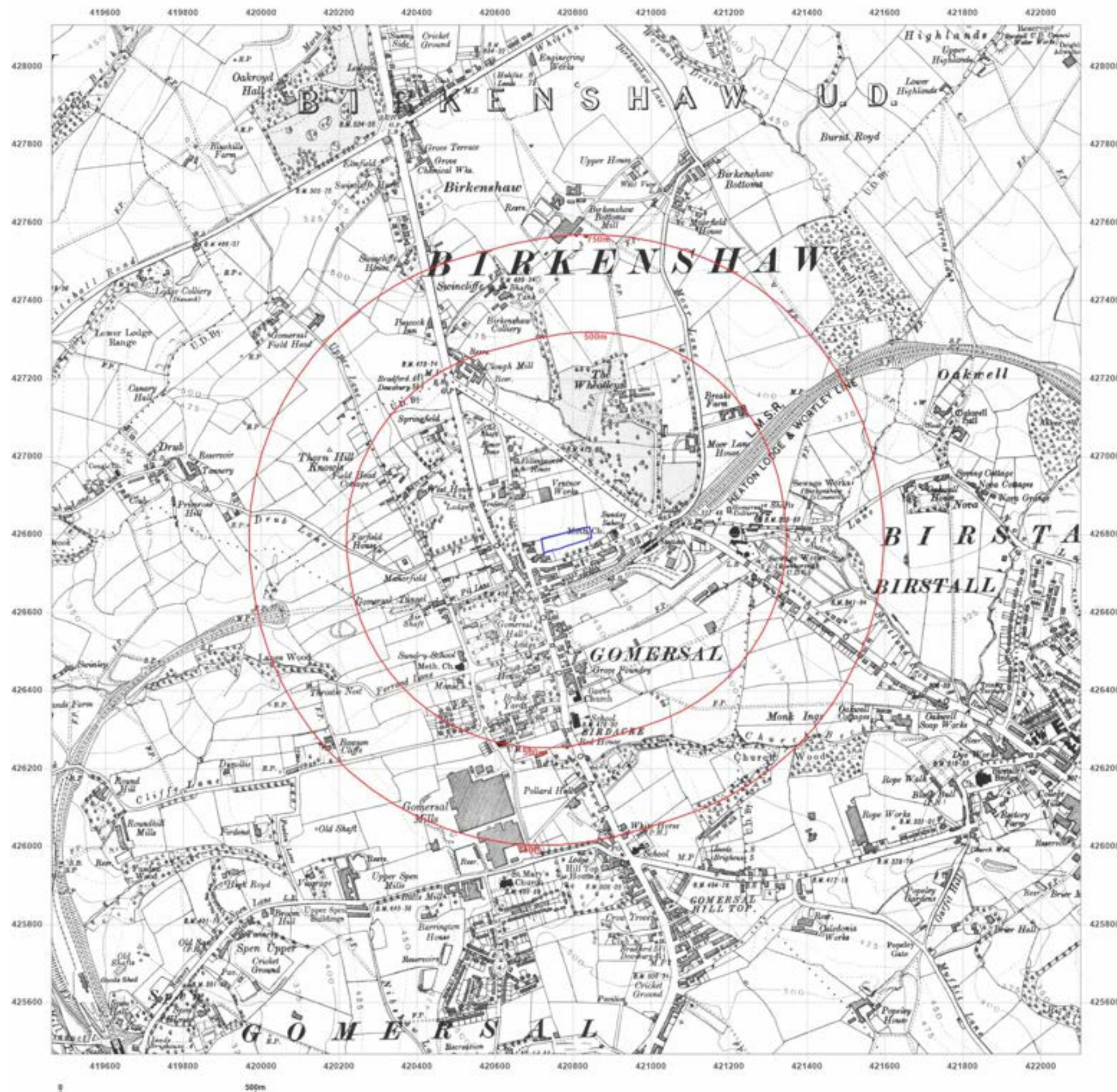


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

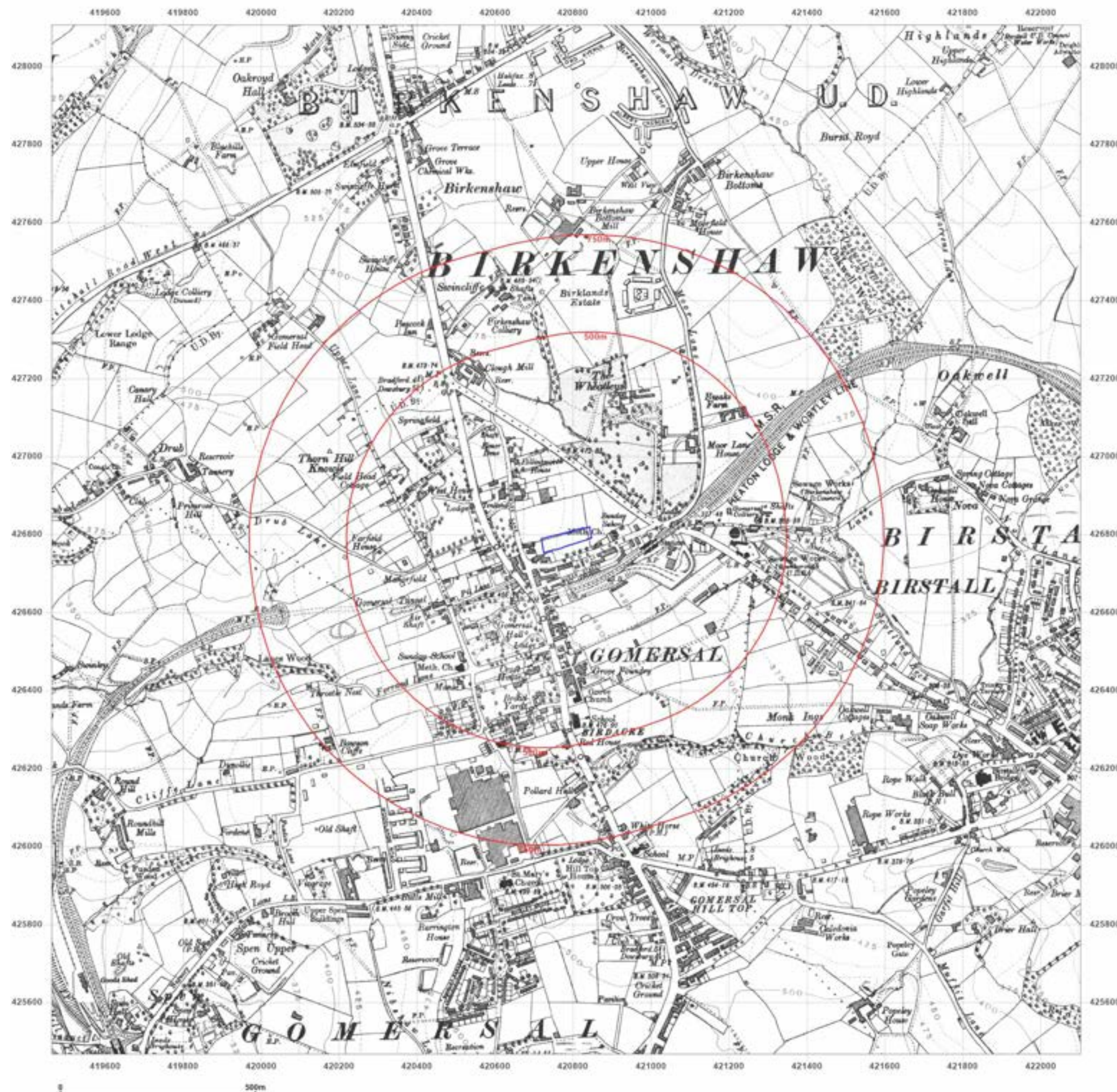


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled 1931

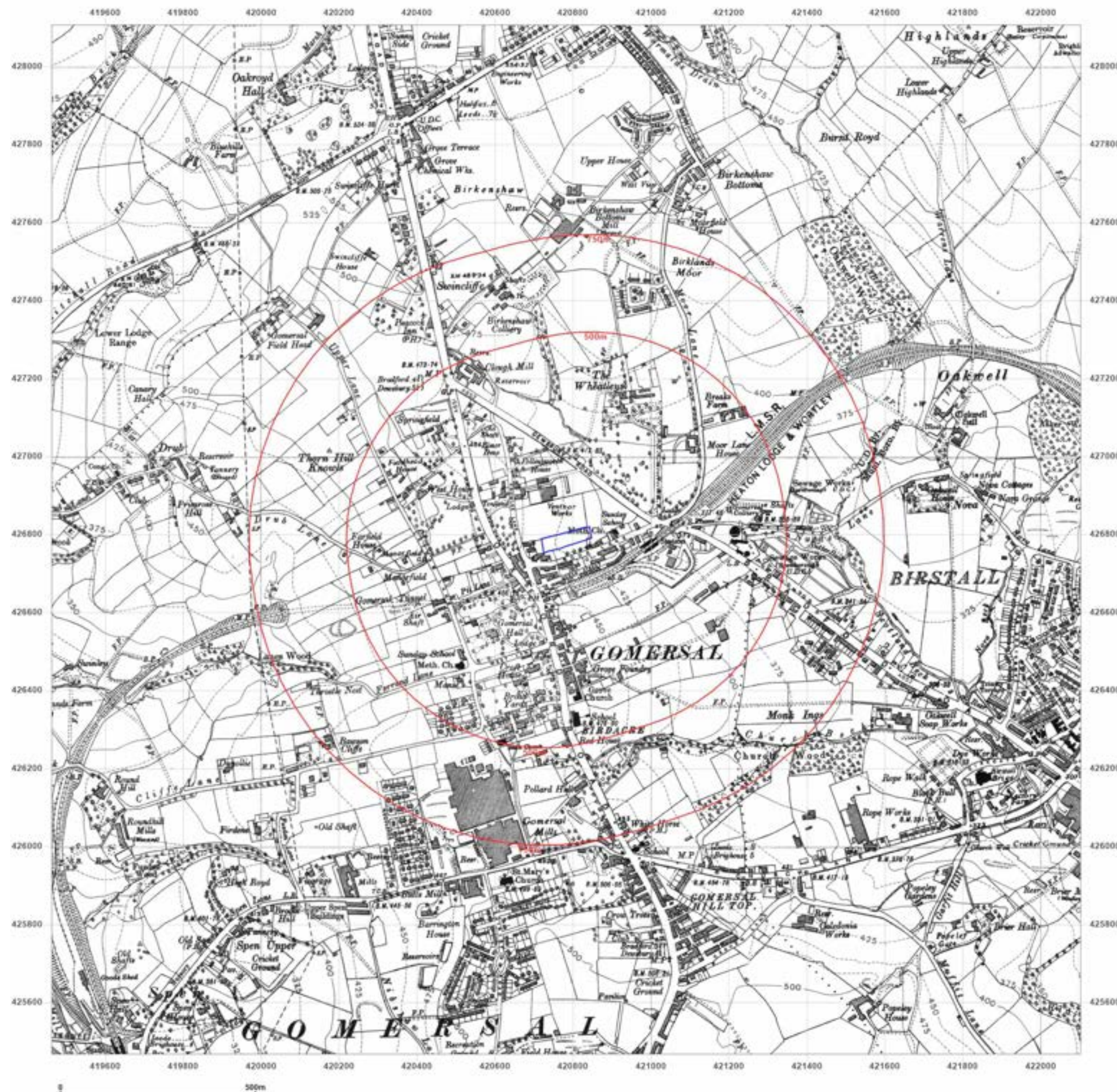


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

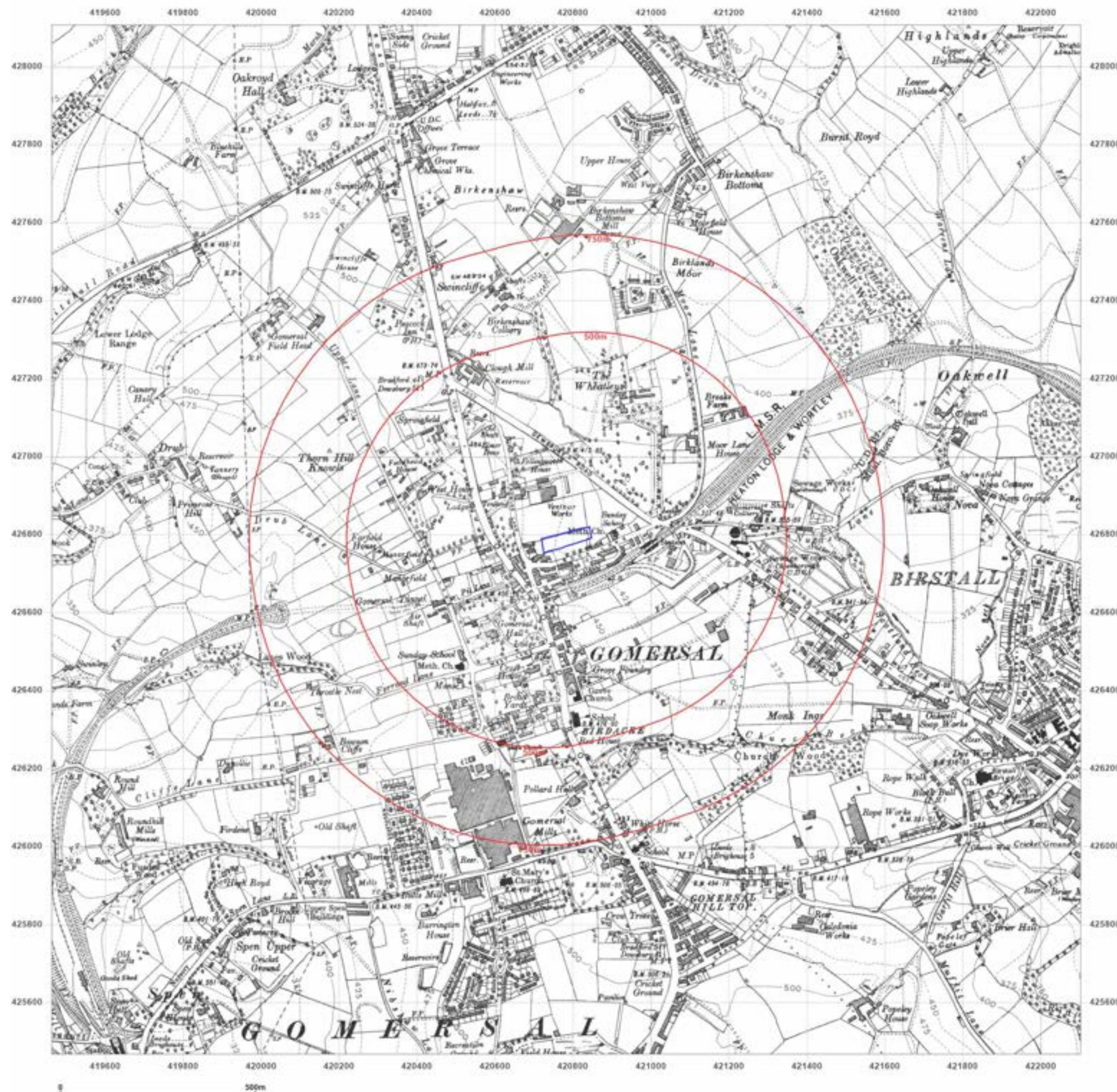


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: Provisional

Map date: 1955

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1951
Revised 1951
Edition N/A
Copyright 1955
Levelled N/A

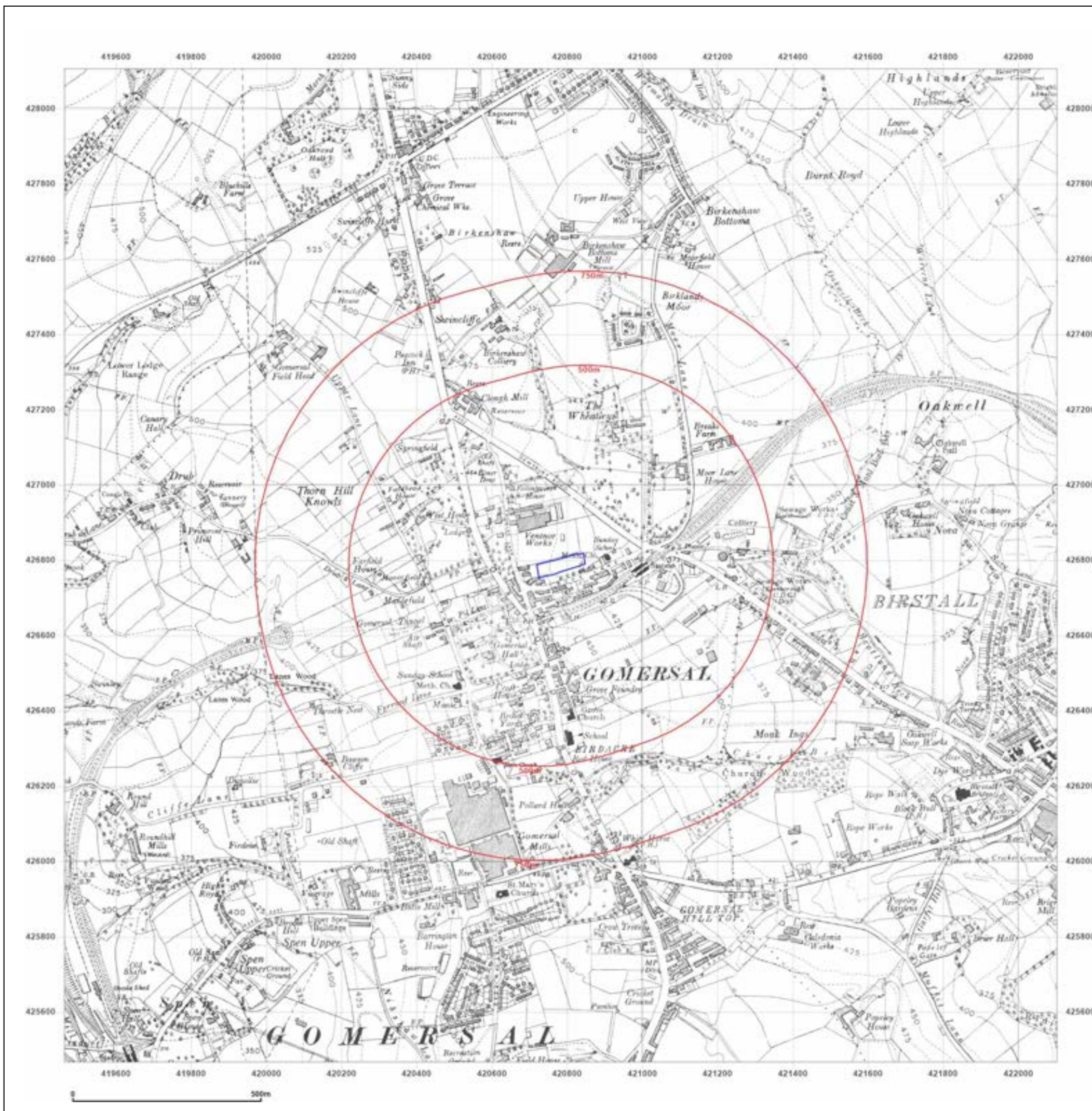


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: Provisional

Map date: 1966-1967

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

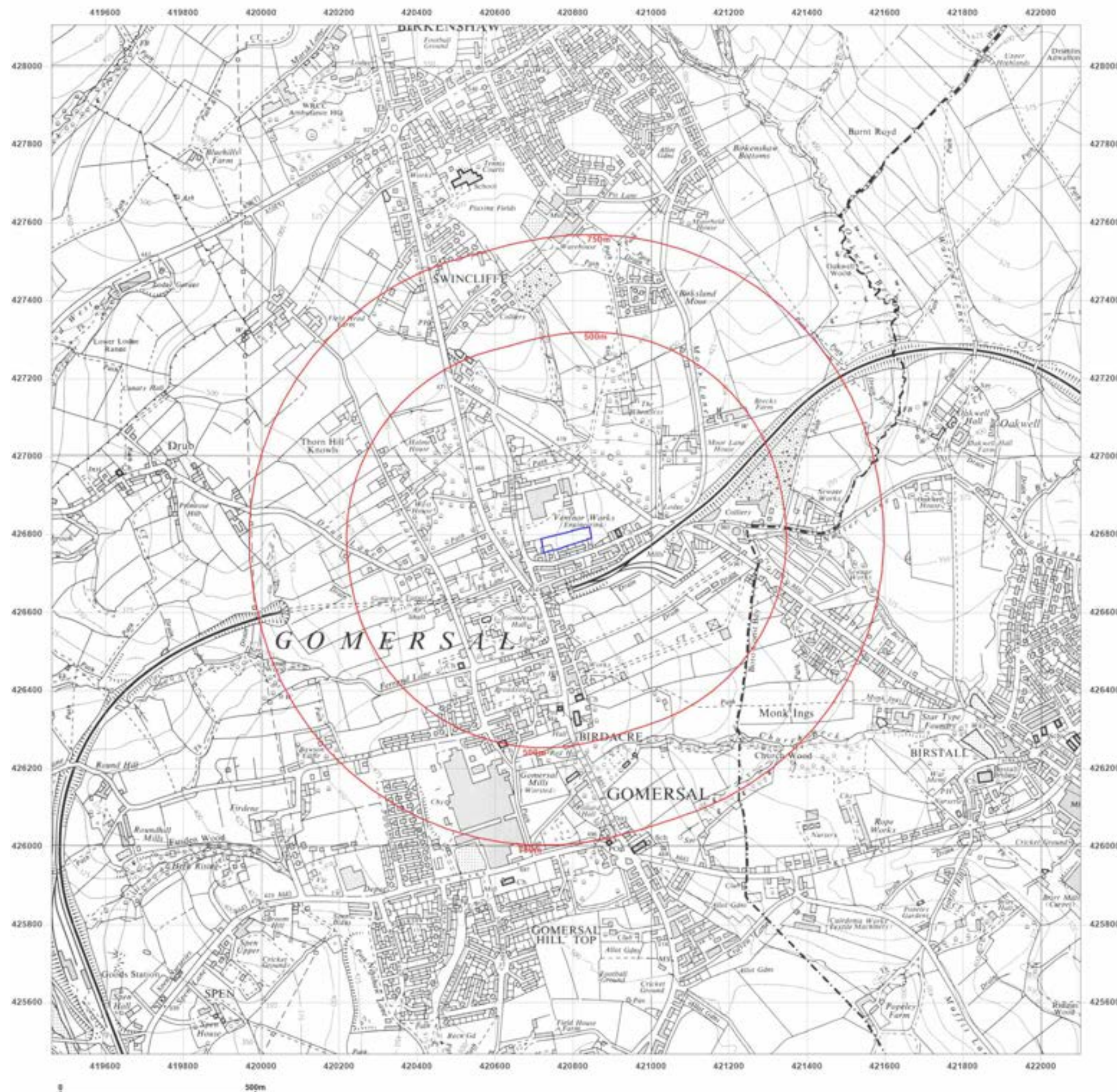


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1974

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1973
Revised 1974
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1973
Revised 1974
Edition N/A
Copyright N/A
Levelled N/A

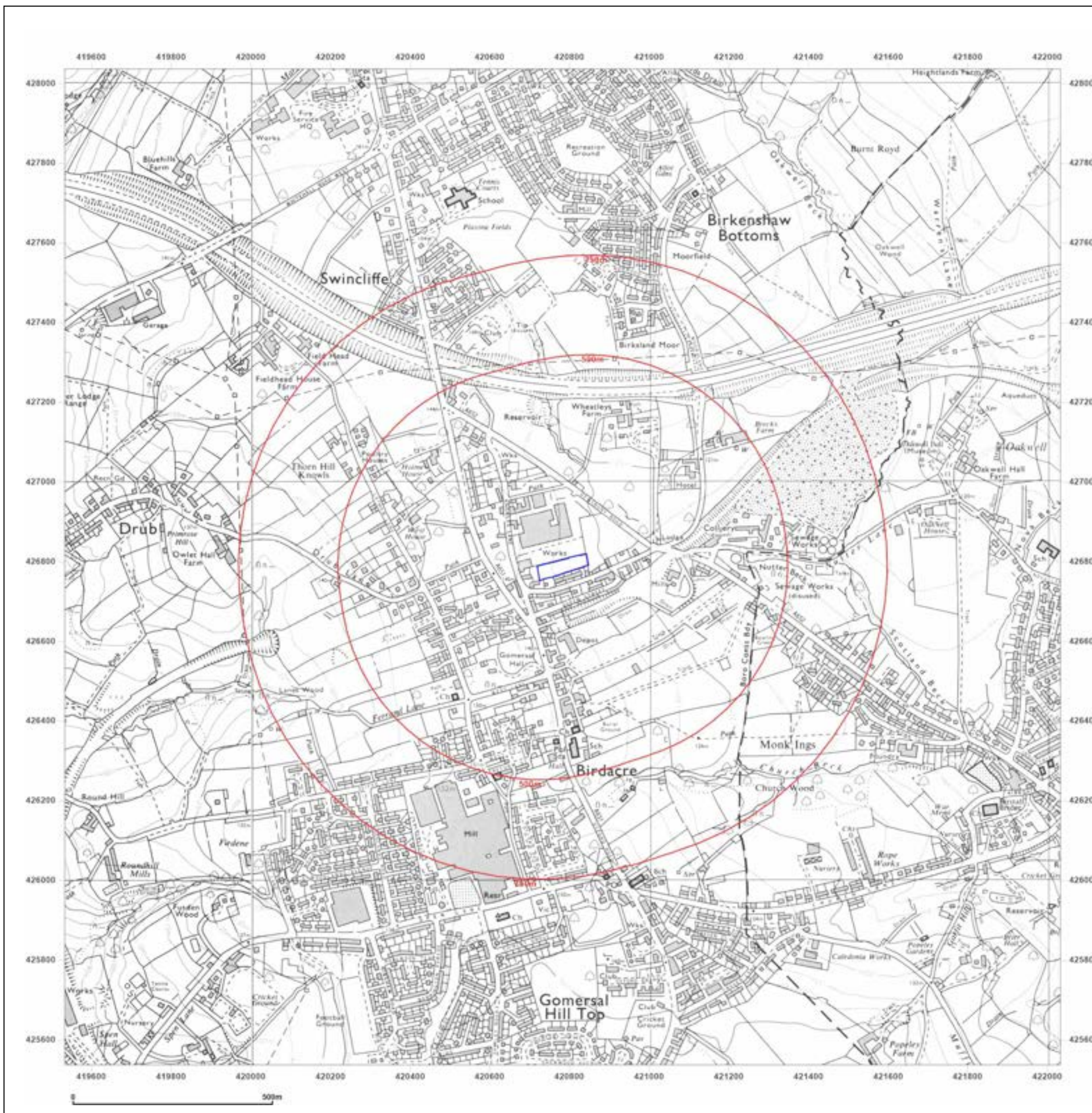


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1983-1985

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1982
Revised 1983
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1985
Revised 1985
Edition N/A
Copyright N/A
Levelled N/A

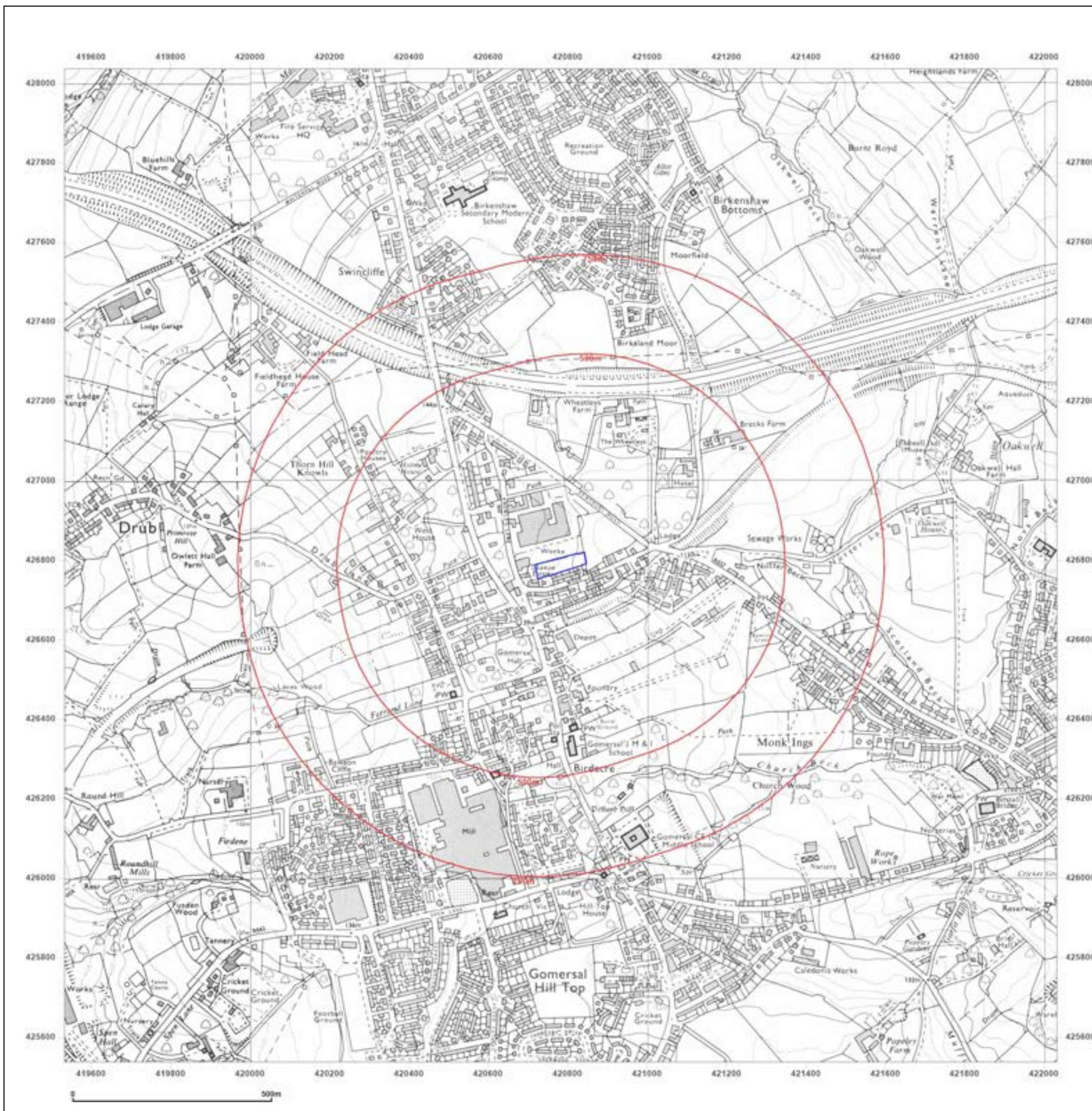


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1990-1994

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1985
Revised 1994
Edition N/A
Copyright N/A
Levelled N/A

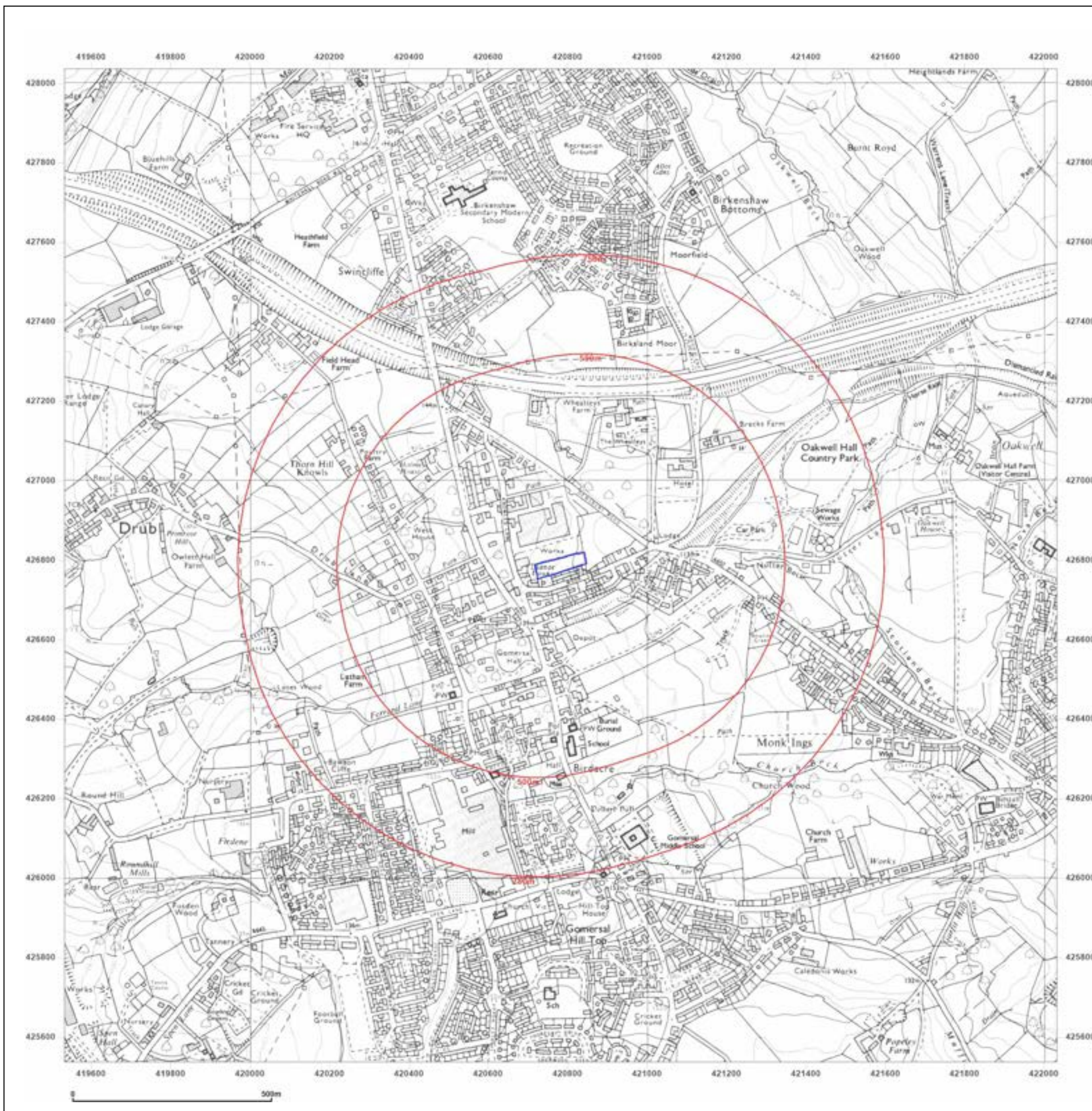


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

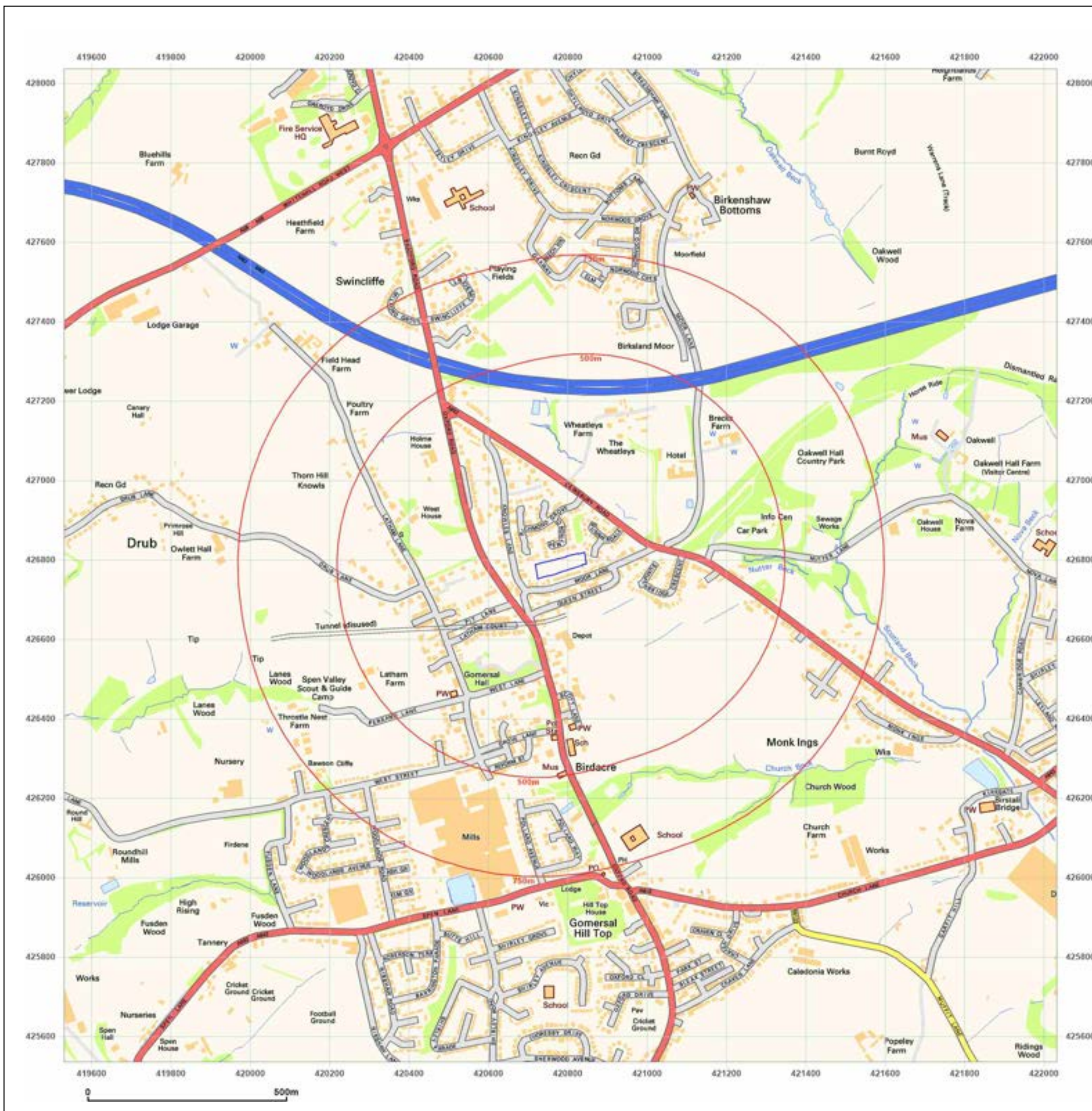


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

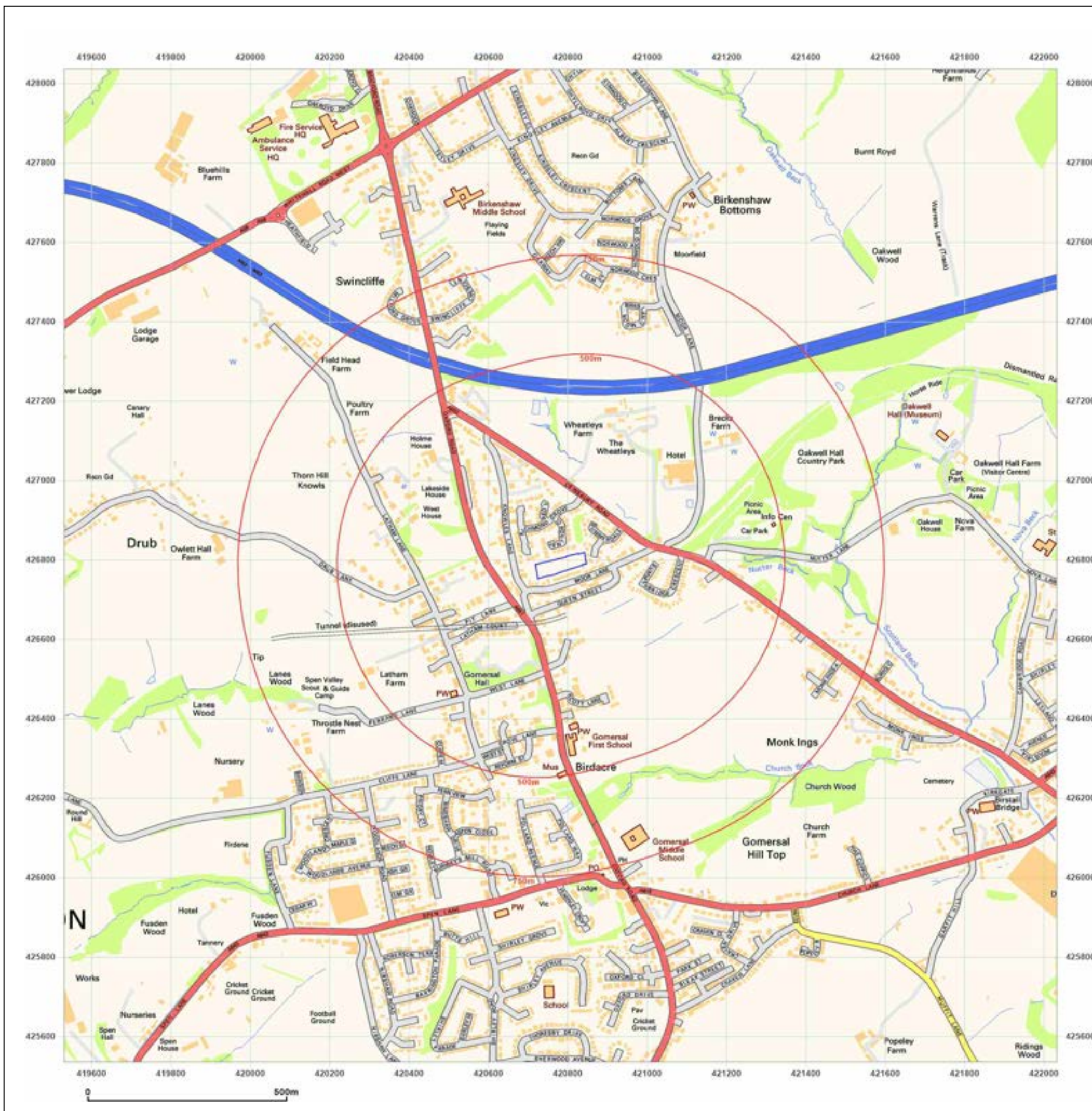


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 2022

Scale: 1:10,000

Printed at: 1:10,000

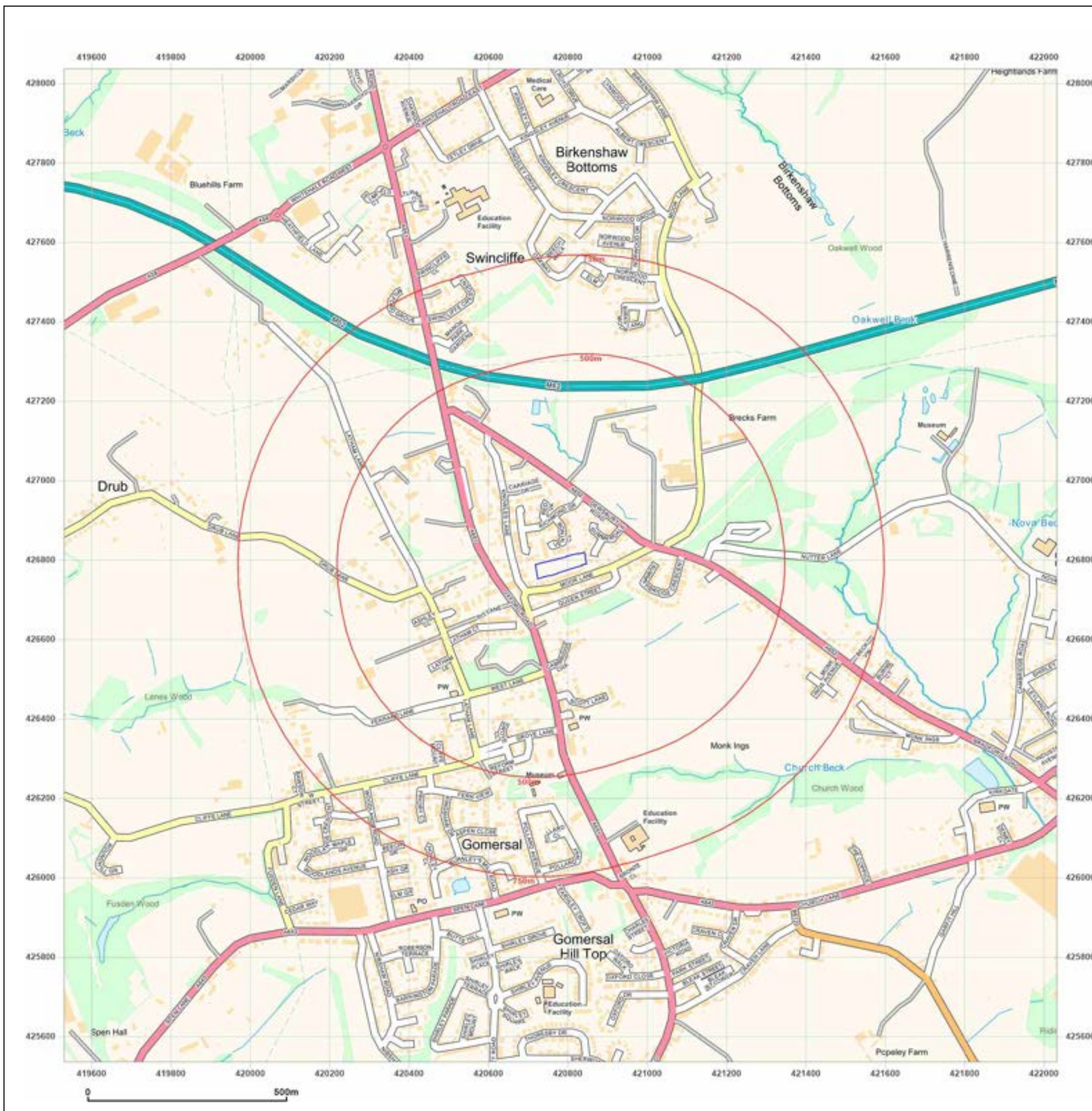


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1892-1894

Scale: 1:2,500

Printed at: 1:2,500



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

Surveyed 1894
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A

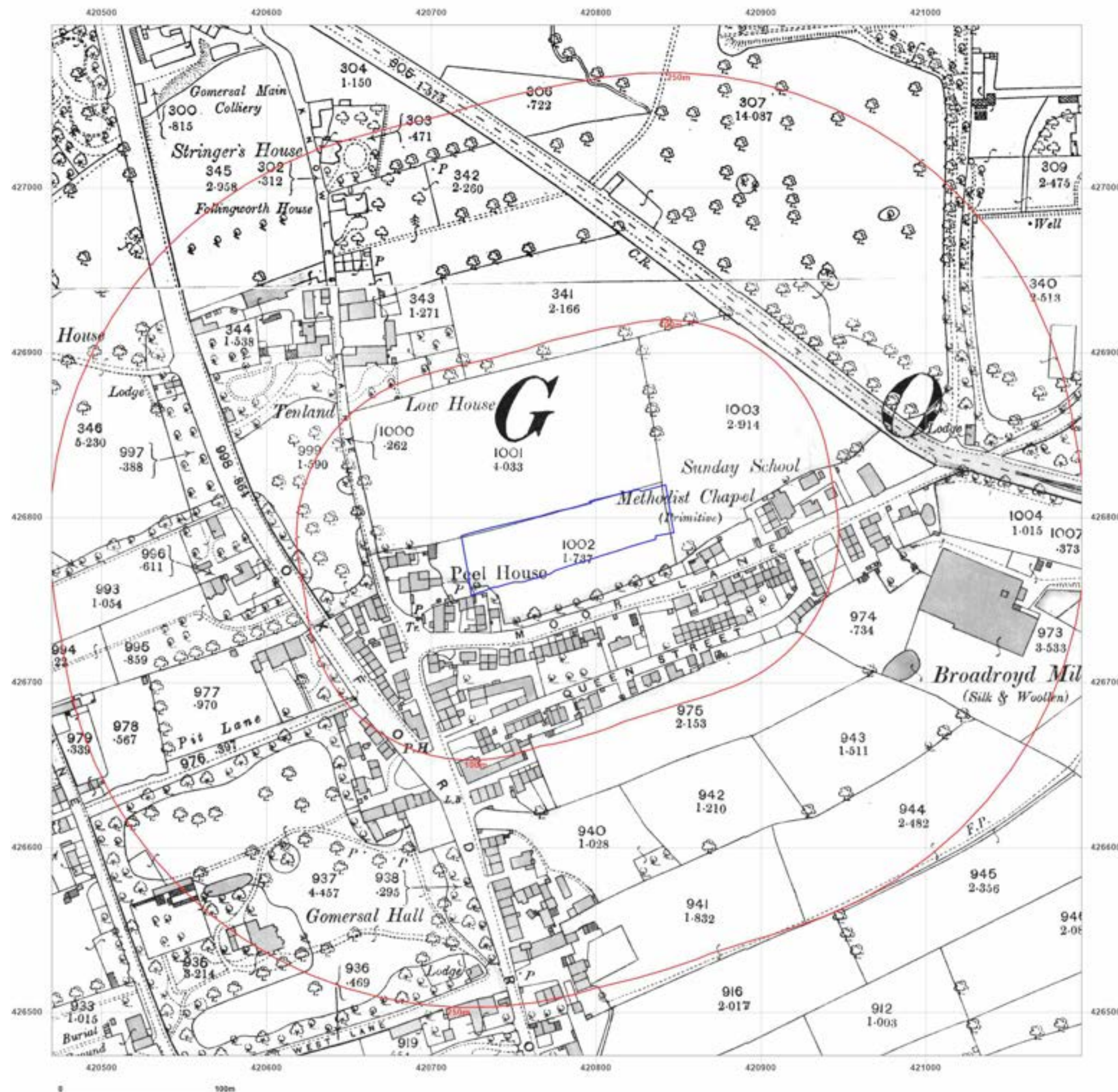


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1908
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1908
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

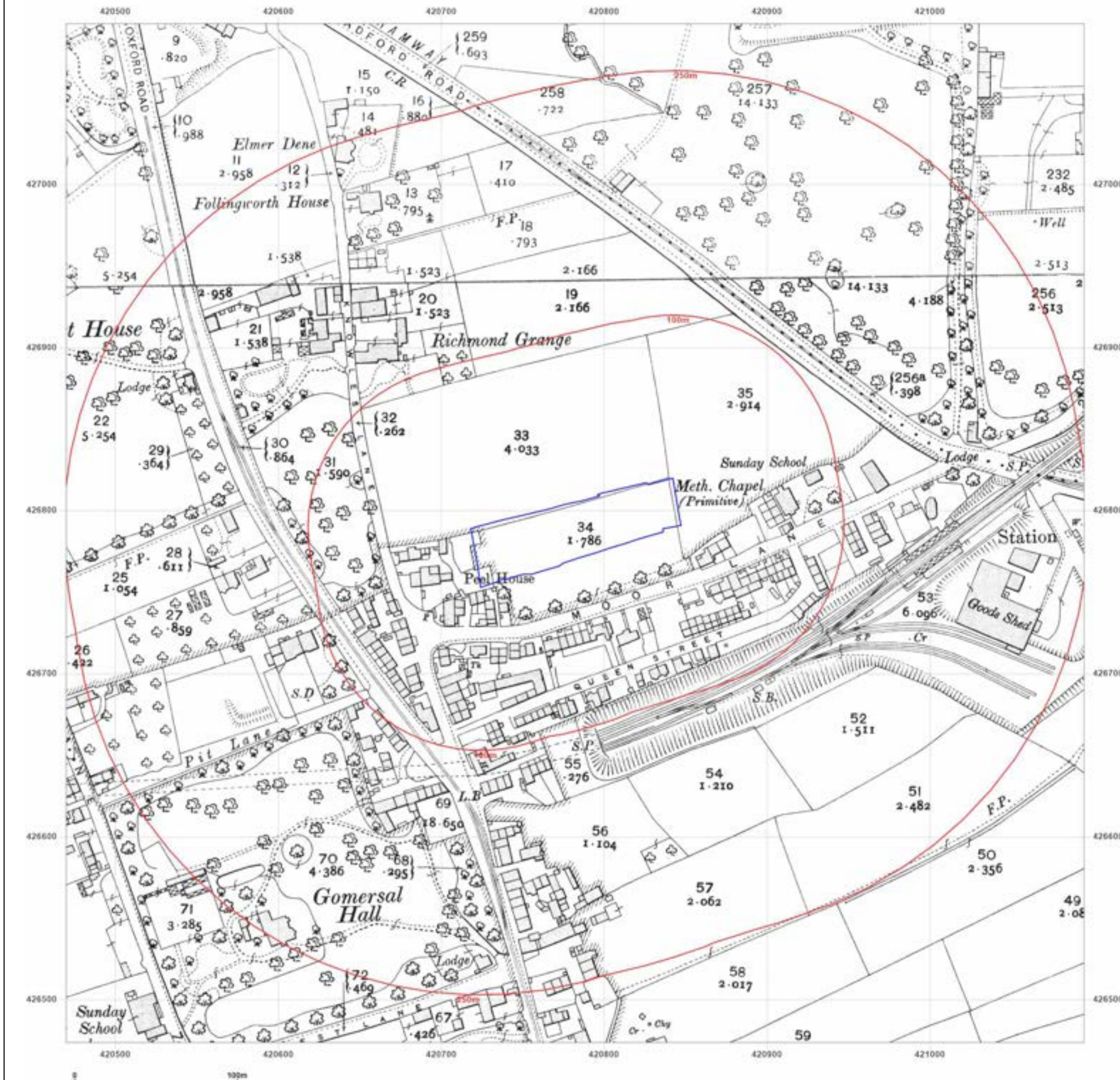


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1922

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1922
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1922
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: County Series

Map date: 1933-1938

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1933
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

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

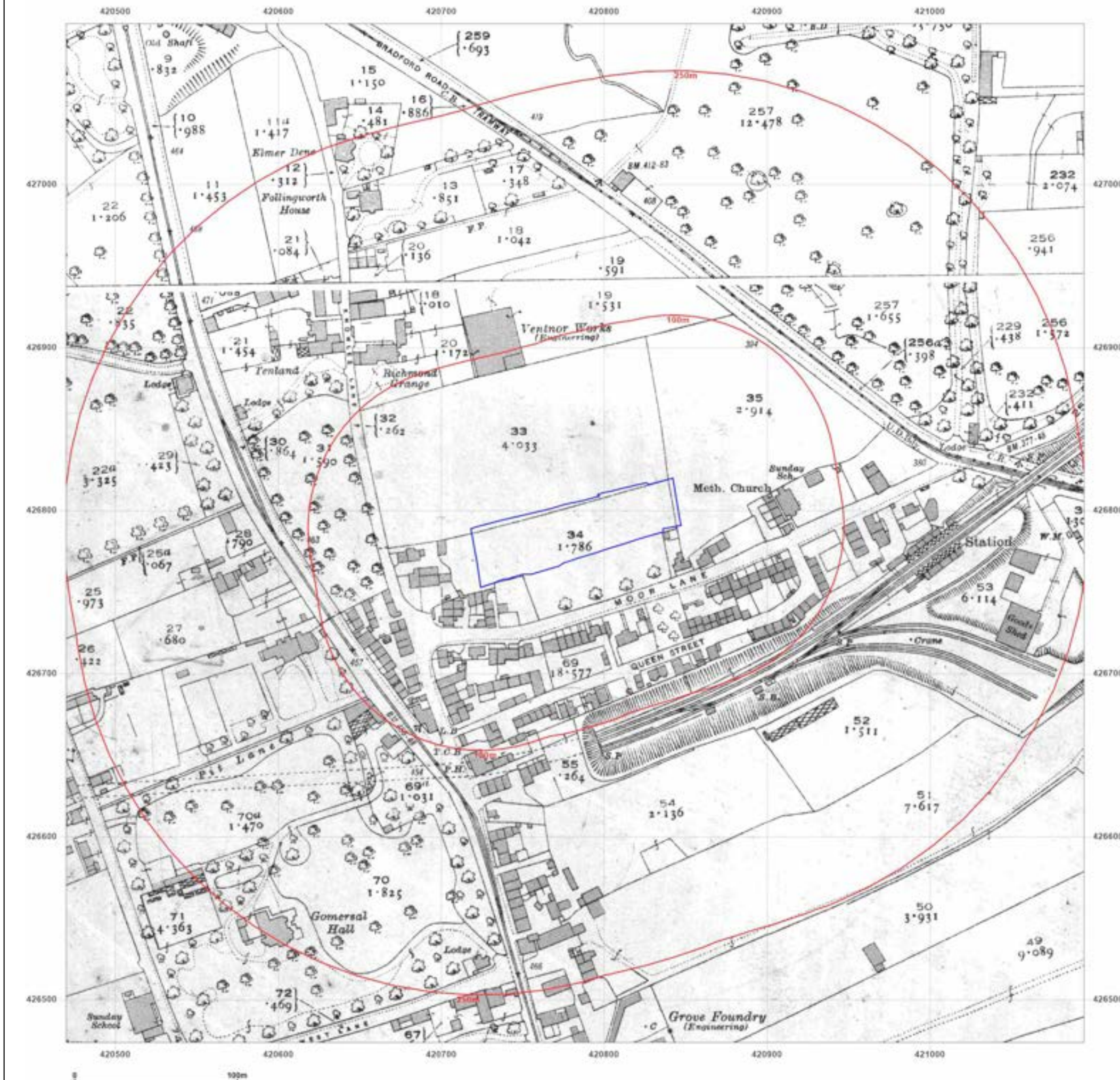


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1956

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1931

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1931

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1931

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1931

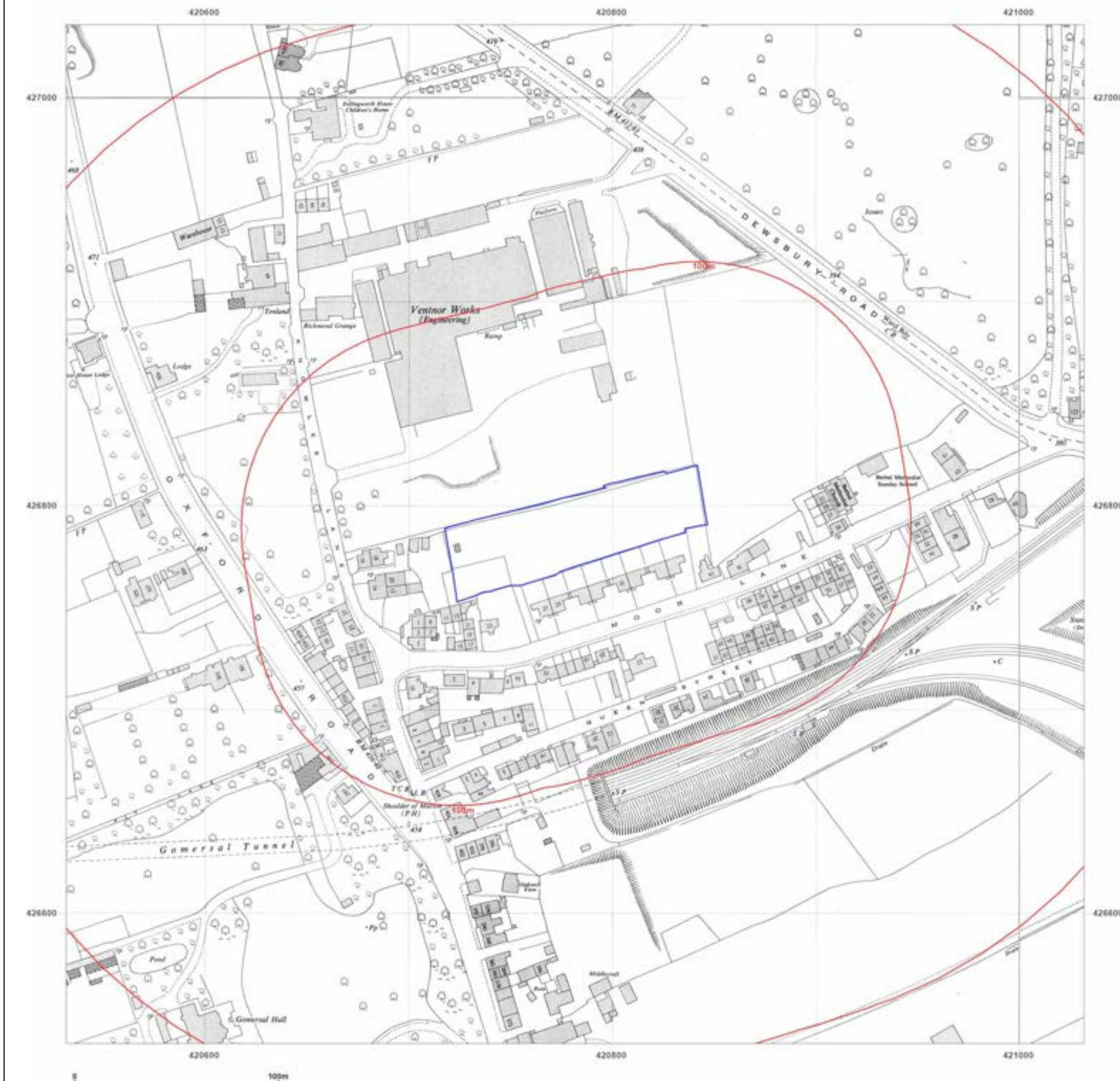


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1956-1957

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1931

Surveyed 1956
Revised 1956
Edition 1956
Copyright N/A
Levelled 1931

Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1931

Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1931

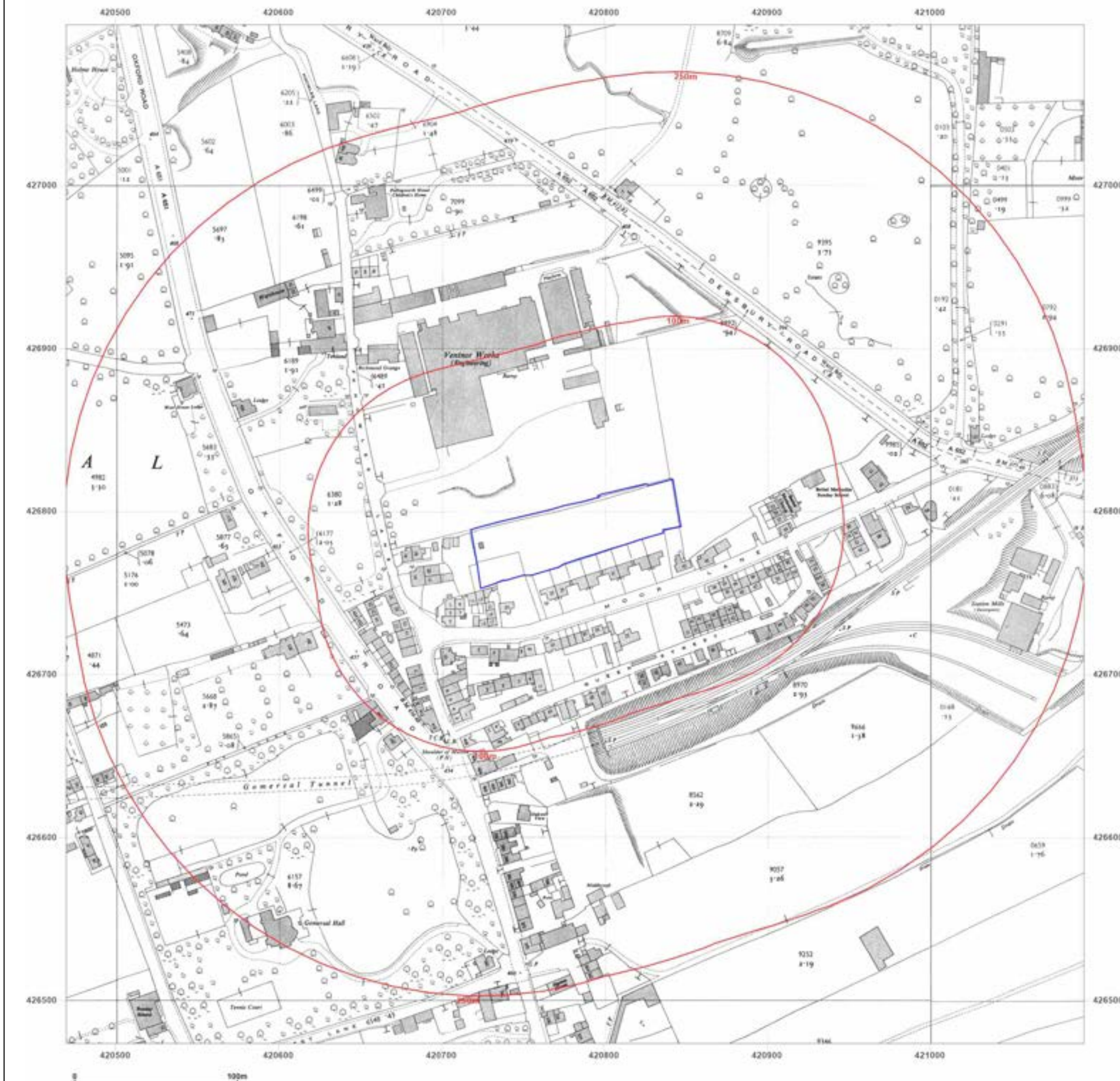


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1957

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1931

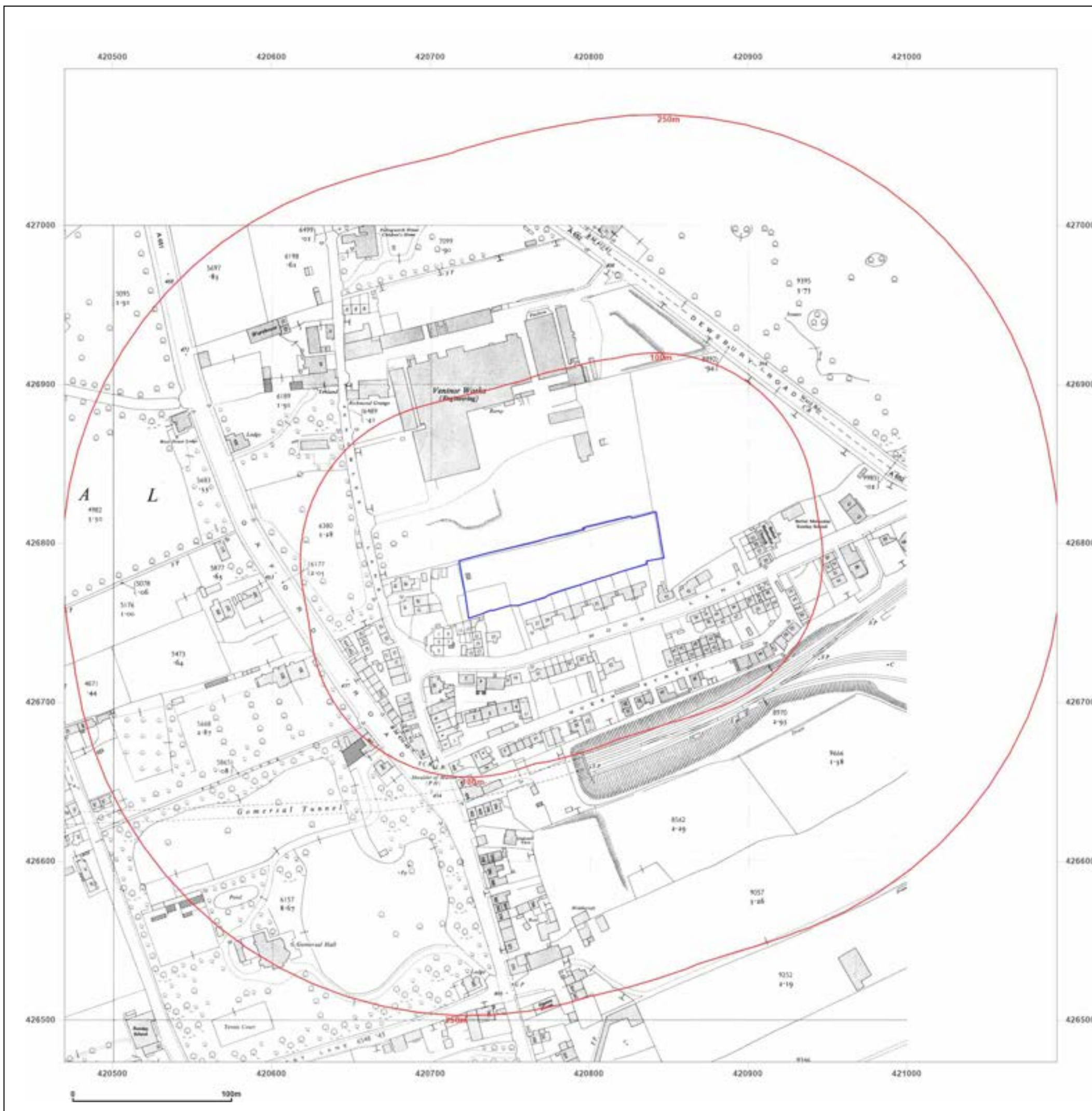


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

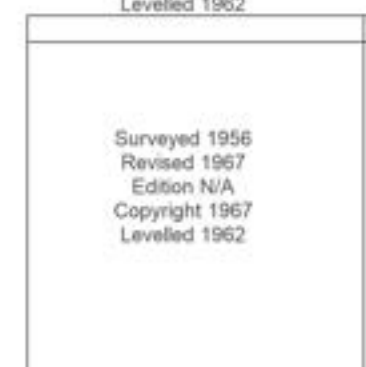
Map date: 1967

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1966
Edition N/A
Copyright 1967
Levelled 1962



Surveyed 1956
Revised 1967
Edition N/A
Copyright 1967
Levelled 1962

Surveyed 1956
Revised 1967
Edition N/A
Copyright 1967
Levelled 1962

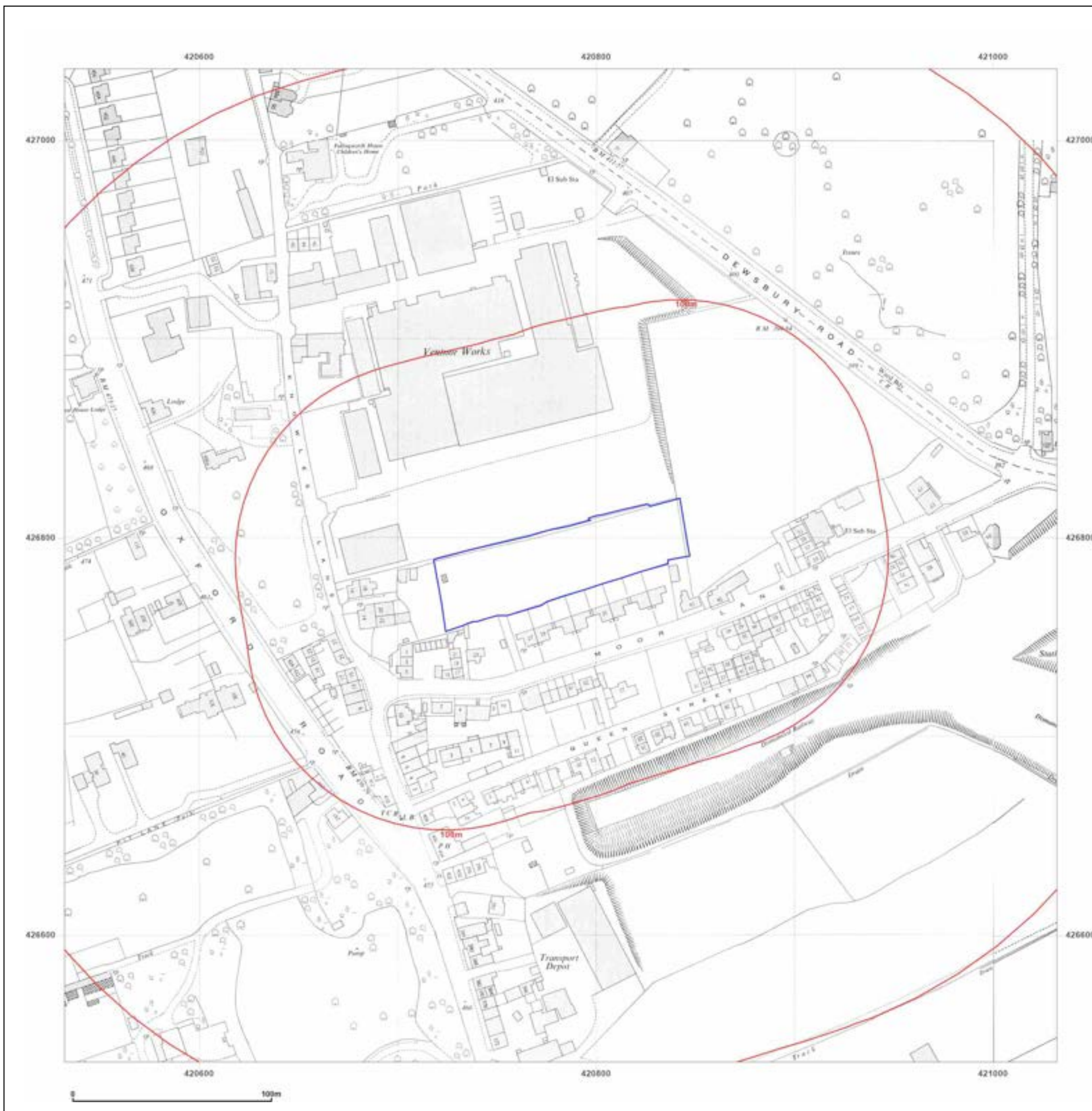


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1968-1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1968
Revised 1969
Edition N/A
Copyright 1970
Levelled 1962

Surveyed 1956
Revised 1967
Edition N/A
Copyright 1968
Levelled 1962

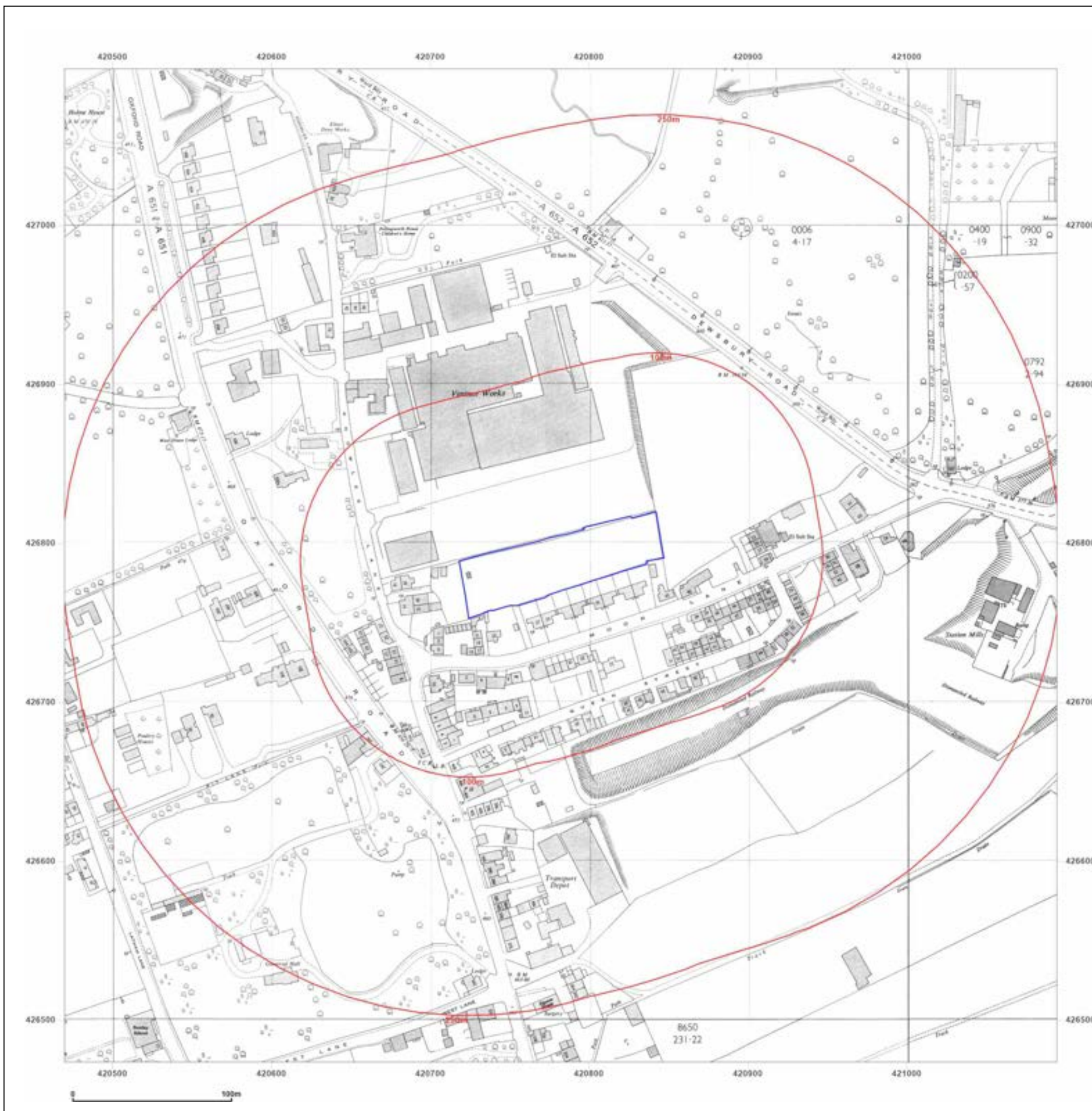


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1973-1974

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1973
Edition N/A
Copyright 1973
Levelled 1962

Surveyed 1956
Revised 1973
Edition N/A
Copyright 1973
Levelled 1962

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



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

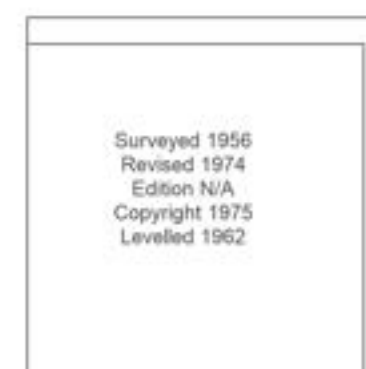
Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1975

Scale: 1:1,250

Printed at: 1:2,000

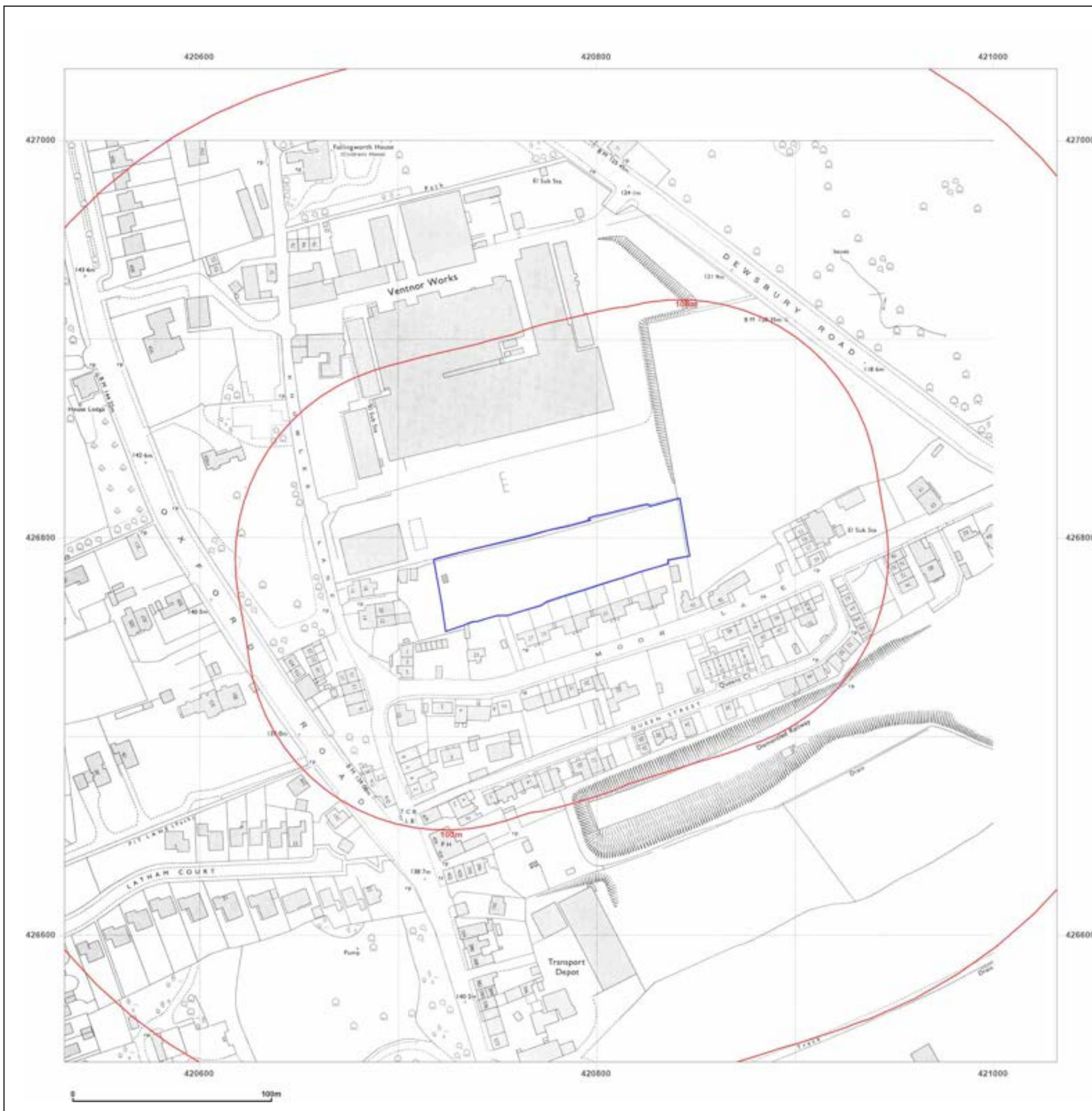


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

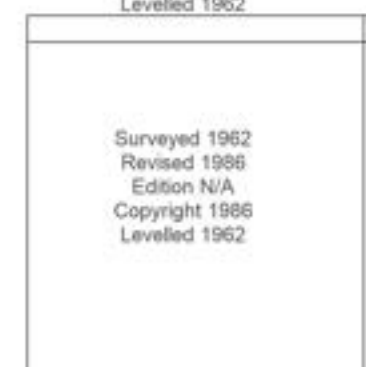
Map date: 1986

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1985
Edition N/A
Copyright 1986
Levelled 1962



Surveyed 1962
Revised 1986
Edition N/A
Copyright 1986
Levelled 1962

Surveyed 1962
Revised 1986
Edition N/A
Copyright 1986
Levelled 1962



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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

Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

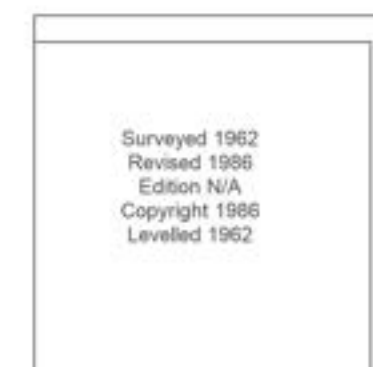
Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1986

Scale: 1:1,250

Printed at: 1:2,000

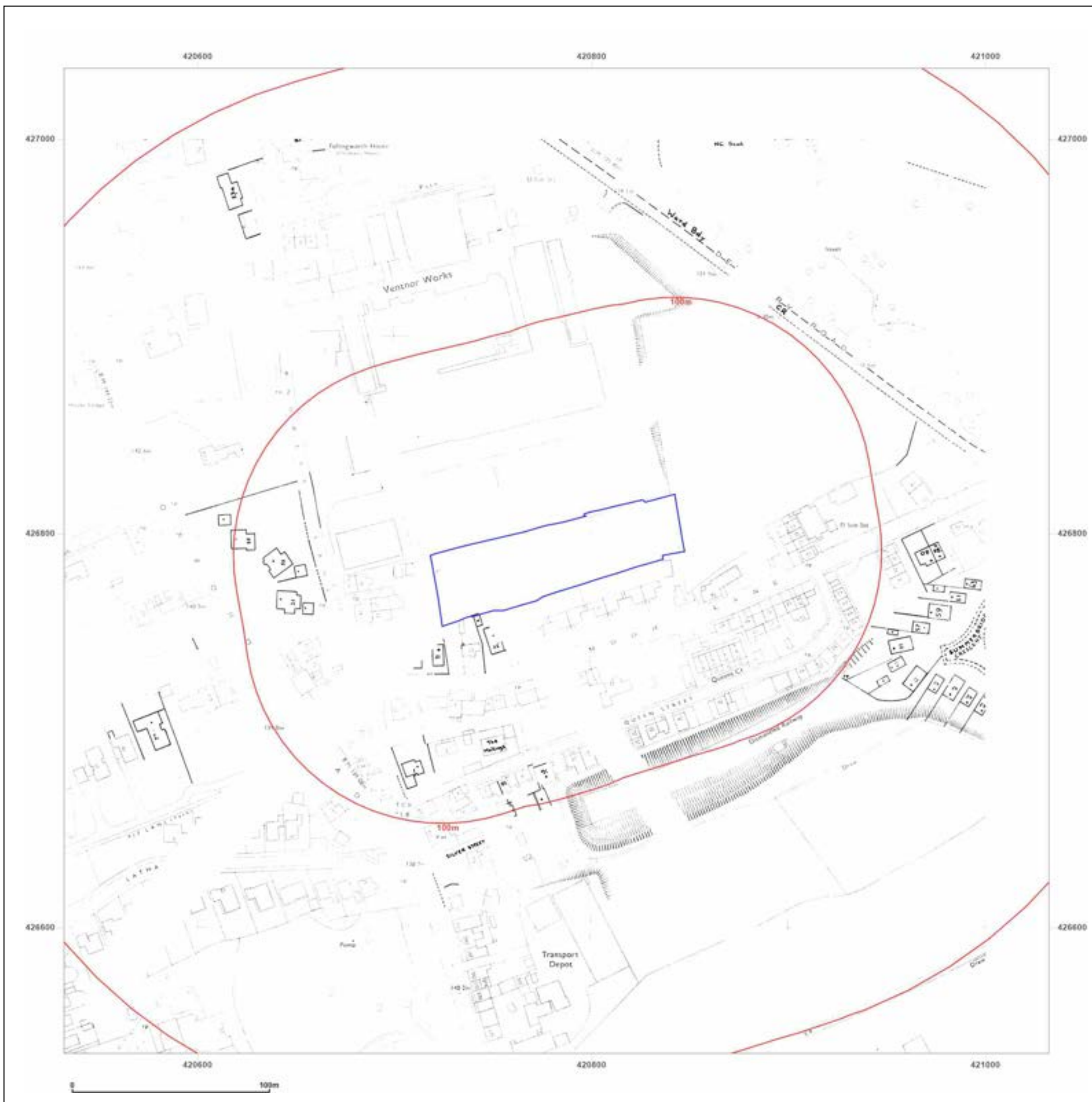


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1988-1993

Scale: 1:1,250

Printed at: 1:2,000



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

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

Surveyed 1962
Revised 1988
Edition N/A
Copyright 1988
Levelled 1962

Surveyed 1956
Revised 1987
Edition N/A
Copyright 1988
Levelled 1962

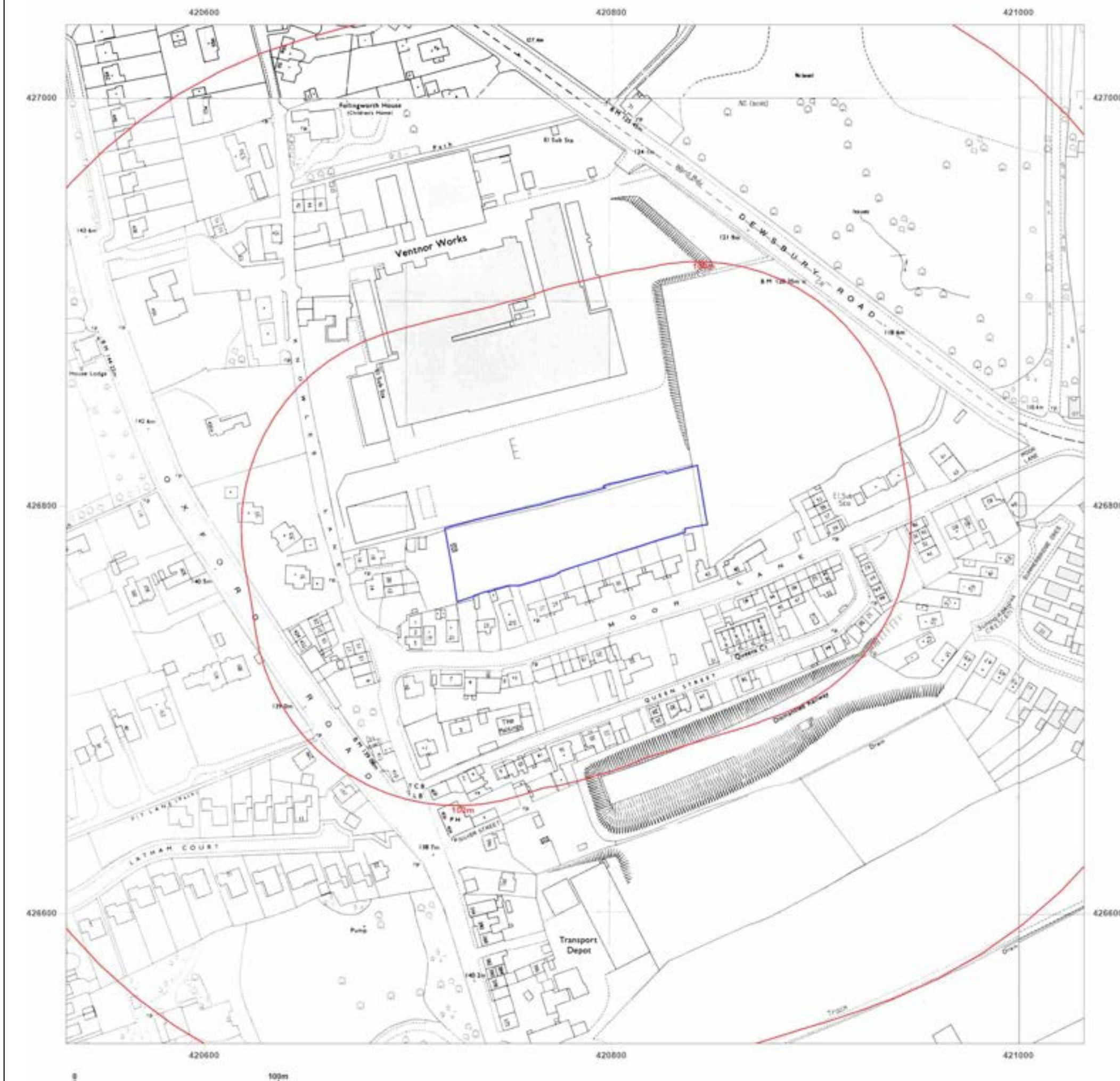


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

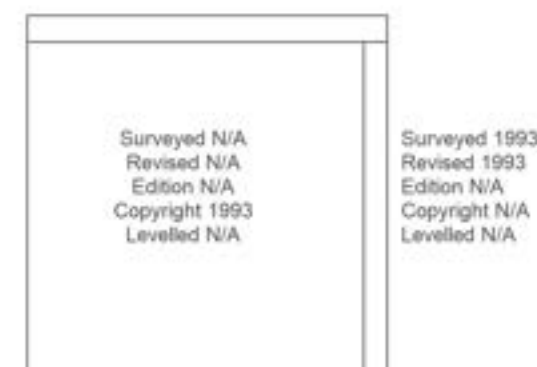
Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000

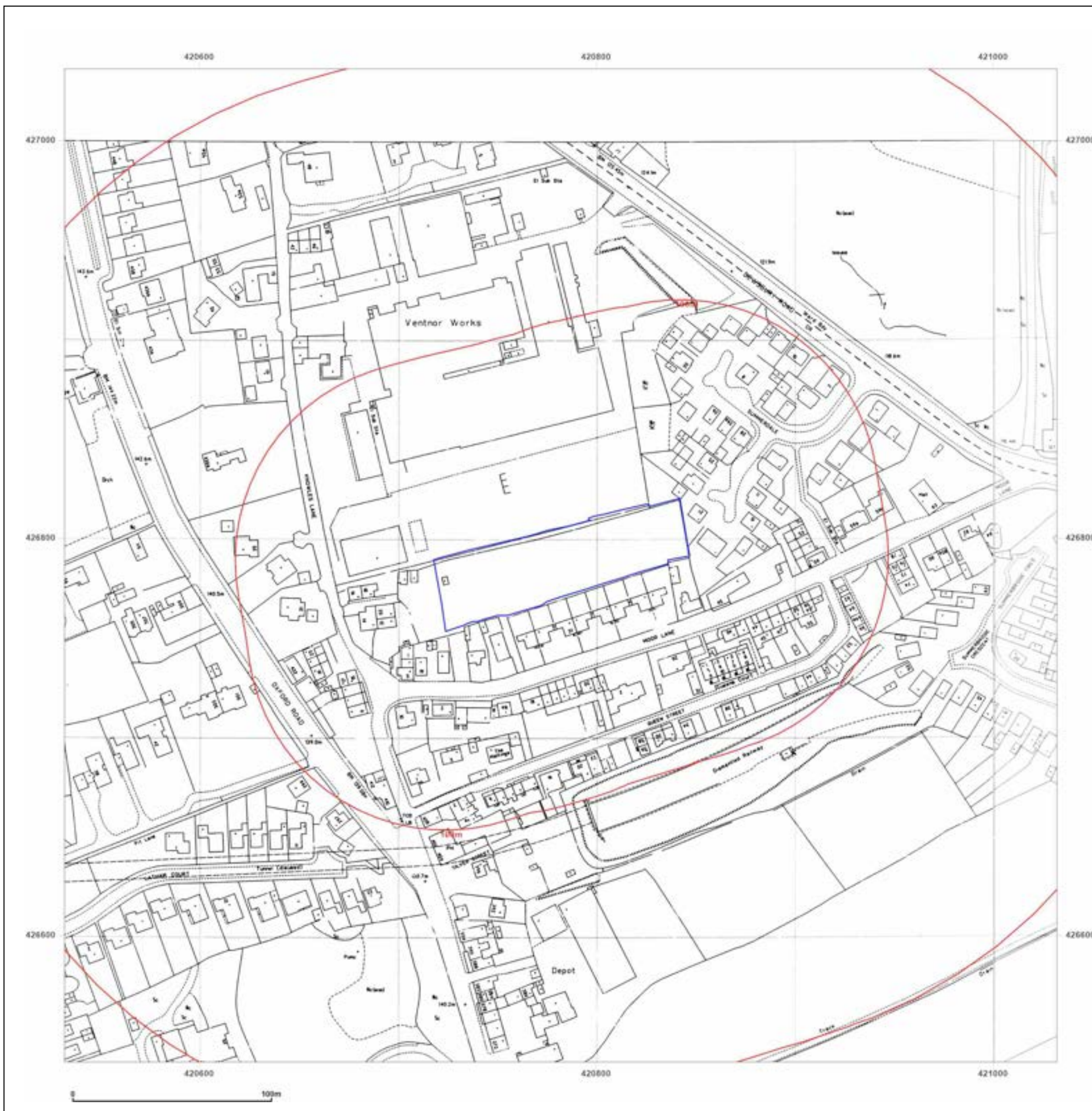


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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



Site Details:

MOOR LANE, GOMERSAL,
CLECKHEATON, BD19 4LF

Client Ref: 7944
Report Ref: GS-8768560
Grid Ref: 420782, 426786

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 23 May 2022

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

