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Phase 2 Geo-environmental Report

ON

PROPOSED DEVELOPMENT

AT

**EGYPT FARM, CLIFFE LANE,
CLECKHEATON**

FOR

Mr A RATCLIFFE

APRIL 2019

E17/7349/R002A

Prepared by

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0.0 **EXECUTIVE SUMMARY**

SITE	The proposed development is located on land comprising part of Egypt farm, off Cliffe Lane, Cleckheaton. The development is limited to the central area of the site, consisting of two barns, and an area of concrete hardstanding. Developments of the other existing farm grounds and buildings are located immediately to the east and west of the site. The farm grounds and fields extend to the south, with further agricultural fields across the road to the north The site generally has a gentle slope from north east to south west with a high point of 103.07m AOD, and a low point of 101.71m AOD.
HISTORY	The site has been shown as being a part of the farm labelled 'Egypt' since before 1854. There has been little development on the site throughout the period of available data, other than the farm outbuildings.
GEOLOGY	No artificial strata is recorded on the site, and no fault lines are indicated to run through or close to the site boundaries. The site is underlain by the Pennine Lower Coal Measures Formation, consisting of mudstone, siltstone and sandstone.
MINING/QUARRYING	The Coal Authority Report states that the property is in a surface area that could be affected by underground mining in two seams of coal at depths of 30-100m, last known to have been worked in 1972. Any ground movement from these previous workings should now have ceased. There are no known coal mine entries within, or within 20 metres of, the boundary of the property.
HYDROLOGY	No surface water features are noted in close proximity to the site.
HYDROGEOLOGY	The groundwater vulnerability map for the area indicates that the bedrock strata is designated as a minor aquifer. No groundwater was encountered during the trial pit excavations or window sampling.
HAZARDOUS GAS	Elevated levels of CO₂ have been found in one of the gas monitoring stations on site during each of the gas monitoring visits, however these have steadily decreased as gas monitoring has progressed. The property is not in an area requiring radon protection measures.

CONTAMINATION	Two elevated levels of arsenic and a single elevated level of sulphate were noted in any of the samples of natural strata submitted for testing. No asbestos fibres were detected in the samples submitted for analysis.
REMEDIATION	No remediation strategies for ground contamination are expected to be necessary for the site, since the elevated arsenic levels found are separated from end users by hardstanding areas. Remediation measures will be necessary to protect developments from gas accumulation. Potentially harmful pigeon droppings have accumulated within the existing barn building, and will need to be removed from site prior to development.
FOUNDATIONS	The proposed residential properties to be constructed on the site of the current cattle shed in the southern area of the site, should be constructed on strip/trench fill footings founded entirely onto the underlying hard strata. Where the sandstone is encountered, the foundations should be deepened to lay wholly on this strata to avoid differential settlement. The foundation widths will vary dependent upon the line loadings calculated. Underpinning will need to be carried out in order to deepen the foundations of the existing barn building.
SURFACE WATER DRAINAGE	Soak-a-ways are unlikely to be a viable method of drainage for this site due to the impermeability of the underlying clay strata.

1.0 INTRODUCTION

- 1.1 As requested by Andrew Ratcliffe, this practice carried out ground and contamination investigation works to the proposed development at Egypt Farm, Cliffe Lane, Gomersal.
- 1.2 The purpose of the report was to:-
 - 1.2.1 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.
 - 1.2.2 To identify any areas of contaminated ground.
 - 1.2.3 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.
 - 1.2.4 Determine if infiltration methods would be a suitable long term form of surface water disposal.
 - 1.2.5 Determine if shallow mine workings would adversely affect the site.
- 1.3 Soil sampling was undertaken via trial pits and boreholes to determine the near surface strata. Distributed samples were taken for testing to ascertain the nature of the soils and fills present.
- 1.4 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 boreholes, which have not been revealed by the investigation.
- 1.5 Any opinion given on the possible configuration of strata between trial pit and borehole 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.
- 1.6 Furthermore, there is the possibility that any trial pits or boreholes 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 area to be developed forms part of Egypt Farm, off Cliffe Lane, Gomersal, Cleckheaton. It is situated around Ordnance Survey grid reference 419415, 426133. A site location plan is included in Appendix A.
- 2.2 It is proposed to develop the central area of Egypt Farm, which consists of two barns, and an area of concrete hardstanding. Immediately to the west is the existing stables and garage, and to the east are existing cottages. Access into the site is from Cliffe Lane on the northern boundary. The approximate site area is 0.05ha.
- 2.3 The first barn fronts onto Cliffe Lane and is a brickwork construction with a brick and stone extension on the southern side. There is a stable adjoining the north west corner of the barn which is constructed of brick and stone. To the east of the barn is the tarmac access from Cliffe Lane, which leads to the concrete yard area to the south of the first barn. This first barn is to be converted into two houses with garden areas to the south. The shed to the south is to be partially converted into a parking area, but will largely remain in use as an equipment store.
- 2.4 To the south of the concrete yard are two attached barns. One barn is of brickwork construction while the other is steel framed with brickwork walls. Both of these are in poor condition and scheduled to be demolished as part of the development.
- 2.5 Immediately east of the barn, the existing cottages have been renovated and three terraced houses are currently under construction. This is a separate development from the current area being investigated.
- 2.6 The site generally falls from north east to south west with a high point of 103.07m AOD located on the access from Cliffe Lane and a low point of 101.71m AOD located on the south western corner of the barns to be demolished.

3.0 SITE HISTORY

A number of historical Ordnance Survey plans from 1853-2014 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 effect future construction of the area to be developed.

	Historical uses on site	Historical findings within 100m perimeter of the site	Historical findings further than 100m perimeter of the site
1854	i). The majority of the area is shown as open field. ii). A barn and cottage is shown in the north and north eastern corner of the site in the same location as they are today. ii). The northern boundary of the site is formed by a highway. iii). Footpath crosses the site from the north to the east.	i). Buildings labelled as Egypt continue east of the area to be developed.	i). There are mill buildings located 200m to the south east and several mills located 300-500m to the south west.
1892	i). The on-site features are similar to the previous sheet	ii). Residential properties shown immediately north west of the area to be developed.	i). Iron works 300m to the west ii). Mill ponds 300m to the south south east and 400m to the west.
1905	i). Building shown in the southern half of the area to be developed.	i). Railway line 100m east of the are to be developed	i). No significant developments within 500m of the site.
1931-1932	i). The on-site features are similar to the previous sheet.	i). No significant developments within 100m of the site.	i) Iron works now labelled as a mill.
1966-1967	i). Building no longer shown in southern half of area to be developed.	i). Residential properties 75m north west of area to be developed.	i). No significant developments within 500m of the site.
1974-1975	i). The on-site features are similar to the previous sheet.	i). Railway line 100m to the east dismantled.	i). No significant developments within 500m of the site.
2010	i). The on-site features are similar to the previous sheet.	i). No significant developments within 100m of the site.	i) Mill buildings no longer shown 200m to the south east.

4.0 SITE GEOLOGY & MINING

- 4.1 The BGS Digital Geological Map of Great Britain at 1:50,000 scale has been consulted and we would report as follows:-
- 4.2 There are no areas of made ground or superficial strata shown overlying the area of site to be developed. The nearest made ground is located approximately 50m east of the proposed barn and is associated with former railway cuttings.
- 4.3 The site is underlain by the Pennine Lower Coal Measures Formation consisting of Mudstone, Siltstone and Sandstone.
- 4.4 There are no fault lines in the vicinity of the site.
- 4.5 A coal seam is shown outcropping approximately 60m west of the proposed barn.
- 4.6 The Coal Authority Report is included in Appendix B and states that the property is in a surface area that could be affected by underground mining in 2 seams of coal at 30m to 100m depth, and last worked in 1972. Any movement in the ground due to coal mining activity should have stopped.
- 4.7 In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface.
- 4.8 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 exist in the local area which could be worked at some time in the future.
- 4.9 There are no known coal mine entries within, or within 20 metres of, the boundary of the property.
- 4.10 The nearest BGS borehole record is located 50m north west of the proposed barn. The borehole generally showed alternating bands of mudstone, siltstone and sandstone. Core losses 1.1m, 0.1m, 0.2m and 0.1m thick were recorded at depths of approximately 3.5m, 5.2m, 8.4m and 11.5m respectively. Mudstone with coal fragments was recorded below the upper two areas of core losses.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Radon

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

No Radon Protective Measures are necessary.

5.2 Landfill Sites

The former railway cuttings located 50m east of the proposed barn are recorded as landfill accepting inert, commercial and industrial waste. Four further landfills that accepted a mix of inert, commercial and industrial waste are located 34m north east, 44m south east, 91m south east and 153m south east of the site.

5.3 Flood Risk

The site lies outside of current EA defined flood zones.

5.4 Groundwater

The bedrock underlying the site is classified 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 are no recorded groundwater abstraction licences recorded within 250m of the site.

There are two recorded licensed discharge consents within 250m of the site. These are treated effluent discharges to groundwater via soakaway 183m and 199m north west of the site.

There are no recorded surface water abstractions within 250m of the site.

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

The site is not located in a Source Protection Zone.

The nearest recorded surface water feature is 177m to the north west of the site. This is a Secondary River called Nann Hall Beck.

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 the construction of 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 There have been no historical uses of the site, or immediately adjacent the site, likely to cause contamination on site. However, there is a low risk of contamination from the following:
- i. Possible fill material used beneath areas of hardstanding on site.
 - ii. Construction materials within buildings on site. (Possible Asbestos Containing Materials).
 - iii. Possible ground gas migration from probable shallow mine workings beneath the development.
 - iv. Possible ground gas migration from the recorded areas of landfill in the vicinity of the site.

Therefore the potential for some contamination to exist on site is considered to be very low.

- 6.5 Considering the proposed residential end use of the site, there will be two possible human receptor groups exposed to the existing onsite contamination:-
- a) Site operatives during development.
 - b) End users, future site users (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 Users</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 recorded historical usage of the site likely to cause heavy contamination to the ground. There are no licensed ground water or surface water abstractions within 250m of the development.
- 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.
- 6.10 It is proposed to construct residential properties on the site with private garden 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 Trial pit excavations were undertaken on the 5th October 2018 using a 360 tracked excavator with 600mm wide bucket. In addition to this, three rotary boreholes were undertaken to confirm the underlying strata, and potential presence of possible shallow workings. Due to the proximity of the existing landfill, and potential shallow mine workings, two of these boreholes have been installed with piezometers to allow gas monitoring to be undertaken.
- 7.2 Materials encountered in the trial pits and boreholes were examined and categorized. Trial pit and borehole logs are contained within Appendix B of the report.
- 7.3 The site investigation works were designed to achieve comprehensive site coverage within the proposed development area. In particular, a trial pit was undertaken in the location of a former underground tank to allow sampling.
- 7.4 Soil samples were removed from the natural and made ground deposits within the trial pits, and from BH01. The samples were removed by operatives wearing gloves and placed into airtight clean plastic containers and glass bottles for transportation to the laboratory.
- 7.5 A total of five samples from the natural and made ground deposits were recovered from the trial holes and borehole for chemical analysis. 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.
- 7.6 A suite of common potential contaminants consisting of heavy metals, phytotoxic metals, sulphates, sulphides and poly-aromatic hydrocarbons was analysed for, including a range of metals and inorganic substances, asbestos and total EPH from beside the former underground tank.
- 7.7 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 surface layer of TP01 was 0.7m of made ground, consisting of black sand, crushed brick, gravels and cobbles. TP02 proved a surface layer of 0.2m Stone gravel.
- 8.1.3 The made ground in TP01 is underlain by 0.20m of grey clay, to a depth of 0.9m, while TP02 proved 0.60m of clayey made ground with sands and gravels, to a depth of 0.8m.
- 8.1.4 The final layer of TP01 was a layer of grey-yellow mottled clay, encountered at a depth of 0.9-1.3m. The clayey made ground in TP02 was underlain by firm brown clay with sands and gravels, to a depth of 1.2m.
- 8.1.5 TP02 proved a layer of weak black immature coal/clay from 1.2-1.4m, followed by firm brown slightly sandy clay with sandstone gravels, to the base of the pit at 1.7m.
- 8.1.6 The sides of both trial pits remained stable throughout investigation. It should be noted that the trial pits were only left open for a short duration of time.
- 8.1.7 During the borehole investigation, between 1.70m and 4.60m thick of made ground were proved in BH01 and BH02. Due to the aggressive nature of the drilling it is hard to differentiate between the made ground and clays. In BH03, the layer at the surface consisted of 0.80m of clay.
- 8.1.8 Made ground in BH01 was underlain by 14.80m of grey mudstone, followed by sandstone to the depth of the borehole at 30m. Immediately below the 1.7m of made ground at the surface of BH02 was proved 6.0m of sandstone followed by 10.70m of grey mudstone, and sandstone extending to the base of the borehole at 30m. The clay at the surface of BH03 was underlain by 1.80m of sandstone, followed by 13.60m of grey mudstone, and sandstone to the depth of the borehole at 30m. No coal was recorded in the boreholes

8.1.9 No evidence of coal mining above a depth of 30m was proved through borehole or trial pit investigations, however a 0.20m thick seam of weak black immature coal was noted in TP02 at a depth of 1.20m.

8.2 GROUNDWATER

8.2.1 No groundwater was encountered during the trial pit investigation.

8.2.2 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 this investigation.

8.3 GAS MONITORING

8.3.1 BH01A and BH02A 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 two occasions.

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 3 below. A complete set of results will be reported on completion of the intended testing programme.

Table 3 - Summary of Recorded Gas Levels.

Borehole No.	Date	Oxygen %	Carbon Dioxide %	Methane %	Flow Rate (l/hr)	Depth to Water (m)	Atmospheric Pressure (mb)
BH01A	25.10.18	16.9	2.9	NR	ND	DRY	1005
	14.11.18	16.6	3.4	NR	0.1	DRY	1003
	28.11.18	19.0	2.1	NR	-0.2	DRY	992
	13.12.18	Tap Inaccessible					
	15.01.19	15.2	4.5	NR	ND	DRY	1001
	06.03.19	Tap Inaccessible					
BH02A	25.10.18	15.1	17.0	NR	-0.5	3.10	1005
	14.11.18	13.6	22.0	NR	0.2	3.10	1003
	28.11.18	12.6	19.0	NR	-1.4	3.10	992
	13.12.18	14.8	14.0	NR	-0.4	3.10	1003
	15.01.19	14.9	10.0	NR	-0.1	3.10	1001
	06.03.19	14.3	6.7	NR	ND	2.90	965

8.3.4 A maximum carbon dioxide concentration of 22.0% and no methane was recorded in BH02A. A maximum flow rate of -1.4 l/hr was detected in the monitoring stations. CO2 readings have steadily decreased as the gas measurements have progressed.

8.3.5 Based on the maximum concentrations and gas flow rates measured, the gas regime found on this site can be currently classified as **Amber II**, or **CS2** by BS 8485:2105 Table 2 due to the high carbon dioxide and low flow rate being recorded.

8.3.6 BH02A, located adjacent to the existing farmhouse building has exhibited significantly elevated levels of carbon dioxide on each of the occasions when sampling has been carried out.

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 use. Soil results have therefore been assessed against the CLEA SGV's for Residential Properties with plant uptake, as these are considered to be the most suitable guidelines to protect the most critical targets from contaminants via all possible exposure routes.
- 9.2.4 Where no CLEA SGV has been published, Generic Assessment Criteria (GAC) based on guidelines from the Chartered Institute of Environmental Health (CIEH) and Land Quality Management Ltd (LQM) S4UL document residential land use with plant uptake has been used. Where there is no GAC, guidance limits have been adopted from sources referenced in the table below.
- 9.2.5 A new approach has now been adopted for the calculation of SGV based on an acceptably low level of risk. These Category 4 Screening Levels (C4SL) have been calculated for six substances to date by modifying the toxilogical/exposure parameters within CLEA. C4SLs have been used as tier 1 trigger levels within this assessment, superseding the previous CIEH and LQM SGVs.
- 9.2.6 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.
- 9.2.7 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.
- 9.2.8 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 3.

Table 3**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)	13-64	2/5	40.0%
Cadmium	22 (4)	<0.1-1.6	0/5	
Chromium (Total)	130 (2)	19-27	0/5	
Lead	200 (4)	24-99	0/5	
Mercury (Total)	1.2 (1)	<0.05-0.20	0/5	
Selenium	250 (1)	<0.5-1.0	0/5	
Copper	2400 (1)	34-140	0/5	
Nickel	180 (1)	23-40	0/5	
Zinc	3700 (1)	85-130	0/5	
Sulphate	0.24 (3)	0.02-0.25	1/5	20.0%
Thiocyanate	50	<0.6-1.3	0/5	
Sulphide	250	<10-120	0/5	
Naphthalene	2.3 (1)	<0.1	0/5	
Benzo(a)pyrene	5 (4)	<0.1-0.7	0/5	
PAH (Total)	40	<1.6-9.2	0/5	
EPH (Total)	250	<10	0/1	
Phenols	760 (1)	<0.3	0/5	
Asbestos	No fibres	No fibres	0/4	
pH	6-8	7.4-9.6	2/5	40.0%

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

(3) BS 8110 1985 Table 6.1

(4) Category 4 Screening Levels

9.2.9 Elevated levels of Arsenic (41 and 64mg/kg) were recorded in the made ground at 0.20-0.80m in BH01, and 0.20m in TP02.

9.2.10 A single elevated level of sulphate (0.25mg/kg) was recorded in the made ground of TP02. This corresponds to a design sulphate class DS-1, ACEC class AC-2, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

9.2.11 The soil sample taken from TP02 was tested for hydrocarbons based on information from previous trialling. No hydrocarbons were found in this instance.

9.2.12 Elevated pH was proved in the made ground of BH01, and TP02.

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) Single elevated level of sulphate.
- ii) Elevated levels arsenic.
- iii) Elevated CO₂

9.3.3 **PATHWAYS**

- i) Ingestion of contamination material.
- ii) Inhalation of contaminated particles.
- iii) Dermal contact with the known contamination.

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, and the proposed land use of the site it is considered that there is currently a **low** risk to end users from localised ground contamination on-site.

A single elevated level of Sulphate (0.25 mg/kg) was recorded in the made ground at 0.6m in TP02. This is primarily a risk of corroding steel reinforcement from the sulphide present.

Elevated levels of arsenic were recorded in the samples from the made ground of TP01 at 0.2m, and BH01 at a depth of 0.2-0.8m.

Significantly elevated levels of CO₂ were recorded in the borehole beside the building in the north of the site, proposed to be developed into residential housing. This will require further testing and remediation before development.

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

There are no groundwater abstractions located within 250m of the site. The nearest recorded surface water feature is 177m to the north west of the site. This is a Secondary River called Nann Hall Beck.

The site investigation works have proven the site to be underlain by semi-permeable clays, mudstone, siltstone and sandstone strata. It is therefore considered that there is **low** risk to groundwater and controlled waters from existing contamination on site.

iv) Building Structures.

A single elevated sulphate level was recorded in the samples of made ground at the surface. This corresponds to a design sulphate class DS-1, ACEC class AC-1, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

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.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 GEOTECHNICAL ASSESSMENT

- 10.1.1 The fieldwork generally proved made ground overlying sand and mudstone strata and sandstone bedrock. Made ground is not considered a suitable foundation material and therefore all loadings should be taken through to the natural underlying sandstone capable of providing suitable bearing.
- 10.1.2 For initial design purposes we would envisage a safe bearing capacity of 150kN/m² where foundations are extended onto the sandstone/mudstone strata.
- 10.1.3 We would therefore suggest that the proposed constructions in the south of the site should be constructed on strip/trench fill footings founded entirely onto the clay strata. Where sandstone is encountered within the excavations, the foundations should be deepened to lie entirely onto the sandstone strata to avoid differential settlement. The foundation widths will vary dependent upon the line loadings calculated.
- 10.1.4 All foundations should be placed below a line of 45° drawn up from the base of any services or other structures.
- 10.1.5 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.
- 10.1.6 It is proposed to split the existing building into two units. Underpinning will therefore be required to deepen the foundations of the existing building, in order to install a party wall, as well as to retrofit gas protection measures.
- 10.1.7 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.

10.1.8 A single slightly elevated level of sulphate was recorded in the samples taken from site. Therefore a design sulphate class DS-1, ACEC class AC-1, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

10.1.9 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.

10.2 MINING

10.2.1 The Coal Authority Report is included in Appendix B and states that the property is in a surface area that could be affected by underground mining in 2 seams of coal at 30m to 100m depth, and last worked in 1972. Any movement in the ground due to coal mining activity should have stopped.

10.2.2 In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface.

10.2.3 Borehole investigation of the site proved no evidence of historic coal mining within 30m beneath the site, with made ground/clay overlying grey mudstone or sandstone in all three boreholes.

10.2.4 CIRIA Special Publication 32 –'Construction over abandoned mine workings' states that where there is a rockhead to seam thickness ratio of at least 10:1, no further works are necessary as there is a negligible risk of void migration to the surface. Since no voids were encountered in ground works, it can be accepted that no further works are necessary.

10.3 CONTAMINATION ASSESSMENT

10.3.1 Elevated levels of arsenic were recorded in the sample from the made ground at depths of 0.2-0.8m in BH01 and 0.2m in TP01.

- 10.3.2 It is understood that the central area of the site between the two barns is to be hard paved. This will sever any potential contamination pathways, reducing the risk to future site occupants. It must be considered however, that the significant accumulation of pigeon droppings in the building to be redeveloped in the north of the site may pose a health hazard, and should be removed and disposed of in an appropriate manner prior to development of the site commencing.
- 10.3.3 Should any suspected areas of contamination be exposed during site 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.

10.4 GROUND FLOOR SLAB – GAS MEASURES

- 10.4.1 As discussed previously, there was the possibility of gas migration from landfill sites a short distance to the west, and potential shallow mine workings located near the site. Further potential gas sources were observed during site investigation. The former location of an underground fuel tank may generate gas as fuel residues decompose, and the presence of pigeon droppings in the existing barn may also increase the risk of gas. Because of this, two gas monitoring stations have been installed on site.
- 10.4.2 The gas testing undertaken has proved high levels of carbon dioxide (max 22%) and no methane. Flow rates as high as 1.4 l/hr have been detected for the boreholes on site.
- 10.4.3 No radon protection measures are required for the site.
- 10.4.4 The proposed development consists of residential housing with garden areas, and therefore the gas regime has been characterised in accordance with the traffic light methodology as outlined in *CIRIA Report C665*. Based on the maximum concentrations and gas flow rates measured to-date, the gas regime found on this site can be currently classified as **Amber II**, or CS2 by BS 8485:2015 Table 2.
- GSV = max carbon dioxide concentration x max flow rate $0.22 \times 1.4 = 0.308$ l/h
- 10.4.5 Due to the presence of potential shallow mine-workings and infilled land in the vicinity of the proposed properties and the maximum carbon dioxide concentration of 22%

recorded, there is a likelihood for a build-up of carbon dioxide beneath the dwelling over an extended time period. We would therefore consider it necessary to adopt the following construction details for a CS2 gas regime:

- Fully vented minimum 150mm deep void below suspended slab. To be increased to 250mm where the proximity of trees affect the foundation construction. 2.5 Points
- Continuous membrane across the cavity/party walls. 0 Points
- Cavity tray in the external walls. 0 Points
- Fully sealed service entries and ducts to manufactures specification. 0 Points
- Beam and block floor construction 0 Points
- A Visqueen Gas Barrier meeting all of the following criteria:
 - Sufficiently impervious to gasses with a methane gas transmission rate <40.0ml/day/m2/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1 manometric method).
 - Sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions.
 - Sufficiently strong to withstand in-service stresses (eg. Settlement if placed below a floor slab).
 - Sufficiently strong to withstand the installation process and following trades until covered (eg. Penetrations from steel fibres in fibre reinforced concrete, penetration from reinforcement ties, tearing due to Working above it, dropping tools etc.)
 - Capable, after installation, of providing a complete barrier to the entry of the relevant gas.
 - Verified in accordance with CIRIA C735 [N1] 2.0 Points
- Total 4.5 Points

10.4.6 Gas measures will need to be retrofitted to the existing buildings on site. This will require the excavation of the existing ground floors, in order to construct the vented voids beneath the ground floor slabs to be implemented. This will likely require underpinning to be carried out, in order to deepen the foundations to a point where a sufficiently deep void can be implemented. Once sufficient ground has been

excavated, and ventilation measures implemented, a new ground floor slab should be laid, and a gas membrane overlain.

- 10.4.7 A further precautionary measure we would recommend would be to incorporate venting at the roof level of developments, to prevent the build-up of gas within wall cavities, as gas membranes are unlikely to completely prevent gas accumulation when CO₂ levels are as high as those encountered at this site. New internal walls will need to be constructed, in order to create wall cavities.

11.0 SUGGESTED FURTHER WORK

- 11.1 We would recommend the removal of the potentially harmful pigeon droppings which have accumulated in the building in the north of the site.
- 11.2 Underpinning will be required to deepen the foundations of the existing building, in order to implement gas protection methods.
- 11.3 It would be prudent to extend the gas monitoring on site, in order to devise a robust gas protection strategy.

12.0 APPROVALS

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

These include:

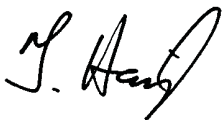
- a) Kirklees Council Environmental Health Department as required by the building and planning regulations.
- b) The NHBC or similar as they will provide the insurance costs to cover the property.
- c) The Environment Agency if there are risks of contamination to ground or surface water systems. They 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. Huddleston. MEng

Checked by



T. Haigh. BSc.,C.Eng.M.I.C.E.

April 2019

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Mr A Ratcliffe in respect of the proposals described.

APPENDIX A

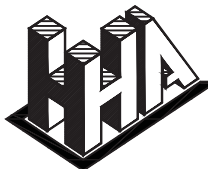
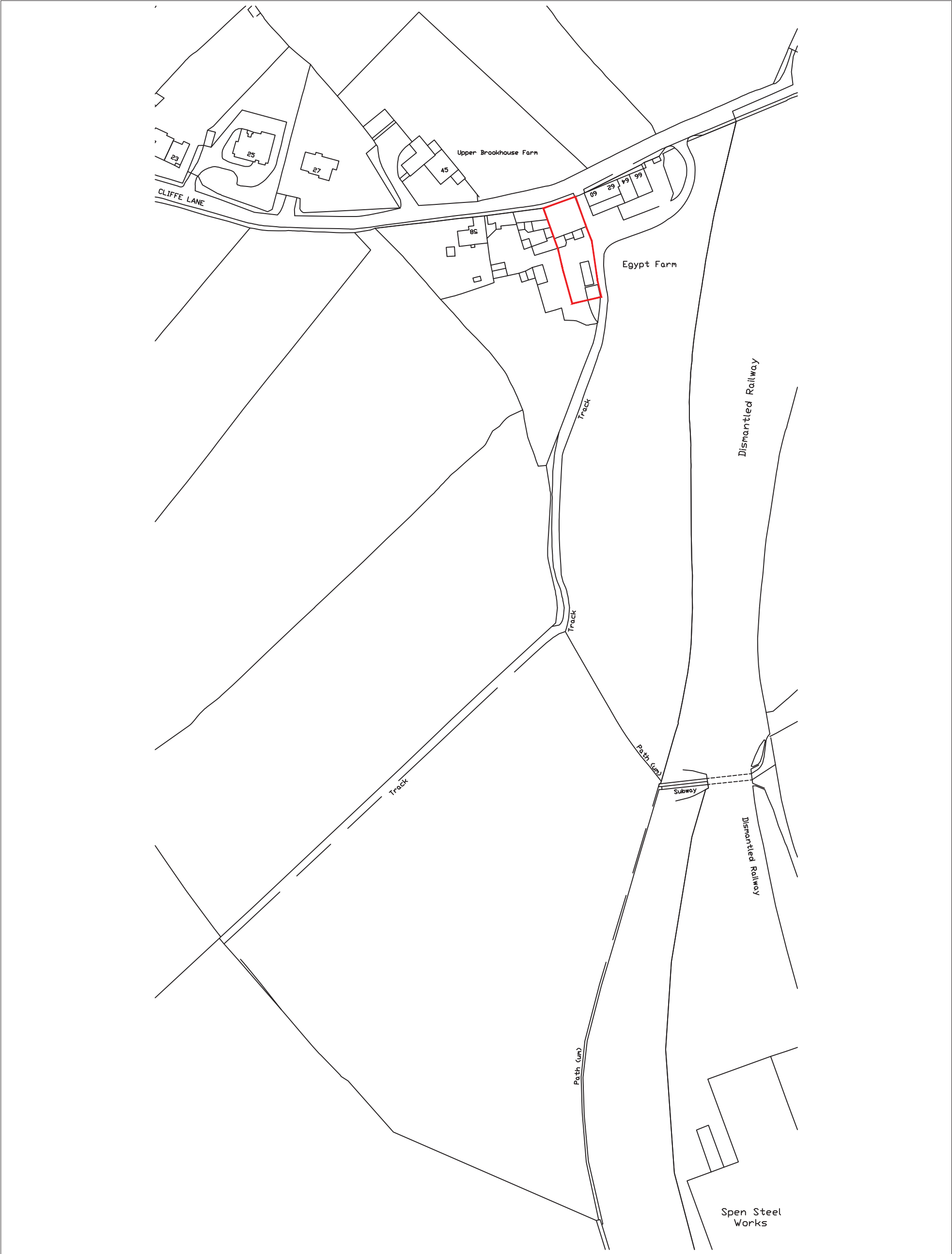
SITE LOCATION PLAN

SITE INVESTIGATION PLAN

CURRENT SITE LAYOUT

PROPOSED SITE LAYOUT

SITE CONCEPTUAL MODEL

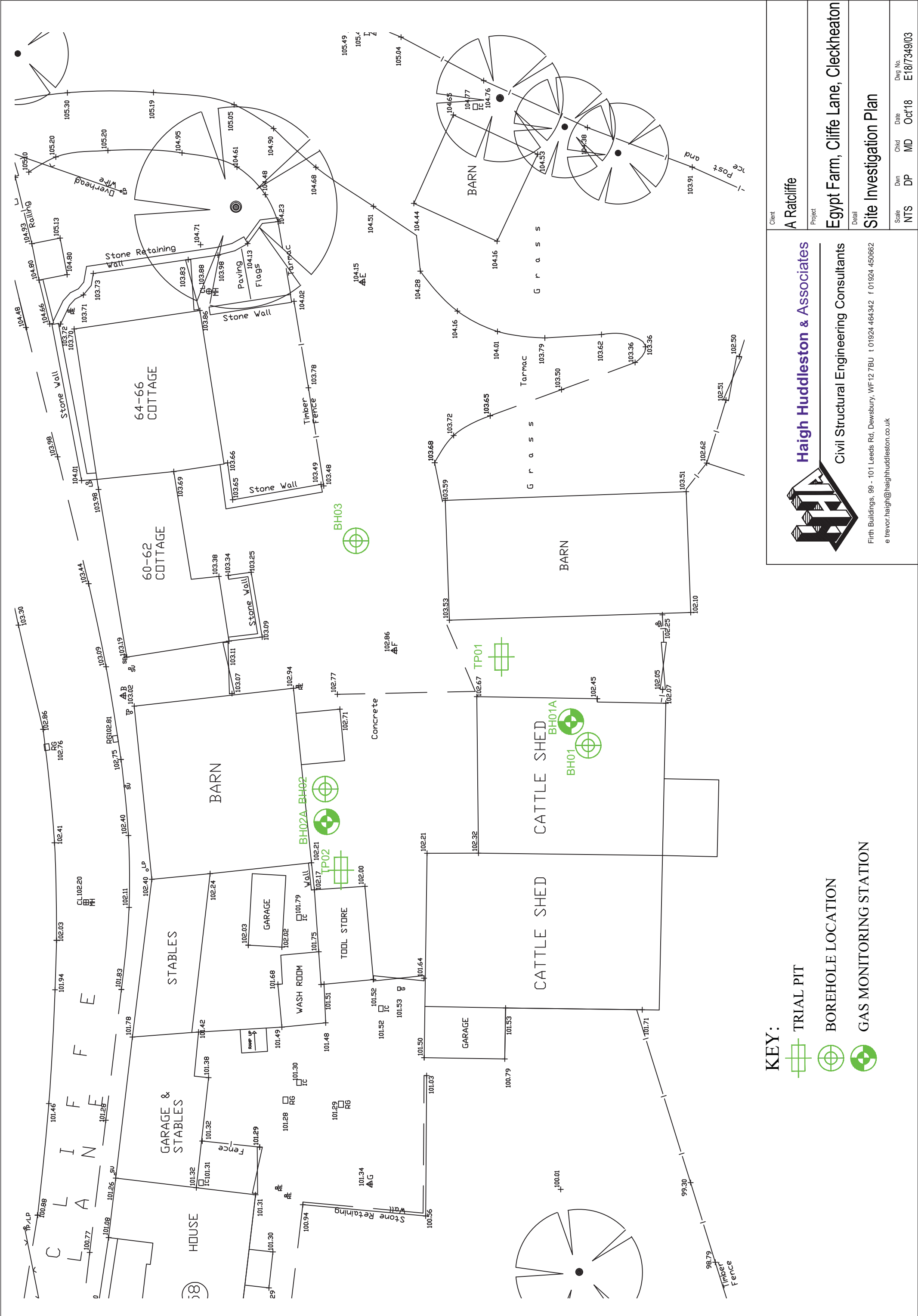


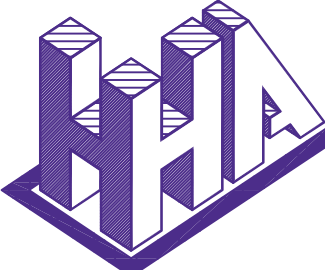
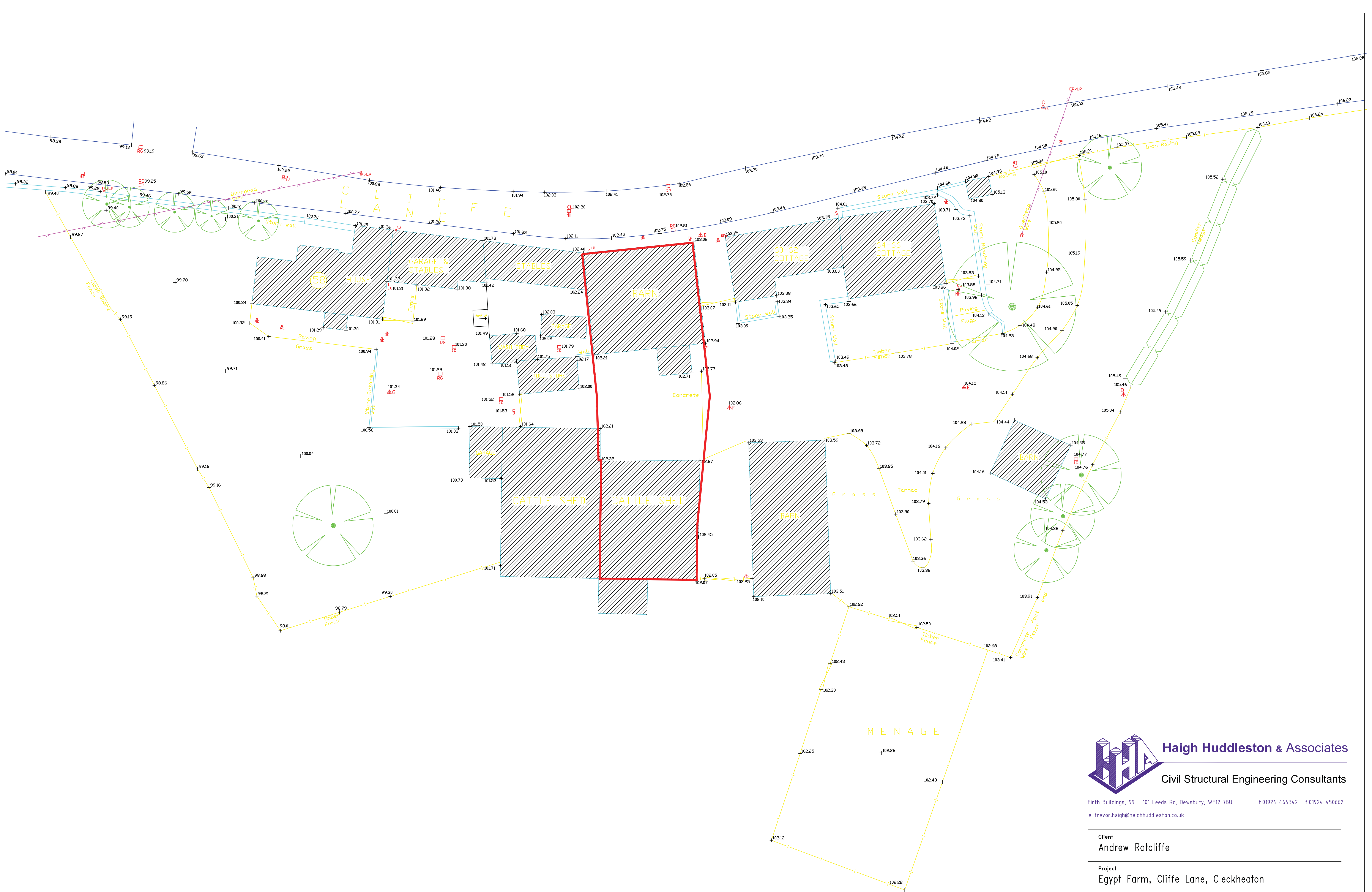
Haigh Huddleston & Associates

Civil Structural Engineering Consultants

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

Client	A Ratcliffe		
Project	Egypt Farm, Cliffe Lane, Cleckheaton		
Detail	Site Location Plan		
Scale	Dwn	Chkd	
NTS @A3	DP	MD	E18/7349/02



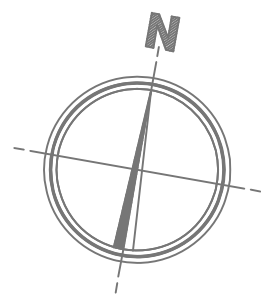


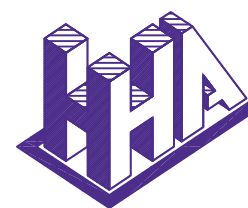
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Client				
Andrew Ratcliffe				
Project				
Egypt Farm, Cliffe Lane, Cleckheaton				
Detail				
Existing Site Plan				
Dwn	Chkd	Date	Scale	Dwg No.
DP	MD	03-04-19	1/200@A2	E17/7349/004

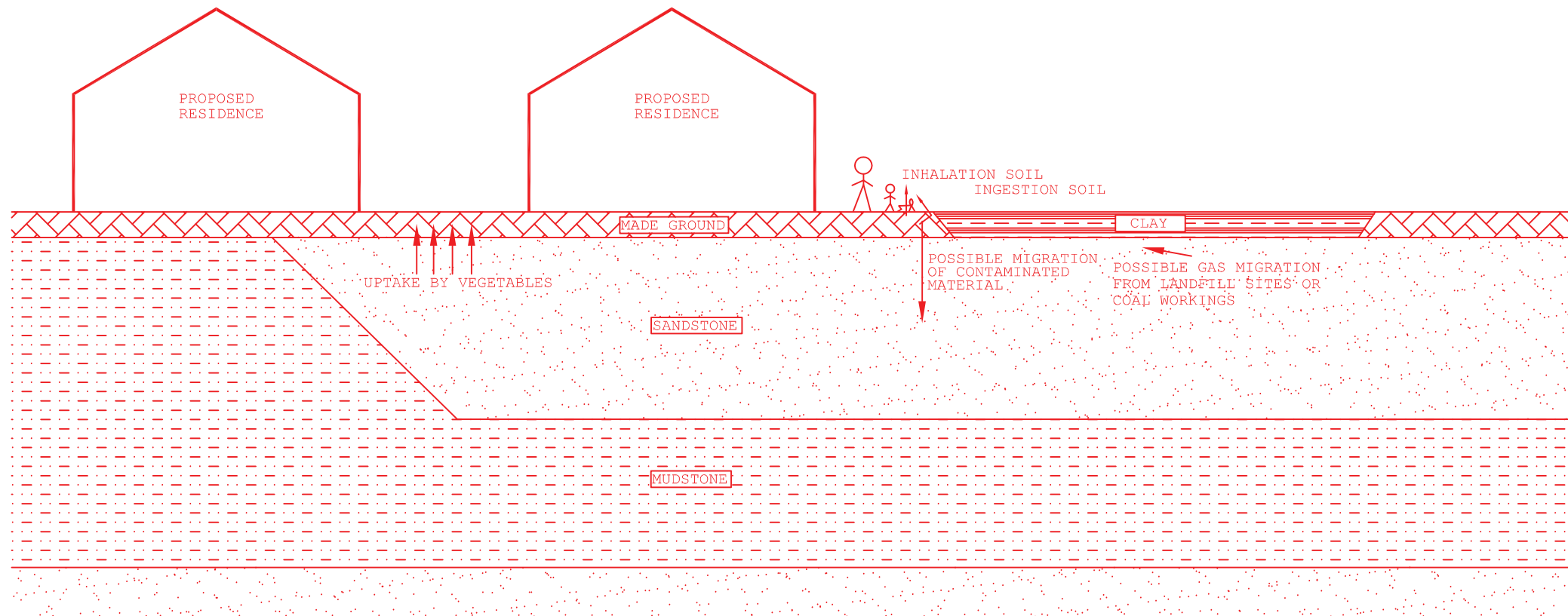




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Client				
Andrew Ratcliffe				
Project				
Egypt Farm, Cliffe Lane, Cleckheaton				
Detail				
Proposed Site Plan				
Dwn	Chkd	Date	Scale	Dwg No.
DP	MD	03-04-19	1/200@A2	E17/7349/005



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Client

Andrew Ratcliffe

Project

Egypt Farm, Cliffe Lane, Gomersal

Detail

Typical Site Conceptual Model

Scale

NTS

Dwn

DP

Chkd

MD

Date

Oct'18

Dwg No.

E17/7349/32

APPENDIX B

TRIAL PIT LOGS

BOREHOLE LOGS



Haigh Huddleston & Associates
Civil Structural Engineering Consultants

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Dewsbury, WF12 7BU

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FORM HHA 5

TRIAL HOLE NO. 1

Client :	ANDREW RATCLIFFE	Job No :	7349
Site :	EGYPT FARM, CLECKHEATON	Date :	5TH OCTOBER 2018

0.0		
		Made ground – black sand, crushed brick, gravels, cobbles.
0.5		
	0.7	
	0.9	Grey clay.
1.0		
		Grey yellow mottled clay.
	1.3	
1.5		
2.0		
2.5		
3.0		
3.5		
4.0		

REMARKS:

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

NOTES:

.....
.....



Haigh Huddleston & Associates

Civil Structural Engineering Consultants

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

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f 01924 450662
e trevor.haigh@haighhuddleston.co.uk

FORM HHA 5

TRIAL HOLE NO. 2

Client :	ANDREW RATCLIFFE	Job No :	7349
Site :	EGYPT FARM, CLECKHEATON	Date :	5TH OCTOBER 2018

0.0		
	0.2	Stone gravel.
0.5		Clayey made ground with sands and gravel.
	0.8	
1.0		Firm light brown clay with angular sandstone flags.
	1.2	
		Weak black immature coal/clay.
	1.4	
1.5		Firm brown slightly sandy clay with sandstone gravels.
	1.7	
2.0		
2.5		
3.0		
3.5		
4.0		

REMARKS:

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

NOTES:

.....
.....



Unit D2B Bryans Close, Harworth Industrial Estate, Harworth, South Yorkshire, DN11 8RY
Phone: 01302 744 322 Email: thomas@groundsupportservices.net

Signed Stuart Driller

APPENDIX C

CHEMICAL ANALYSIS OF SAMPLES

GAS MONITORING



Certificate of Analysis

Certificate Number 18-23930

15-Oct-18

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

Our Reference 18-23930

Client Reference 7349

Order No (not supplied)

Contract Title Egypt Farm

Description 5 Soil samples.

Date Received 09-Oct-18

Date Started 09-Oct-18

Date Completed 15-Oct-18

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

A handwritten signature in black ink, appearing to read "A Fenwick", is written over a light grey circular stamp.

Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Matrix Descriptions

Our Ref 18-23930

Client Ref 7349

Contract Title Egypt Farm

Sample ID	Depth	Lab No	Completed	Matrix Description
BH01	0.20-0.80	1403735	15/10/2018	Very dark brown gravelly, clayey SAND (Possible made ground - brick)
TP01	0.2	1403736	15/10/2018	Dark brown gravelly, clayey SAND (Possible made ground - brick)
TP01	0.8	1403737	15/10/2018	Dark brown sandy CLAY
TP02	0.6	1403738	15/10/2018	Dark brown gravelly, sandy CLAY
TP02	1	1403739	15/10/2018	Brown sandy CLAY

Summary of Chemical Analysis

Soil Samples

Our Ref 18-23930

Client Ref 7349

Contract Title Egypt Farm

Lab No	1403735	1403736	1403737	1403738	1403739
Sample ID	BH01	TP01	TP01	TP02	TP02
Depth	0.20-0.80	0.20	0.80	0.60	1.00
Other ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	05/10/18	05/10/18	05/10/18	05/10/18	05/10/18
Sampling Time	00AM	00AM	00AM	00AM	00AM

Test	Method	LOD	Units					
Metals								
Arsenic	DETSC 2301#	0.2	mg/kg	64	41	15	21	13
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2	< 0.1	1.6	0.1
Chromium	DETSC 2301#	0.15	mg/kg	27	21	19	19	23
Copper	DETSC 2301#	0.2	mg/kg	78	140	37	63	34
Lead	DETSC 2301#	0.3	mg/kg	99	73	25	79	24
Mercury	DETSC 2325#	0.05	mg/kg	0.20	0.08	< 0.05	0.16	0.06
Nickel	DETSC 2301#	1	mg/kg	27	40	34	23	25
Selenium	DETSC 2301#	0.5	mg/kg	0.5	< 0.5	0.5	1.0	0.6
Zinc	DETSC 2301#	1	mg/kg	120	92	85	130	120
Inorganics								
pH	DETSC 2008#			9.7	7.8	7.5	10.1	7.7
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.3	< 0.6	< 0.6	0.7	< 0.6
Sulphide	DETSC 2024*	10	mg/kg	120	110	20	72	< 10
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.24	0.11	0.05	0.25	0.02
Petroleum Hydrocarbons								
EPH (C10-C40)	DETSC 3311#	10	mg/kg				< 10	< 10
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 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	1.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	1.8	0.2	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	1.6	0.2	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.8	0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	0.8	0.2	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.6	0.2	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.7	0.2	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	9.2	< 1.6	< 1.6	< 1.6	< 1.6
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Asbestos Analysis Soil Samples

Our Ref 18-23930

Client Ref 7349

Contract Title Egypt Farm

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1403735	BH01 0.20-0.80	SOIL	NAD	none	Lee Kerridge
1403736	TP01 0.20	SOIL	NAD	none	Lee Kerridge
1403737	TP01 0.80	SOIL	NAD	none	Lee Kerridge
1403738	TP02 0.60	SOIL	NAD	none	Lee Kerridge

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 18-23930
 Client Ref 7349
 Contract Egypt Farm

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1403735	BH01 0.20-0.80 SOIL	05/10/18	GJ 250ml, PT 1L		
1403736	TP01 0.20 SOIL	05/10/18	GJ 250ml, PT 1L		
1403737	TP01 0.80 SOIL	05/10/18	GJ 250ml, PT 1L		
1403738	TP02 0.60 SOIL	05/10/18	GJ 250ml, PT 1L		
1403739	TP02 1.00 SOIL	05/10/18	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.

SITE:	Egypt Farm, Cliffe Lane, Gomersal	
CLIENT:	MWA / Andrew Ratcliffe	
JOB NO:	7349	
SHEET NO:	1	

GAS MONITORING RESULTS

	GAS CONCENTRATIONS								FLOW DATA				Qhg per borehole		WELL AND WATER DATA			A Pressure (mB)	Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Oxygen (%v/v)		Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Response Zone		
	Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Steady									
Ambient Air	ND	ND	ND	ND	ND	ND	21.5	21.5	NR	NR			-	-				1005	Time: 3.00pm Date: 25.10.18
BH01	ND	ND	ND	ND	2.9	2.9	16.9	16.9	ND	ND			NR	0.0029				1005	Ground dry, cold, cloudy
BH02	ND	ND	ND	ND	17.0	15.0	15.1	15.1	-0.5	-0.2			NR	0.085	3.10	3.20		1005	Falling A.Pressure
Ambient Air	ND	ND	ND	ND	ND	ND	21.4	21.4	NR	NR			-	-				1003	Time: 12.00pm Date: 14.11.18
BH01	ND	ND	ND	ND	3.4	3.4	16.6	16.6	0.1	0.1			NR	0.0034				1003	Ground dry, cold, cloudy
BH02	ND	ND	ND	ND	22.0	19.0	13.6	14.2	0.2	0.1			NR	0.044	3.10	3.20		1003	
Ambient Air	ND	ND	ND	ND	ND	ND	21.4	21.4	NR	NR			-	-				992	Time: 12.00pm Date: 28.11.18
BH01	ND	ND	ND	ND	2.1	2.0	19.0	19.0	-0.2	-0.1			NR	0.0042				992	Ground wet, cold, cloudy, windy
BH02	ND	ND	ND	ND	19.0	18.0	12.6	12.8	-1.4	-0.6			NR	0.266	3.00	3.20		992	Falling A.Pressure
Ambient Air	ND	ND	ND	ND	ND	ND	21.4	21.4	NR	NR			-	-				1003	Time: 11.30pm Date: 13.12.18
BH01	Tap inaccessible												NR	0				1003	Ground dry, cold, clear
BH02	ND	ND	ND	ND	14.0	14.0	14.8	14.8	-0.4	-0.3			NR	0.056	3.10	3.20		1003	
Ambient Air	ND	ND	ND	ND	ND	ND	21.4	21.4	NR	NR			-	-				1001	Time: 12.30pm Date: 15.01.19
BH01	ND	ND	ND	ND	4.5	4.4	15.2	15.2	0.0	0.0			NR	0				1001	Ground dry, cold, cloudy, windy
BH02	ND	ND	ND	ND	10.0	10.0	14.9	14.9	-0.1	0.0			NR	0.01	3.10	3.20		1001	Falling A.Pressure
Ambient Air	ND	ND	ND	ND	ND	ND	20.6	20.6	NR	NR			-	-				965	Time: 13.00pm Date: 06.03.19
BH01	Tap inaccessible												NR	0				965	Ground damp, mild, rainy
BH02	ND	ND	ND	ND	6.7	6.7	14.3	14.3	0.0	0.0			NR	0	2.90	3.20		965	

ND - Not detected

NR - Not recorded

NB: where no flow (ND) recorded Qhg values are calculated using equipment limit of detection (0.1 l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

Ambient air check: CH₄ CO₂ O₂

APPENDIX D

COAL AUTHORITY REPORT

GEOLOGICAL REPORT



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

EGYPT FARM
EGYPT FARM
CLIFFE LANE
GOMERSAL
CLECKHEATON
KIRKLEES
BD19 4EU

Date of enquiry: 03 April 2017
Date enquiry received: 03 April 2017
Issue date: 03 April 2017

Our reference: 51001402659001
Your reference: SMITH 6876



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

HAIGH HUDDLESTON & ASSOCIATES

Enquiry address

EGYPT FARM, EGYPT FARM, CLIFFE LANE,
GOMERSAL, CLECKHEATON, KIRKLEES, BD19 4EU

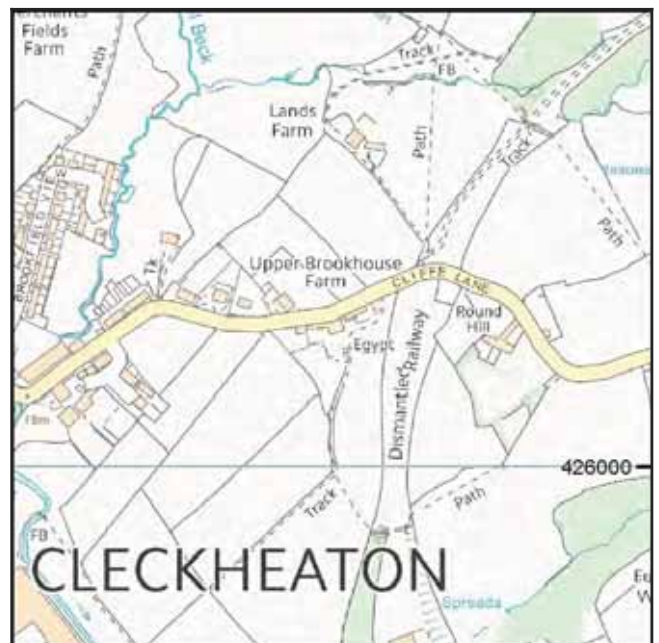
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200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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



Approximate position of property



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Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	Yes
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 2 seams of coal at 30m to 100m depth, and last worked in 1972.

Any movement in the ground due to coal mining activity should have stopped.

In addition the property is in an area where the Coal Authority believe 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 prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section 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 plans to grant a licence to remove coal using 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 known coal mine entries within, or within 20 metres of, the boundary of the property.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

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, 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 Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is in an area where notices to withdraw support were given in 1951, 1954.

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.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

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In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore 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 good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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Alternative formats

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Enquiry boundary

Key

Approximate position of enquiry boundary shown



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Haigh Huddleston & Associates
99-101, LEEDS ROAD,
DEWSBURY, WF12 7BU

Groundsure Reference: GS-3774754
Your Reference: SMITH_6876

Report Date 3 Apr 2017

Report Delivery Method: Email - pdf

Groundsure Geo Insight

Address: EGYPT FARM, CLIFFE LANE, CLECKHEATON, BD19 4EU

Dear Sir/ Madam,

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

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

Yours faithfully,

A handwritten signature in black ink, appearing to be "D. Smith", followed by a large, stylized flourish or "O" shape.

Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Groundsure Geo Insight

Address: EGYPT FARM, CLIFFE LANE, CLECKHEATON, BD19 4EU

Date: 3 Apr 2017

Reference: GS-3774754

Client: Haigh Huddleston & Associates



Aerial Photograph Capture date: 26-Mar-2012

Grid Reference: 419415,426133

Site Size: 0.58ha

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Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

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

Section 2: Geology 1:50,000 Scale

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and Faults

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

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

Yes

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

Yes

Section 3: Radon

3. Radon

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

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

3.2 Radon Protection

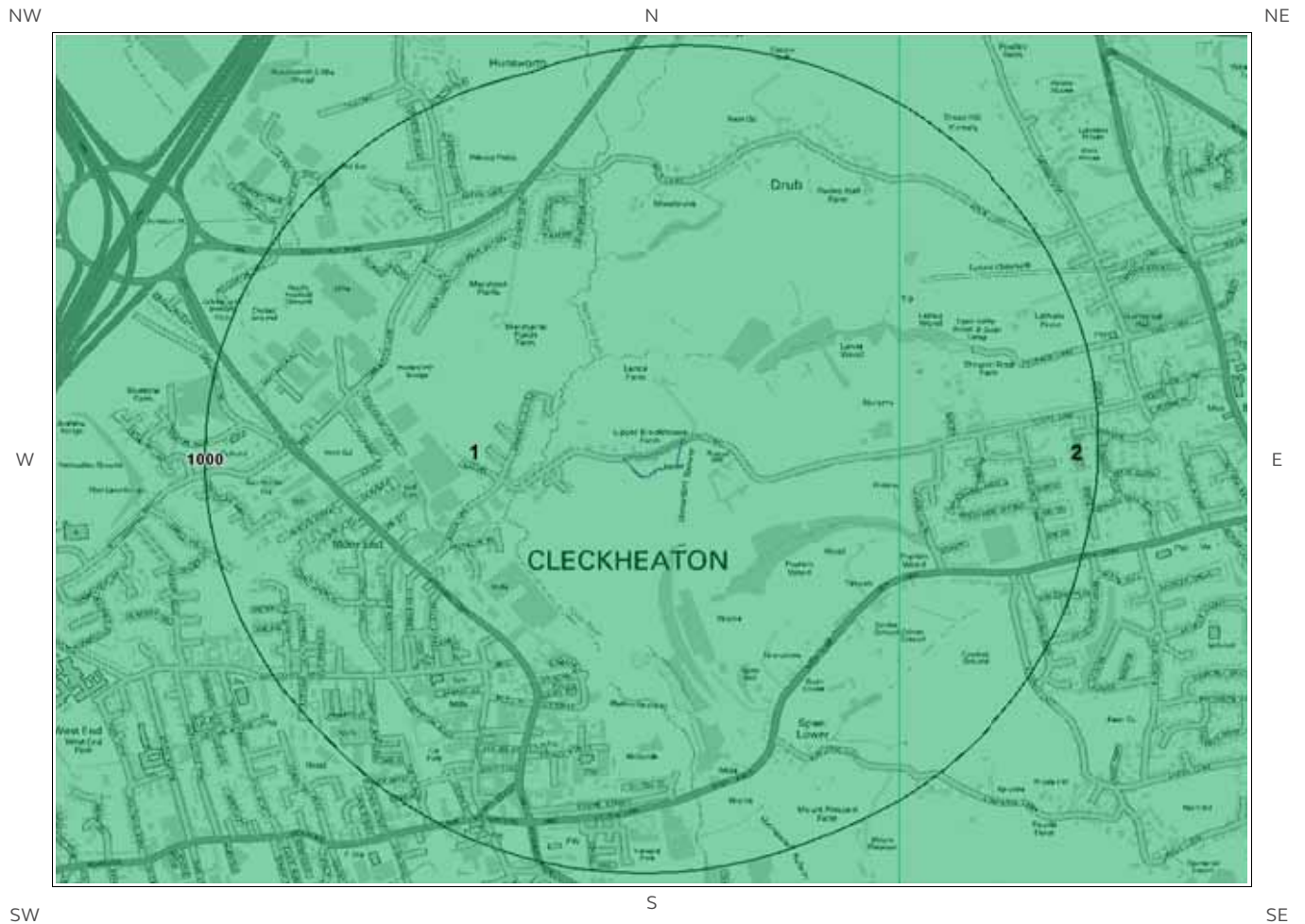
No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	3	6	19	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	8	19
4.3 Current Ground Workings	0	0	0	0	10

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	8	14
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	2	0	5
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

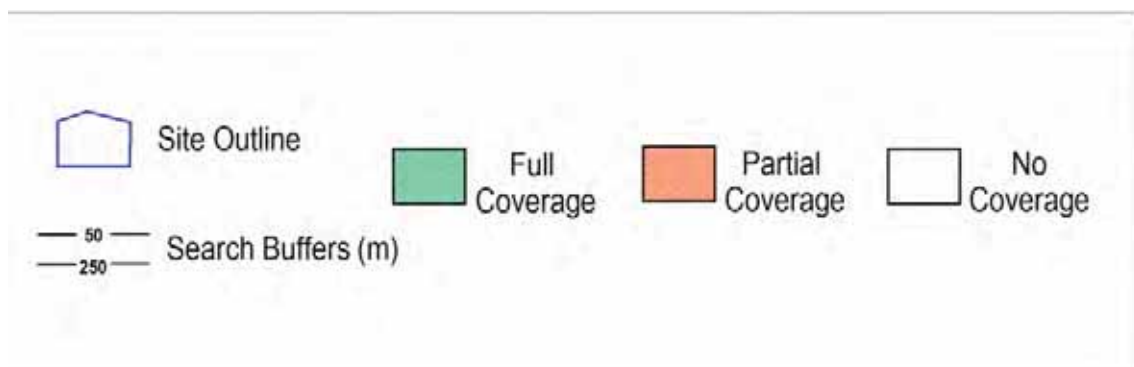
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Low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

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	Some deposits are mapped
2	521.0	Some deposits are mapped	Full	Full	No coverage
N3	1100.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N4	1249.0	Some deposits are mapped	Full	Full	Some deposits are mapped

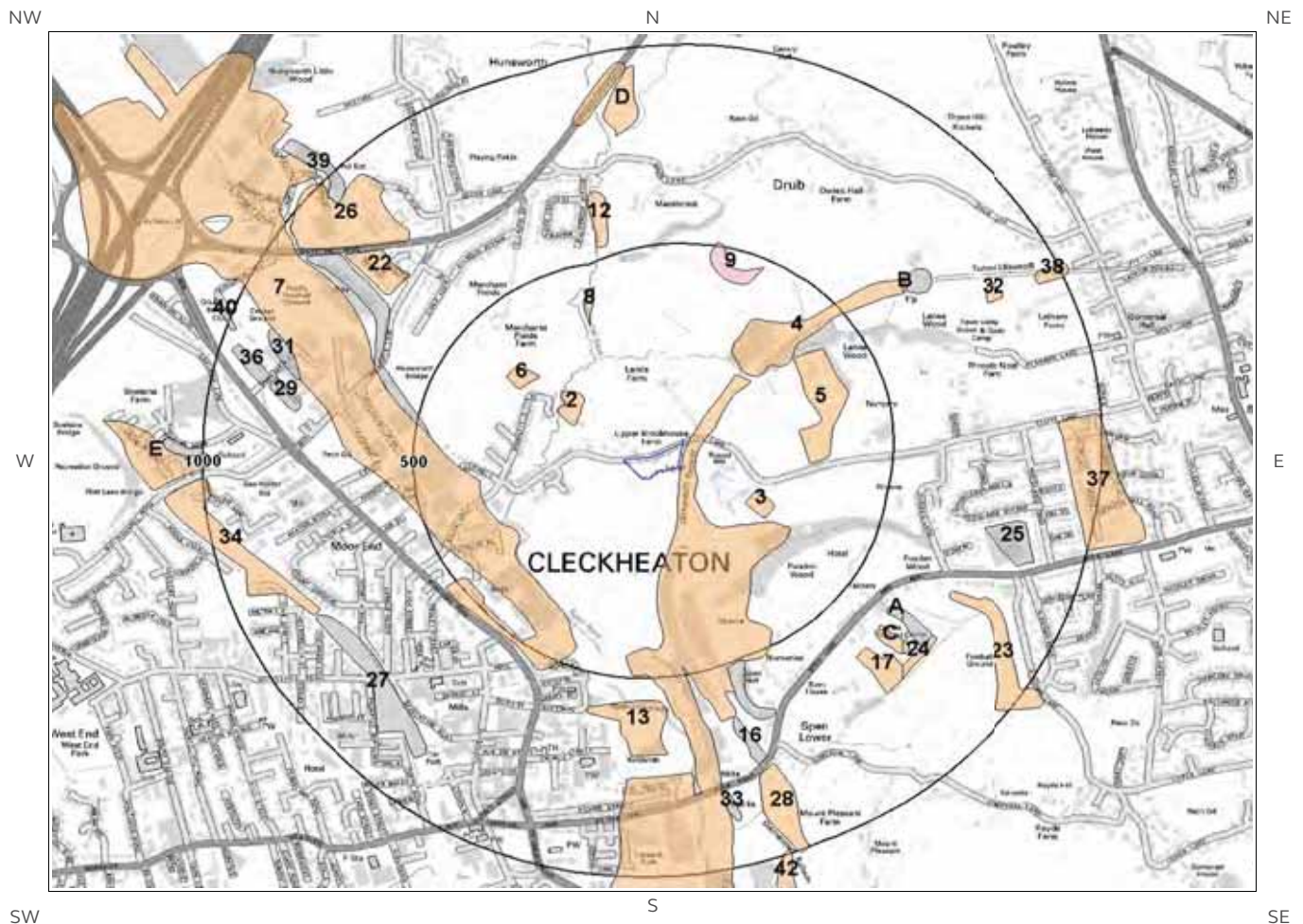
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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1. Geology 1:10,000 scale

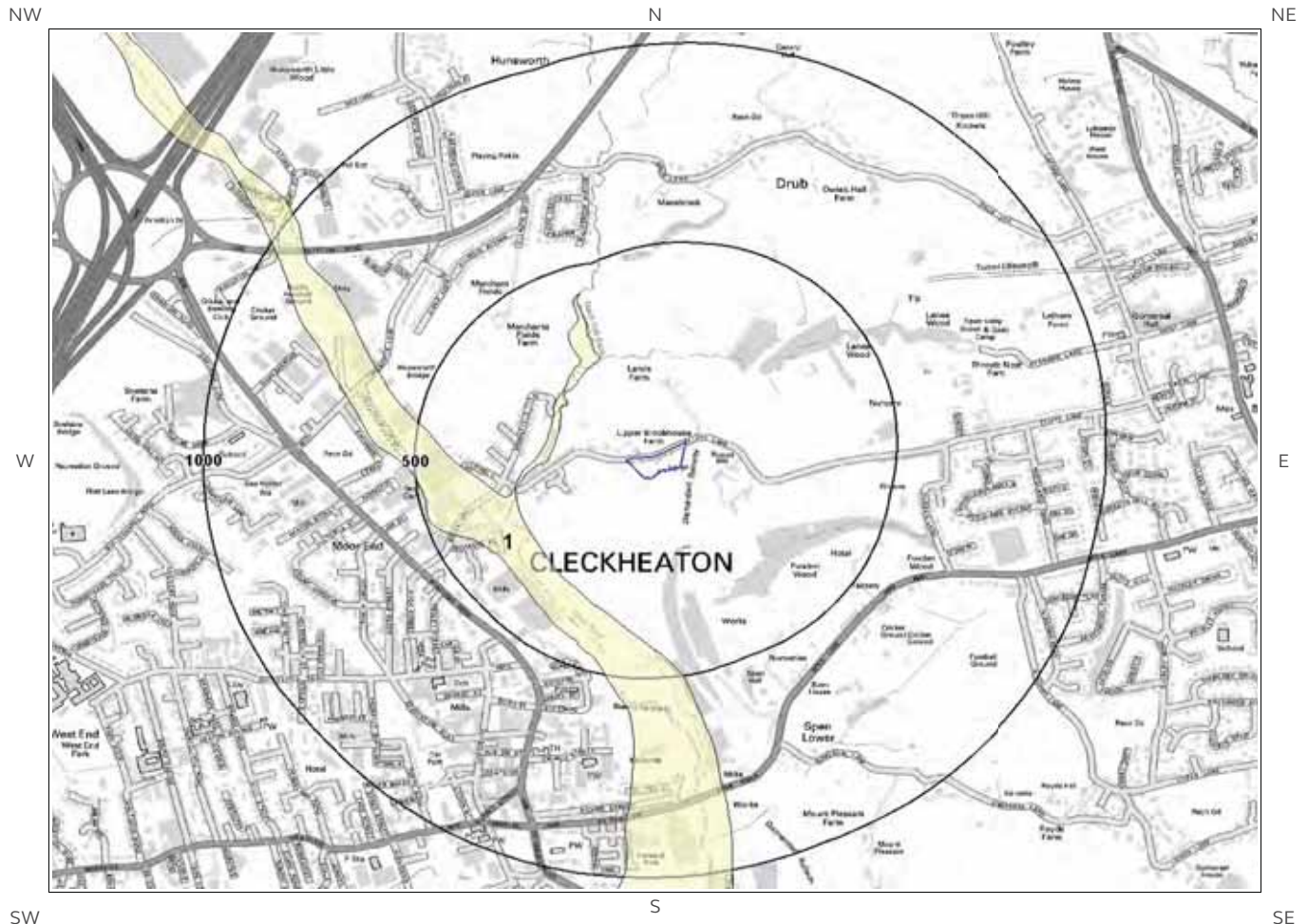
1.1 Artificial Ground

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

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

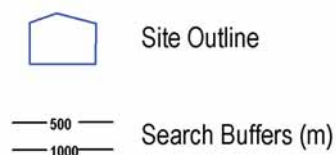
ID	Distance	Direction	LEX Code	Description	Rock Description
1	6.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	146.0	NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	181.0	SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	229.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	276.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	288.0	NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
7	310.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	347.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
9	419.0	N	DDGR- UNKNOWN	Disturbed Ground (Undivided)	Unknown/unclassified Entry
10	467.0	W	WGR-VOID	Worked Ground (Undivided)	Void

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



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	174.0	W	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

1.2.2 Landslip

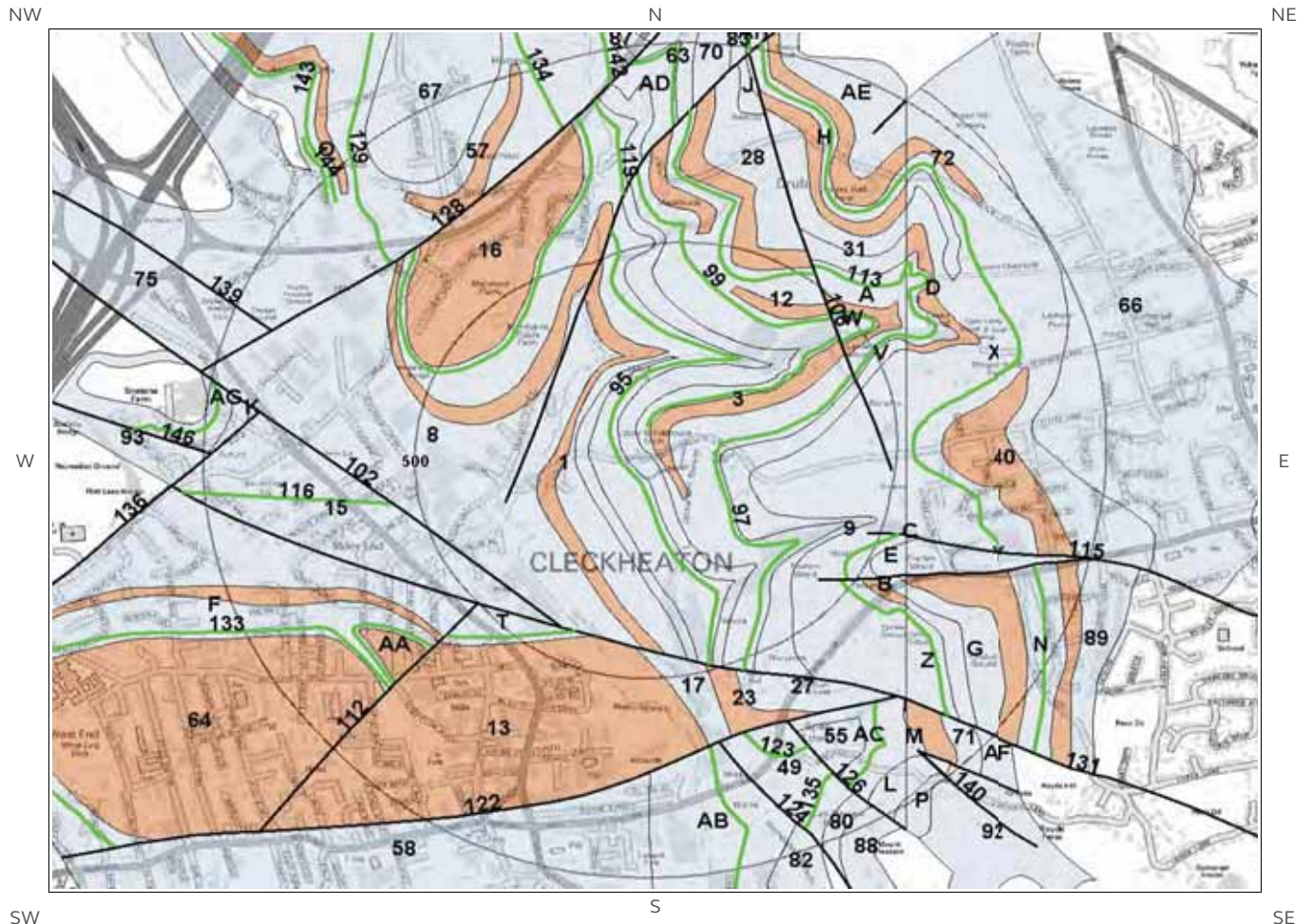
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

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

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

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



Bedrock and Faults Legend

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1.3 Bedrock and Faults

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
2Q	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
3	0.0	On Site	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
4	0.0	On Site	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
5	80.0	W	FHR-SDST	Falhouse Rock - Sandstone	Langsettian Sub-age
6	86.0	E	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
7	139.0	W	FHR-SDST	Falhouse Rock - Sandstone	Langsettian Sub-age
8	162.0	NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
9	165.0	E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
10	267.0	NW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
11S	318.0	NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
12	374.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
13	412.0	S	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
14T	412.0	S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
15	414.0	SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
16	418.0	NW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
17	421.0	S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
18A	430.0	E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
19V	430.0	E	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
20A	434.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
21W	441.0	NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
22U	459.0	N	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
23	482.0	S	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age

1.3.2 Faults

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

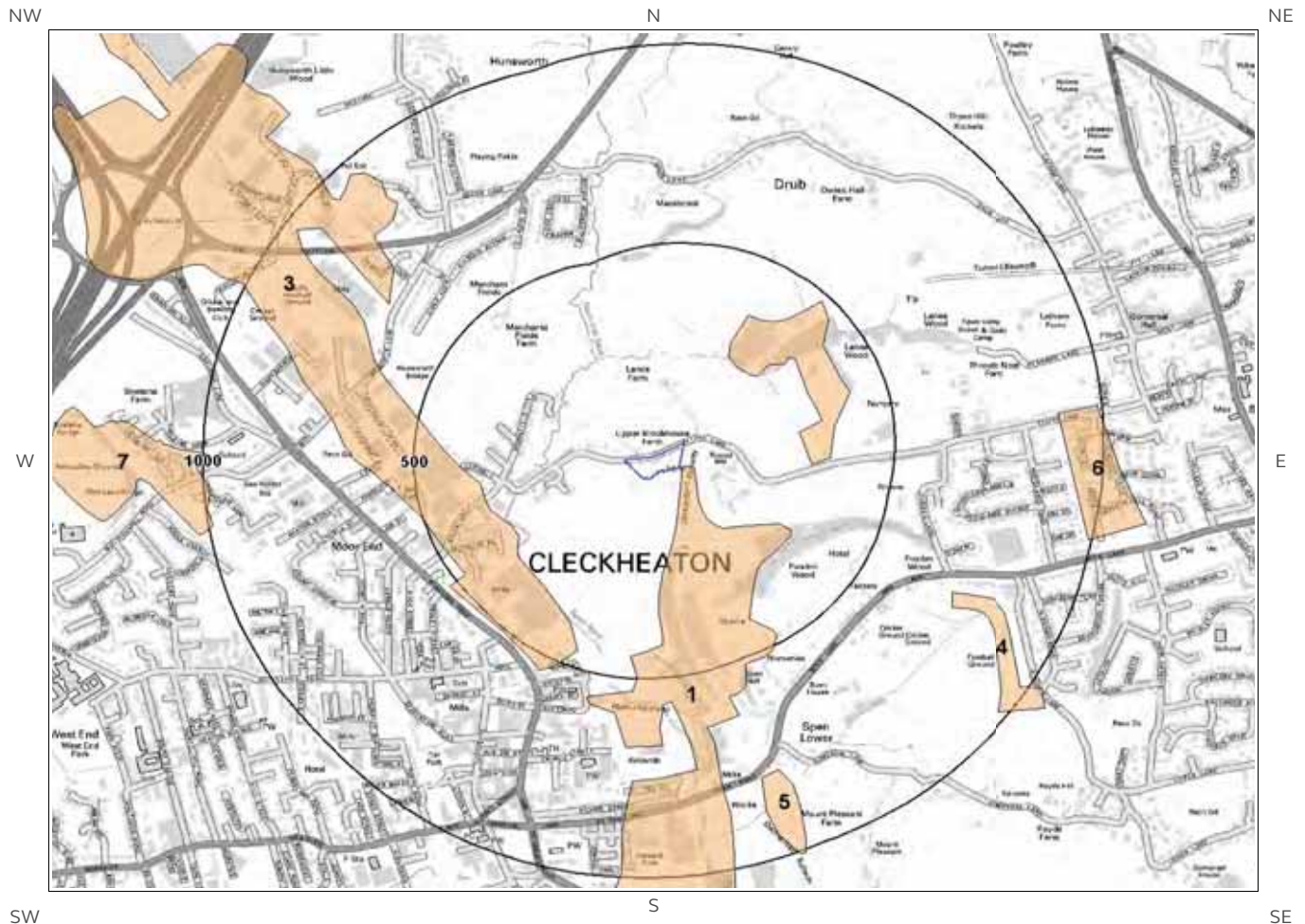
ID	Distance (m)	Direction	Category Description	Feature Description
95	12.0	SW	ROCK	Coal seam, inferred
96Q	74.0	NW	ROCK	Coal seam, inferred
97	76.0	E	ROCK	Coal seam, inferred
98R	227.0	W	FAULT	Normal fault, inferred
99	351.0	NE	ROCK	Coal seam, inferred
100S	403.0	NW	ROCK	Coal seam, inferred
101T	412.0	S	FAULT	Normal fault, inferred
102	414.0	SW	FAULT	Normal fault, inferred
103T	416.0	SW	ROCK	Coal seam, inferred
104U	429.0	N	ROCK	Coal seam, inferred
105E	429.0	SE	FAULT	Normal fault, inferred
106	430.0	E	FAULT	Normal fault, inferred
107V	430.0	E	ROCK	Coal seam, inferred
108W	443.0	NE	ROCK	Coal seam, inferred
109E	457.0	SE	ROCK	Coal seam, inferred
110C	470.0	E	FAULT	Normal fault, inferred
111B	471.0	SE	ROCK	Coal seam, inferred

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

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

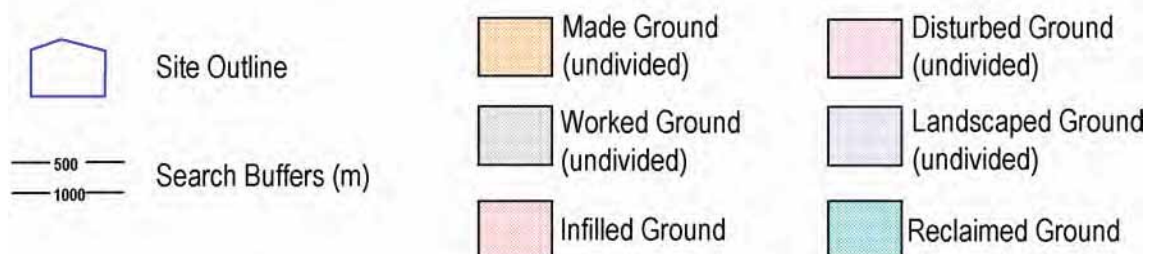
2 Geology 1:50,000 Scale

2.1 Artificial Ground Map



Ground Workings Legend

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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 077

2.1.1 Artificial/ Made Ground

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

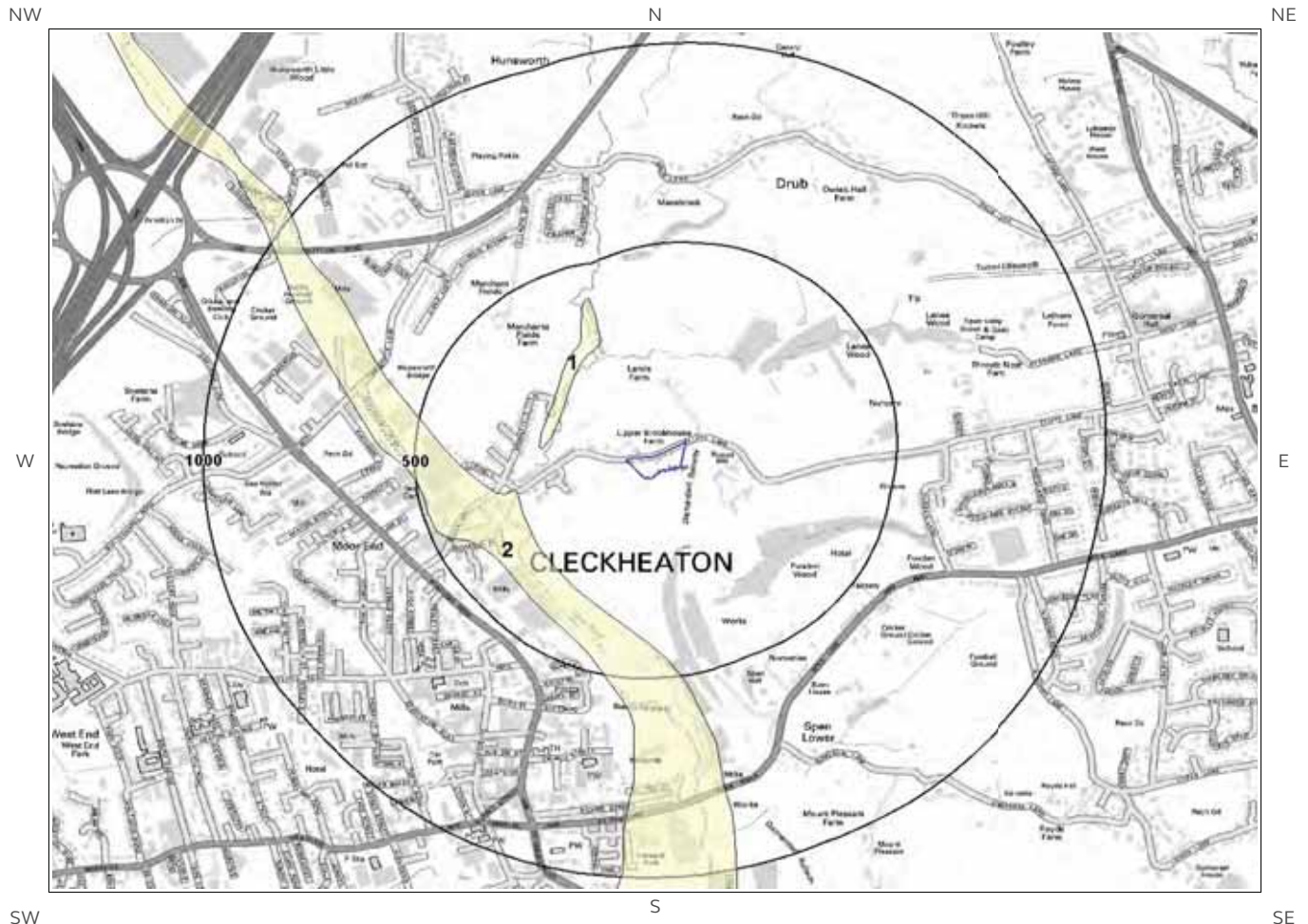
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	7.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	227.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	315.0	SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

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

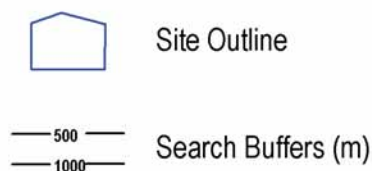
Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
7.0	E	Mixed	Very High	Low

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



Ground Workings Legend

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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	186.0	W	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
2	270.0	W	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Database searched and no data found.

2.2.3 Landslip

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

Database searched and no data found.

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

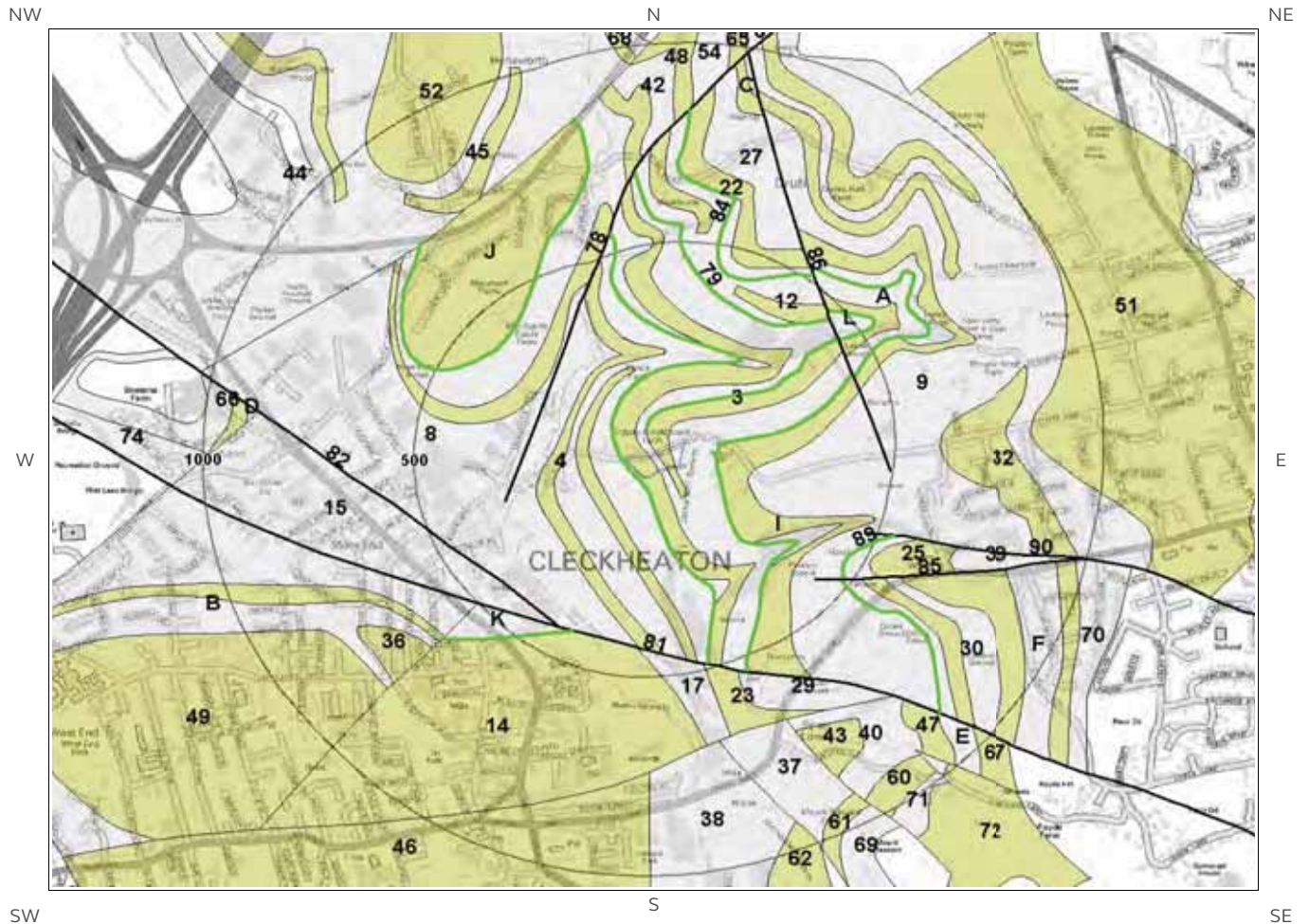
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

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



Ground Workings Legend

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2.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 077

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1H	0.0	On Site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2G	0.0	On Site	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
3	0.0	On Site	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
4	7.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	79.0	W	FHR-SDST	FALHOUSE ROCK - SANDSTONE	WESTPHALIAN
6I	82.0	E	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
7	139.0	W	FHR-SDST	FALHOUSE ROCK - SANDSTONE	WESTPHALIAN
8	163.0	W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	166.0	E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10	267.0	NW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
11	316.0	NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	375.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
13J	409.0	NW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
14	414.0	S	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
15	415.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16K	418.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
17	424.0	S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18A	432.0	E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
19A	432.0	E	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
20A	436.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
21L	445.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
22	462.0	N	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
23	485.0	S	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

2.3.2 Permeability of Bedrock Ground

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

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

2.3.3 Faults

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

ID	Distance	Direction	Category Description	Feature Description
75G	7.0	SW	ROCK	Coal seam, inferred
76H	71.0	NW	ROCK	Coal seam, inferred
77I	82.0	E	ROCK	Coal seam, inferred
78	227.0	W	FAULT	Fault, inferred
79	351.0	NE	ROCK	Coal seam, inferred
80J	409.0	NW	ROCK	Coal seam, inferred
81	414.0	S	FAULT	Fault, inferred
82	415.0	SW	FAULT	Fault, inferred
83K	418.0	SW	ROCK	Coal seam, inferred
84	426.0	N	ROCK	Coal seam, inferred
85	427.0	SE	FAULT	Fault, inferred, displacement unknown
86	432.0	E	FAULT	Fault, inferred
87A	432.0	E	ROCK	Coal seam, inferred
88L	445.0	NE	ROCK	Coal seam, inferred
89	461.0	SE	ROCK	Coal seam, inferred
90	472.0	E	FAULT	Fault, inferred
91M	476.0	SE	ROCK	Coal seam, inferred

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

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

3 Radon Data

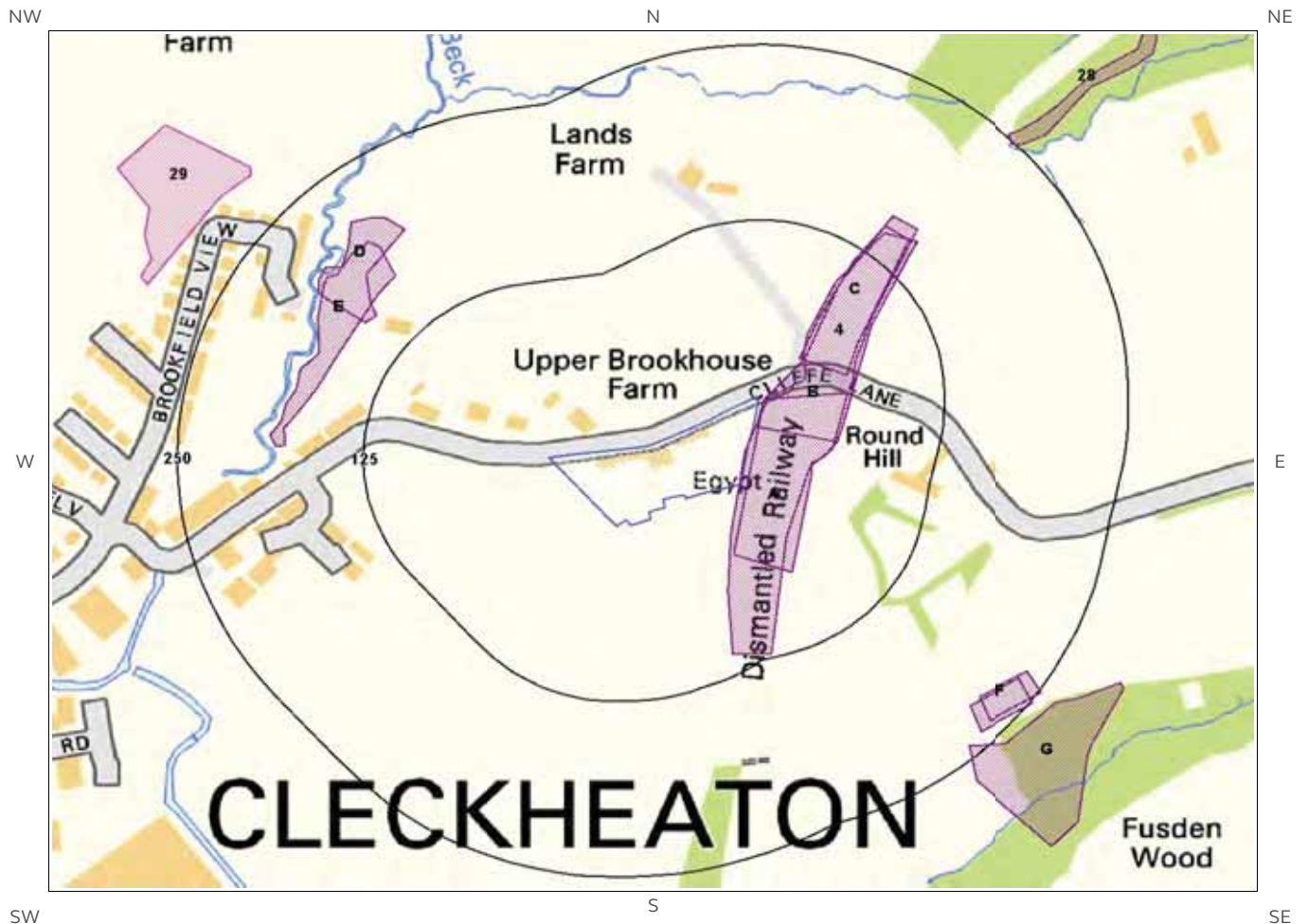
3.1 Radon Affected Areas

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

3.2 Radon Protection

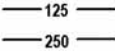
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings Map



Ground Workings Legend

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

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1A	0.0	On Site	419494 426095	Cuttings	1948
2A	0.0	On Site	419494 426095	Cuttings	1932
3A	0.0	On Site	419494 426095	Cuttings	1905
4	2.0	E	419524 426166	Cuttings	1951
5B	3.0	E	419524 426188	Cuttings	1974
6B	3.0	E	419524 426188	Cuttings	1967
7C	38.0	NE	419544 426261	Cuttings	1948
8C	38.0	NE	419544 426261	Cuttings	1932
9C	38.0	NE	419544 426261	Cuttings	1905
10D	154.0	NW	419212 426282	Unspecified Heap	1974
11D	154.0	NW	419212 426282	Unspecified Heap	1983
12D	154.0	NW	419212 426282	Unspecified Heap	1990
13E	160.0	NW	419193 426230	Refuse Heap	1932
14E	160.0	NW	419193 426230	Refuse Heap	1948
15F	221.0	SE	419643 425973	Pond	1948
16F	221.0	SE	419643 425973	Pond	1932
17F	221.0	SE	419643 425973	Pond	1905
18F	221.0	SE	419643 425973	Pond	1892
19F	221.0	SE	419649 425979	Reservoir	1967
20F	221.0	SE	419649 425979	Reservoir	1974
21F	221.0	SE	419649 425979	Reservoir	1951

ID	Distance (m)	Direction	NGR	Use	Date
22F	221.0	SE	419649 425979	Reservoir	1983
23F	221.0	SE	419649 425979	Reservoir	1990
24G	242.0	SE	419673 425930	Unspecified Ground Workings	1974
25G	242.0	SE	419673 425930	Unspecified Ground Workings	1983
26G	242.0	SE	419673 425930	Unspecified Ground Workings	1967
27G	242.0	SE	419673 425930	Unspecified Ground Workings	1990
28	248.0	NE	419705 426416	Unspecified Ground Workings	1948

4.2 Historical Underground Working Features derived from Historical Mapping

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

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

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
29	284.0	NW	419093 426329	Colliery	1892
Not shown	413.0	E	420024 426401	Colliery	1892
Not shown	452.0	SE	419690 425733	Unspecified Old Shafts	1951
Not shown	454.0	SE	419685 425728	Unspecified Old Shafts	1948
Not shown	454.0	SE	419685 425728	Unspecified Old Shafts	1932
Not shown	472.0	SE	419694 425713	Unspecified Old Shafts	1951
Not shown	474.0	SE	419691 425708	Unspecified Old Shafts	1948
Not shown	474.0	SE	419691 425708	Unspecified Old Shafts	1932
Not shown	669.0	E	420138 426053	Unspecified Old Shaft	1951
Not shown	674.0	E	420141 426044	Unspecified Old Shaft	1932
Not shown	674.0	E	420141 426044	Unspecified Old Shaft	1948
Not shown	674.0	E	420141 426044	Unspecified Old Shaft	1905
Not shown	699.0	NE	420424 426625	Tunnel	1905

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	699.0	NE	420424 426625	Tunnel	1932
Not shown	699.0	NE	420424 426625	Tunnel	1948
Not shown	705.0	NE	420425 426630	Tunnel	1951
Not shown	705.0	NE	420425 426630	Tunnel	1966
Not shown	714.0	NW	418769 426776	Colliery	1892
Not shown	716.0	NW	418765 426777	Disused Colliery	1905
Not shown	787.0	NW	418803 426737	Unspecified Old Shaft	1951
Not shown	810.0	NW	418799 426760	Unspecified Old Shaft	1932
Not shown	810.0	NW	418799 426760	Unspecified Old Shaft	1948
Not shown	821.0	E	420414 426377	Colliery	1892
Not shown	827.0	NW	418790 426773	Air Shaft	1948
Not shown	827.0	NW	418790 426773	Air Shaft	1932
Not shown	828.0	NW	418793 426776	Air Shaft	1951
Not shown	975.0	SE	420329 425421	Colliery	1892

4.3 Current Ground Workings

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

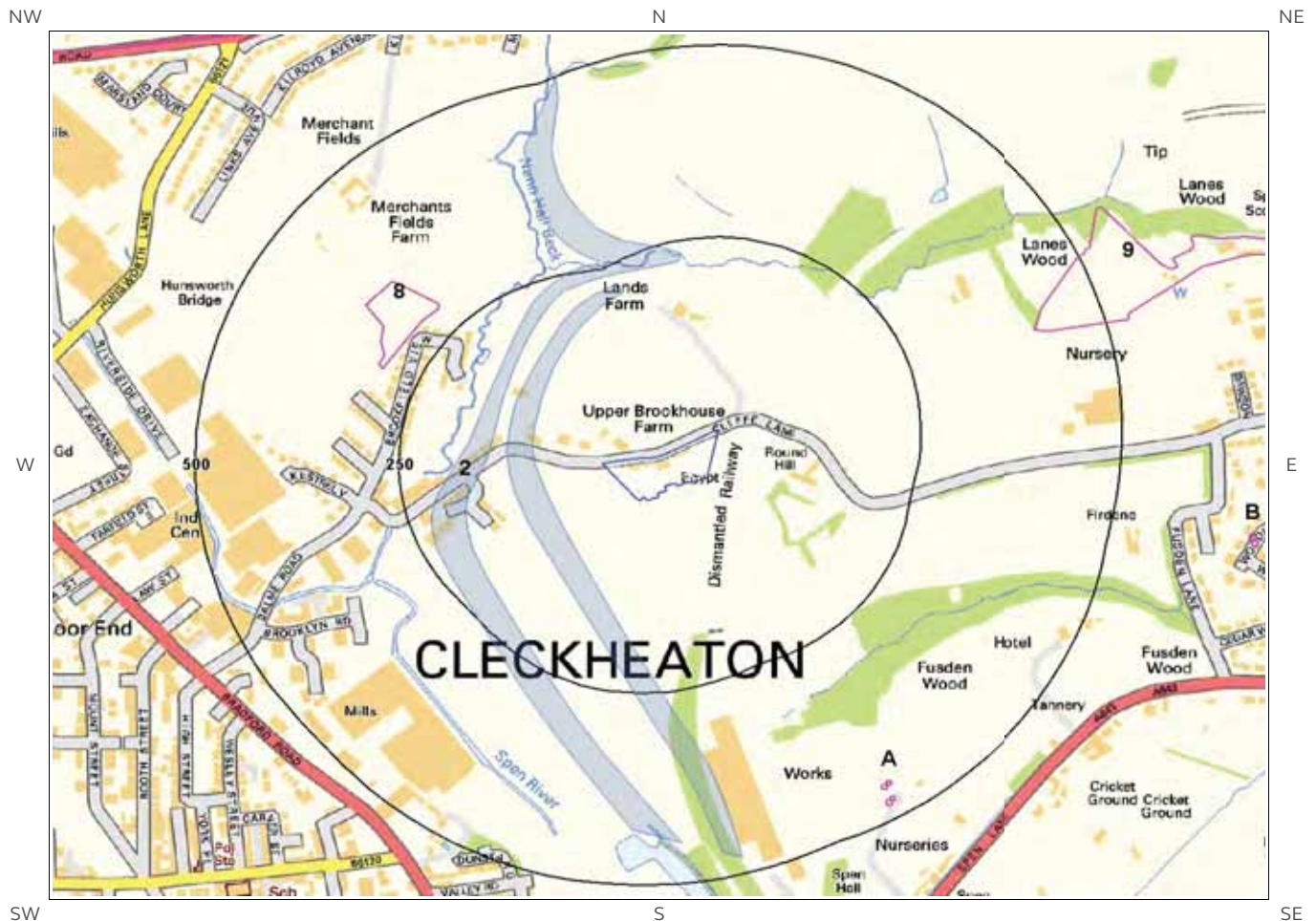
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	529.0	NE	419952 426431	Coal, Deep	Lanes Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	671.0	NW	418766 426499	Coal, Deep	Merchant House	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	707.0	NE	420030 426637	Coal, Deep	Owlet Hall	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	740.0	NE	420011 426708	Coal, Deep	Primrose Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	770.0	NE	419965 426790	Coal, Deep	Drub	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	787.0	SE	420192 425824	Sandstone	Spen Cottage	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	826.0	NE	420156 426667	Coal, Deep	Latham Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	874.0	NW	418792 426831	Coal, Deep	Fern House	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	924.0	N	419582 427111	Coal, Deep	Primrose Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	978.0	N	419669 427152	Coal, Deep	Primrose Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
8	284.0	NW	419093 426329	Colliery	1892
9	413.0	E	420024 426401	Colliery	1892
10A	452.0	SE	419690 425733	Unspecified Old Shafts	1951
11A	454.0	SE	419685 425728	Unspecified Old Shafts	1948
12A	454.0	SE	419685 425728	Unspecified Old Shafts	1932
13A	472.0	SE	419694 425713	Unspecified Old Shafts	1951
14A	474.0	SE	419691 425708	Unspecified Old Shafts	1948
15A	474.0	SE	419691 425708	Unspecified Old Shafts	1932
16B	669.0	E	420138 426053	Unspecified Old Shaft	1951
17B	674.0	E	420141 426044	Unspecified Old Shaft	1948
18B	674.0	E	420141 426044	Unspecified Old Shaft	1932
19B	674.0	E	420141 426044	Unspecified Old Shaft	1905
20C	714.0	NW	418769 426776	Colliery	1892
21C	716.0	NW	418765 426777	Disused Colliery	1905
Not shown	787.0	NW	418803 426737	Unspecified Old Shaft	1951
Not shown	810.0	NW	418799 426760	Unspecified Old Shaft	1948
Not shown	810.0	NW	418799 426760	Unspecified Old Shaft	1932
Not shown	821.0	E	420414 426377	Colliery	1892
Not shown	827.0	NW	418790 426773	Air Shaft	1948
Not shown	827.0	NW	418790 426773	Air Shaft	1932

ID	Distance (m)	Direction	NGR	Details	Date
Not shown	828.0	NW	418793 426776	Air Shaft	1951
Not shown	975.0	SE	420329 425421	Colliery	1892

5.2 Coal Mining

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

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

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

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

5.3 Johnson Poole and Bloomer

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

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

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

5.4 Non-Coal Mining

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

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

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	79.0	W	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	139.0	W	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	738.0	S	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
Not shown	793.0	SE	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	793.0	SE	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	911.0	SE	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	911.0	SE	Leeds/Bradford area	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

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

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

Database searched and no data found.

5.7 Brine Extraction

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

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Tin Mining

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

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

No

Database searched and no data found.

5.10 Clay Mining

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

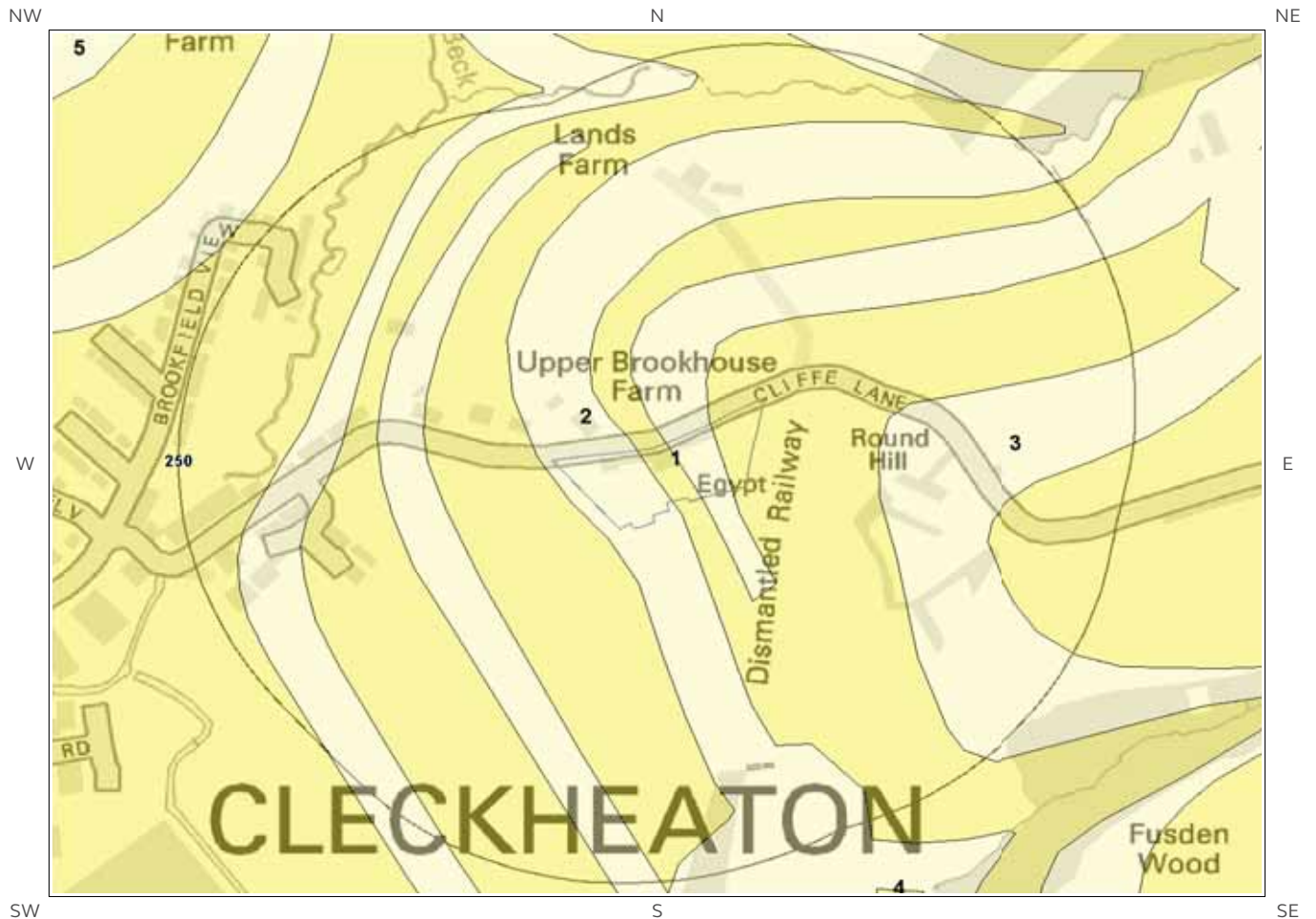
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

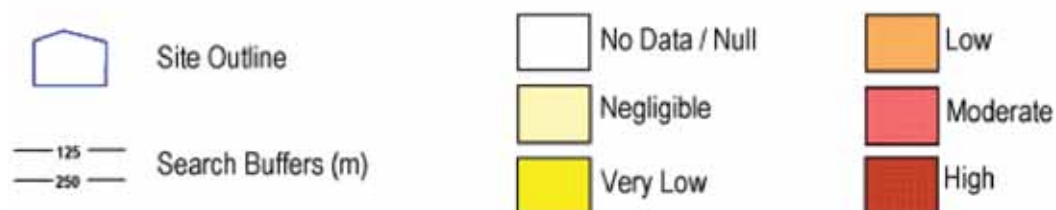
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay Map

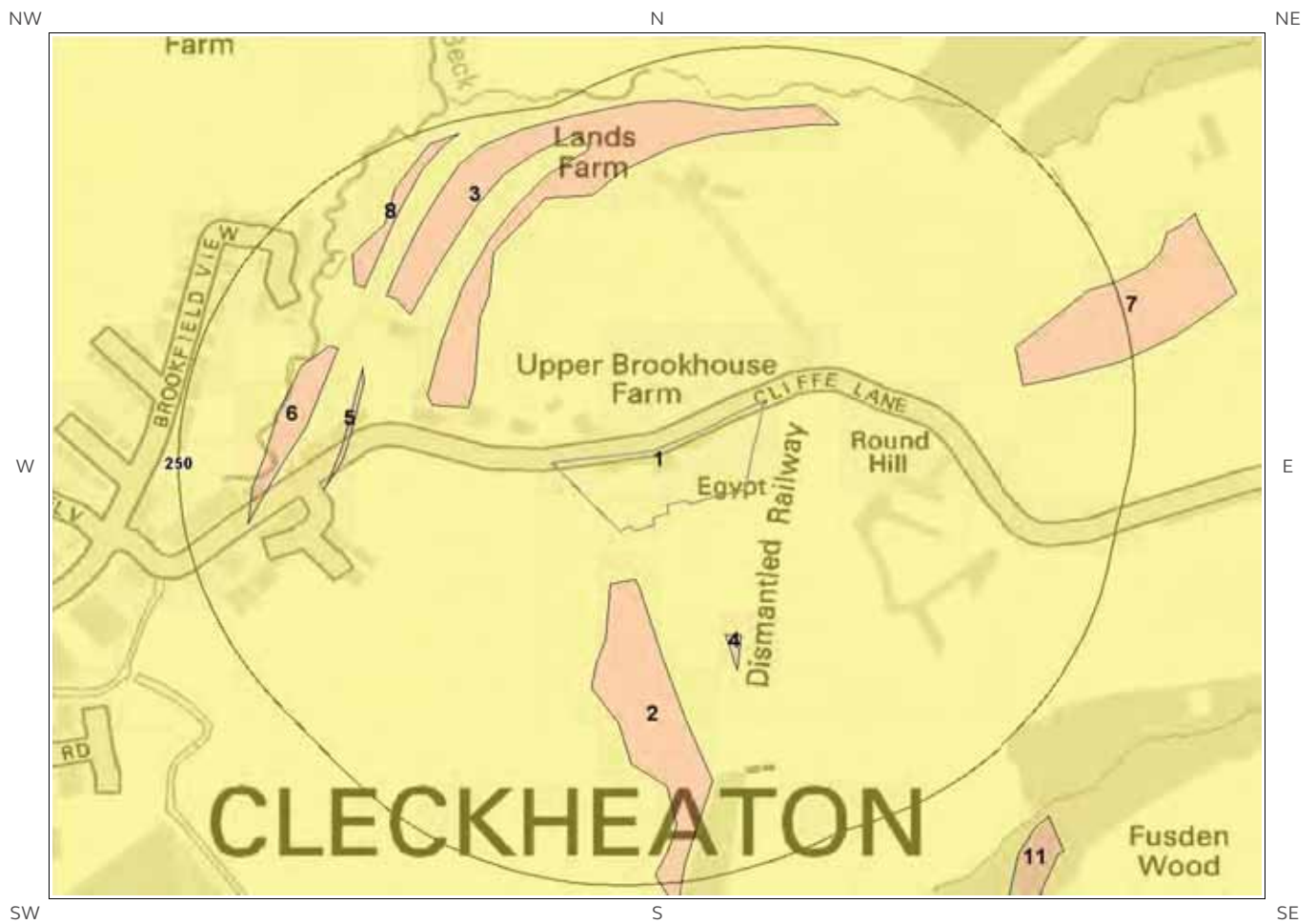


Shrink Swell Clay Legend

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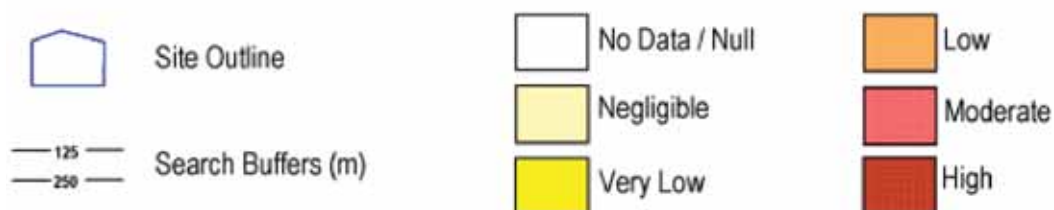


6.2 Landslides Map

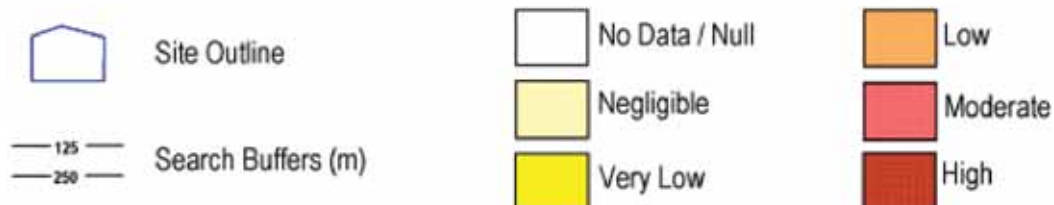


Landslides Legend

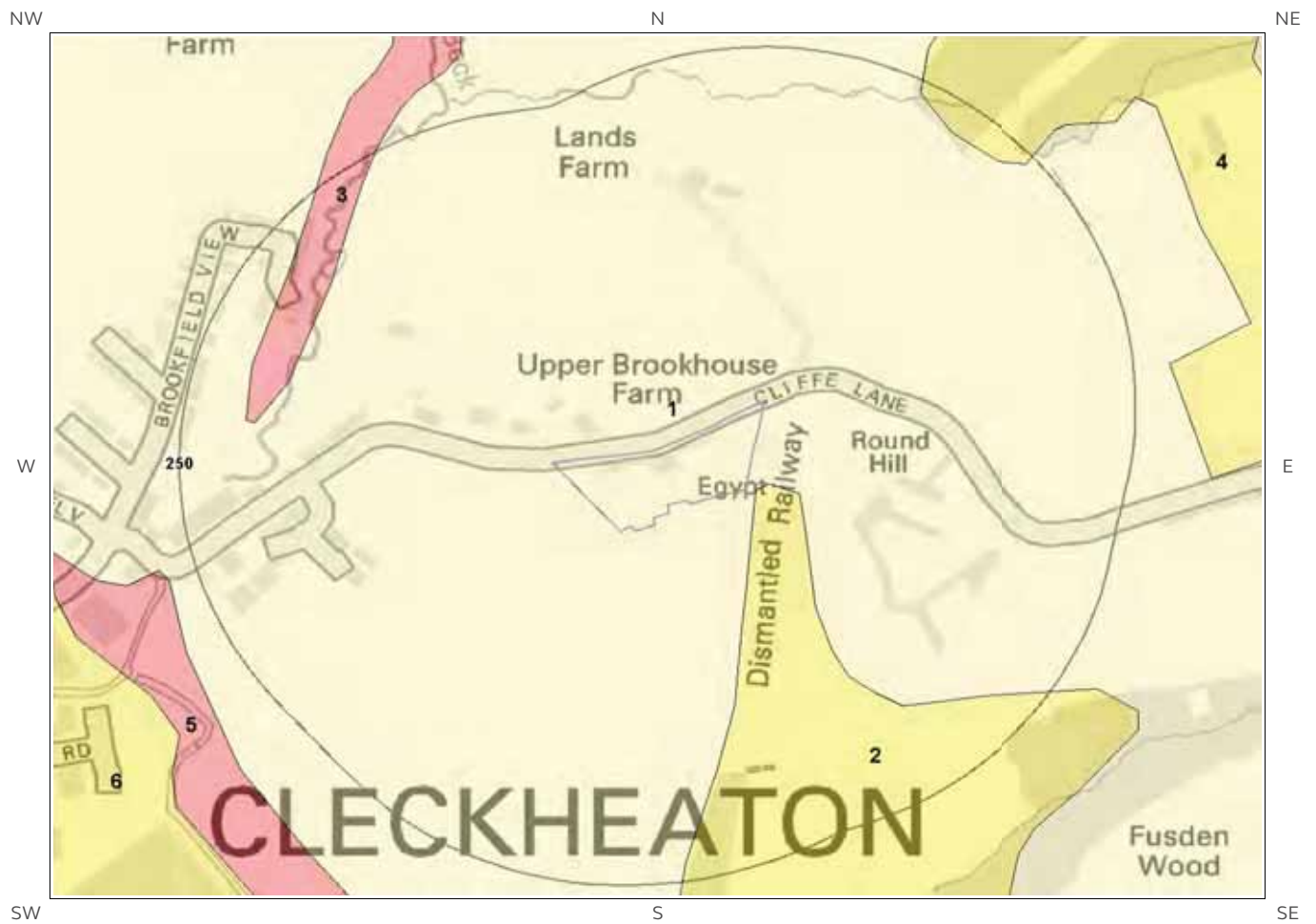
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6.3 Ground Dissolution of Soluble Rocks Map

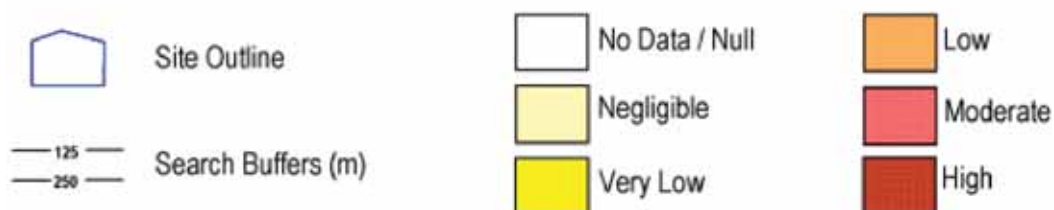


6.4 Compressible Deposits Map

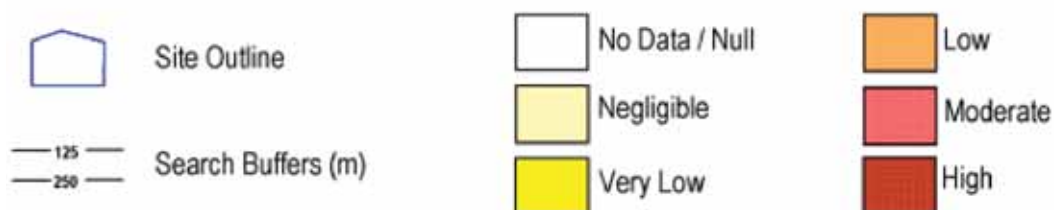
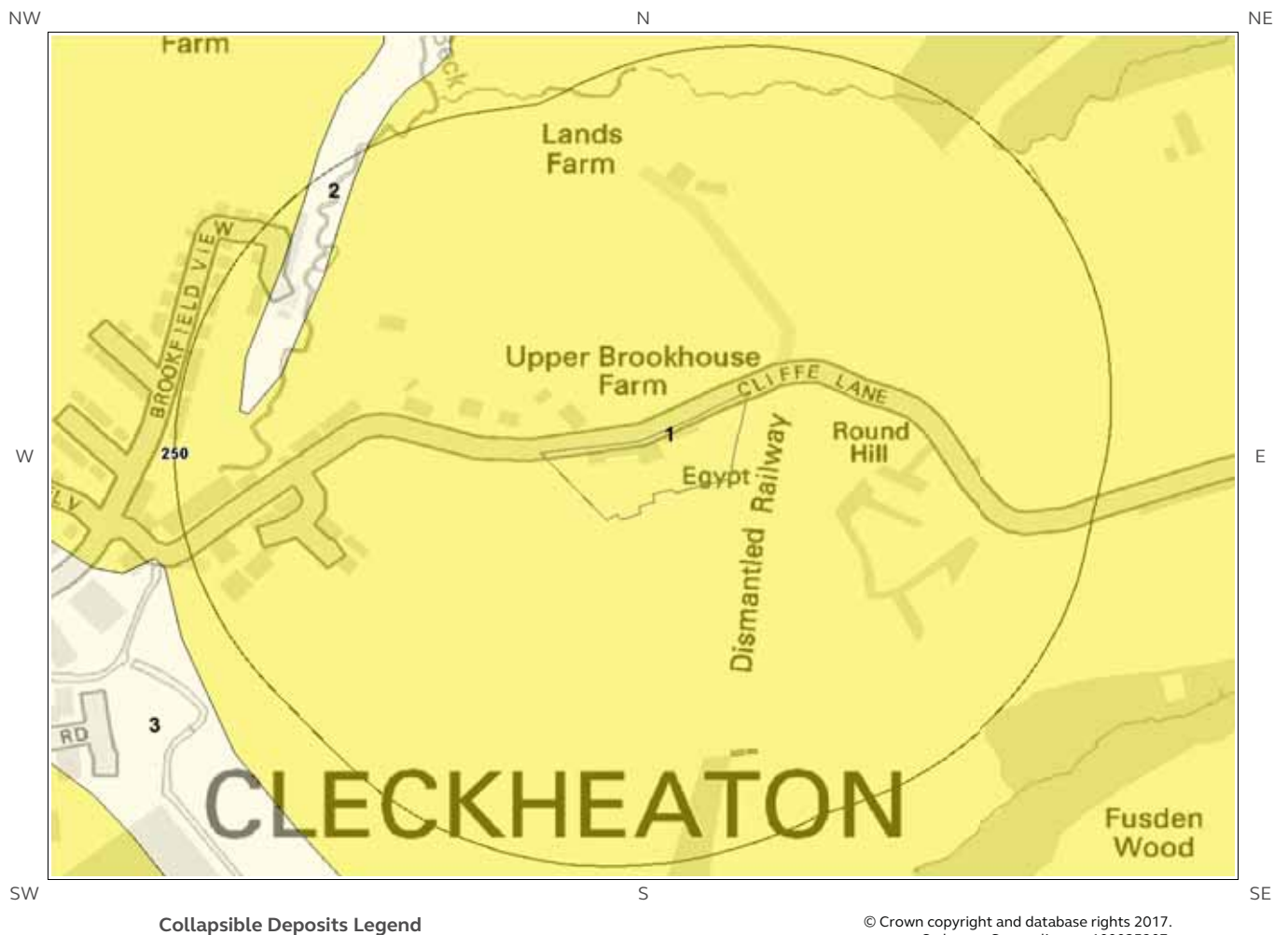


Compressible Deposits Legend

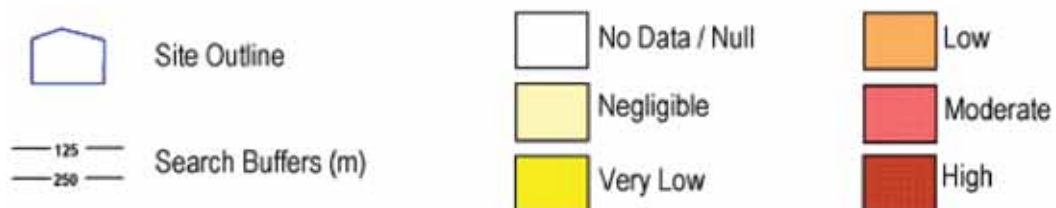
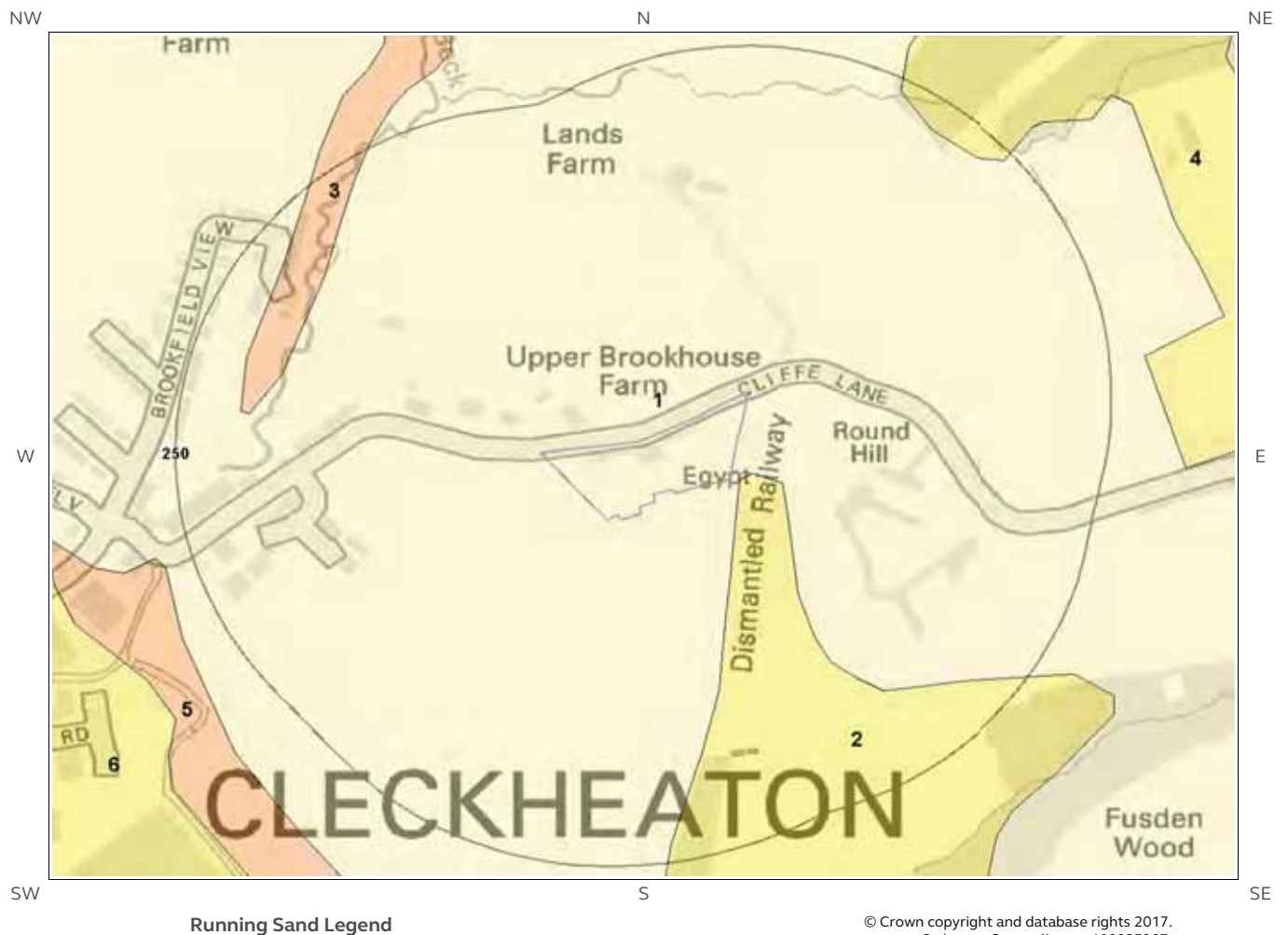
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6.5 Collapsible Deposits Map



6.6 Running Sand Map



6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

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

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

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

ID	Distance (m)	Direction	Hazard Rating	Details
2	34.0	S	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

6.3 Ground Dissolution of Soluble Rocks

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

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

6.4 Compressible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	7.0	E	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

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

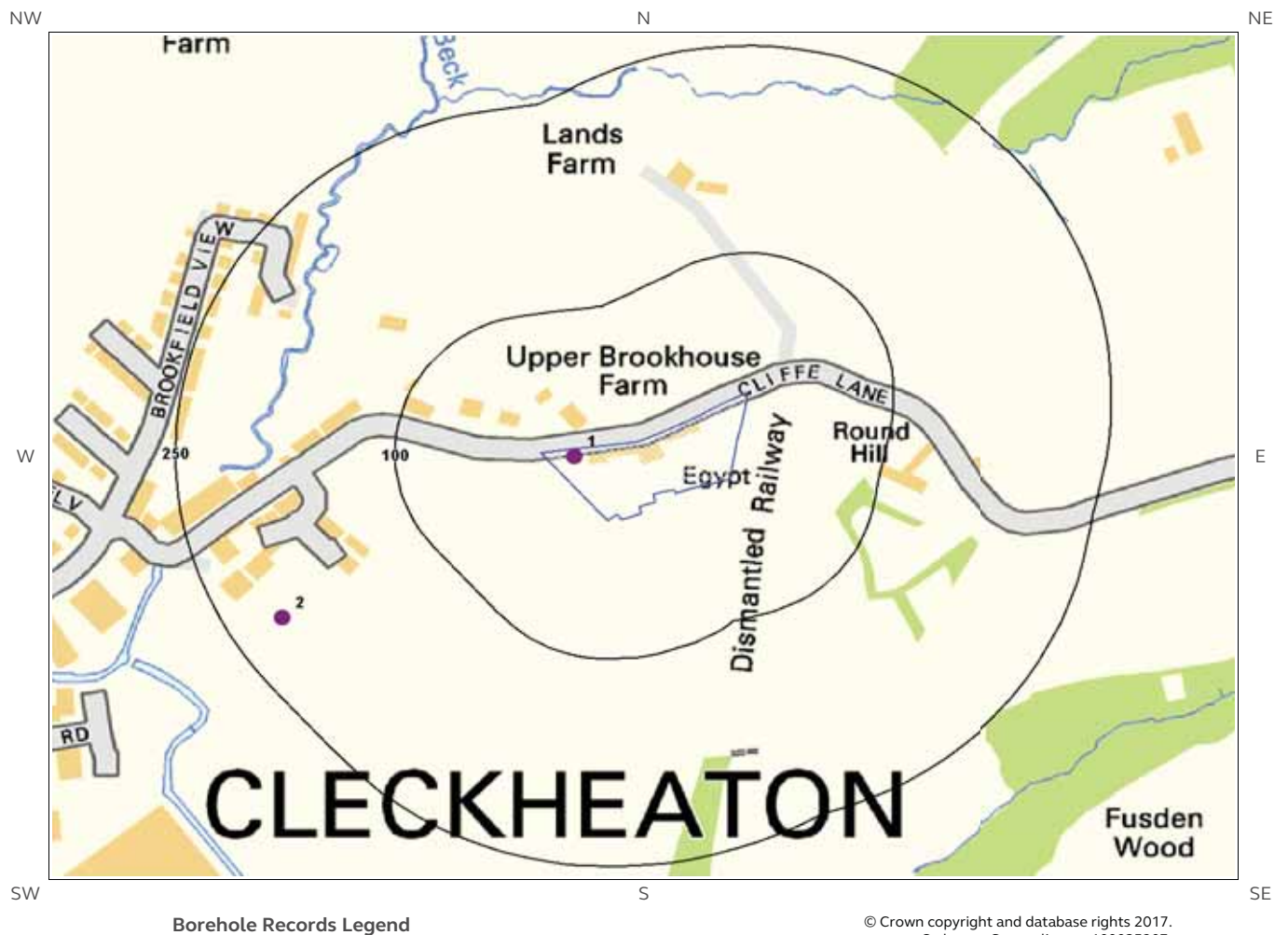
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

6.6 Running Sands

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	7.0	E	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records Map



7 Borehole Records

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

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

2

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	0.0	On Site	419361 426146	SE12NE17	16.51	EGYPT FARM BH
2	214.0	SW	419161 426029	SE12NE2	110.95	BH AT VICTORIA MILLS BRADFORD ROAD CLECKHEATON

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

#1: scans.bgs.ac.uk/sobi_scans/boreholes/41612

#2: scans.bgs.ac.uk/sobi_scans/boreholes/41586

8 Estimated Background Soil Chemistry

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

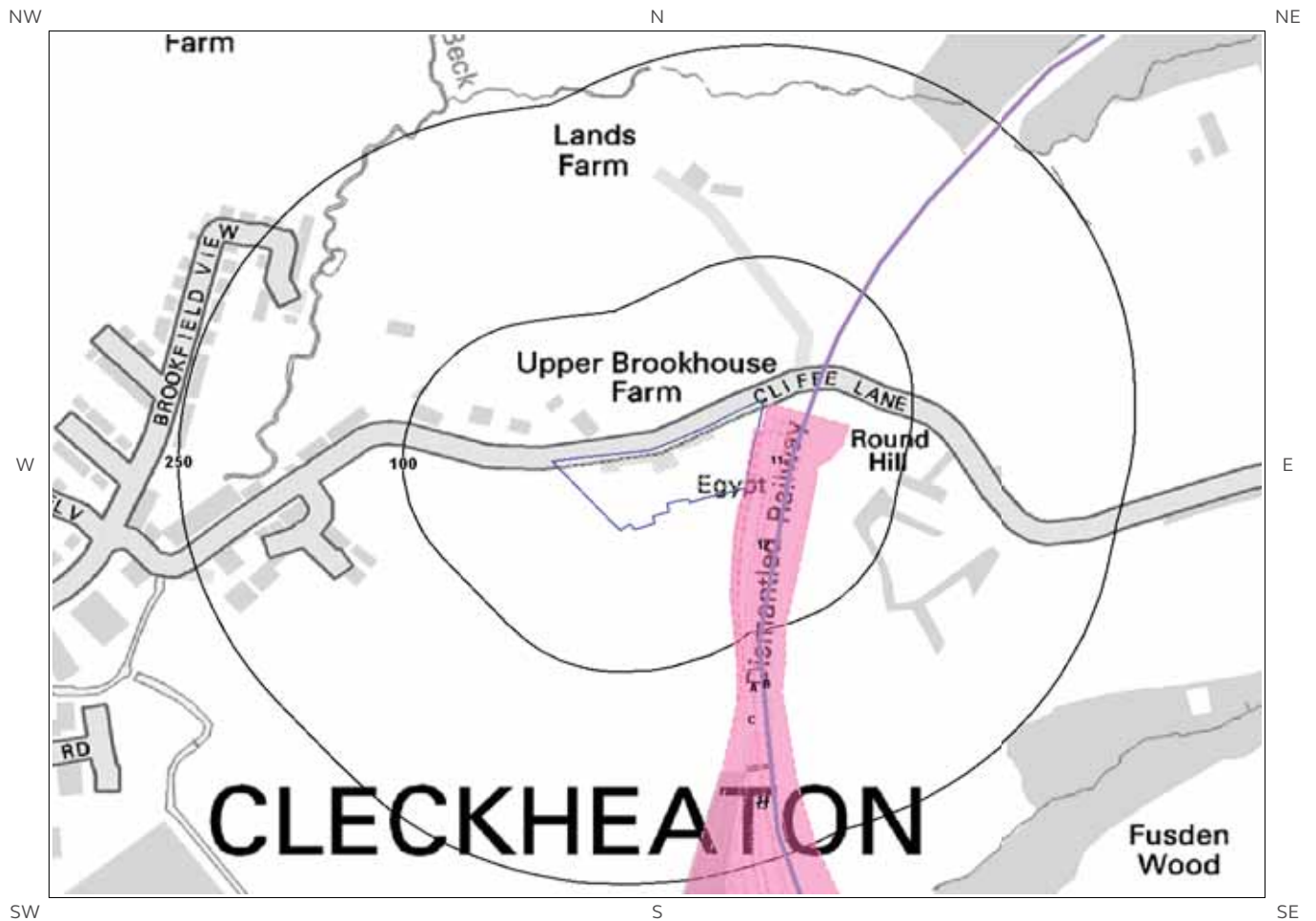
5

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
7.0	SW	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
21.0	E	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg

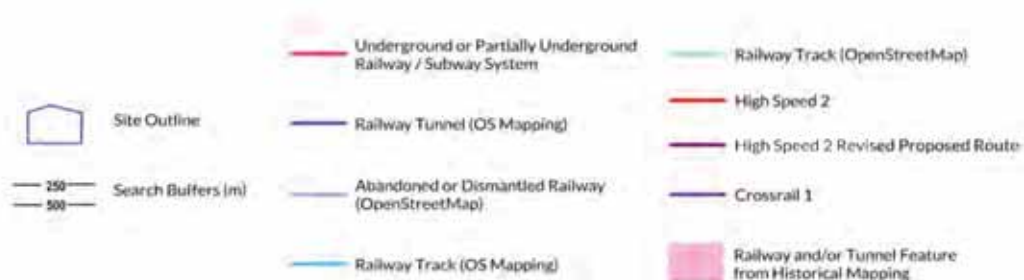
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels Map



Railways and Tunnels Legend

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9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

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

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

ID	Distance (m)	Direction	NGR	Details	Date
1A	0	On Site	419469 425855	Railway Sidings	1948
2A	0	On Site	419469 425855	Railway Sidings	1938
3A	0	On Site	419469 425855	Railway Sidings	1905
6A	0	E	419461 425860	Railway Sidings	1948
4B	2	E	419538 425742	Railway Sidings	1955
5B	3	E	419538 425742	Railway Sidings	1967

ID	Distance (m)	Direction	NGR	Details	Date
7C	6	E	419470 425851	Railway Sidings	1907
8A	6	E	419470 425851	Railway Sidings	1933
9A	6	E	419470 425851	Railway Sidings	1938
10C	6	E	419470 425851	Railway Sidings	1922
11	12	E	419488 426148	Railway Sidings	1956
12	13	E	419477 426090	Railway Sidings	1956
13	120	SE	419478 425827	Railway Sidings	1956
14	120	SE	419478 425827	Railway Sidings	1965
15	162	SE	419471 425743	Railway Sidings	1956

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

9.3 Historical Railways

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

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

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

Distance (m)	Direction	Status
27	E	Abandoned

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

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

9.4 Active Railways

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

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

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

Database searched and no data found.

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

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

9.5 Railway Projects

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

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

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

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

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

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

Contact Details

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



British Geological Survey Enquiries

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



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

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



Public Health England

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

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

APPENDIX E

GROUNDSURE REPORT

HISTORICAL MAPS



Haigh Huddleston & Associates
99-101, LEEDS ROAD,
DEWSBURY, WF12 7BU

Groundsure Reference: GS-3774753

Your Reference: SMITH_6876

Report Date 3 Apr 2017

Report Delivery Method: Email - pdf

Groundsure Enviro Insight

Address: EGYPT FARM, CLIFFE LANE, CLECKHEATON, BD19 4EU

Dear Sir/ Madam,

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

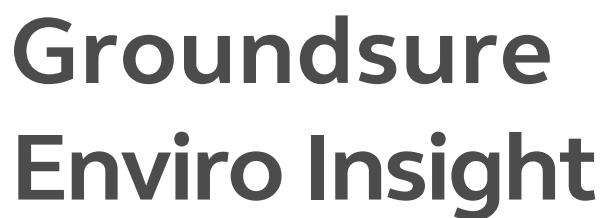
If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

A handwritten signature in black ink, appearing to be "J. Smith", followed by a large, stylized flourish or mark.

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight



Address:	EGYPT FARM, CLIFFE LANE, CLECKHEATON, BD19 4EU
Date:	3 Apr 2017
Reference:	GS-3774753
Client:	Haigh Huddleston & Associates



Aerial Photograph Capture date: 26-Mar-2012
Grid Reference: 419415,426133
Site Size: 0.58ha

Report Reference: GS-3774753
Client Reference: SMITH_6876

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Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	6	8	23	137
1.2 Additional Information – Historical Tank Database	0	0	6	17
1.3 Additional Information – Historical Energy Features Database	0	0	2	5
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	3	6	19	61

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	1
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	2	1
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	8
2.3.2 National Incidents Recording System, List 1	0	0	0	1
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	2	1	3	1	5	4
3.1.3 BGS/DoE Landfill Site Survey	0	1	0	1	3	1
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	3	3
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	4	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	2	0	2

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

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

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	9
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	1	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	No	Yes	No
6.10 Detailed River Network entries within 500m of the site	0	0	14	23	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

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

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	1	0	0	2
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	0	1	0
8.14 Records of Green Belt land	1	0	0	0	1	4

Section 9: Natural Hazards

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

Section 10: Mining

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

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

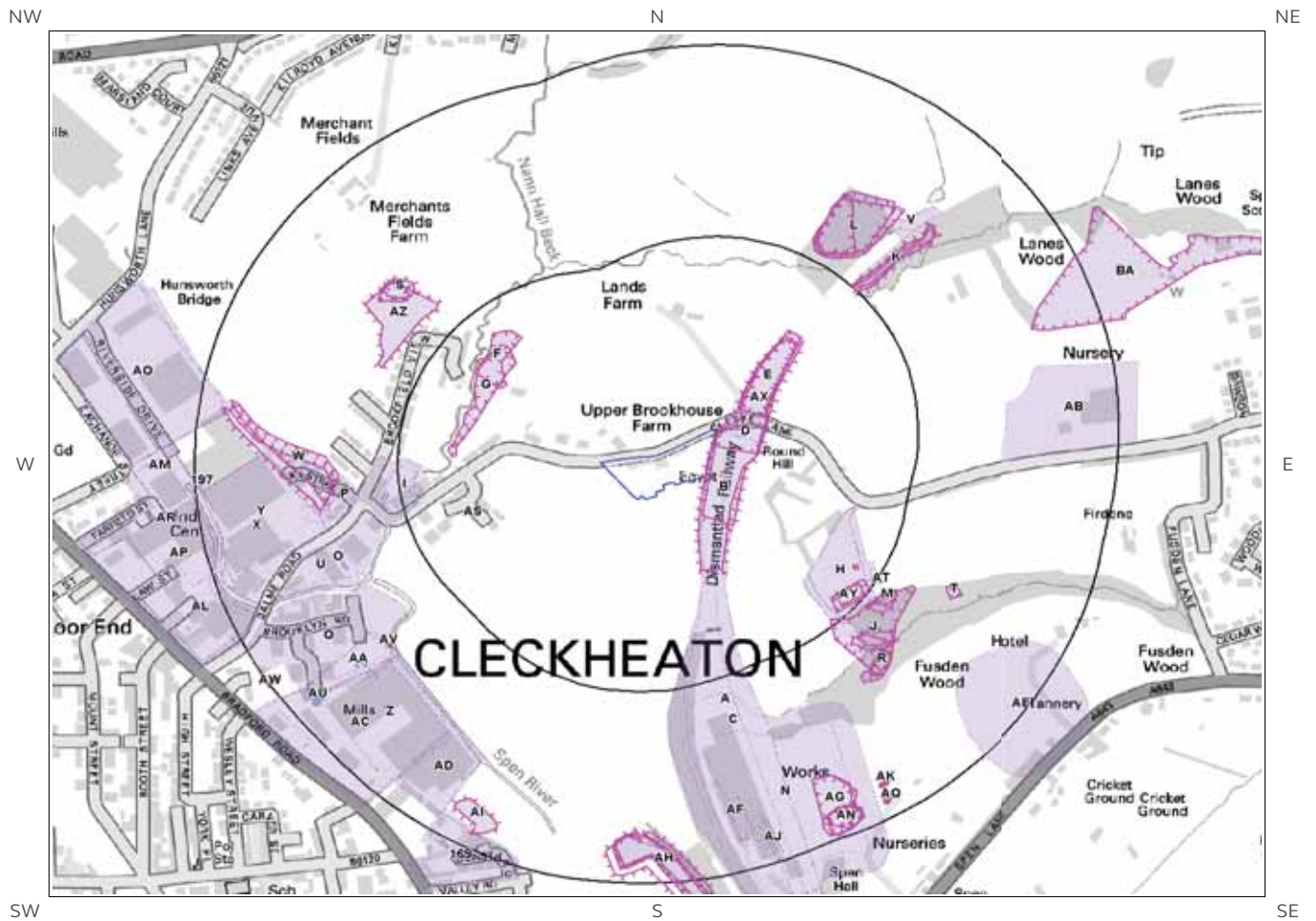
Note: Maps

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

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

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

1. Historical Land Use



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1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 174

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Railway Sidings	1938
2A	0	On Site	Railway Sidings	1948
3A	0	On Site	Railway Sidings	1905
4B	0	On Site	Cuttings	1905
5B	0	On Site	Cuttings	1938
6B	0	On Site	Cuttings	1948
7C	2	E	Railway Sidings	1955
8AX	2	E	Cuttings	1955
9C	3	E	Railway Sidings	1967
10D	3	E	Cuttings	1967
11D	3	E	Cuttings	1974
12E	38	NE	Cuttings	1948
13E	38	NE	Cuttings	1938
14E	38	NE	Cuttings	1905
15F	154	NW	Unspecified Heap	1974
16F	154	NW	Unspecified Heap	1983
17F	154	NW	Unspecified Heap	1990
18G	160	NW	Refuse Heap	1938
19G	160	NW	Refuse Heap	1948
20H	171	SE	Unspecified Mills	1938
21H	171	SE	Unspecified Mills	1948
22H	171	SE	Unspecified Mill	1905
23H	171	SE	Unspecified Mill	1892
24H	174	SE	Unspecified Mills	1983
25H	174	SE	Worsted Mills	1955
26H	174	SE	Unspecified Mills	1990
27H	174	SE	Unspecified Mills	1974
28H	174	SE	Worsted Mills	1967
29I	217	W	Unspecified Mill	1955
30I	223	W	Unspecified Mill	1948
31I	224	W	Iron Works	1892
32I	224	W	Iron Works	1905
33J	242	SE	Unspecified Ground Workings	1974

34J	242	SE	Unspecified Ground Workings	1983
35J	242	SE	Unspecified Ground Workings	1990
36J	242	SE	Unspecified Ground Workings	1967
37K	248	NE	Unspecified Ground Workings	1948
38K	255	NE	Unspecified Ground Workings	1983
39K	255	NE	Unspecified Ground Workings	1967
40K	255	NE	Unspecified Ground Workings	1974
41K	255	NE	Unspecified Ground Workings	1955
42L	260	NE	Unspecified Heap	1938
43L	260	NE	Unspecified Heap	1905
44L	260	NE	Unspecified Heap	1948
45M	262	SE	Unspecified Ground Workings	1955
46L	262	NE	Unspecified Heap	1974
47L	262	NE	Unspecified Heap	1983
48L	262	NE	Unspecified Heap	1967
49M	262	SE	Unspecified Heap	1948
50M	262	SE	Unspecified Heap	1938
51L	266	NE	Unspecified Heap	1955
52N	268	S	Unspecified Works	1990
53N	268	S	Unspecified Works	1983
54J	278	SE	Unspecified Heap	1955
55J	278	SE	Unspecified Heap	1938
56J	278	SE	Unspecified Heap	1948
57O	279	W	Unspecified Mill	1948
58O	279	W	Unspecified Mill	1938
59AZ	284	NW	Colliery	1892
60P	300	W	Unspecified Mills	1955
61P	301	W	Unspecified Commercial/Industrial	1990
62P	301	W	Unspecified Commercial/Industrial	1974
63P	301	W	Unspecified Commercial/Industrial	1983
64P	301	W	Unspecified Mill	1967
65Q	305	SW	Unspecified Mills	1892
66Q	305	SW	Unspecified Mills	1905
67P	307	W	Unspecified Mill	1948
68P	307	W	Unspecified Mill	1938
69P	308	W	Unspecified Mill	1892
70R	312	SE	Refuse Heap	1955
71R	313	SE	Refuse Heap	1948

72R	313	SE	Refuse Heap	1938
73S	319	NW	Refuse Heap	1955
74S	319	NW	Refuse Heap	1892
75S	319	NW	Refuse Heap	1948
76S	319	NW	Refuse Heap	1938
77S	319	NW	Unspecified Pit	1905
78N	320	S	Unspecified Works	1974
79W	323	W	Mill Pond	1955
80T	329	SE	Burial Ground	1974
81T	329	SE	Burial Ground	1990
82T	329	SE	Burial Ground	1983
83U	330	SW	Unspecified Mill	1967
84U	330	SW	Unspecified Mill	1955
85V	332	NE	Railway Sidings	1905
86V	332	NE	Railway Sidings	1938
87V	332	NE	Railway Sidings	1948
88AA	332	SW	Wire Mills	1967
89W	332	W	Mill Pond	1892
90W	332	W	Mill Pond	1948
91W	332	W	Mill Pond	1938
92W	332	W	Mill Pond	1905
93V	335	NE	Railway Sidings	1955
94X	344	W	Unspecified Mills	1938
95X	344	W	Unspecified Mills	1948
96Y	348	W	Unspecified Mills	1967
97Y	348	W	Unspecified Commercial/Industrial	1983
98Y	348	W	Unspecified Commercial/Industrial	1990
99Y	348	W	Unspecified Mills	1955
100Y	348	W	Unspecified Commercial/Industrial	1974
101Z	351	SW	Unspecified Mills	1974
102Z	351	SW	Unspecified Mills	1967
103Z	351	SW	Unspecified Mills	1955
104AA	351	SW	Unspecified Mills	1955
105AB	353	E	Nursery	1990
106AB	353	E	Nursery	1983
107AA	356	SW	Unspecified Mills	1938
108AA	356	SW	Unspecified Mills	1948
109AC	359	SW	Unspecified Mills	1990
110AC	359	SW	Unspecified Mills	1983
111AC	361	SW	Unspecified Mills	1948
112AC	367	SW	Unspecified Mills	1938
113AC	367	SW	Unspecified Mills	1892
114AC	367	SW	Unspecified Mills	1905
115AD	368	SW	Unspecified Works	1983

116AD	368	SW	Unspecified Mills	1967
117AD	368	SW	Unspecified Mills	1955
118AD	368	SW	Unspecified Works	1974
119AD	368	SW	Unspecified Works	1990
120AD	378	SW	Unspecified Disused Mills	1938
121AD	378	SW	Unspecified Mills	1948
122AF	378	S	Steel Works	1967
123AE	404	SE	Tannery	1990
124AE	404	SE	Tannery	1983
125BA	413	E	Colliery	1892
126AF	415	S	Railway Building	1955
127AG	417	S	Unspecified Heap	1990
128AG	417	S	Unspecified Heap	1983
129AG	417	S	Unspecified Heap	1974
130AG	417	S	Unspecified Heaps	1967
131AH	431	S	Mill Pond	1955
132AH	431	S	Mill Pond	1967
133AH	431	S	Mill Pond	1990
134AH	435	S	Mill Pond	1948
135AH	435	S	Mill Pond	1905
136AH	435	S	Mill Pond	1938
137AI	440	SW	Unspecified Heap	1967
138AI	440	SW	Unspecified Heap	1974
139AI	440	SW	Unspecified Heap	1990
140AI	440	SW	Unspecified Heap	1983
141AJ	443	S	Goods Station	1967
142AJ	445	S	Goods Shed	1955
143AJ	447	S	Railway Building	1905
144AJ	447	S	Goods Shed	1948
145AJ	447	S	Goods Shed	1938
146AK	447	SE	Unspecified Tank	1990
147AK	447	SE	Unspecified Tank	1974
148AK	447	SE	Unspecified Tank	1983
149AK	452	SE	Unspecified Old Shafts	1955
150AK	454	SE	Unspecified Old Shafts	1948
151AK	454	SE	Unspecified Old Shafts	1938
152AO	456	W	Unspecified Mills	1955
153AL	458	SW	Unspecified Mill	1974
154AL	458	SW	Unspecified Mill	1983
155AL	458	SW	Unspecified Mill	1990
156AM	460	SW	Unspecified Mills	1990
157AM	460	SW	Unspecified Mills	1967
158AM	460	SW	Unspecified Mills	1983
159AM	460	SW	Unspecified Mills	1974
160AP	460	SW	Unspecified Mills	1967
161AN	461	S	Refuse Heap	1955

162AN	461	S	Refuse Heap	1948
163AN	461	S	Refuse Heap	1938
164AO	467	W	Unspecified Mills	1938
165AO	467	W	Unspecified Mills	1948
166AP	471	SW	Unspecified Mills	1905
167AP	471	SW	Unspecified Mills	1892
168AQ	472	SE	Unspecified Old Shafts	1955
169	473	SW	Tannery	1892
170AQ	474	SE	Unspecified Old Shafts	1948
171AQ	474	SE	Unspecified Old Shafts	1938
172AR	477	W	Unspecified Mill	1983
173AR	477	W	Unspecified Mill	1974
174AR	477	W	Unspecified Mill	1990

1.2 Additional Information – Historical Tank Database

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

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

23

ID	Distance (m)	Direction	Use	Date
175AS	170	SW	Unspecified Tank	1956
176AS	171	SW	Unspecified Tank	1956
177AS	171	SW	Unspecified Tank	1994
178AS	171	SW	Unspecified Tank	1994
179AS	172	SW	Unspecified Tank	1992
180I	227	W	Unspecified Tank	1938
181AT	252	SE	Unspecified Tank	1975
182AT	252	SE	Unspecified Tank	1956
183AT	252	SE	Unspecified Tank	1956
184AT	252	SE	Unspecified Tank	1968
185AT	256	SE	Unspecified Tank	1992
186I	264	W	Unspecified Tank	1933
187O	340	SW	Tanks	1922
188AA	390	SW	Tanks	1922
189AA	390	SW	Tanks	1907
190AA	398	SW	Unspecified Tank	1922
191Z	406	SW	Unspecified Tank	1922
192Z	406	SW	Unspecified Tank	1933
193Z	406	SW	Unspecified Tank	1938
194AD	420	SW	Unspecified Tank	1922
195AU	461	SW	Unspecified Tank	1985
196AU	463	SW	Unspecified Tank	1994

197	489	W	Unspecified Tank	1972
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1.3 Additional Information – Historical Energy Features Database

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

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

7

ID	Distance (m)	Direction	Use	Date
198H	215	SE	Electricity Substation	1956
199H	216	SE	Electricity Substation	1956
200AV	351	SW	Electricity Substation	1956
201AV	351	SW	Electricity Substation	1956
202AW	497	SW	Electricity Substation	1985
203AW	497	SW	Electricity Substation	1975
204AW	499	SW	Electricity Substation	1994

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

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

0

Database searched and no data found.

1.6 Potentially Infilled Land

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

89

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

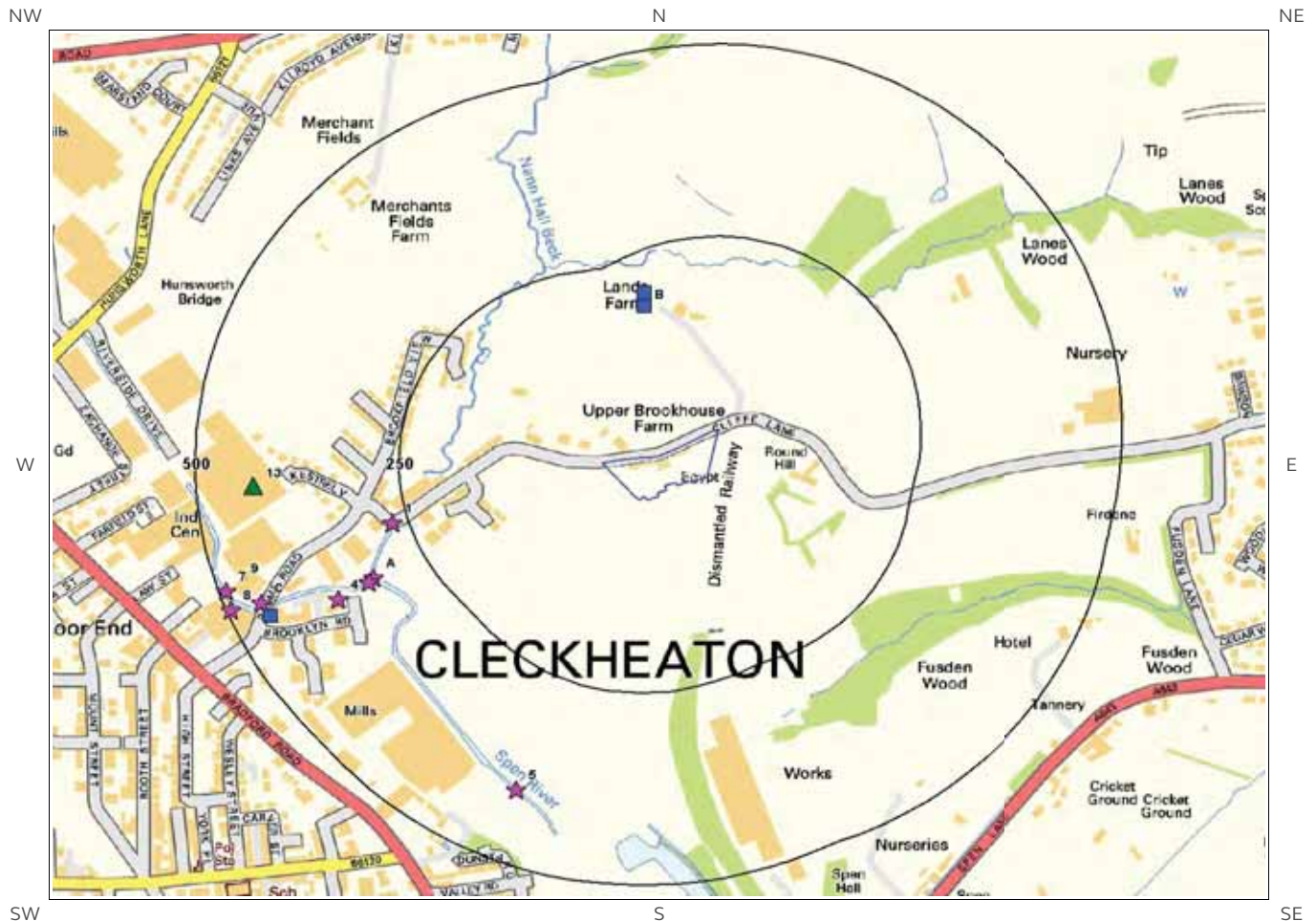
ID	Distance(m)	Direction	Use	Date
----	-------------	-----------	-----	------

205B	0	On Site	Cuttings	1905
206B	0	On Site	Cuttings	1938
207B	0	On Site	Cuttings	1948
208AX	2	E	Cuttings	1955
209D	3	E	Cuttings	1974
210D	3	E	Cuttings	1967
211E	38	NE	Cuttings	1905
212E	38	NE	Cuttings	1948
213E	38	NE	Cuttings	1938
214F	154	NW	Unspecified Heap	1990
215F	154	NW	Unspecified Heap	1983
216F	154	NW	Unspecified Heap	1974
217G	160	NW	Refuse Heap	1948
218G	160	NW	Refuse Heap	1938
219AY	221	SE	Pond	1948
220AY	221	SE	Pond	1938
221AY	221	SE	Pond	1905
222AY	221	SE	Pond	1892
223AY	221	SE	Reservoir	1990
224AY	221	SE	Reservoir	1955
225AY	221	SE	Reservoir	1974
226AY	221	SE	Reservoir	1967
227AY	221	SE	Reservoir	1983
228J	242	SE	Unspecified Ground Workings	1974
229J	242	SE	Unspecified Ground Workings	1990
230J	242	SE	Unspecified Ground Workings	1983
231J	242	SE	Unspecified Ground Workings	1967
232K	248	NE	Unspecified Ground Workings	1948
233K	255	NE	Unspecified Ground Workings	1983
234K	255	NE	Unspecified Ground Workings	1967
235K	255	NE	Unspecified Ground Workings	1974
236K	255	NE	Unspecified Ground Workings	1955
237L	260	NE	Unspecified Heap	1948
238L	260	NE	Unspecified Heap	1938
239L	260	NE	Unspecified Heap	1905
240M	262	SE	Unspecified Ground Workings	1955
241L	262	NE	Unspecified Heap	1983
242L	262	NE	Unspecified Heap	1967
243L	262	NE	Unspecified Heap	1974

244M	262	SE	Unspecified Heap	1938
245M	262	SE	Unspecified Heap	1948
246L	266	NE	Unspecified Heap	1955
247J	278	SE	Unspecified Heap	1955
248J	278	SE	Unspecified Heap	1948
249J	278	SE	Unspecified Heap	1938
250AZ	284	NW	Colliery	1892
251R	312	SE	Refuse Heap	1955
252R	313	SE	Refuse Heap	1948
253R	313	SE	Refuse Heap	1938
254S	319	NW	Refuse Heap	1955
255S	319	NW	Unspecified Pit	1905
256S	319	NW	Refuse Heap	1892
257S	319	NW	Refuse Heap	1938
258S	319	NW	Refuse Heap	1948
259W	323	W	Mill Pond	1955
260T	329	SE	Burial Ground	1990
261T	329	SE	Burial Ground	1974
262T	329	SE	Burial Ground	1983
263W	332	W	Mill Pond	1948
264W	332	W	Mill Pond	1905
265W	332	W	Mill Pond	1938
266W	332	W	Mill Pond	1892
267BA	413	E	Colliery	1892
268AG	417	S	Unspecified Heaps	1967
269AG	417	S	Unspecified Heap	1983
270AG	417	S	Unspecified Heap	1974
271AG	417	S	Unspecified Heap	1990
272AH	431	S	Mill Pond	1967
273AH	431	S	Mill Pond	1955
274AH	431	S	Pond	1974
275AH	431	S	Pond	1983
276AH	431	S	Mill Pond	1990
277AH	435	S	Mill Pond	1905
278AH	435	S	Mill Pond	1938
279AH	435	S	Mill Pond	1948
280AH	435	S	Water Body	1892
281AI	440	SW	Unspecified Heap	1967
282AI	440	SW	Unspecified Heap	1990
283AI	440	SW	Unspecified Heap	1983
284AI	440	SW	Unspecified Heap	1974
285AK	452	SE	Unspecified Old Shafts	1955
286AQ	454	SE	Unspecified Old Shafts	1948
287AQ	454	SE	Unspecified Old Shafts	1938
288AN	461	S	Refuse Heap	1955
289AN	461	S	Refuse Heap	1938

290AN	461	S	Refuse Heap	1948
291AQ	472	SE	Unspecified Old Shafts	1955
292AQ	474	SE	Unspecified Old Shafts	1938
293AQ	474	SE	Unspecified Old Shafts	1948

2. Environmental Permits, Incidents and Registers Map



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2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Details
13	431	W	418909 426116	Address: B & W Group Ltd, Spenback Business Park, Balme Road, Cleckheaton, BD19 4EW Process: Timber Process Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

3

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

ID	Distance (m)	Direction	NGR	Details
10B	183	NW	419389 426352	Address: ASH TREE BARN, LANDS FARM, CLIFFE LANE, CLECKHEATON, WEST YORKSHIRE, BD19 4EU Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: NPSWQD005398 Permit Version: 1 Receiving Water: GROUNDWATERS VIA SOAKAWAY Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 26/11/2008 Effective Date: 26-Nov-2008 Revocation Date: -
11B	199	NW	419389 426370	Address: ASH TREE COTTAGE, CLIFFE LANE, CLECKHEATON, ., WEST YORKSHIRE, BD19 4EU Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: NPSWQD005380 Permit Version: 1 Receiving Water: GROUNDWATERS VIA SOAKAWAY Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 26/11/2008 Effective Date: 26-Nov-2008 Revocation Date: -
12C	454	SW	418930 425950	Address: BALME ROAD CSO, OFF BRADFORD ROAD, CLECKHEATON, BRADFORD, WEST YORKSHIRE Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: WRA8255 Permit Version: 1 Receiving Water: RIVER SPEN Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 18/03/2004 Effective Date: 31-Mar-2004 Revocation Date: -

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

8

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

ID	Distance (m)	Direction	NGR	Details
1	270	W	419080 426071	Incident Date: 26-Apr-2002 Incident Identification: 74860 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	319	SW	419056 426000	Incident Date: 11-Sep-2002 Incident Identification: 107212 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3A	327	SW	419051 425994	Incident Date: 30-Sep-2002 Incident Identification: 111602 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4	371	SW	419013 425971	Incident Date: 10-Sep-2002 Incident Identification: 106880 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Distance (m)	Direction	NGR	Details	
5	405	S	419232 425724	Incident Date: 23-Apr-2002 Incident Identification: 73845 Pollutant: Sewage Materials Pollutant Description: Process Effluent	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6C	457	SW	418919 425967	Incident Date: 08-Mar-2002 Incident Identification: 62675 Pollutant: Contaminated Water Pollutant Description: Minewater	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	492	W	418876 425982	Incident Date: 12-Sep-2002 Incident Identification: 107501 Pollutant: Organic Chemicals/Products Pollutant Description: Dyes and Inks	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
8	496	SW	418881 425957	Incident Date: 12-Sep-2002 Incident Identification: 107381 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

1

The following NIRS List 1 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
9	463	W		Incident Date: 01-Feb-1999 Incident Identification: 908.0 Catchments Name: CALDER AND TRIBS Water Description: RIVER STRETCH (FRESHWATER) Water Course: SPEN BECK/DEAN BECK Incident Substantiated: Yes	Priority Description: Immediate (2 Hours) Waste Description: Not Available Water Impact: Significant Impact Land Impact: No Impact Air Impact: No Impact Action Taken: Not Available

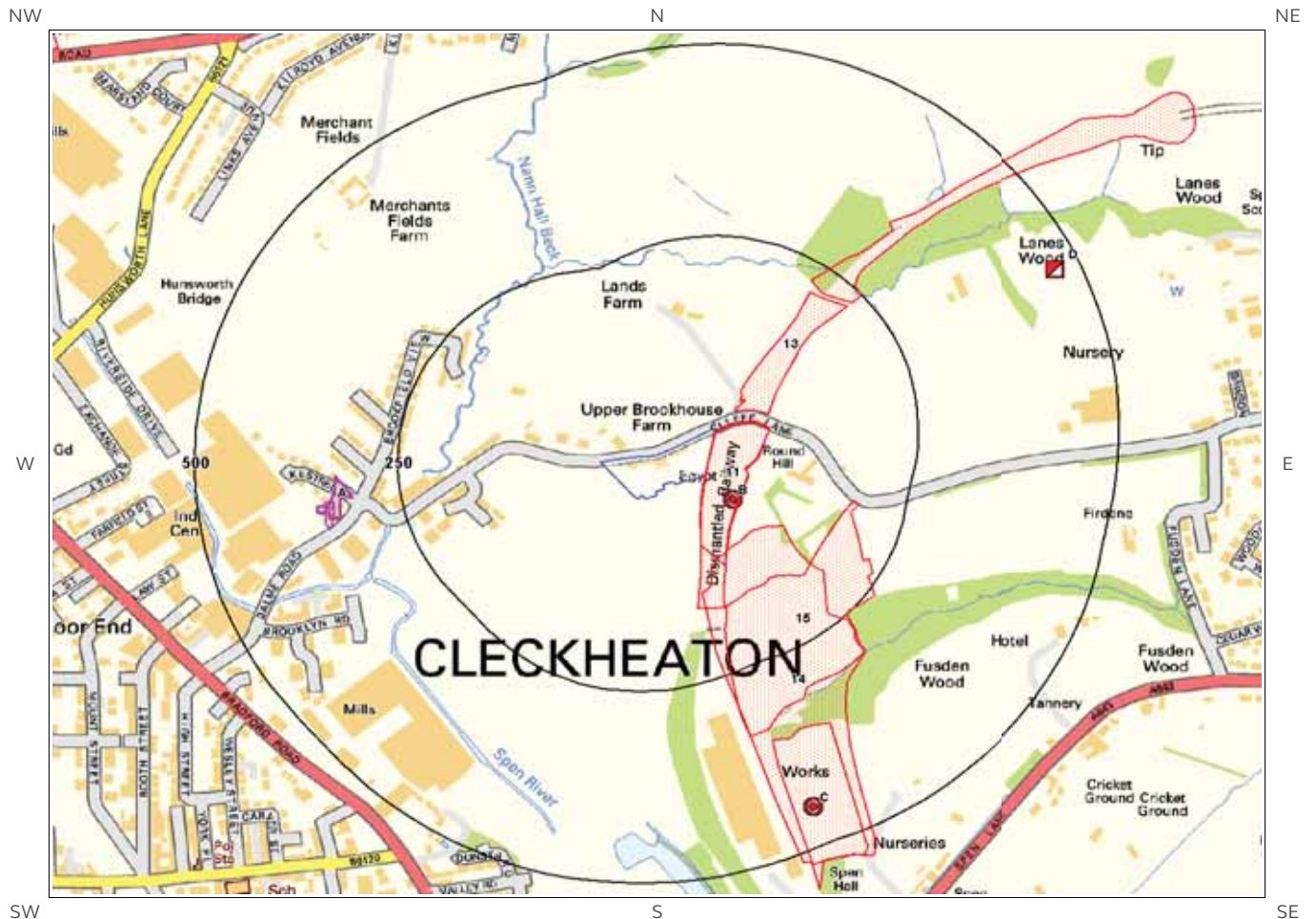
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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

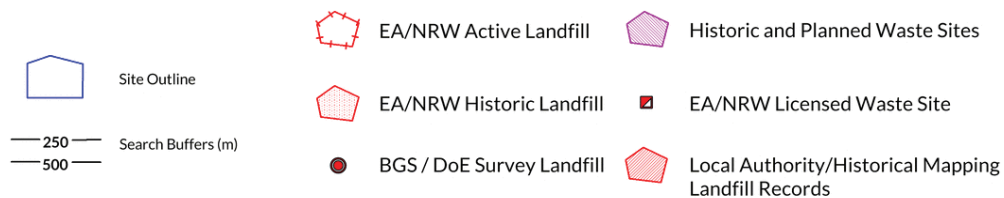
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

16

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

ID	Distance (m)	Direction	NGR	Details
11	0	On Site	419400 426100	Site Address: Spen Steelworks Site 1, Spen Lane, Cleckheaton Waste Licence: Yes Site Reference: 4700/0017 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 18-May-1977 Licence Surrendered: 14-Jun-1979 Licence Holder Address: Spen Steelworks, Spen Lane, Cleckheaton Operator: - Licence Holder: Wilson Steel Services First Recorded: 31-Dec-1969 Last Recorded: 31-May-1979
12B	0	E	419400 426000	Site Address: Cliffe Lane, Gomersal, Cleckheaton, West Yorkshire Waste Licence: Yes Site Reference: - Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 18-May-1977 Licence Surrendered: 14-Jun-1979 Licence Holder Address: - Operator: John Crossland Limited Licence Holder: Wilson Steel Services First Recorded: 31-Jan-1969 Last Recorded: -
13	34	NE	419700 426400	Site Address: Land to the North of Cliffe Lane Gomersal, Dismantled Railway, Cleckheaton Waste Licence: Yes Site Reference: 4700/0020 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 01-Jun-1977 Licence Surrendered: 05-May-1994 Licence Holder Address: New Lane, Cleckheaton Operator: - Licence Holder: John Crossland Limited First Recorded: 01-Jan-1976 Last Recorded: 31-Dec-1990
14	91	SE	419500 425800	Site Address: Spen Steelworks Site No.2 - Roundhill, Cliffe Lane, Cleckheaton Waste Licence: Yes Site Reference: 4700/0267, 18, 4700/0807 Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 18-May-1977 Licence Surrendered: 29-Apr-1994 Licence Holder Address: 7 Market Street, Heckmondwike, Cleckheaton Operator: - Licence Holder: Longland Plant Hire First Recorded: 31-Dec-1977 Last Recorded: 31-Mar-1993

ID	Distance (m)	Direction	NGR	Details	
15	153	SE	419500 425900	Site Address: Land off Cliffe Lane, Briars Fields, Vernon Road, Somersal, Cleckheaton, Kirklees Waste Licence: Yes Site Reference: 192 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 16-Jan-1979 Licence Surrendered: 30-Apr-1994 Licence Holder Address: Briarfields, Vernon Road, Heckmondwike, Kirkless Operator: - Licence Holder: Longland Plant First Recorded: 31-Dec-1979 Last Recorded: 31-Dec-1981
16	220	NE	419700 426400	Site Address: Land to the North of Cliffe Lane Gomersal, Dismantled Railway, Cleckheaton Waste Licence: Yes Site Reference: 4700/0020 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 01-Jun-1977 Licence Surrendered: 05-May-1994 Licence Holder Address: New Lane, Cleckheaton Operator: - Licence Holder: John Crossland Limited First Recorded: 01-Jan-1976 Last Recorded: 31-Dec-1990
17C	349	S	419600 425700	Site Address: Gikan Steelco, Cleckheaton, Yorkshire Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Jan-1913 Last Recorded: -
Not shown	607	S	419600 425400	Site Address: Spen Lane, Cleckheaton, West Yorkshire Waste Licence: - Site Reference: - Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Jan-1969 Last Recorded: -
Not shown	718	S	419500 425300	Site Address: Mann Dam, Spen Lane, Gomersal, Cleckheaton, Yorkshire Waste Licence: - Site Reference: - Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Spen Bank Holdings Limited Licence Holder: - First Recorded: 30-Apr-1914 Last Recorded: -
Not shown	843	SE	420200 425600	Site Address: Nibshaw Lane, Gomersal, Cleckheaton, West Yorkshire Waste Licence: - Site Reference: - Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Sellon Brothers Limited Licence Holder: - First Recorded: - Last Recorded: 31-Jul-1972
21	858	NW	418600 426700	Site Address: Land off Whitehall Road, Cleckheaton Waste Licence: Yes Site Reference: 4700/0043, 4700/0272 Waste Type: Inert, Industrial, Special, Liquid, sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 03-May-1977 Licence Surrendered: 25-Apr-1994 Licence Holder Address: Whitehall Road, Cleckheaton Operator: - Licence Holder: Hunsworth Dyeing Company Limited First Recorded: 01-Jan-1919 Last Recorded: 31-Mar-1994
Not shown	991	NW	418400 426700	Site Address: Land off Whitehall Road, Dyehouse Drive, Cleckheaton Waste Licence: Yes Site Reference: 4700/0222 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 02-Apr-1980 Licence Surrendered: 28-Apr-1994 Licence Holder Address: Whitehall Road, Cleckheaton Operator: - Licence Holder: Hunsworth Dyeing Company Limited First Recorded: 30-Apr-1980 Last Recorded: 31-Dec-1991

ID	Distance (m)	Direction	NGR	Details	
Not shown	1110	SW	418800 425000	Site Address: Land at the north of F W Birkett and Sons Limited, Hightown Road, Cleckheaton Waste Licence: Yes Site Reference: 4700/0420, 4700/WDL0201 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 08-Feb-1984 Licence Surrendered: 31-Dec-1990 Licence Holder Address: Hightown Road, Cleckheaton Operator: - Licence Holder: Francis W Birkett and Sons Limited First Recorded: 31-Dec-1984 Last Recorded: 31-Dec-1990
Not shown	1263	S	419500 424700	Site Address: Rawfolds, Bradford Road, Cleckheaton Waste Licence: - Site Reference: 4700/0515 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: Civic Centre, Huddersfield Operator: - Licence Holder: Kirklees Metropolitan Borough Council First Recorded: - Last Recorded: -
Not shown	1271	N	419200 427500	Site Address: Land off Hunsworth Lane, Hunsworth, Cleckheaton Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: J W Crowther and Son First Recorded: - Last Recorded: -
Not shown	1295	S	419300 424700	Site Address: Pyenot Hall Works, Cleckheaton, Yorkshire Waste Licence: - Site Reference: - Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: British Ropes Limited Licence Holder: - First Recorded: - Last Recorded: -

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

6

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

ID	Distance (m)	Direction	NGR	Details	
1B	44	SE	419500.0 426100.0	Address: Cliff Lane, Gomersal, Cleckheaton, W Yorks BGS Number: 1141.0	Risk: No risk to aquifer Waste Type: N/A
2C	449	SE	419600.0 425700.0	Address: Gikan Steelco, Cleckheaton, Yorks BGS Number: 1101.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	635	S	419600.0 425500.0	Address: Spen Lane, Cleckheaton, W Yorks BGS Number: 1139.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	708	S	419500.0 425400.0	Address: Mann Dam, Spen Lane, Gomersal, Cleckheaton, Yorks BGS Number: 1143.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	896	E	420300.0 425800.0	Address: Nibshaw Lane, Gomersal, Cleckheaton, W Yorks BGS Number: 1142.0	Risk: No risk to aquifer Waste Type: N/A

ID	Distance (m)	Direction	NGR	Details
Not shown	1300	S	419400.0 424800.0	Address: Pyenof Hall Works, Cleckheaton, Yorks BGS Number: 1145.0 Risk: No risk to aquifer Waste Type: N/A

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

6

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	822	E	420251 425796	Refuse Tip	1961 mapping	Polygon
Not shown	909	W	418447 425836	Refuse Tip	1963 mapping	Polygon
Not shown	910	W	418447 425837	Refuse Tip	1968 mapping	Polygon
Not shown	1020	E	420471 425933	Refuse Tip	1961 mapping	Polygon
Not shown	1287	SW	418296 425356	Refuse Tip	1968 mapping	Polygon
Not shown	1287	SW	418295 425356	Refuse Tip	1966 mapping	Polygon

3.2 Other Waste Sites

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

4

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

ID	Distance (m)	Direction	NGR	Details
7A	308	W	419013 426101	Type of Site: Waste Mill Site Address: N/A Planning Application Reference: N/A Date: 1933 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
8A	309	W	419010 426103	Type of Site: Waste Mill Site Address: N/A Planning Application Reference: N/A Date: 1938 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
9A	333	W	419005 426078	Type of Site: Waste Mill Site Address: N/A Planning Application Reference: N/A Date: 1956 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

ID	Distance (m)	Direction	NGR	Details		
10A	333	W	419004 426091	Type of Site: Waste Mill Site Address: N/A	Planning Application Reference: N/A Date: 1956	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

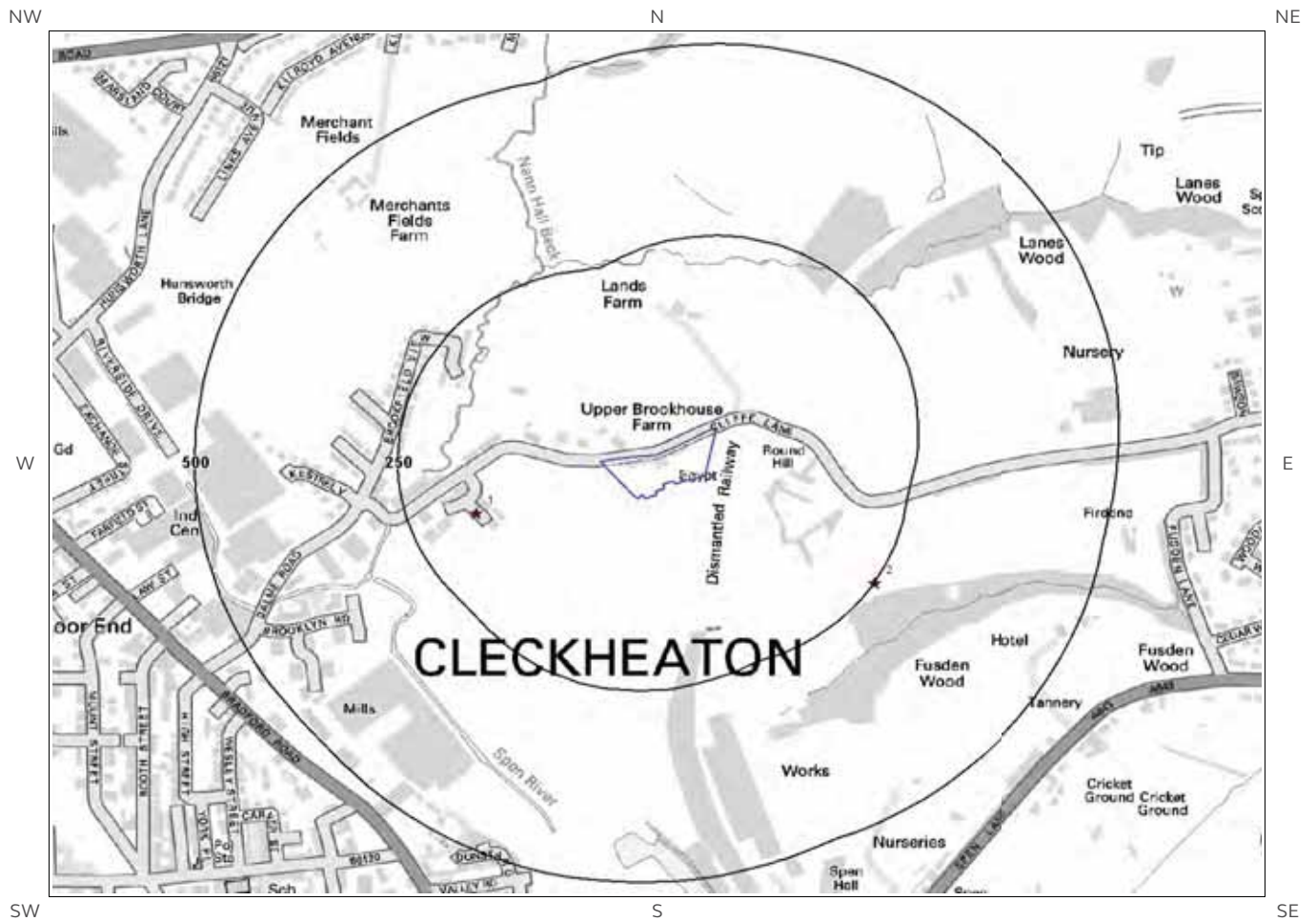
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

4

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

ID	Distance (m)	Direction	NGR	Details		
27D	469	NE	419900 426400	Site Address: 100, Cliffe Lane, Gomersal, Cleckheaton, West Yorkshire, BD19 4EX Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MRC002 EPR reference: EA/EPR/AP3094SV/A001 Operator: Mr Clifford Crawshaw Waste Management licence No: 65025 Annual Tonnage: 4999.0	Issue Date: 21/10/1998 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Roundhill Turkey Farm Correspondence Address: -	
28D	469	NE	419900 426400	Site Address: 100, Cliffe Lane, Gomersal, Cleckheaton, West Yorkshire, BD19 4EX Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MRC002 EPR reference: - Operator: Mr Clifford Crawshaw Waste Management licence No: 65025 Annual Tonnage: 4999.0	Issue Date: 21/10/1998 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Roundhill Turkey Farm Correspondence Address: 3, Fusden Way, Gomersal, Cleckheaton, West Yorkshire, BD19 4SZ	
Not shown	1403	SW	418400 425100	Site Address: Land/premises At, Robert Street, Cleckheaton, West Yorkshire, BD19 5HT Type: Transfer Station taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HSM002 EPR reference: EA/EPR/KP3795ZB/A001 Operator: H Smith & Son Waste Management licence No: 61028 Annual Tonnage: 4999.0	Issue Date: 11/08/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: H Smith & Son Correspondence Address: -	
Not shown	1403	SW	418400 425100	Site Address: Land/premises At, Robert Street, Cleckheaton, West Yorkshire, BD19 5HT Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HSM001 EPR reference: EA/EPR/XP3495ZK/A001 Operator: H Smith & Sons Limited Waste Management licence No: 61002 Annual Tonnage: 70000.0	Issue Date: 13/11/1990 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: H Smith & Son Correspondence Address: -	

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 2

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	167	SW	Tank	419185 426082	Tank, BD19	Tanks (Generic)	Industrial Features
2	250	SE	Tank	419675 425991	Tank, BD19	Tanks (Generic)	Industrial Features

4.2 Petrol and Fuel Sites

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

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

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

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

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

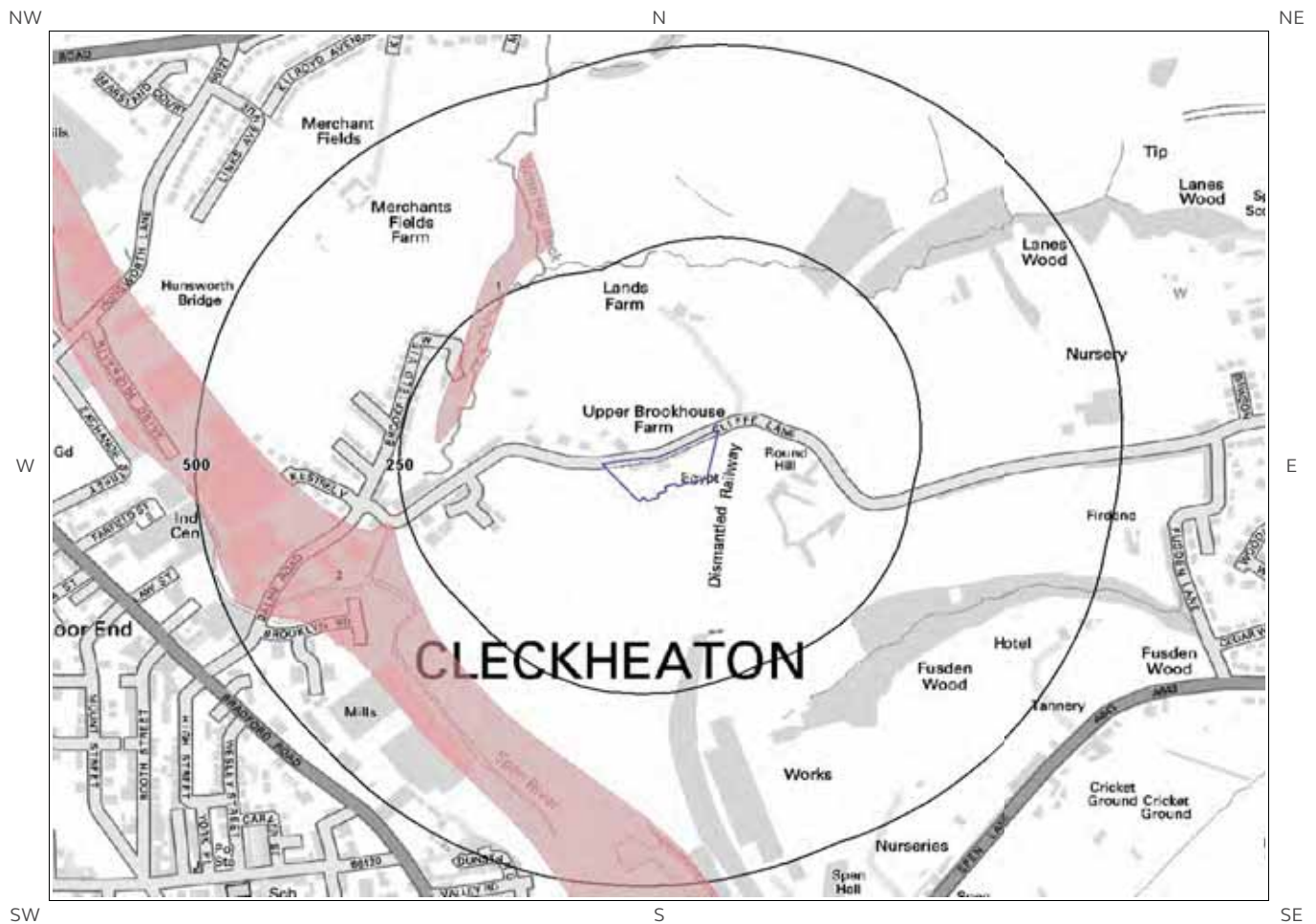
The database has been searched on site, including a 50m buffer.

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

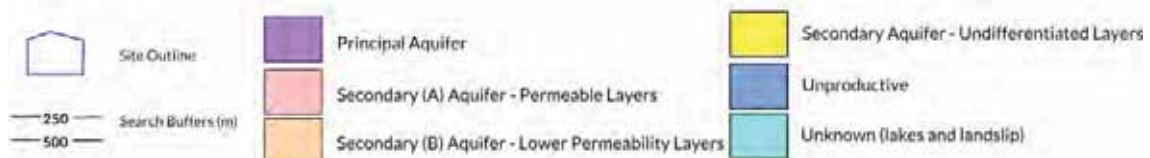
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

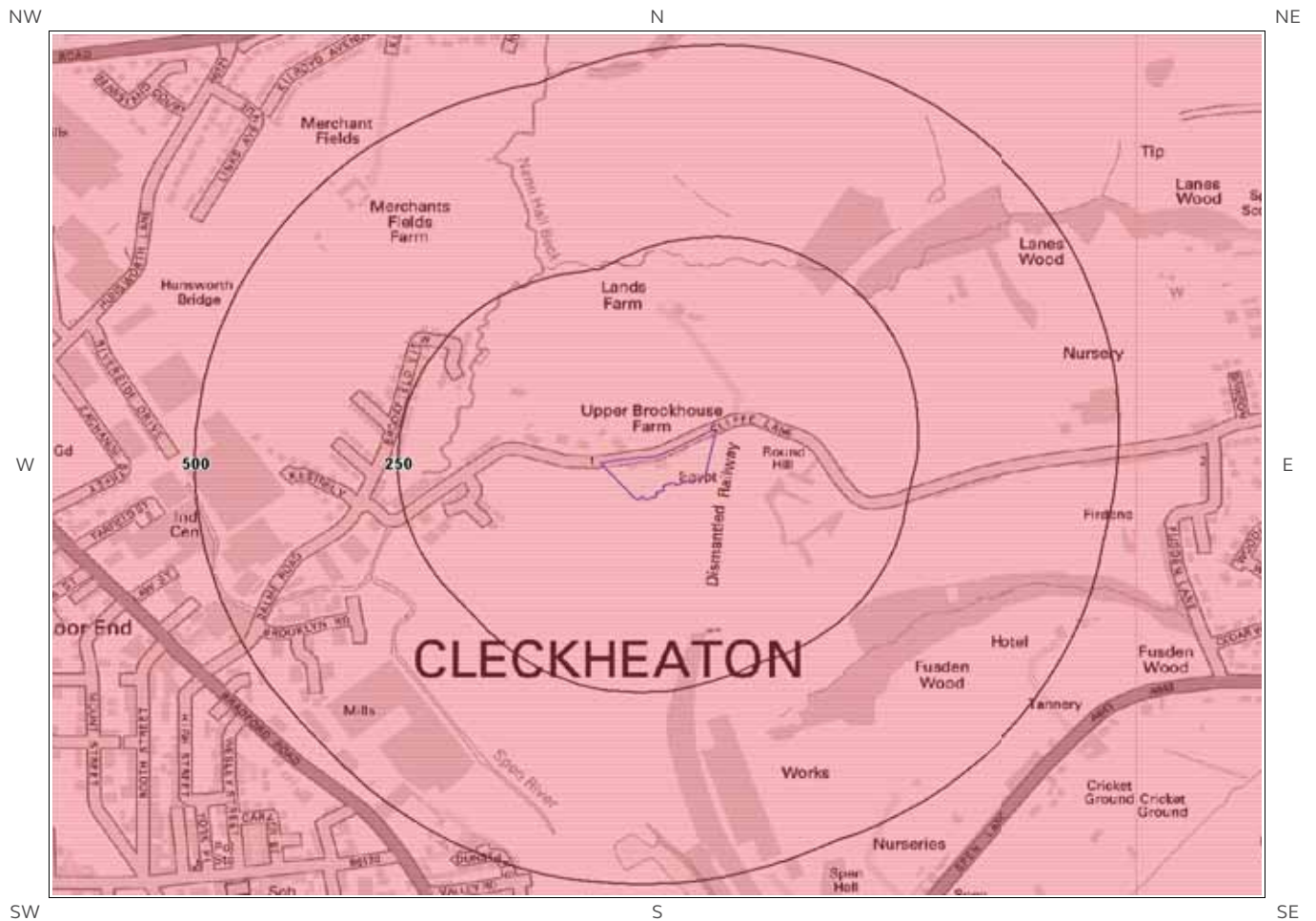
6a. Aquifer Within Superficial Geology



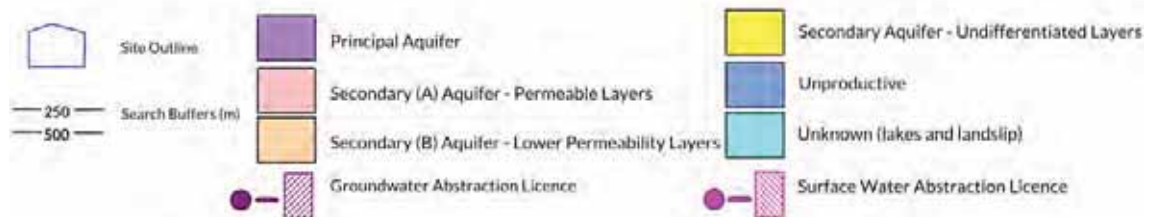
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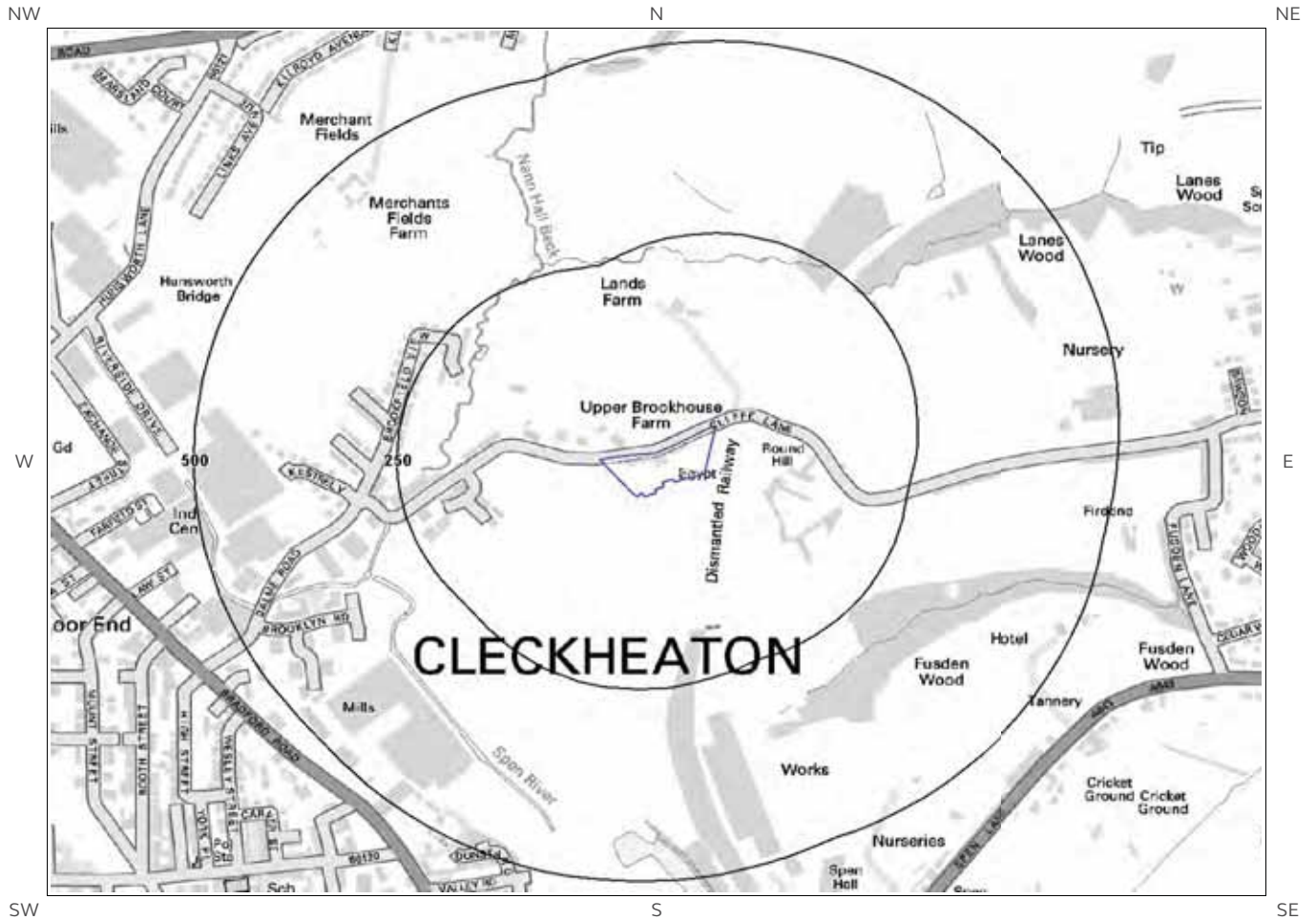
6b. Aquifer Within Bedrock Geology and Abstraction Licenses



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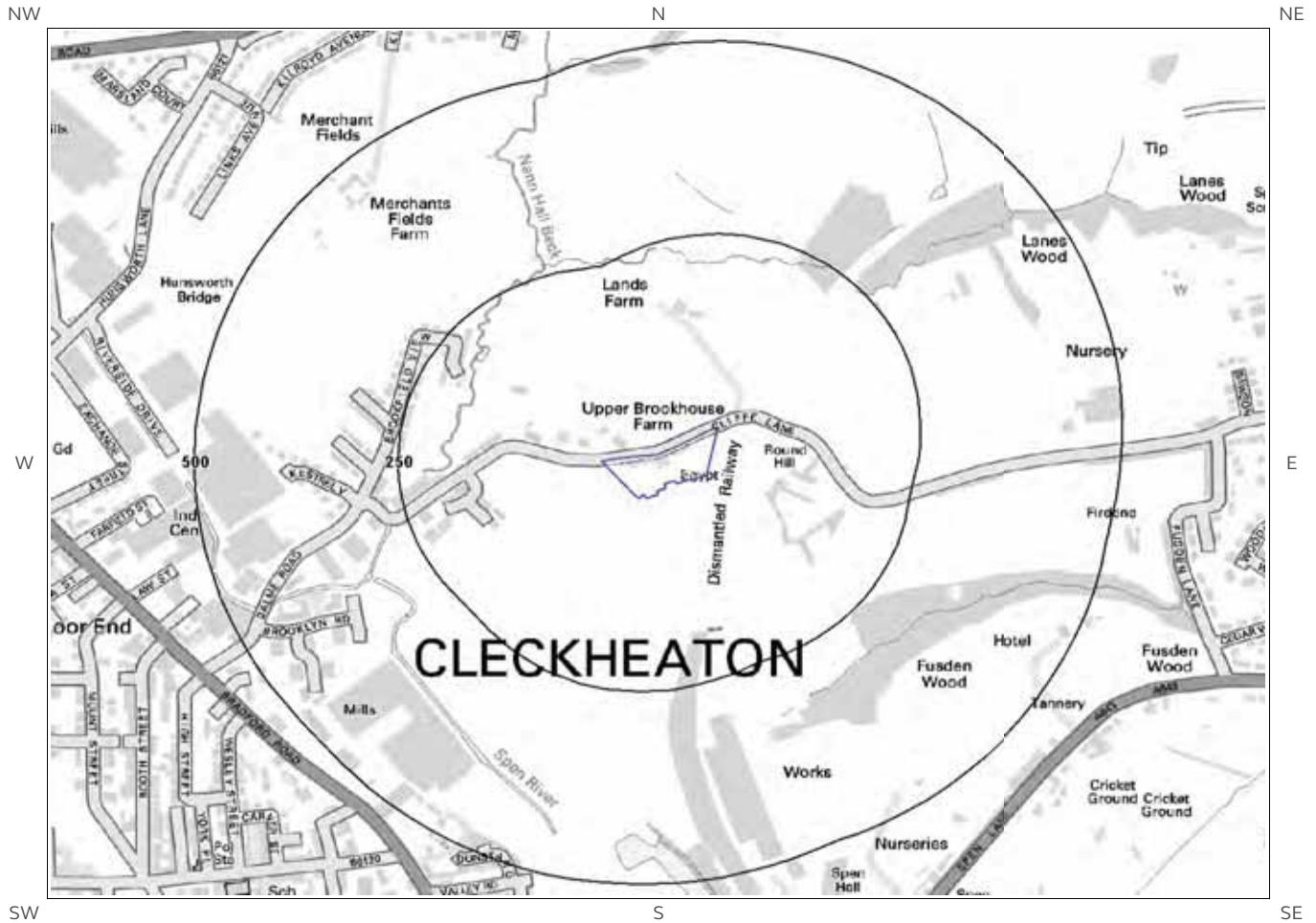
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



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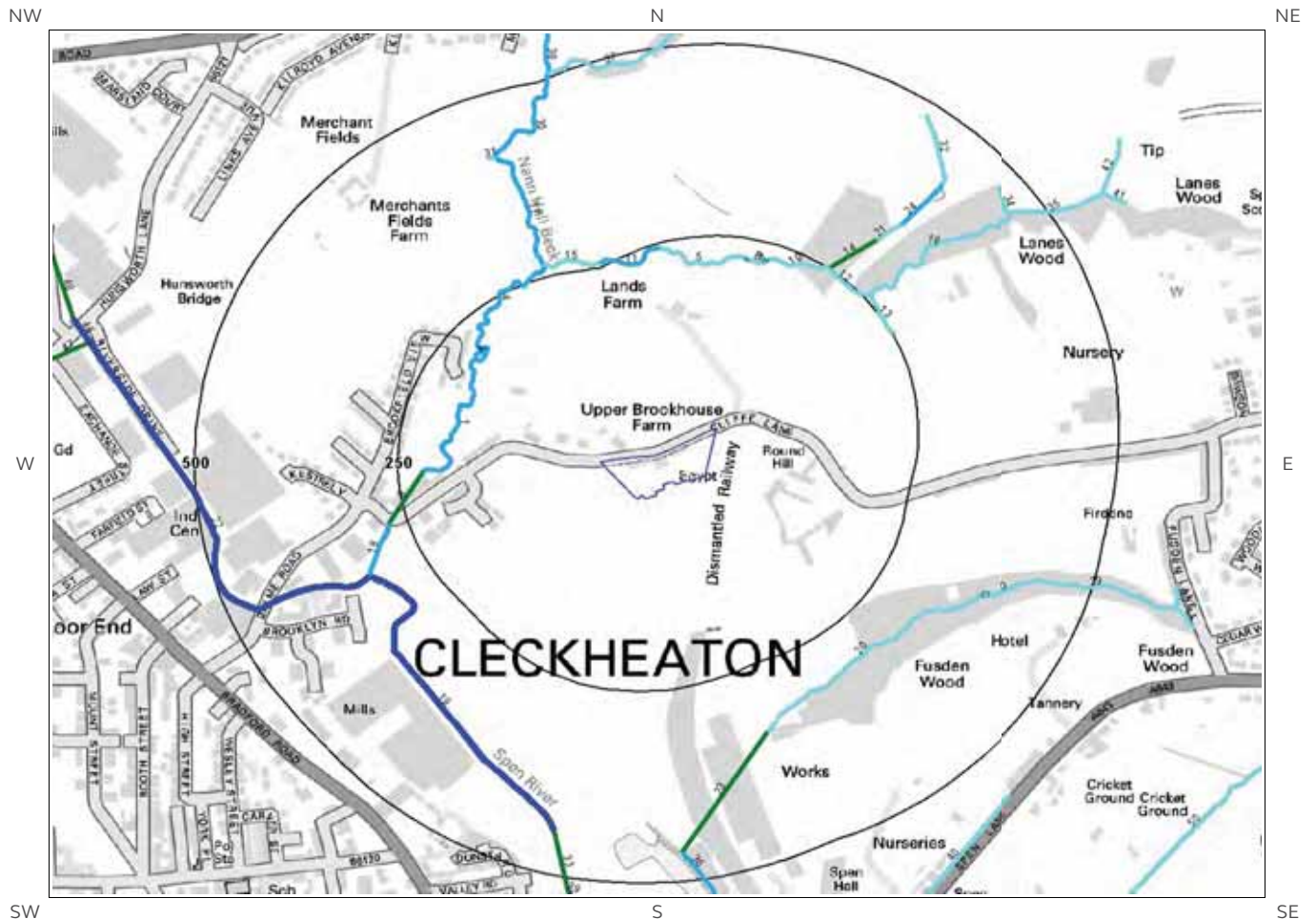
6d. Hydrogeology – Source Protection Zones within confined aquifer



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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	186	W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	270	W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.3 Groundwater Abstraction Licences

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

Yes

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1025	E	420500 426100	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 31 Original Start Date: 1/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 28/2/1997 Version End Date:
Not shown	1025	E	420500 426100	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 00031 Original Start Date: 1/12/1965 Expiry Date: - Issue No: 101 Version Start Date: 1/4/2002 Version End Date:
Not shown	1040	W	418300 426200	Status: Historical Licence No: 2/27/13/022 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Groundwaters Point: Borehole - Coal Measures - Cleckheaton Data Type: Point Name: METROTECT LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 03611 Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 21/10/1996 Version End Date:
Not shown	1040	W	418300 426200	Status: Historical Licence No: 2/27/13/022 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Groundwaters Point: Borehole Data Type: Point Name: METROTECT LIMITED Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 3611 Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 21/10/1996 Version End Date:
Not shown	1539	W	417901 426699	Status: Active Licence No: 2/27/13/221/R01 Details: Spray Irrigation - Direct Direct Source: Groundwaters Point: Borehole - Coal Measures - Cleckheaton Data Type: Point Name: CLECKHEATON & DISTRICT GOLF CLUB Annual Volume (m³): 6750 Max Daily Volume (m³): 168 Original Application No: NPS/WR/016684 Original Start Date: 1/4/2015 Expiry Date: 31/3/2027 Issue No: 1 Version Start Date: 1/4/2015 Version End Date:
Not shown	1539	W	417901 426699	Status: Historical Licence No: 2/27/13/221 Details: Spray Irrigation - Direct Direct Source: Groundwaters Point: Borehole - Coal Measures - Cleckheaton Data Type: Point Name: CLECKHEATON & DISTRICT GOLF CLUB Annual Volume (m³): 6750 Max Daily Volume (m³): 168 Original Application No: 8203 Original Start Date: 1/1/2007 Expiry Date: 31/3/2015 Issue No: 1 Version Start Date: 1/1/2007 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1541	W	417900 426700	Status: Historical Licence No: 2/27/13/187 Details: Spray Irrigation - Direct Direct Source: Groundwaters Point: Borehole - Coal Measures - Cleckheaton Data Type: Point Name: CLECKHEATON & DISTRICT GOLF CLUB Annual Volume (m³): 13500 Max Daily Volume (m³): 168 Original Application No: 6799 Original Start Date: 10/3/1997 Expiry Date: 31/12/2006 Issue No: 100 Version Start Date: 10/3/1997 Version End Date:
Not shown	1541	W	417900 426700	Status: Historical Licence No: 2/27/13/187 Details: Spray Irrigation - Direct Direct Source: Groundwaters Point: Borehole Data Type: Point Name: CLECKHEATON & DISTRICT GOLF CLUB Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 6799 Original Start Date: 10/3/1997 Expiry Date: 31/12/2006 Issue No: 100 Version Start Date: 10/3/1997 Version End Date:
Not shown	1541	W	417900 426700	Status: Historical Licence No: 2/27/13/221 Details: Spray Irrigation - Direct Direct Source: Groundwaters Point: Borehole - Coal Measures - Cleckheaton Data Type: Point Name: CLECKHEATON & DISTRICT GOLF CLUB Annual Volume (m³): 6750 Max Daily Volume (m³): 168 Original Application No: 8203 Original Start Date: 1/1/2007 Expiry Date: 31/3/2015 Issue No: 1 Version Start Date: 1/1/2007 Version End Date:

6.4 Surface Water Abstraction Licences

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

No

Database searched and no data found.

6.5 Potable Water Abstraction Licences

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

No

Database searched and no data found.

6.6 Source Protection Zones

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

No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

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

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
226	SW	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
439	E	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

6.9 River Quality

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

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

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

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

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
Not shown	807	S	419500 425300	River Name: Spen Beck/dean Beck Reach: Cleckheaton U/s Spenborough End/Start of Stretch: Start of Stretch NGR	C	C	C	C	B

6.10 Detailed River Network

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

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

ID	Distance (m)	Direction	Details	
1	177	NW	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
2A	198	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
3A	204	NW	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
4	210	NW	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
5	212	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
6	219	W	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
7B	221	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
8	222	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
9B	223	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
10	229	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details	
11	233	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
12	247	NE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
13	249	NE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
14	250	NE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
15	254	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
16	257	NE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
17	263	N	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
18	272	W	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
19	295	SW	River Name: Spen River Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
20	301	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
21	315	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
22	322	SW	River Name: Spen River Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
23	337	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
24	350	NE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
25C	369	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
26C	372	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
27D	391	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
28D	391	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
29	409	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details
30	417	N	River Name: Nann Hall Beck Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
31	417	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
32	422	NE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
33	445	S	River Name: Spen River Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
34	459	NE	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
35	460	NE	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
36	462	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
37	486	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined

6.11 Surface Water Features

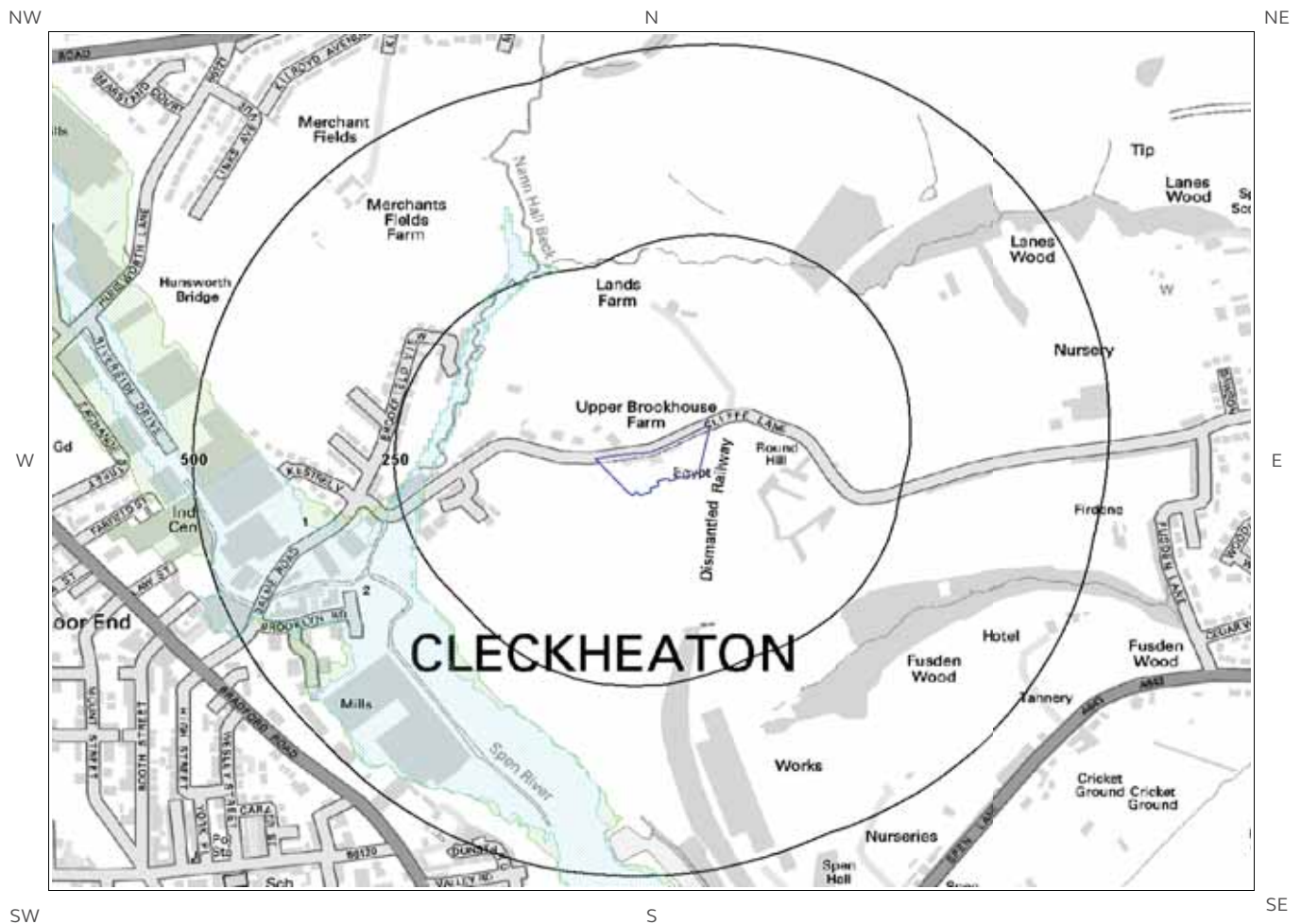
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
176	NW
212	N
222	N
227	N
229	N
247	NE

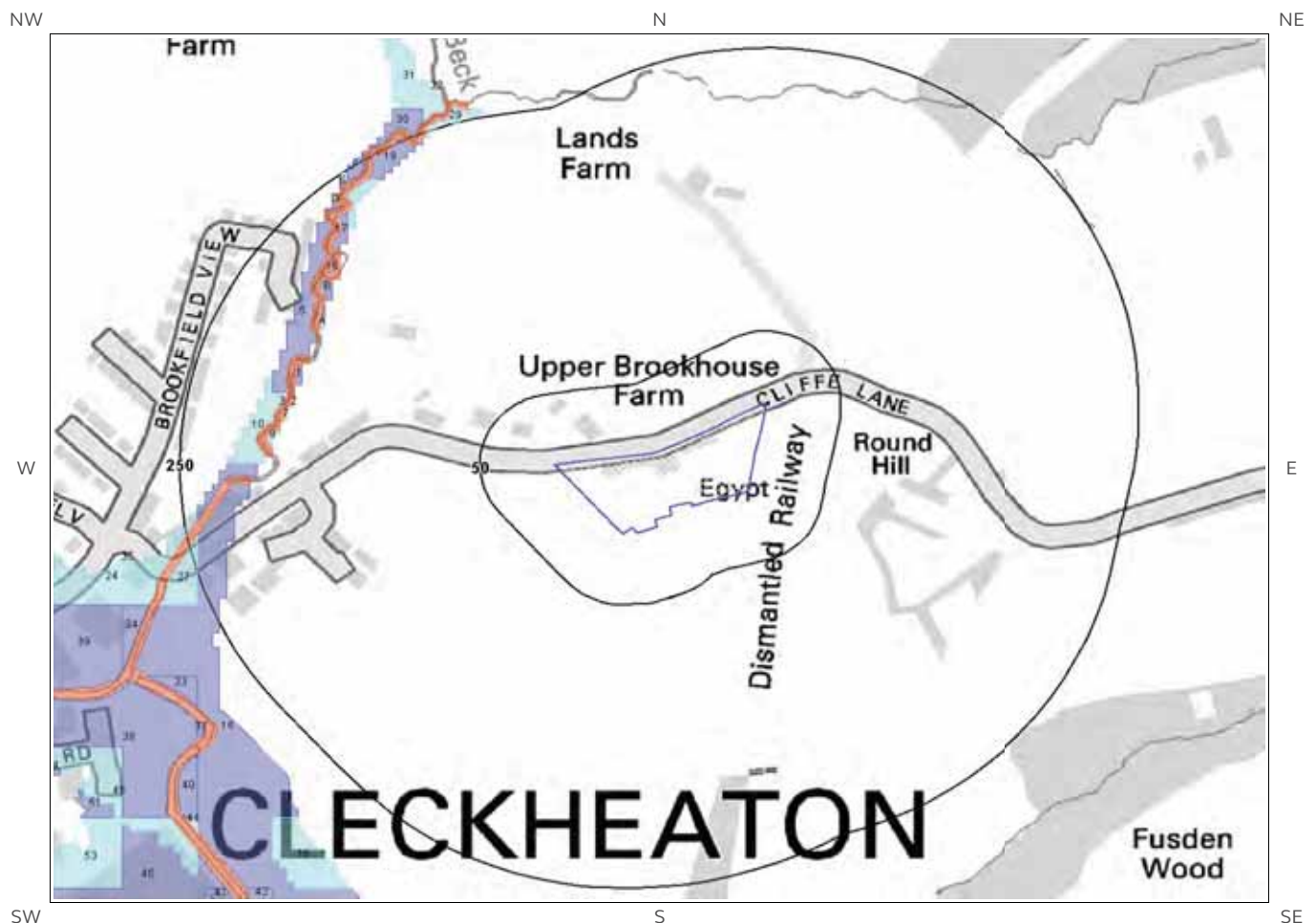
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



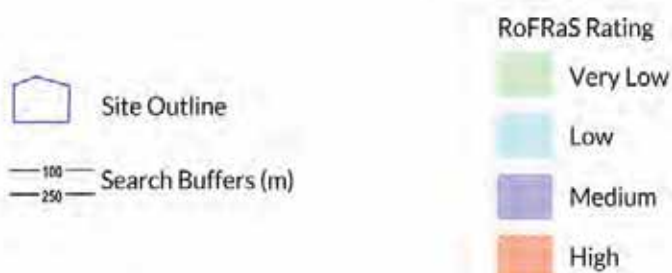
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

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

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

ID	Distance (m)	Direction	Update	Type
1	178	W	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? Yes

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

ID	Distance (m)	Direction	Update	Type
1	178	W	01-Feb-2017	Zone 3 - (Fluvial Models)

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

What is the highest risk of flooding onsite? Very Low

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

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

7.4 Flood Defences

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

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

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

7.7 Groundwater Flooding Susceptibility Areas

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

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

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

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

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

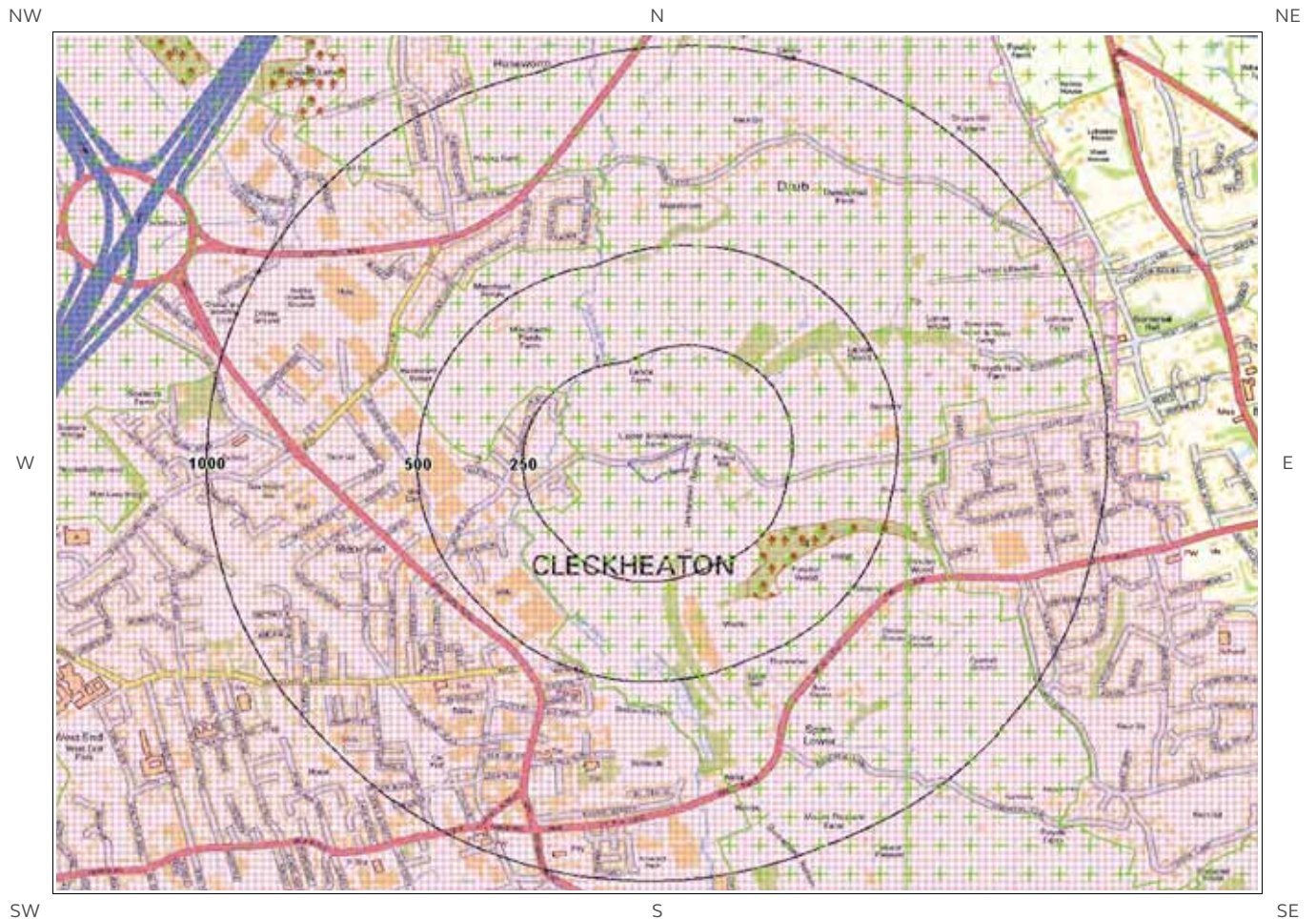
7.8 Groundwater Flooding Confidence Areas

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

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

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

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

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

Yes

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

Database searched and no data found.

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

Database searched and no data found.

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

Database searched and no data found.

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

Database searched and no data found.

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

Database searched and no data found.

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

3

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
4	249	SE	UNKNOWN	Ancient Replanted Woodland
5	1140	NW	UNKNOWN	Ancient and Semi-Natural Woodland
6	1396	NW	UNKNOWN	Ancient and Semi-Natural Woodland

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

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1702	E	Oakwell Park	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NVZ Name	Data Source
2	0	On Site	Existing	DEFRA
3	521	E	Existing	DEFRA

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

6

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ID	Distance	Direction	Green Belt Name	Local Authority Name
7	0	On Site	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
8	521	E	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
Not shown	1529	N	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
Not shown	1804	N	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
Not shown	1812	S	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
Not shown	1953	S	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

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

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

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

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

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

Hazard
Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

9.1.3 Soluble Rocks

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

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

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

9.1.4 Compressible Ground

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

Very Low

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

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

9.1.5 Collapsible Rocks

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

Very Low

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

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

9.1.6 Running Sand

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

Very Low

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

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

9.2 Radon

9.2.1 Radon Affected Areas

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

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

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing

ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site? Yes

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

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

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? No

Database searched and no data found.

10.3 Brine Affected Areas

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

Guidance: No Guidance Required.

Contact Details

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

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web: www.bgs.ac.uk

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

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: www.environment-agency.gov.uk
Email: enquiries@environment-agency.gov.uk

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

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

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: Kirklees Council
Phone: 01484 221 000
Web: <http://www.kirklees.gov.uk/>
Address: Civic Centre 3, Market Street, Huddersfield, HD1 1WG

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



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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1894

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1894
Revised 1894
Edition N/A
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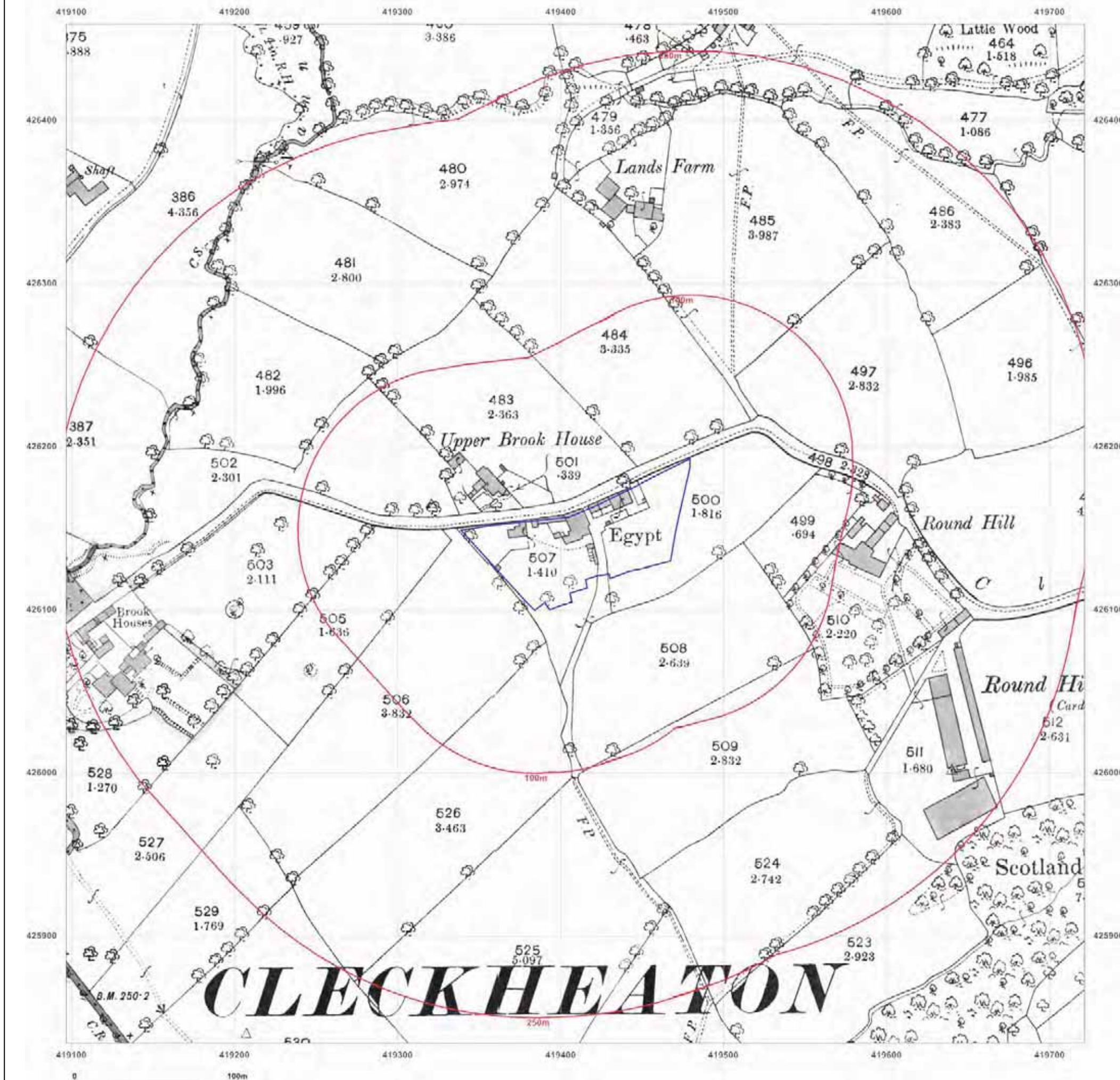


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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1907
Revised 1907
Edition N/A
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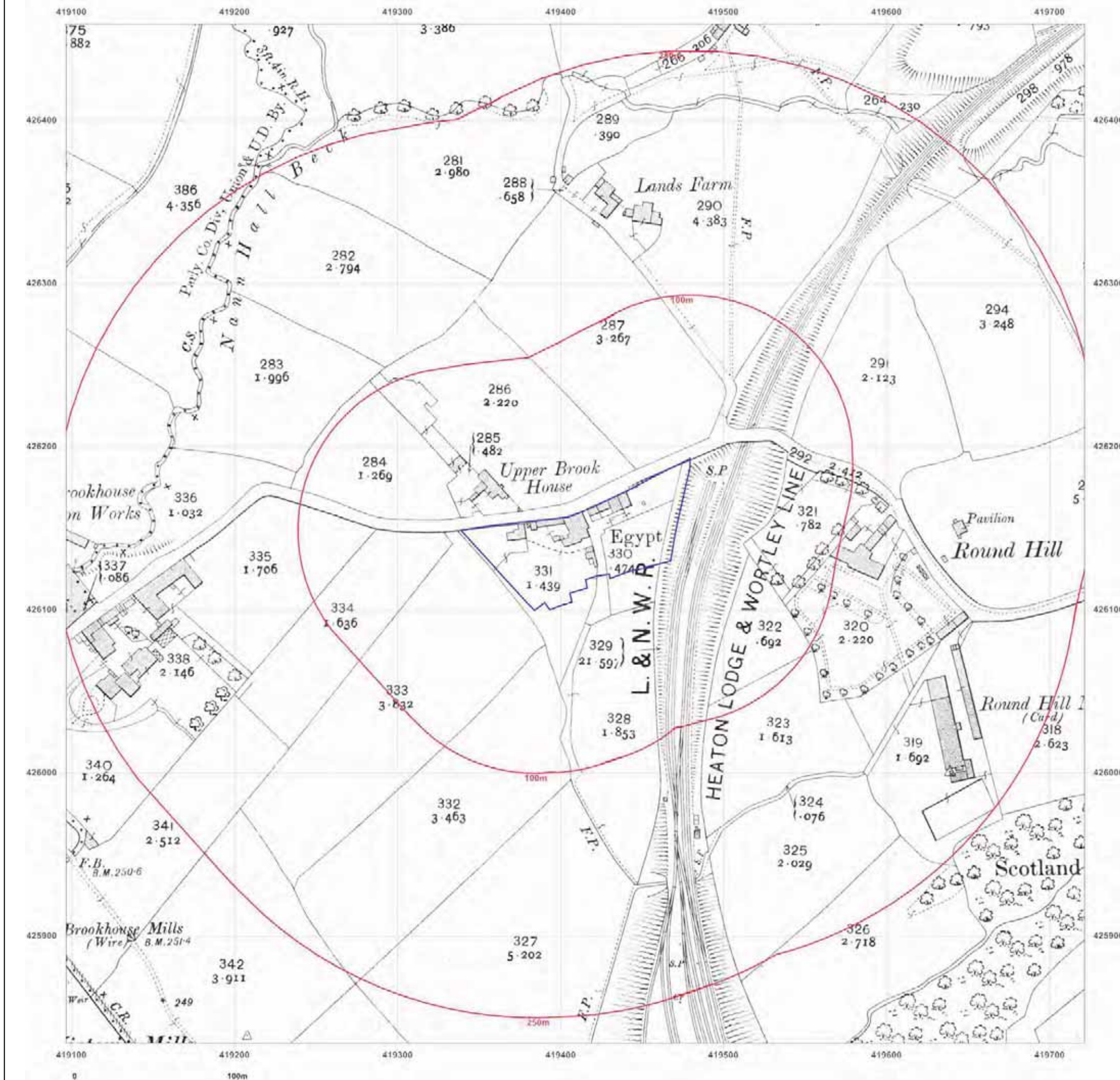


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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1922

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1922
Revised 1922
Edition N/A
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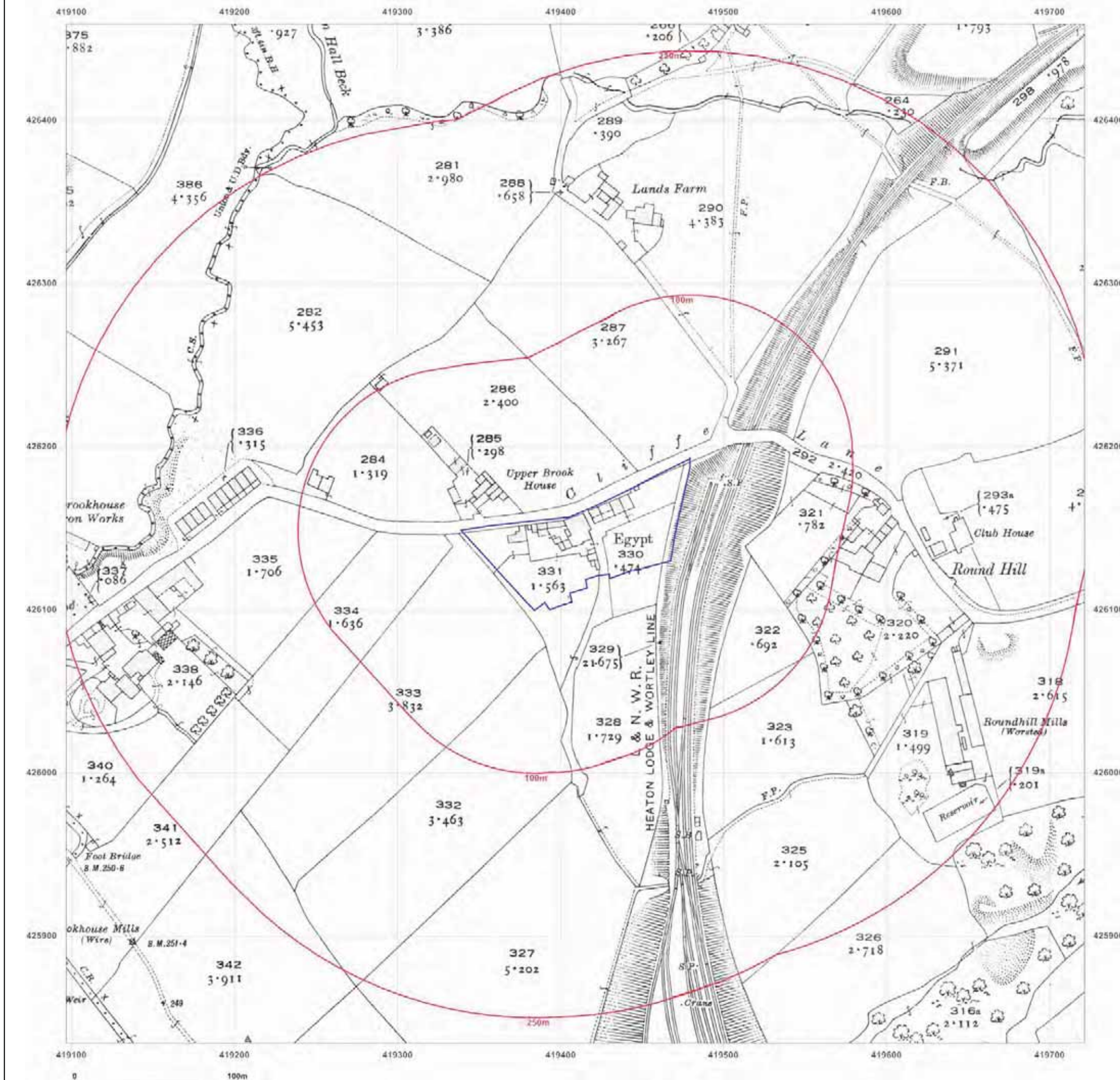


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Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1933

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1933
Edition N/A
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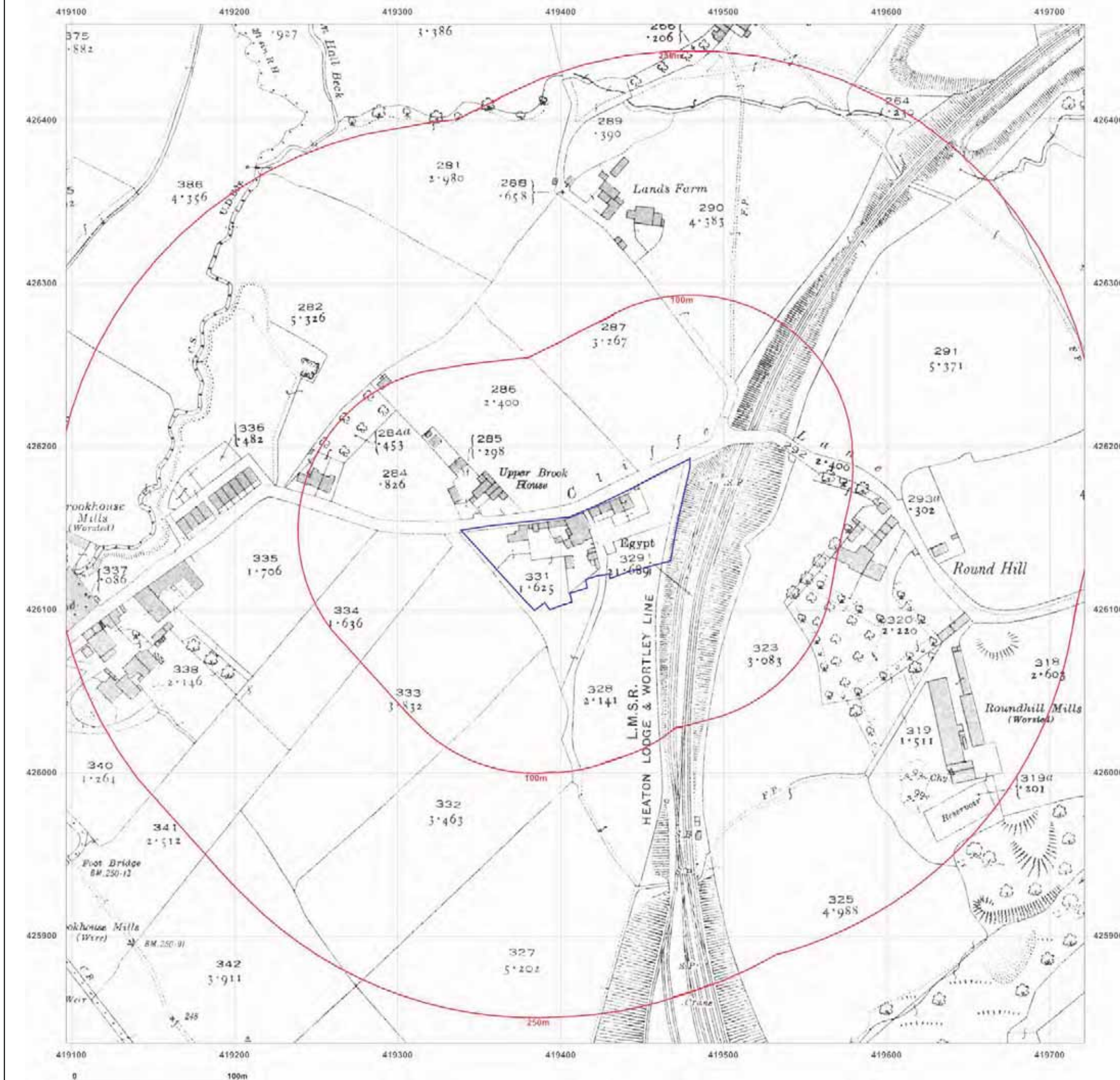


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Map Name: County Series

Map date: 1938

Scale: 1:2,500

Printed at: 1:2,500



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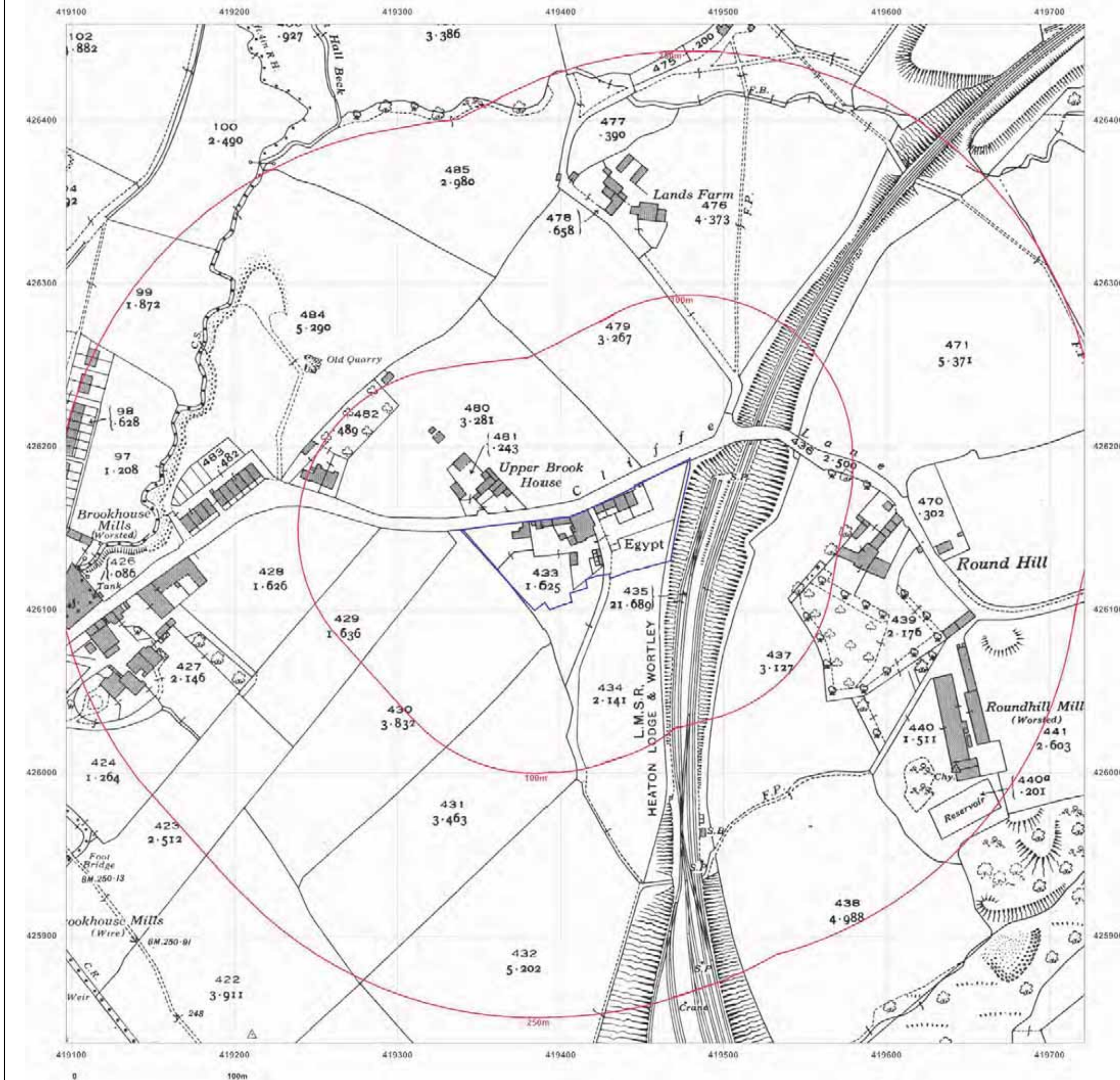


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Map Name: National Grid

Map date: 1956

Scale: 1:1,250

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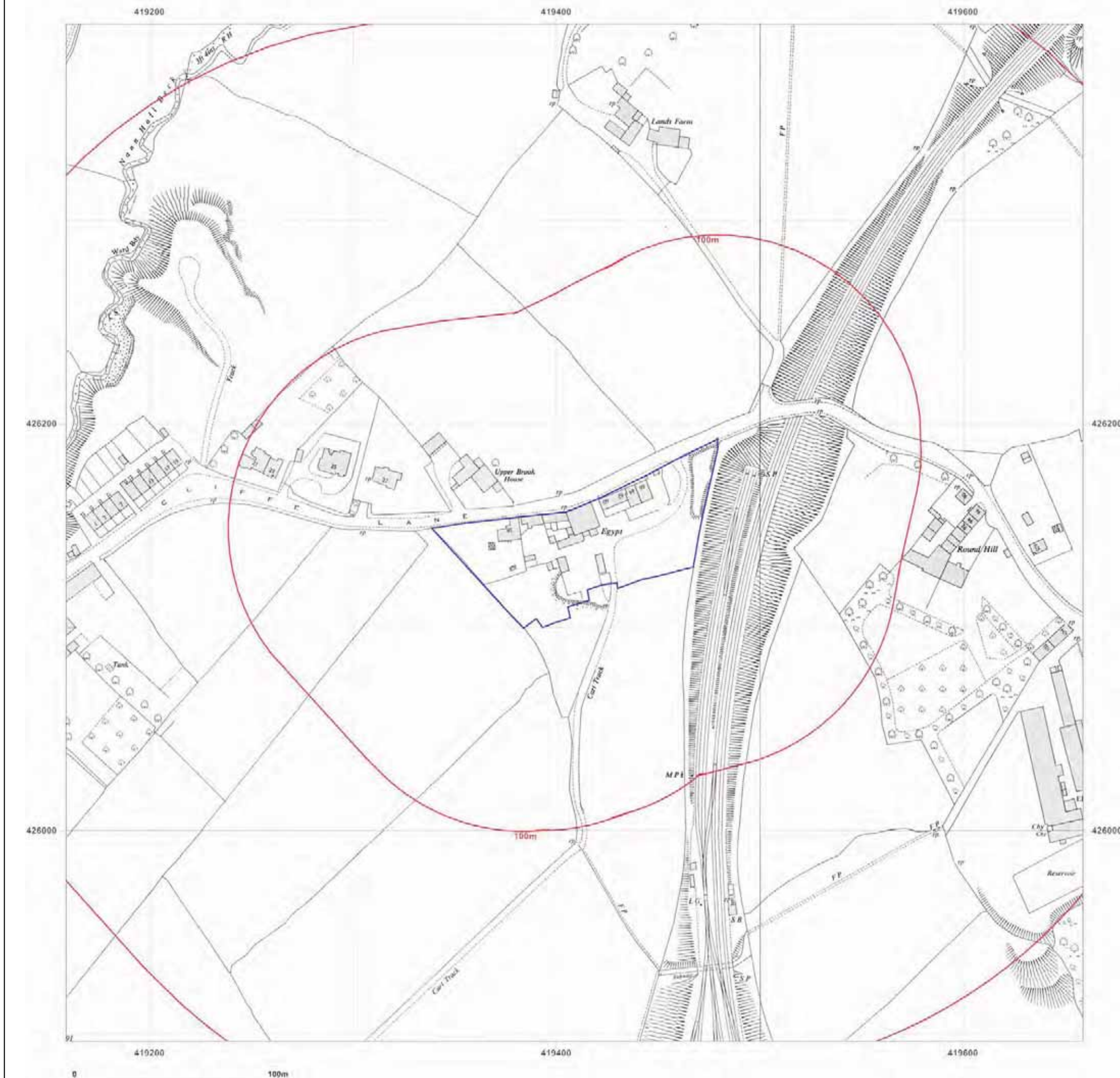


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Map Name: National Grid

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Revised 1956
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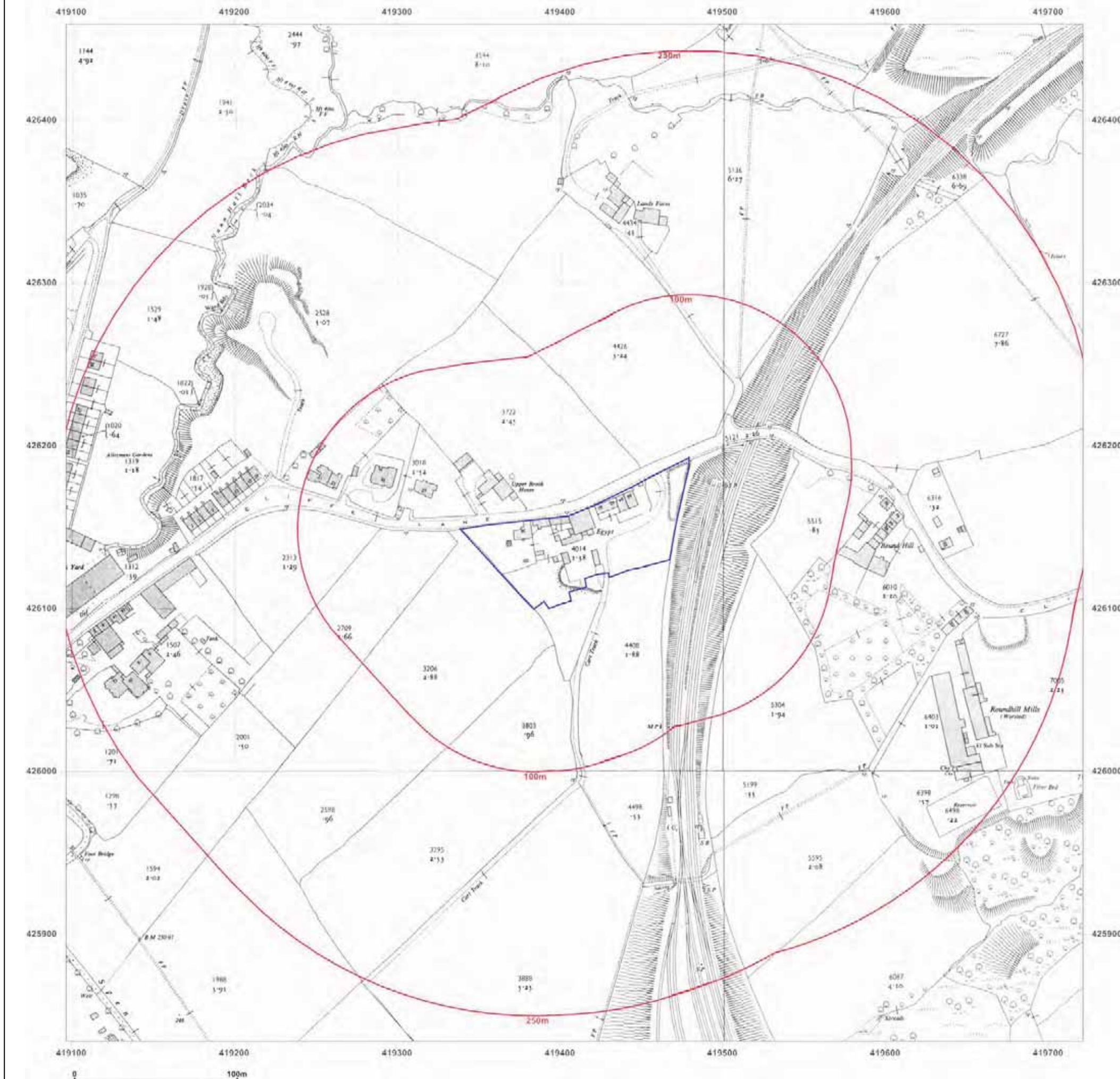


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Report Ref: GS-3774755
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Map Name: National Grid

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Scale: 1:1,250

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Map Name: National Grid

Map date: 1968

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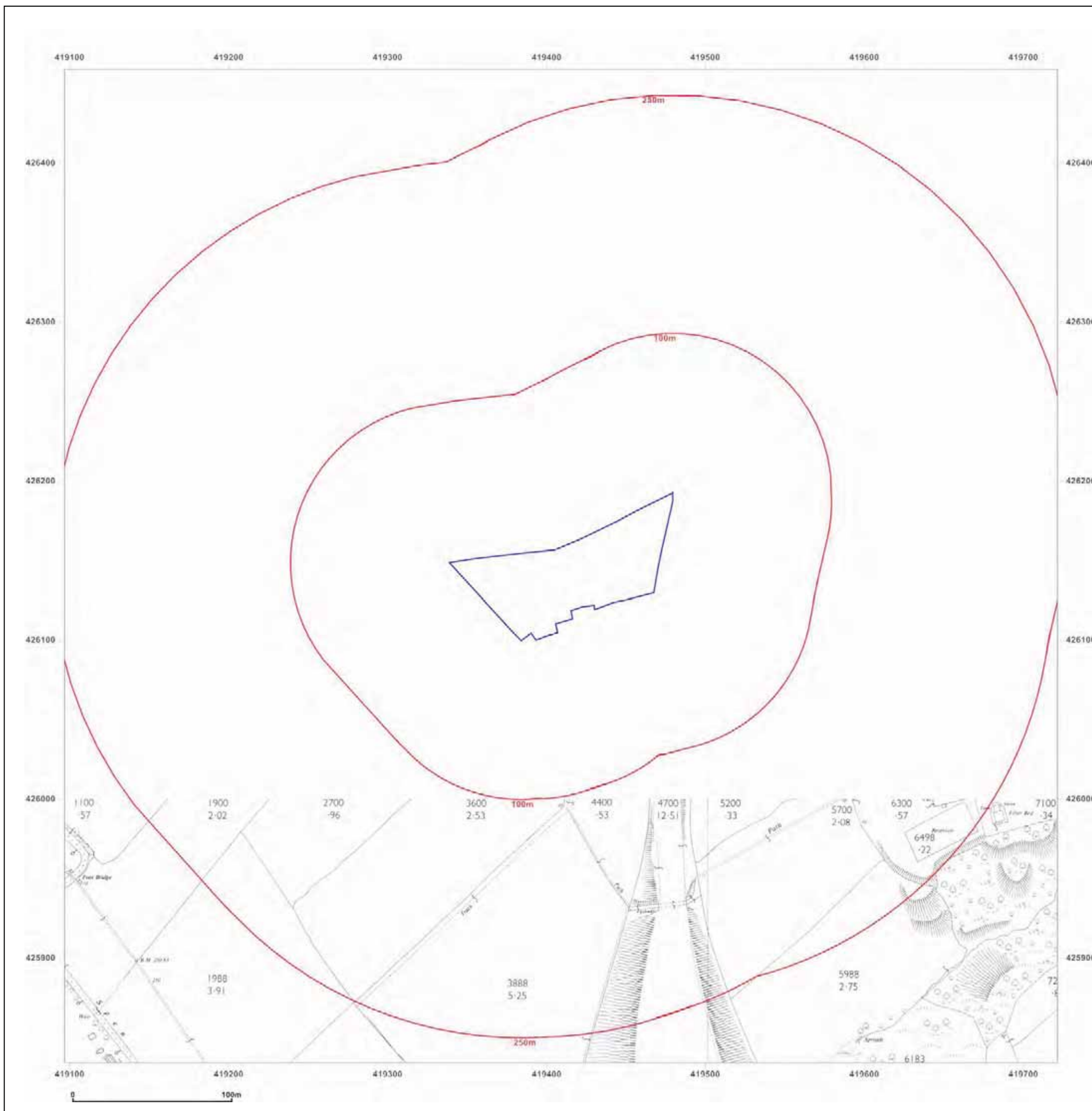


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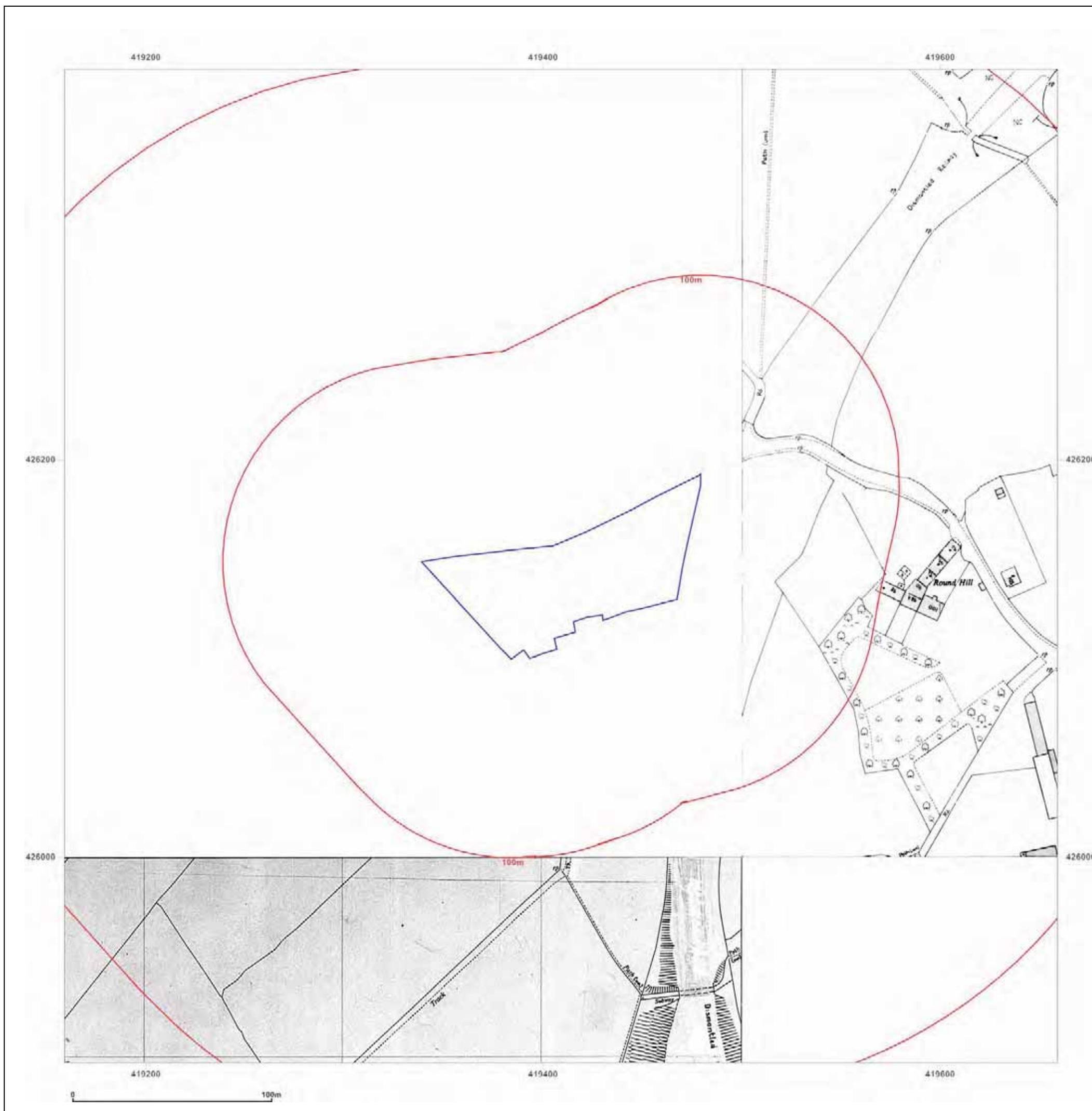


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Report Ref: GS-3774755
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Map Name: National Grid

Map date: 1992

Scale: 1:1,250

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Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: National Grid

Map date: 1992-1994

Scale: 1:1,250

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Surveyed 1994
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Edition N/A
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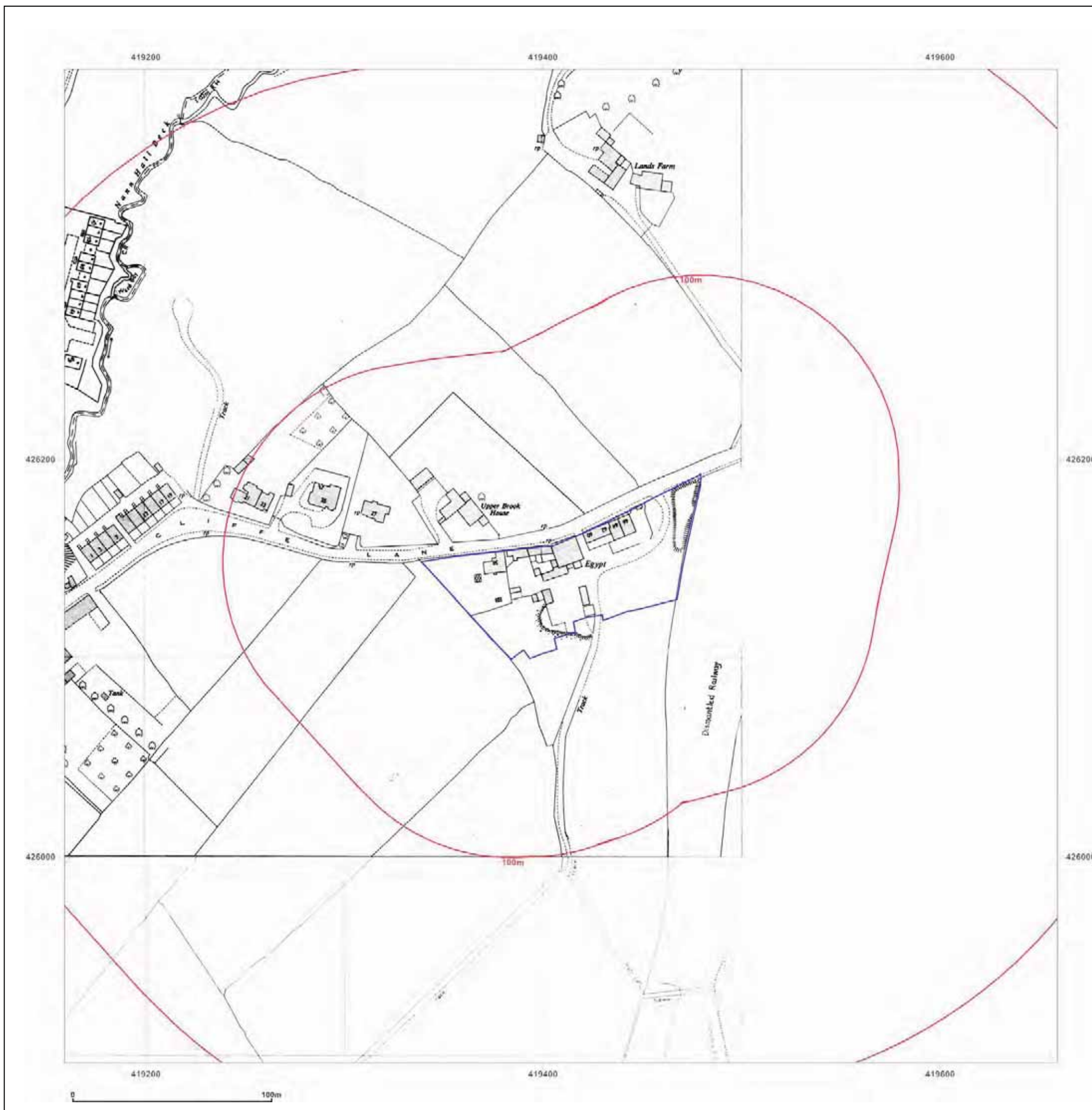


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Grid Ref: 419409, 426146

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Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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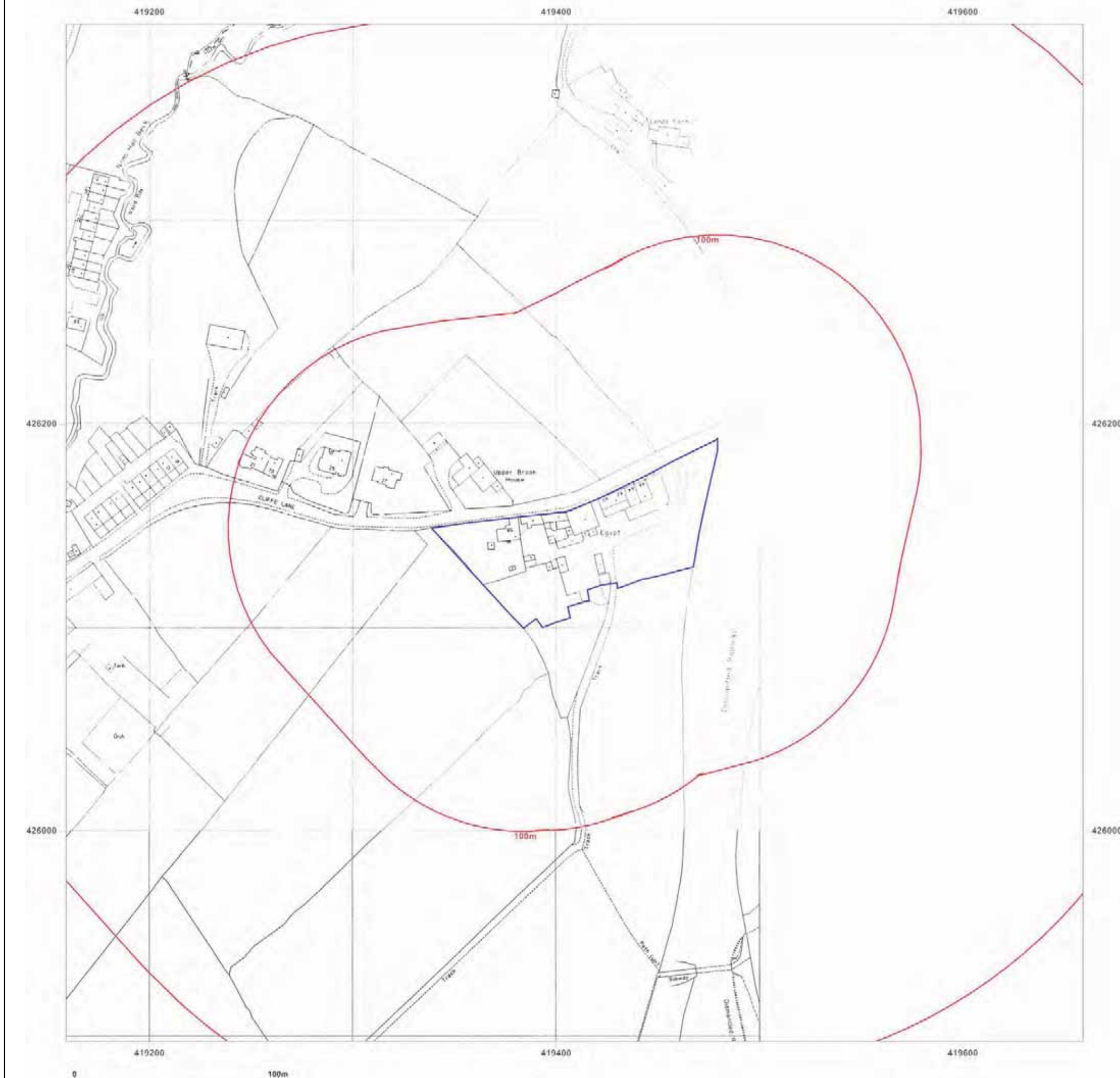


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Report Ref: GS-3774755
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Map Name: National Grid

Map date: 1994

Scale: 1:1,250

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Copyright 1994
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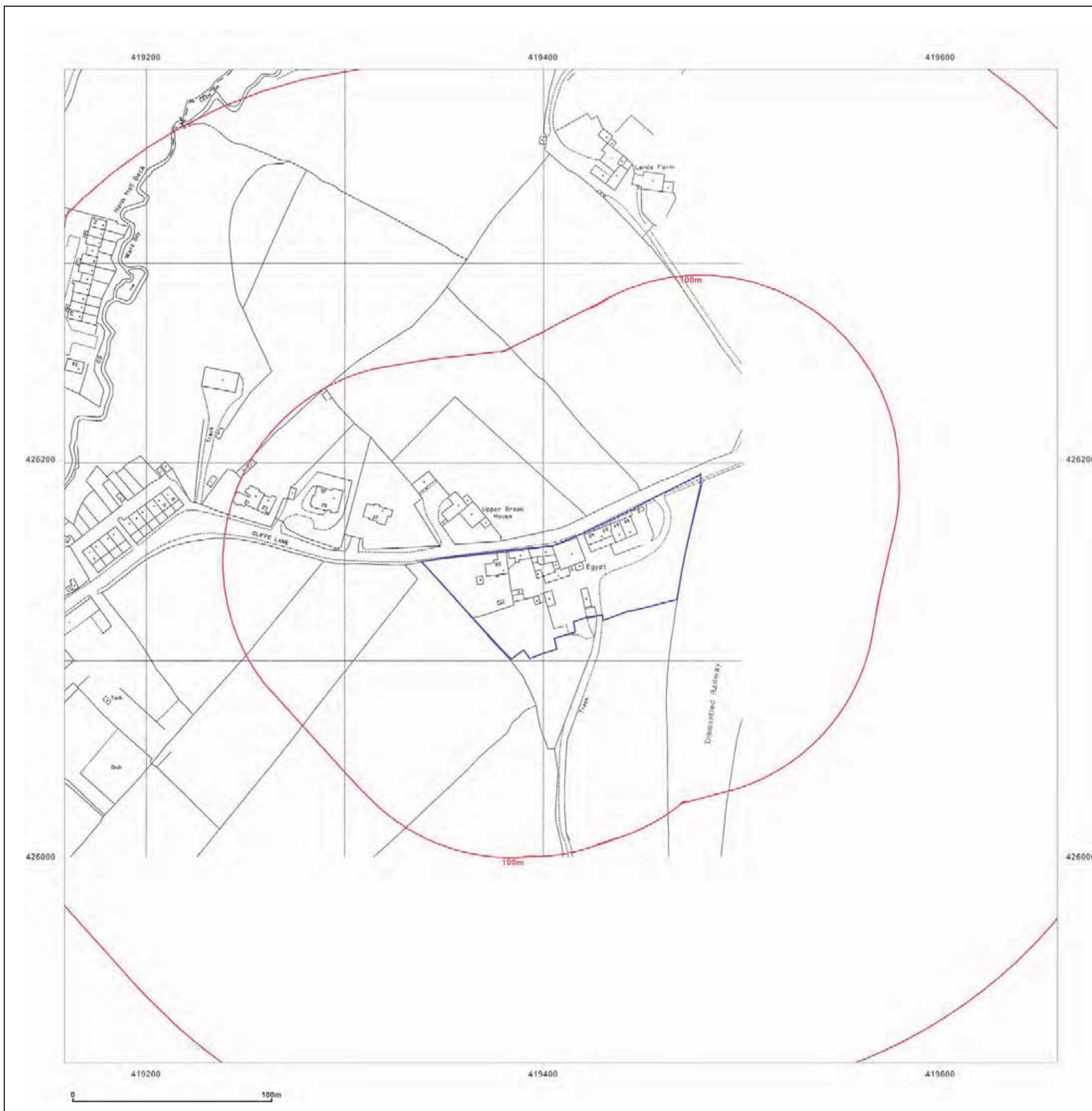


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Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1854

Scale: 1:10,560

Printed at: 1:10,560



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Edition 1854
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Levelled N/A

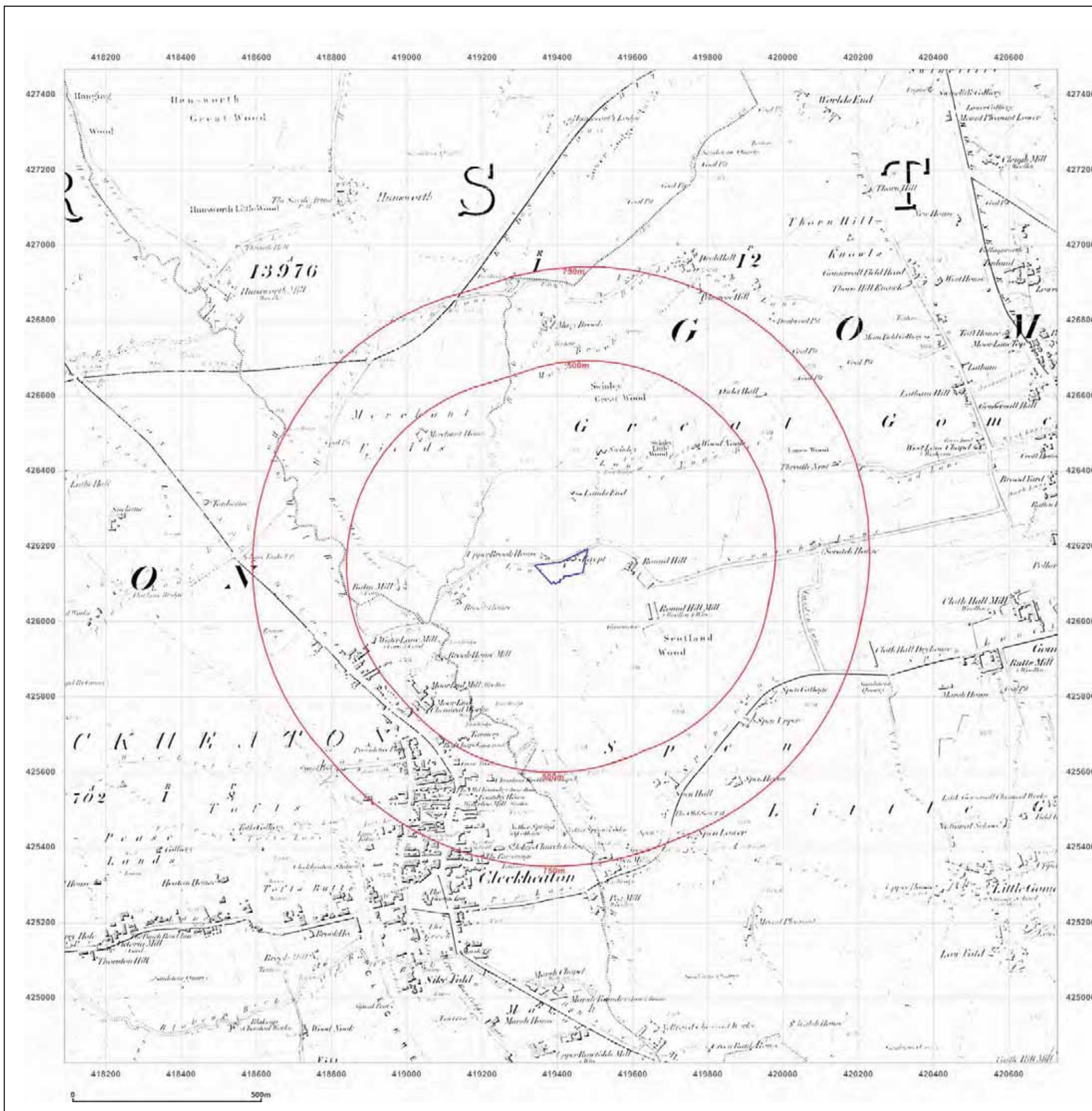


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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1892

Scale: 1:10,560

Printed at: 1:10,560



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Edition N/A
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Surveyed 1892
Revised 1892
Edition N/A
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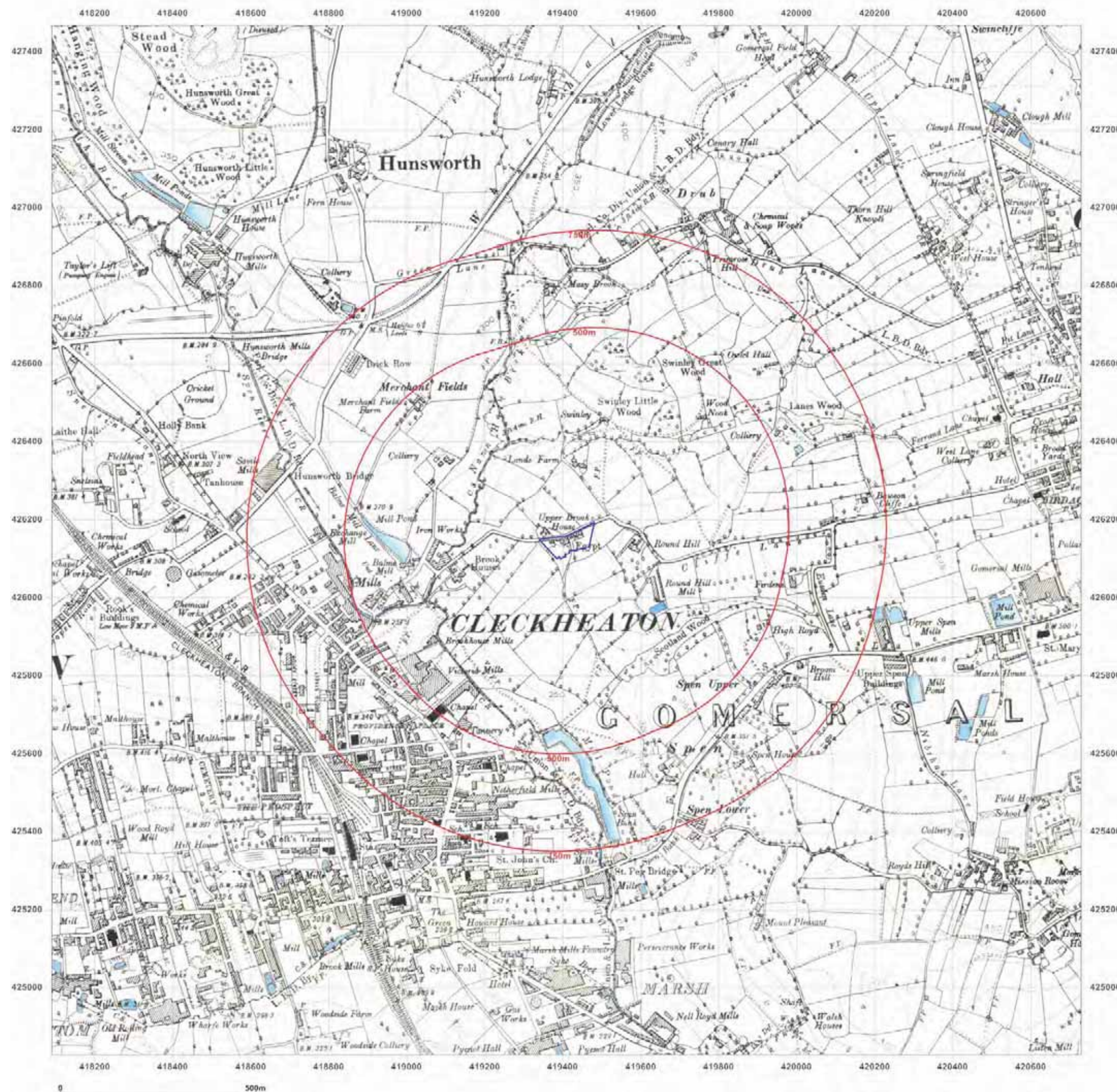


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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1905

Scale: 1:10,560

Printed at: 1:10,560



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

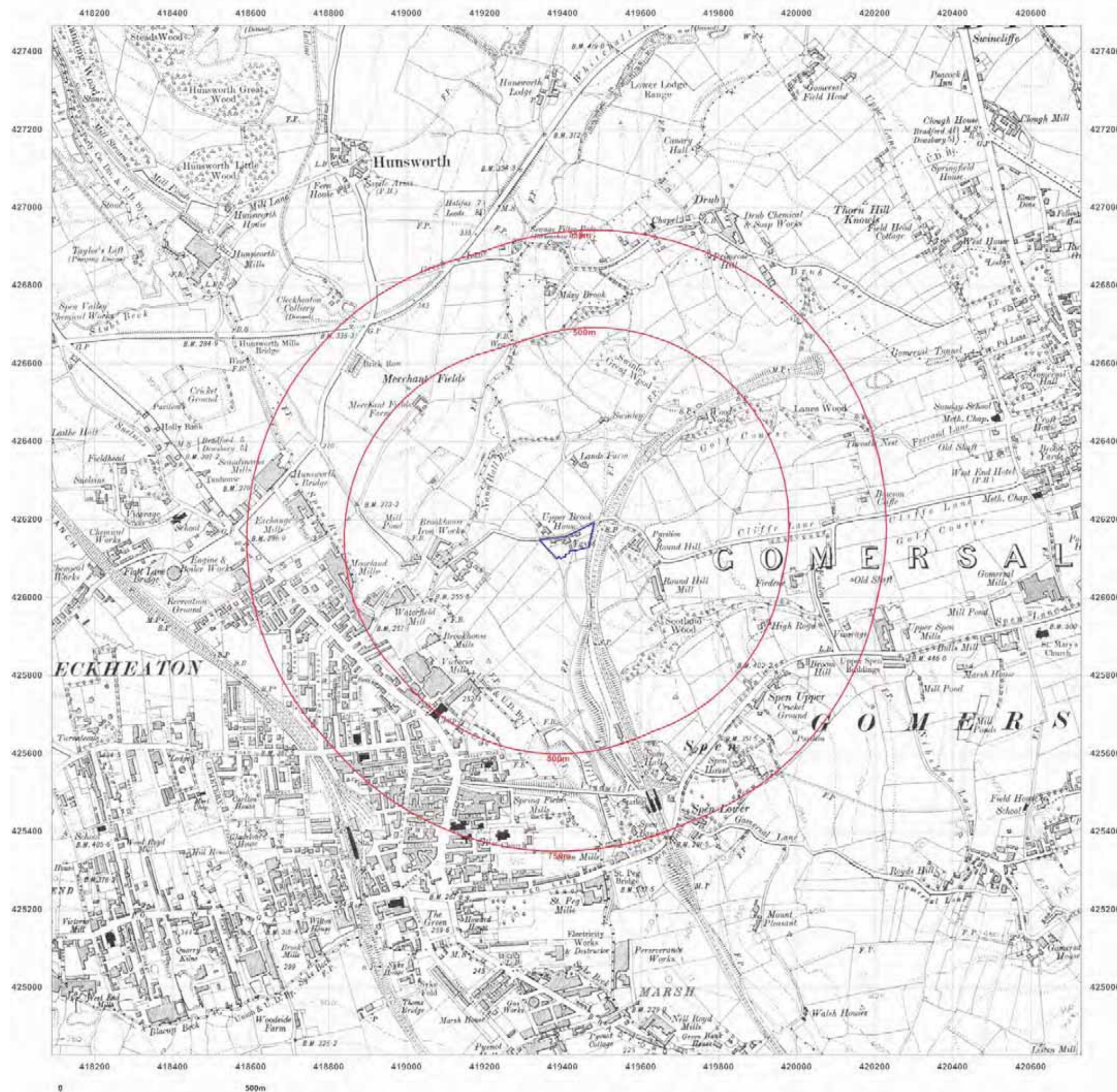


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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1931-1932

Scale: 1:10,560

Printed at: 1:10,560



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Edition N/A
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Surveyed 1851
Revised 1931
Edition N/A
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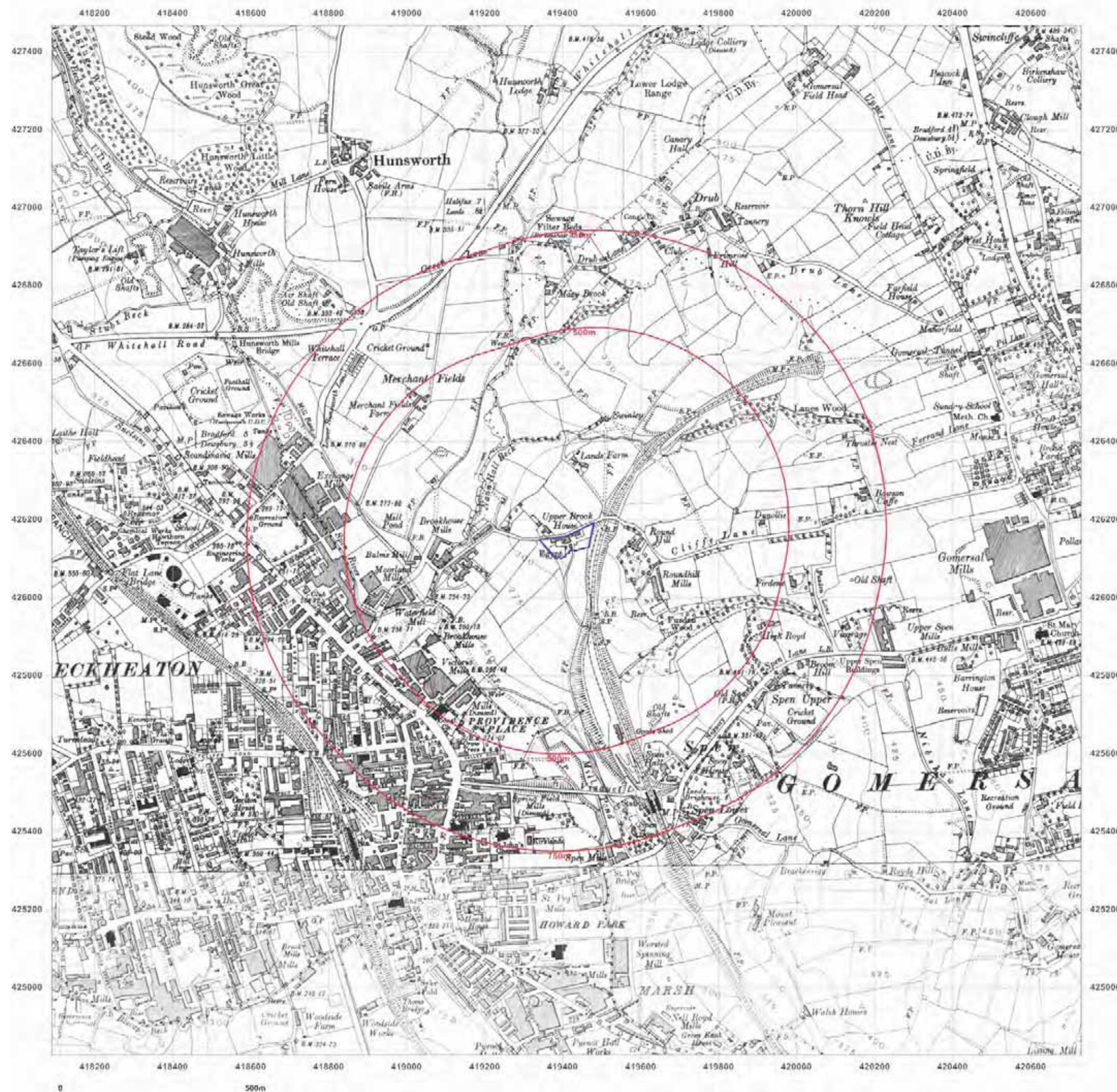


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Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1938
Edition N/A
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Surveyed 1851
Revised 1938
Edition N/A
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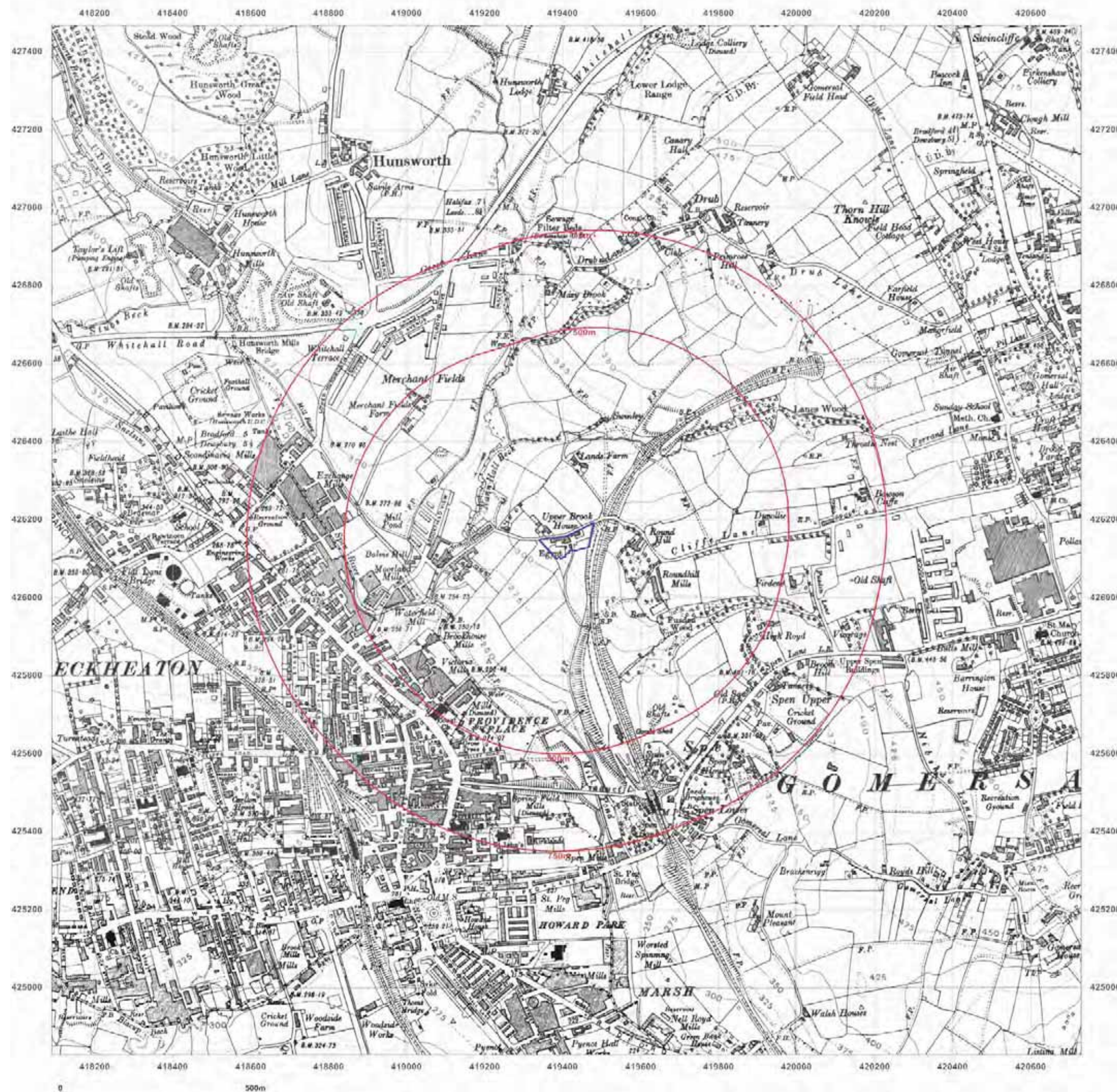


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Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: County Series

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



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

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

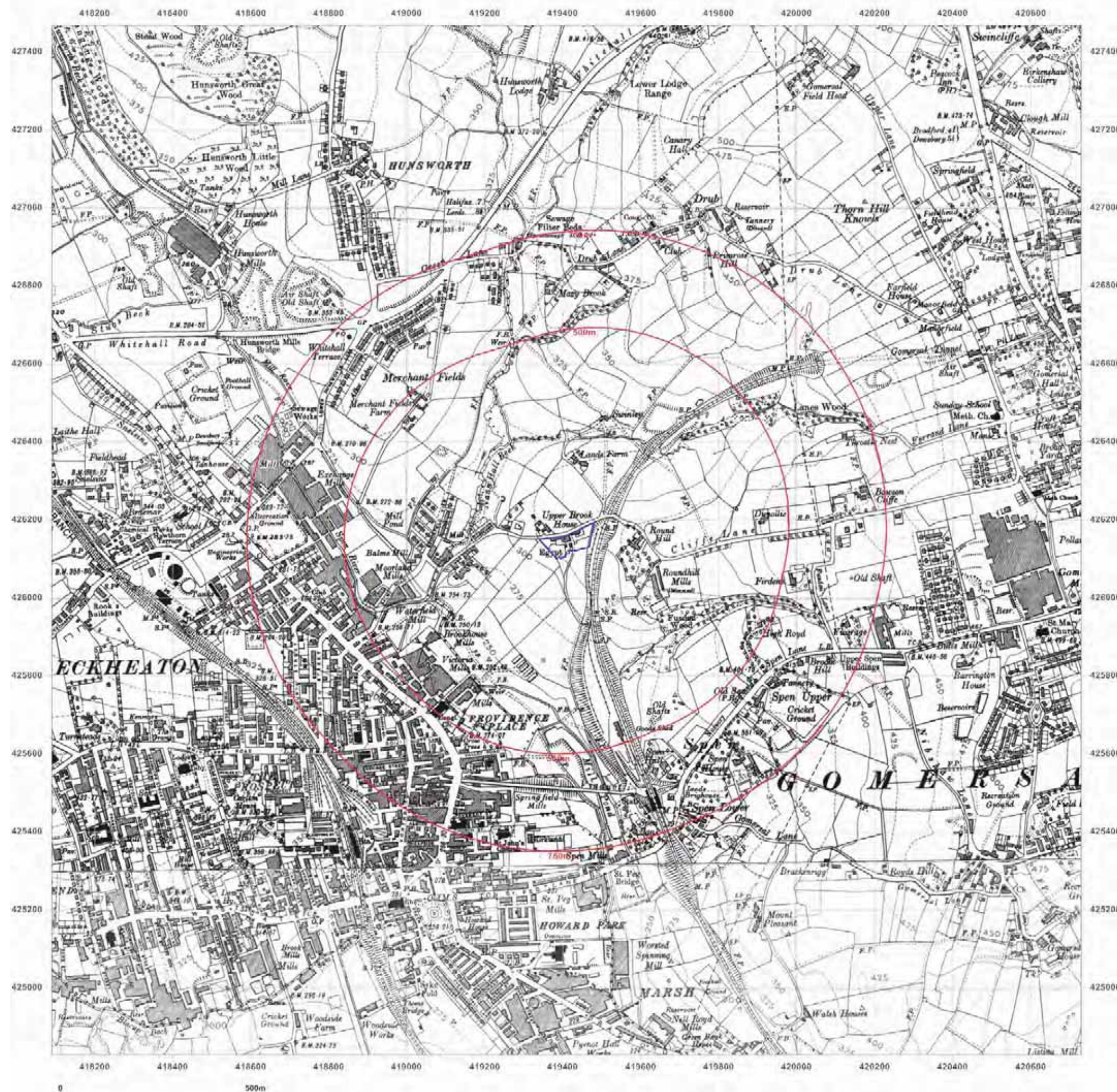


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

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

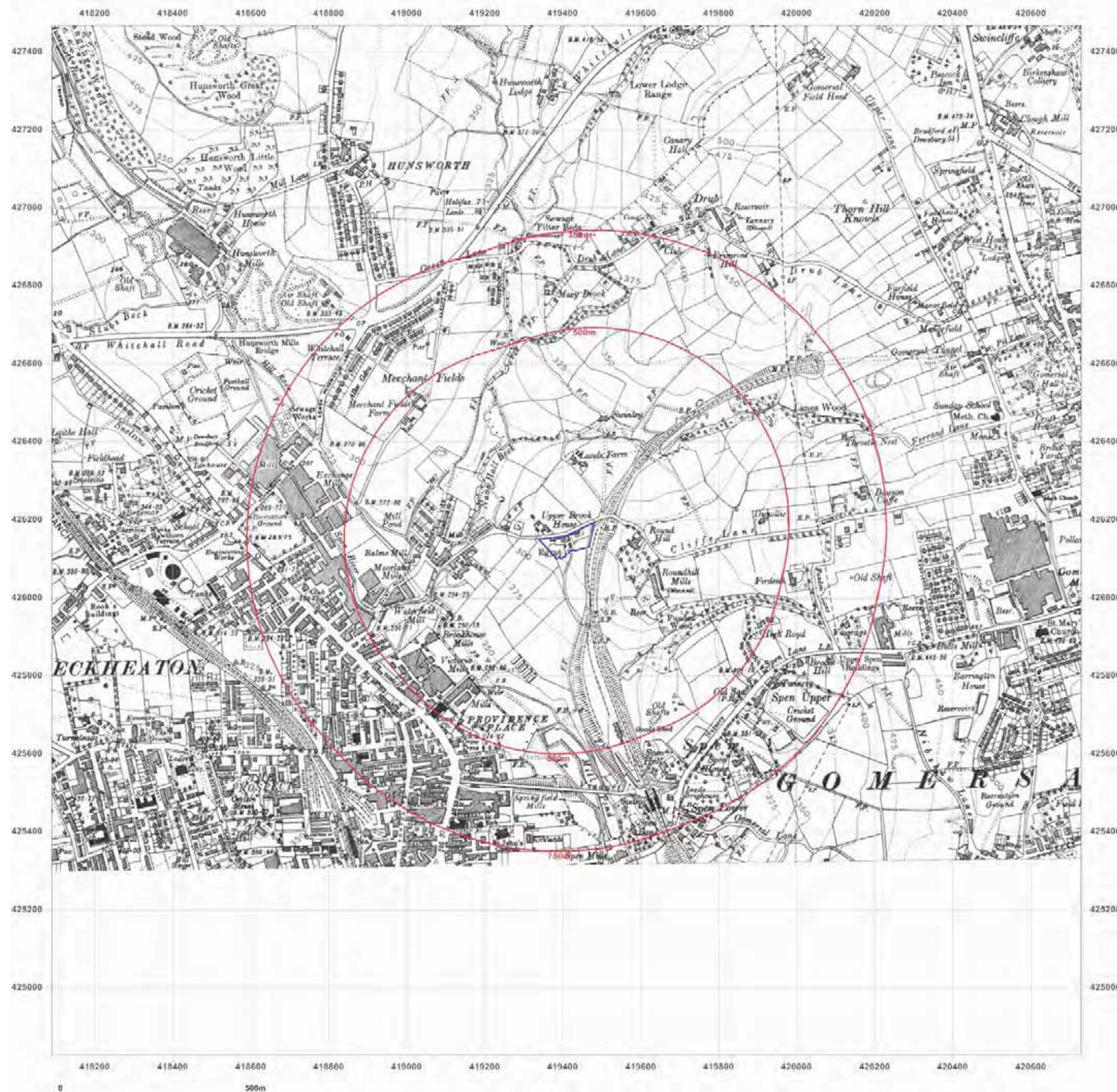


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: Provisional

Map date: 1951-1955

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

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

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

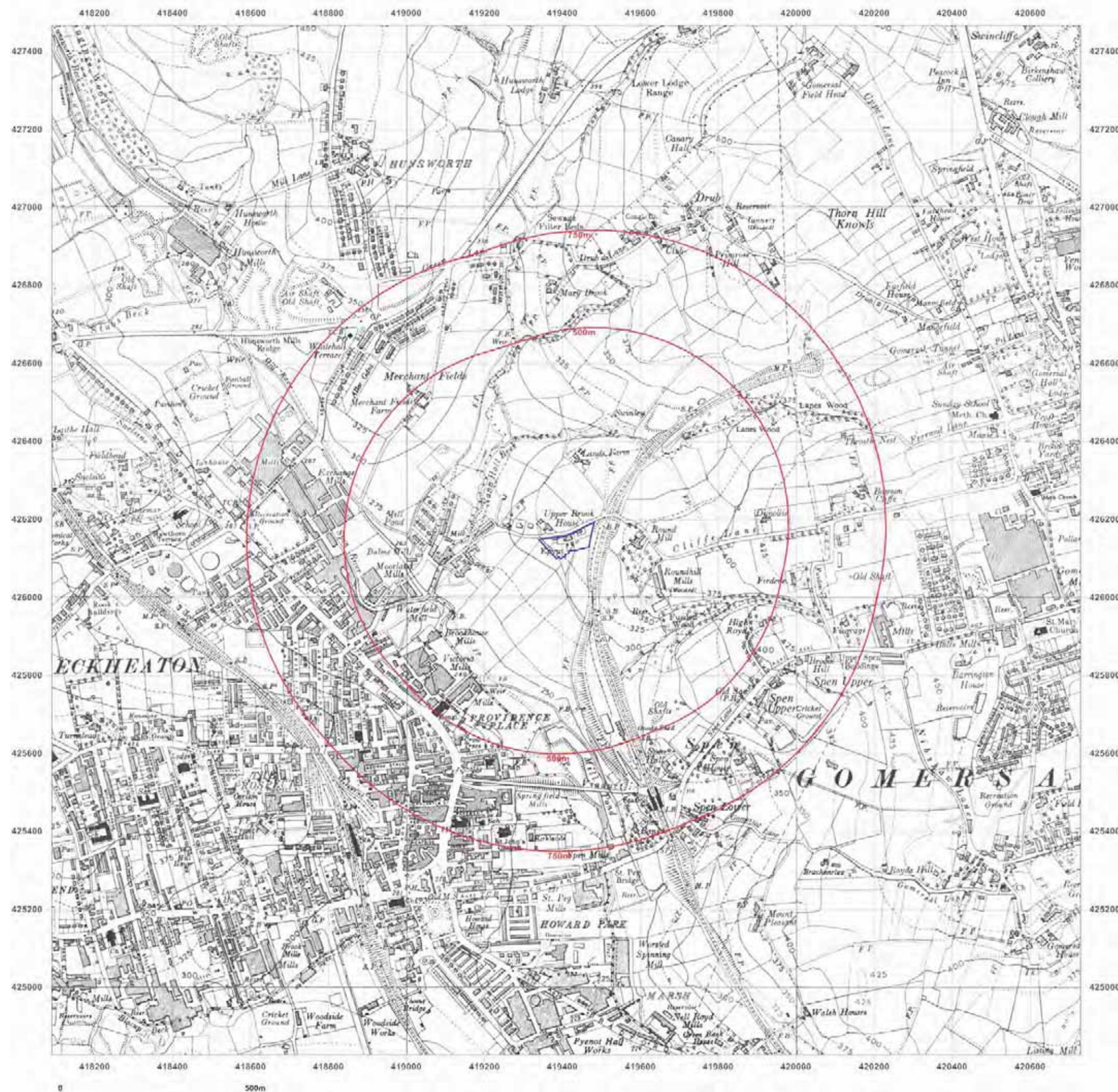


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

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

Surveyed 1968
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

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

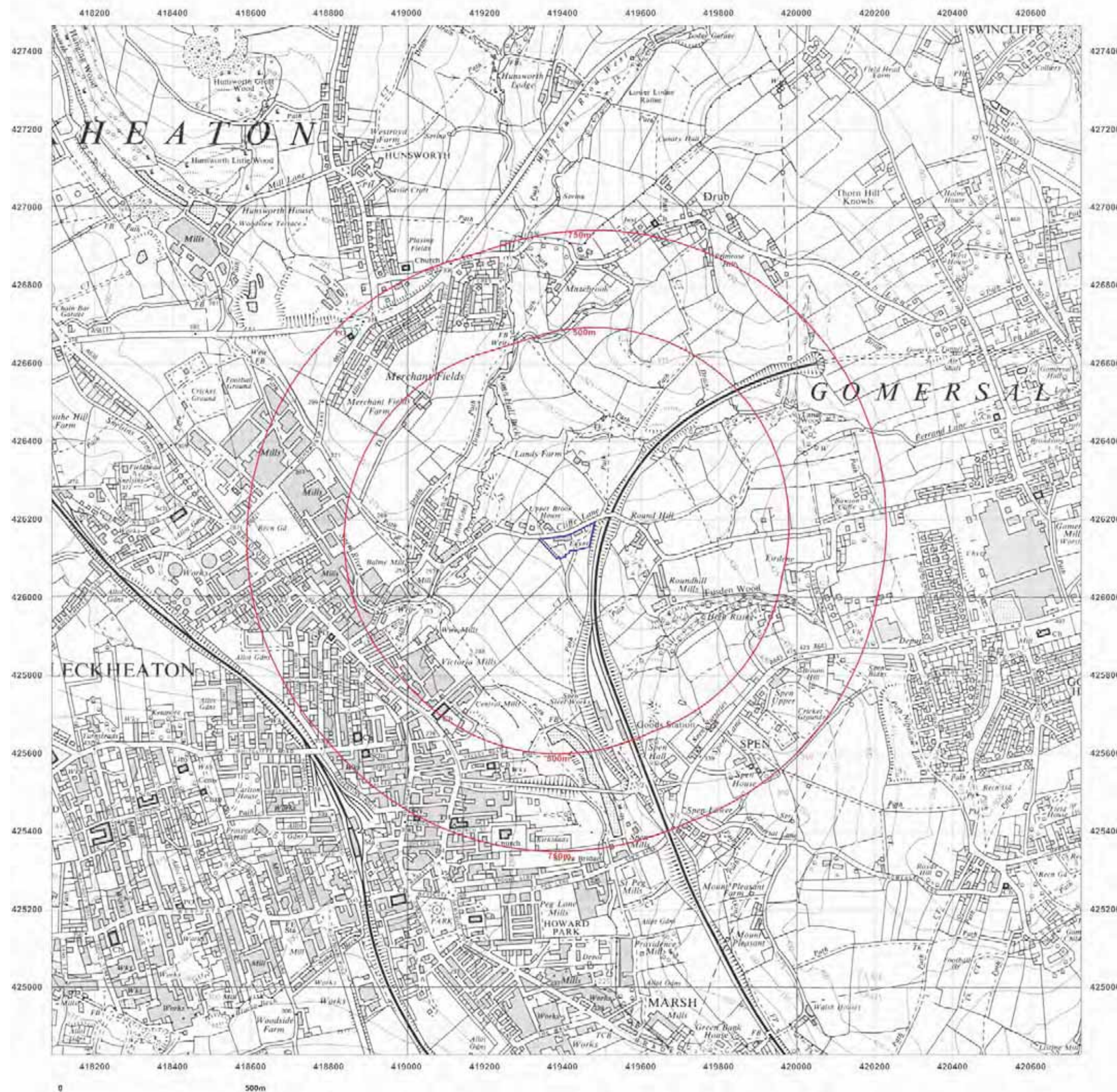


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: National Grid

Map date: 1974-1975

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

Surveyed 1974
Revised 1975
Edition N/A
Copyright N/A
Levelled N/A

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

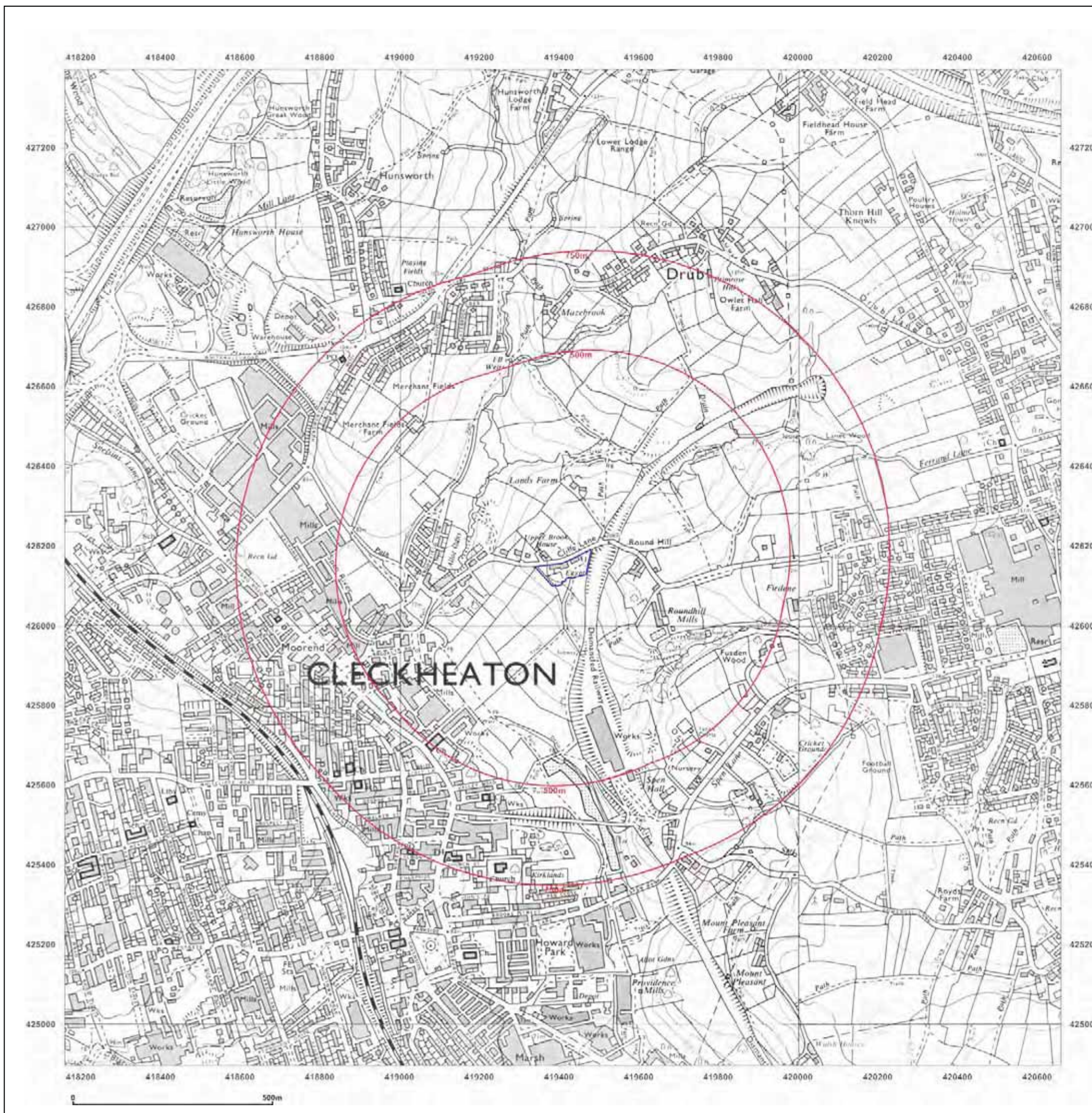


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: National Grid

Map date: 1981-1985

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

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

Surveyed 1977
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

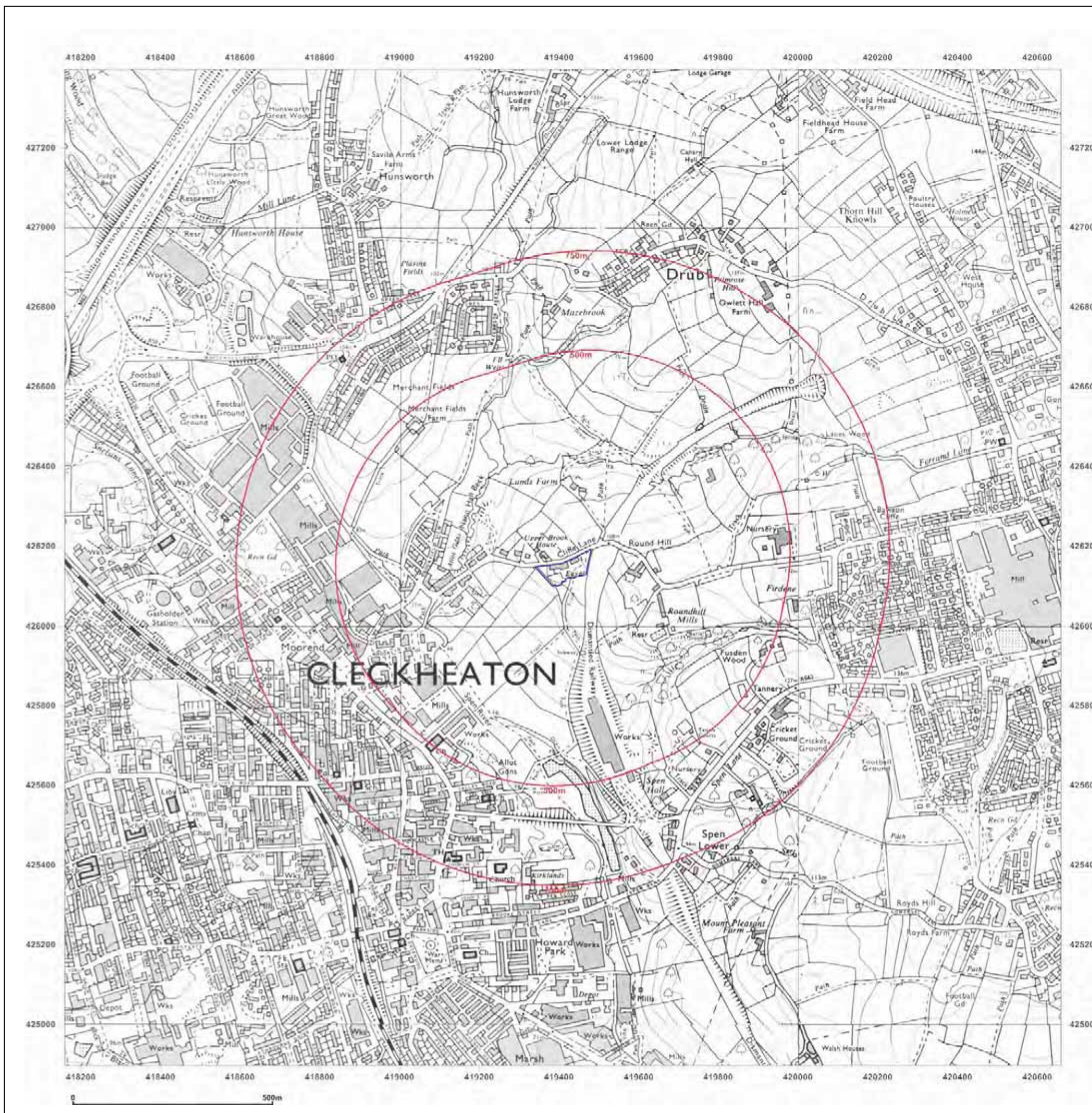


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: National Grid

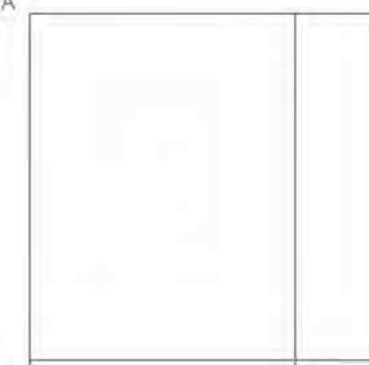
Map date: 1988-1990

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 1988
Edition N/A
Copyright N/A
Levelled N/A

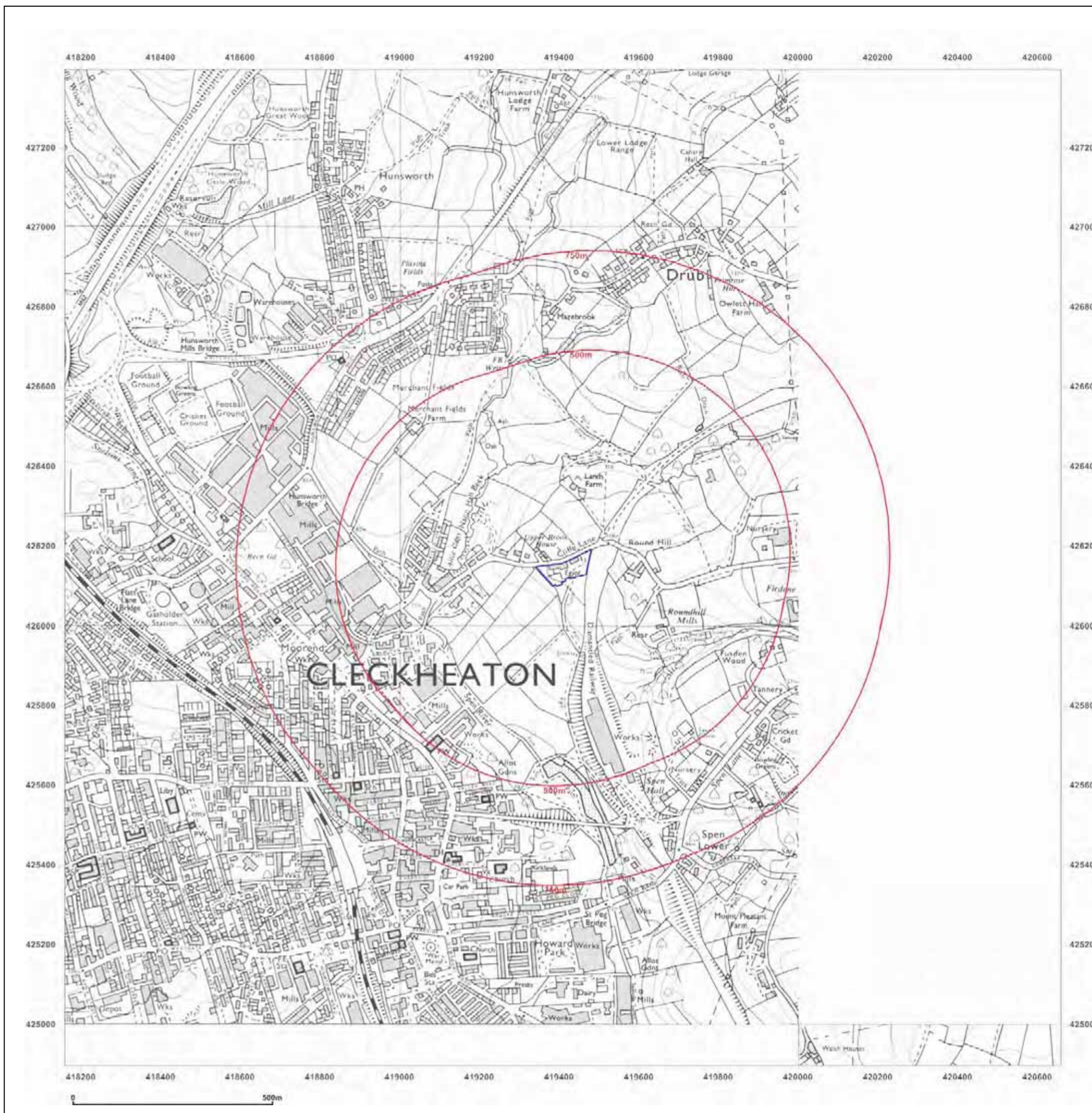


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: National Grid

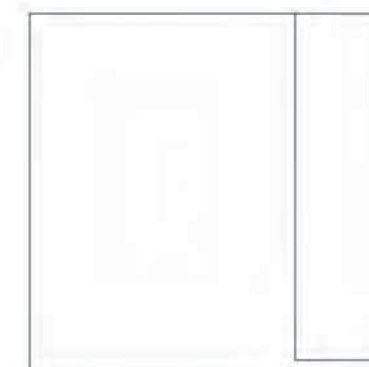
Map date: 1994

Scale: 1:10,000

Printed at: 1:10,000



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

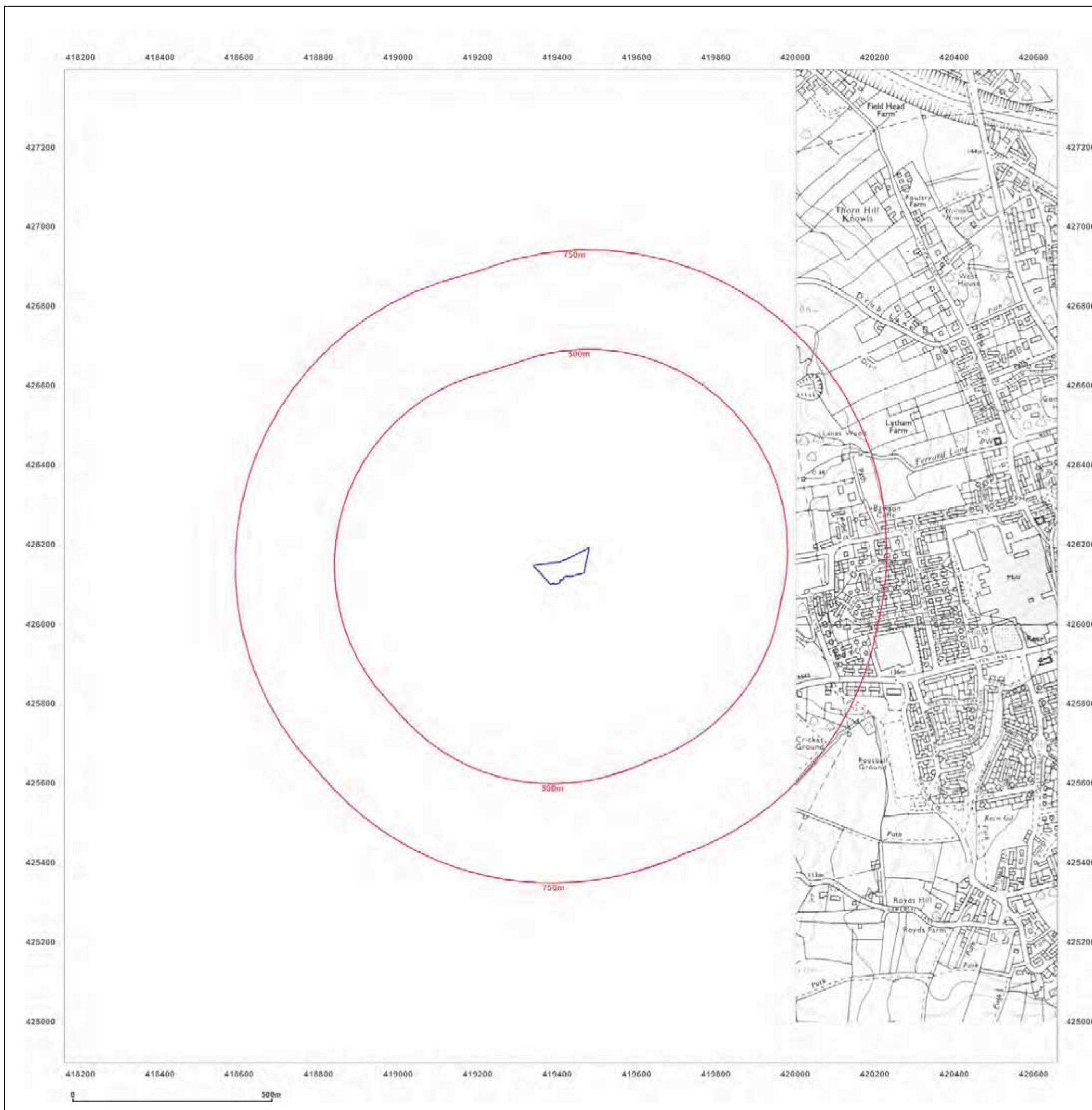


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000

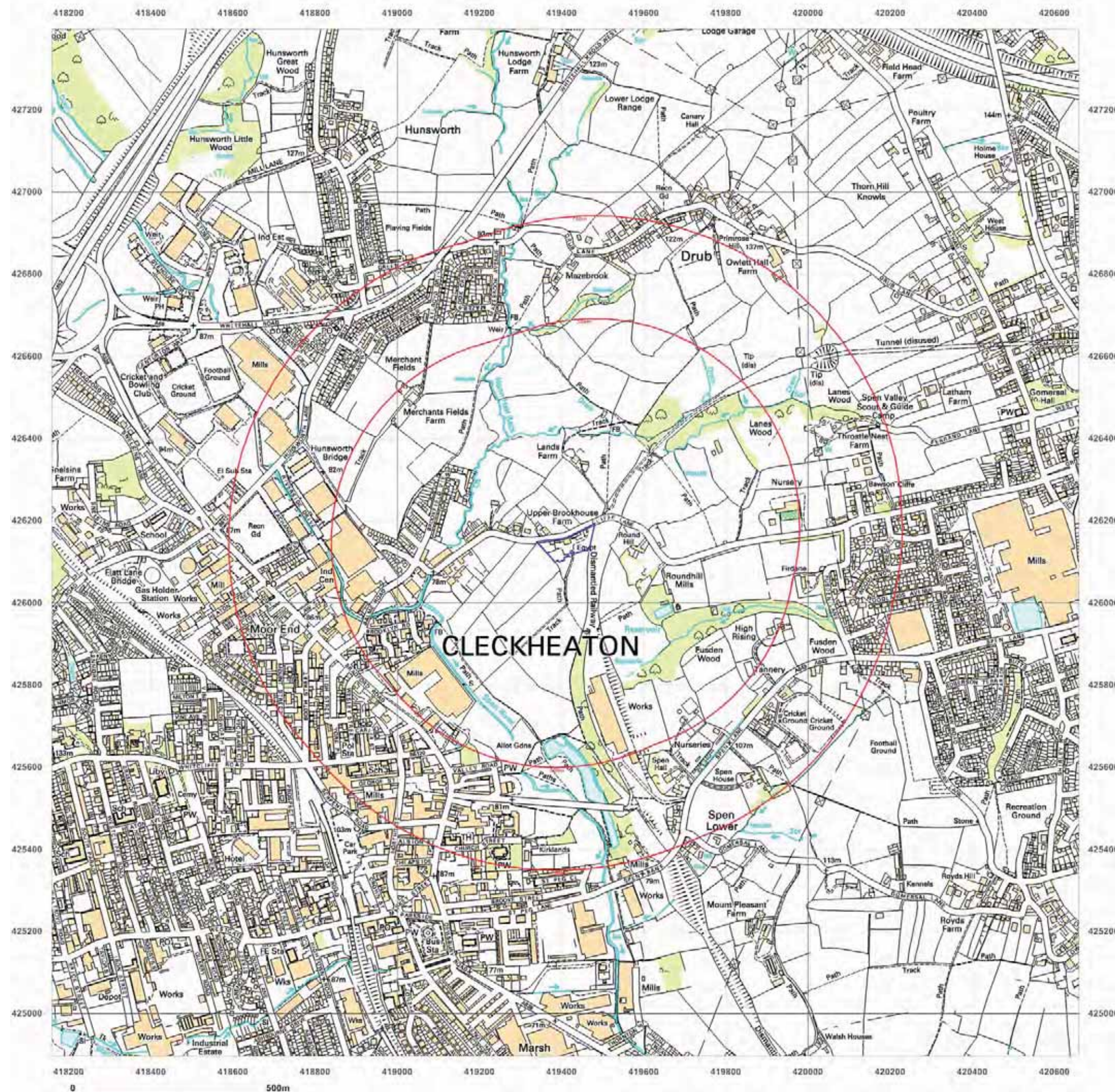


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Site Details:

EGYPT FARM, CLIFFE LANE,
CLECKHEATON, BD19 4EU

Client Ref: SMITH_6876
Report Ref: GS-3774755
Grid Ref: 419409, 426146

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



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