Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Geo-environmental
Ground Investigation Report

ON

PROPOSED DEVELOPMENT

AT

FORMER PARKHAM FOODS, HALIFAX ROAD, LIVERSEDGE

FOR

Lakeland Properties

Mar 2025

E18/7342/R002

Haigh Huddleston Associates is the trading name of Haigh Huddleston Associates Limited
Registered Office: Unit 4, Midgley Business Park, Bar Lane, Midgley, Wakefield, WF4 4JJ
Registered in England Number 6458196

INDEX

0.0	Executive Summary		Page 4
1.0	Introduction		Page 6
2.0	The Site		Page 8
3.0	Site History		Page 9
4.0	Site Geology and Mining		Page 10
5.0	Environmental Considerations		Page 12
	5.1	Radon	Page 12
	5.2	Landfill Sites	Page 12
	5.3	Flood Risk	Page 12
	5.4	Groundwater	Page 12
6.0	Preliminary Site Conceptual Model		Page 13
7.0	Fieldwork		Page 15
8.0	Results of the Investigation		Page 16
	8.1	Geotechnical Investigation	Page 16
	8.2	Groundwater	Page 17
	8.3	Gas Monitoring	Page 18
9.0	Contamination		Page 20
	9.1	Human Health Risk Assessment	Page 20
	9.2	Contamination Results	Page 20
	9.3	Qualitative Risk Assessment	Page 23
10.0	Conclusions and Recommendations		Page 26
	10.1	Geotechnical Assessment	Page 26
	10.2	Mining and Quarrying	Page 27
	10.3	Ground Floor Slab – Gas Measures	Page 28
	10.4	Contamination Assessment	Page 30
11.0	Suggested Further Work		Page 32

12.0 Approvals Page 33

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

Appendix B Trial Hole Logs
Borehole Logs

Appendix C Chemical Analysis of Samples
Geotechnical Analysis of Samples

Appendix D Groundsure Geo Insight
Coal Authority Report

Appendix E Groundsure Enviro Insight
Historical Plans

0.0 EXECUTIVE SUMMARY

SITE	The site is an irregular patch of land with access from Halifax Road on the northern boundary. There are residential developments to the north east and west of the development. There is open field to the south. The majority of the site consists of tarmac accessways and concrete floor slabs to the former buildings on site, with unmetalled surfaces between. Stockpiled material and tree growth obstructed access throughout the site. The site falls from the north west corner to the south east at an average grade of 1 in 23.
HISTORY	Buildings shown in north west corner of the site from 1854-1967. From 1975 garage shown in north west of site and factory in south east of site which later extended. Buildings on site demolished by 2010. Primarily been residential development in immediate vicinity of site to the west and north east. Open field to the south.
GEOLOGY	No superficial deposits or artificial ground are recorded on the site. The site is shown to be underlain by the Pennine Lower Coal Measures Formation consisting of Mudstone, Siltstone and Sandstone and the Pennine Lower Coal Measures Formation consisting of Sandstone alternately from south to north. A fault line is shown crossing the site from north west to south east. The fieldwork generally proved 1.5m of made ground overlying mudstone. Two intact coal seams were recorded in the mudstone at shallow depth.
MINING/QUARRYING	The Coal Authority Report states that the site is in an area where there is coal at or close to the surface that may have been worked historically. The rotary borehole investigation work has proven two intact coal seams on site. An intact 0.5m thick coal seam was encountered at 3.5-4.5m depth in four of the eight boreholes. An intact 1.0m thick seam was encountered at 6.0-9.7m below existing ground levels.
HYDROLOGY	The nearest surface water feature is Clough Beck 95m south of the site. The site is not located within any Environment Agency defined flood zones or shown to be at risk of flooding from rivers or the sea.

HYDROGEOLOGY	The groundwater vulnerability map for the area indicates that the site overlies rocks designated as a Secondary (A) aquifer. No groundwater was encountered during the site investigation works. During the gas monitoring no groundwater has been recorded.
CONTAMINATION	In the north west of the site by the former garage, one sample proved elevated levels of Arsenic, while another proved elevated levels of PAH (Total) and individual PAH compounds. A single sample in the south of the site proved positive for asbestos in the form of Amosite fibre bundles in board fragments. Quantification testing has proven that the asbestos content is 0.003% by mass of the sample, however it is all bound within the board fragments and relatively immobile and non-respirable.
REMEDIATION	Contaminants have been proven on site, including asbestos fibres within board fragments. The asbestos is considered relatively immobile and non-respirable within the board fragments. It is recommended that a minimum 600mm clean capping will be required to soft landscaped areas. Clean topsoil will need to be imported to site.
FOUNDATIONS	Based on the available information, and due to the shallow working beneath the site, we would suggest that the proposed two storey residential properties should be constructed strip/trench fill footings founded entirely onto the clay strata. Where the properties are affected by the fault line crossing the site they should be heavily reinforced. Should the coal strata be encountered within the foundation excavations, the coal seam should be sealed and the foundations extended onto the underlying natural strata. The foundation widths will vary dependent upon the line loadings calculated and bearing strata Finally, due to the depth of made ground encountered in the former garage forecourt in the north west corner of the site, consideration should be given to a reduced level dig or piling for properties in this area of the site.

1.0 INTRODUCTION

1.1 As requested by Lakeland Properties, this practice carried out ground and contamination investigation works for a proposed development on land south of Halifax Road, Cleckheaton.

1.2 Preliminary site investigation work in the form of five rotary boreholes was undertaken in September 2018, with three gas wells installed. The details of the investigation were recorded in Haigh Huddleston & Associates Report Ref: E18/7342/R001A dated October 2019.

1.3 The purpose of the report was to:-

- 1.3.1 Identify the nature of the near surface strata.
- 1.3.2 To identify any areas of contaminated ground.
- 1.3.3 Propose a suitable outline remediation strategy, which will enable the site to be developed safely, to the satisfaction of the overseeing regulators and in compliance with the current environmental standards.
- 1.3.4 Determine if shallow mine workings would adversely affect the development.
- 1.3.5 Determine if ground gas migration from shallow mine workings would adversely affect the site.

1.4 Soil sampling was undertaken via trial pits to determine the near surface strata. Distributed samples were taken for testing to ascertain the nature of the soils and fills present.

1.5 The conclusions and recommendations made in this report are limited to the findings of the preliminary Geotechnical Survey. The report is made on condition that Haigh Huddleston Associates will not in any circumstances be liable for loss, arising directly or indirectly from ground conditions encountered between trial pits and boreholes, which have not been revealed by the investigation.

1.6 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.

1.7 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 site is located to the south of Halifax Road, Liversedge, and is the site of the former Parkham Foods factory and is situated around Ordnance Survey grid reference 418625, 423955. A site location plan is included in Appendix A.

2.2 The site is an irregular shaped patch of land with access from Halifax Road on the northern boundary. To the west and north east the boundary is formed by adjacent residential properties. To the south west, south and south east are open fields and sparsely wooded areas. The area of the development is approximately 0.73ha.

2.3 Access to the site is from Halifax Road in the north western corner of the site. The majority of the site consists of tarmac accessways and concrete floor slabs to the former buildings on site, with unmetalled surfaces between. At the time of the site investigation works, the site was overgrown with tree growth noted throughout the site. In addition to this, stockpiled material on site restricted access for trial pitting and boreholes.

2.4 The site falls from the north west corner to the south east at an average grade of 1 in 23 from a high point of approximately 142.3m AOD in the north western corner to a low point of 136.2m AOD in the south east. The ground levels then bank down approximately 3m from the site boundary in the south east.

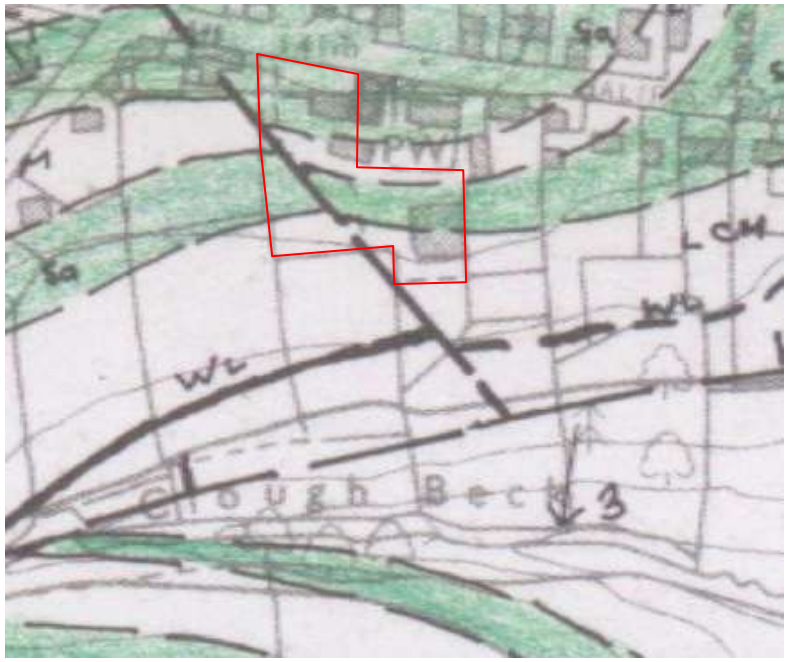
3.0 SITE HISTORY

A number of historical Ordnance Survey plans have been consulted and are included in Appendix E. Below is a brief description outlining the significant developments that may affect future construction of the site.

Date	Historical uses on site	Historical findings within 100m perimeter of the site	Historical findings further than 100m perimeter of the site
1854	i) Highway shown to northern boundary ii) Building labelled Aquila House shown in north west corner of site.	i) Buildings shown immediately north east and north west of site. ii) Open land shown to east, south, west and beyond highway to north.	i) Sandstone Quarry 450m north of the site. ii) Mill buildings 400m south east and 500m south west of the site.
1892	i) The on-site features are similar to the previous sheet.	i) Clough Beck shown 100m south of site.	i) Woollen mill and reservoirs shown 133m west of the site.
1905-1938	i) Second L-shaped building shown in north west of site.	i) No significant developments within 100m of the site.	i) Mill buildings no longer labelled 400m south east of site.
1948-1958	i) Greenhouse shown in central area of site.	i) No significant developments within 100m of the site.	i) No significant developments 100-500m from site.
1967	i) The on-site features are similar to the previous sheet.	i) No significant developments within 100m of the site.	i) Reservoir no longer shown 133m west of the site. ii) Sandstone Quarry no longer indicated 450m north of the site.
1975-1985	i) Buildings in north west corner changed, one labelled as garage. ii) Building no longer shown in centre of site. iii) Building shown in south east of site.	i) No significant developments within 100m of the site.	i) Buildings shown over former reservoirs 133m west of the site. ii) Residential development over former quarry 450m to north of site.
2002	i) Building in south east of site extended towards western boundary.	i) No significant developments within 100m of the site.	i) No significant developments 100-500m from site.
2010-2024	i) Buildings no longer shown on site.	i) No significant developments within 100m of the site.	i) No significant developments 100-500m from site.

4.0 SITE GEOLOGY & MINING/QUARRYING

4.1 The BGS Geological Map of Great Britain SE12SE (Clifton) at 1:10,000 has been consulted and we would report as follows:-



4.2 No artificial or superficial strata is shown overlying the site.

4.3 The site is shown to be underlain by the Pennine Lower Coal Measures Formation consisting of Mudstone, Siltstone and Sandstone and the Pennine Lower Coal Measures Formation consisting of Sandstone alternately from south to north.

4.4 A fault line is shown crossing the site from north west to south east.

4.5 The Coal Authority Report states that the property is in a surface area that could be affected by underground mining in 1 seam of coal at 140m to 180m depth, and last worked in 1906. Any ground movement from these coal workings should have stopped by now.

4.6 In addition to this, the Coal Authority report states that the property is in an area where the Coal Authority believes that there is coal at or close to the surface. Historically, shallow and surface coal has been worked by private individuals and these workings have been unrecorded by the Coal Authority.

4.7 The Wheatley Lime Coal Seam is shown to outcrop approximately 30m south of the site.

4.8 The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods. The property is not in an area for which a licence has been granted 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 preliminary site investigation work recorded in Haigh Huddleston & Associates Report Ref: E18/7342/R001A dated October 2019 consisted of five rotary boreholes drilled to depths of 10-30m below existing ground levels.

4.11 The boreholes generally proved 1.3-1.8m of made ground with a mudstone bedrock encountered at 1.3-1.8m below existing ground levels. Within the mudstone strata, two coal seams were encountered.

- Upper seam – 0.3-0.6m thick and encountered at 2.8-4.6m below existing ground levels and encountered in four of the five boreholes.
- Lower seam – 0.4-1.2m thick and encountered at 7.3-8.9m below existing ground levels in all five of the boreholes.

4.12 In BH01, the lower coal seam was recorded as being soft, raising concerns it may have been worked and further borehole investigation works were recommended.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Radon

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

No Radon Protective Measures are necessary. However, a number of warranty providers consider it good practice to provide basic radon protective measures as standard and they should be consulted at an early stage to confirm their requirements.

5.2 Landfill Sites

There are no historical landfill sites recorded within 250m of the site.
However, there are areas of infilled land associated with former mill ponds/reservoirs located approximately 133m west of the site. This area has subsequently been developed for commercial use.

5.3 Flood Risk

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

5.4 Groundwater

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

There are no water abstraction licences recorded within 250m of the site.

There are two recorded licensed discharge consents within 250m of the site. These are located 86m north east and 161m south east of the site and both relate to the treated sewage discharges from private residences.

There are no recorded pollution incidents to controlled waters

The site is not located in a Source Protection Zone.

The nearest recorded surface water feature is Clough Beck located 95m south of the site. This is an inland river not influenced by normal tidal action.

6.0 PRELIMINARY CONCEPTUAL SITE MODEL

6.1 The initial stage in assessing the risks posed from contaminated land during the redevelopment of a site is to prepare a conceptual model. A generalised conceptual model can be developed highlighting the main pollutant linkages through a contaminant ► pathway ►receptor model for a residential development. In order to prepare the conceptual model for a particular site the following parameters need to be reviewed as discussed below.

6.2 Contamination of existing land can be caused by a number of factors, including:-

i) Possible historical/current industrial activities.

ii) Disposal of waste materials.

iii) Storage of materials.

iv) A number of natural processes can also lead to hazardous gases and elevated heavy metals.

6.3 Potential pathways can include ground and surface water, permeable strata, existing services providing a conduit and voided ground. Potential receptors can include human health, ecosystems, controlled waters and building structures. There are a number of ways that a receptor can be exposed to the contaminant these include, inhalation, direct contact, ingestion, dermal contact and uptake.

6.4 The site had originally been developed for residential use, but the houses were demolished by 1938. Since then, the site has been used as a highway depot, with primarily residential developments immediately adjacent the site. There is therefore the risk of contamination from the following sources:

i) Possible demolition material from previous buildings on site.

ii) Possible made ground used in levelling the site.

iii) Historical leakage from tanks/vehicles at garage in the north west.

iv) Possible gas migration from probable shallow mine workings.

There is therefore considered to be a moderate risk of ground contamination present.

6.5 Considering the proposed residential end use, there will be two possible human receptor groups exposed to the existing onsite contamination:-

a) Site operatives during development.

b) End users, future site visitors (the critical receptor is a 6 year old female).

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

Table 1- Potential Human Exposure Pathways

Human Exposure Pathway	Site Visitors	Construction Workers
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 are no records of pollution incidents within 250m of the site. There are no recorded water abstractions within 250m of the site and the nearest surface water feature is approximately 100m south of the site.

6.9 No specific areas of ecological importance have been identified in the initial desk top study. Therefore the site is considered to be in a low risk environmental setting. The potential for phototoxic materials to exist at shallow depth should be considered, these could pose a potential risk to new planting and soft landscaping areas within the proposed development.

6.10 The proposed planning drawings show detached houses with private garden and car parking areas. The presence of elevated sulphates and hydrocarbons could affect the long term integrity of buried concrete structures, including foundations and drainage pipes. Plastic water supply pipes can also be damaged by the presence of hydrocarbon contamination.

7.0 FIELDWORK

7.1 An initial rotary borehole investigation was undertaken on 30th October-1st November 2024. A total of eight rotary boreholes were undertaken to depths of 9.0-12.0m below existing ground levels throughout the site to determine the presence of shallow mine workings. Two additional boreholes were undertaken to depths of 4m and installed with standpipes to allow gas monitoring and ground water levels to be measured.

7.2 A total of six trial pits were undertaken by an 8 tonne tracked excavator with 600mm bucket on 19th February 2025 to allow soil samples to be taken for chemical testing.

7.3 Materials encountered in the trial pits and boreholes were examined and categorised. Trial pit and borehole logs are contained within Appendix B of the report.

7.4 The site investigation works were designed to achieve comprehensive site coverage within the proposed development area while not compromising the proposed foundation construction.

7.5 Soil samples were removed from the natural and made ground deposits within the trial pits. The samples were removed by operatives wearing gloves and placed into airtight clean plastic containers and glass sample jars for transportation to the laboratory.

7.5 A total of six samples from the natural ground deposits were recovered from the trial holes 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 and asbestos. Due to the former presence of a garage in the north west of the site, a sample was also tested for EPH (Total).

7.7 All samples were stored in airtight containers within cool boxes at approximately 4°c until delivery to the laboratory.

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 In only TP05 in the south west of the site, the surface of the trial pit consisted of a 150mm thick concrete slab overlying 150mm of clean crushed type 1 stone.

8.1.3 Beneath the above floor slab construction, and at the surface of the remainder of the trial pits was a layer of made ground that varied in thickness from 0.3m in the west of the site to 2.5m deep in the north of the site in the former garage forecourt. The made ground consisted of a mix of crushed brick, bricks, clays, sections of concrete, gravels and topsoil.

8.1.4 At the base of the made ground in TP06, an unreinforced concrete slab was encountered at a depth of 2.5m below existing ground levels. This was cast onto a thin layer of clay overlying sandstone. A slight hydrocarbon odour was noted within the clay.

8.1.5 Beneath the made ground in the remainder of the trial pits was a 0.2-1.7m thick layer of firm light brown/yellow slightly sandy clay. All but TP05 terminated in this strata at depths of 1.6m to 2.4m below existing ground levels.

8.1.6 In TP05 in the south west of the site, a weak light brown sandstone was encountered at 0.8m below existing ground levels. This was excavated as horizontally bedded shales and extended to the base of the trial pit at 1.2m below existing ground levels.

8.1.8 Only TP02 in the south of the site recorded instability within the made ground. No instability was noted within the remainder of the trial pits, however it should be noted that most of the trial pits were only left open for a short period of time to allow for sampling to be undertaken and the strata to be logged.

8.1.10 Generally the boreholes proved 1.5m of made ground overlying a mudstone bedrock that extended to the base of the boreholes at 9.0-12.0m below existing ground levels. Within the mudstone strata, two coal seams were encountered:

- Upper coal seam: Encountered in boreholes BH05-BH08. Intact 0.5m thick coal seam encountered at depths of 3.5-4.5m below existing ground levels.
- Lower coal seam: Encountered in all boreholes. Intact 1.0m thick coal seam encountered at depths of 6.0-9.7m below existing ground levels. This coal seam was noted as being soft in BH01 and BH02. However, no loss of flush was encountered.

8.1.11 Both coal seams were intact in all eight boreholes indicating that the coal had not been worked beneath the site.

8.1.12 A summary of the materials encountered within the boreholes is presented in Table 2 below.

Table 2 Summary of Borehole Results

BH No.	MADE GROUND	MUDSTONE	COAL 1	MUDSTONE	COAL 2	MUDSTONE	INSTALLATION
BH1	0.0-1.5	1.5-7.0	-	-	7.0-8.0*	8.0-12.0	N
BH2	0.0-1.5	1.5-7.0	-	-	7.0-8.0*	8.0-12.0	N
BH3	0.0-1.5	1.5-7.0	-	-	7.0-8.0	8.0-9.0	N
BH4	0.0-1.5	1.5-6.0	-	-	6.0-7.0	7.0-9.0	N
BH5	0.0-1.5	1.5-3.5	3.5-4.0	4.0-8.5	8.5-9.5	9.5-12.0	N
BH6	0.0-1.5	1.5-4.0	4.0-4.5	4.5-8.7	8.7-9.7	9.7-12.0	N
BH7	0.0-1.5	1.5-4.0	4.0-4.5	4.5-8.5	8.5-9.5	9.5-12.0	N
BH8	0.0-1.5	1.5-4.0	4.0-4.5	4.5-8.5	8.5-9.5	9.5-12.0	N
GW1	0.0-1.5	1.5-4.0	-	-	-	-	Y
GW2	0.0-1.5	1.5-4.0	-	-	-	-	Y

*Due to loss of flush in broken ground, it was not possible to positively identify the hard strata beneath, but it is presumed to be mudstone.

8.1.13 The result of the geotechnical analysis undertaken on the samples of clayey soil indicates the clay to be of intermediate plasticity (Liquid Limit 42-47%). If the modified results are calculated, taking into account the percentage of material retained on a 425micron sieve, the results correspond to a LOW shrinkage clay. The test certificate is contained in Appendix C.

8.2 GROUNDWATER

8.2.1 No groundwater was encountered during the trial pits or rotary borehole investigation. During the gas monitoring, the standpipes have remained dry.

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 these investigations.

8.3 GAS MONITORING

8.3.1 Gas monitoring was previously undertaken between June and September 2019 following the preliminary site investigation works. Three gas monitoring stations were installed and these recorded between Carbon Dioxide concentrations between 1.8 and 3.3%. In addition to this, Methane concentrations of 0.1% were recorded on two occasions in one of the boreholes. No flow rates were recorded.

8.3.2 During these site investigation works, two of the rotary boreholes were installed with gas standpipes and lockable covers, in particular to identify potential gas migration from probable shallow mine workings in the vicinity of the site.

8.3.3 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.

8.3.4 The results of the recent gas monitoring undertaken are summarised in Table 3 below.

Table 3 - Summary of Recorded Gas Levels.

Borehole No.	Date	Oxygen %	Carbon Dioxide %	Methane %	Steady Flow Rate (l/hr)	Depth to Water (m)	Atmospheric Pressure (mb)
GW01	22.11.24	17.6	2.3	NR	ND	DRY	993
	06.12.24	16.3	5.6	NR	ND	DRY	1000
	19.12.24	16.9	4.0	NR	ND	DRY	1002
	03.01.25	18.1	2.5	NR	ND	DRY	1008
	21.01.25	16.6	5.1	NR	ND	DRY	987
	18.02.25	16.1	4.8	NR	ND	DRY	1010
GW02	22.11.24	17.5	2.4	NR	ND	DRY	992
	06.12.24	16.8	5.1	NR	ND	DRY	1000
	19.12.24	16.7	3.6	NR	ND	DRY	1002
	03.01.25	18.3	2.4	NR	ND	DRY	1006
	21.01.25	16.9	4.1	NR	ND	DRY	984
	18.02.25	16.5	4.0	NR	ND	DRY	1009

8.3.5 The monitoring on the 6th December 2024 was undertaken during a period of sharply falling atmospheric pressure, while the readings on 19th December 2024, 21st January 2025 and 18th February 2025 were undertaken during periods of gradually falling atmospheric

8.3.6 There has been no methane recorded in any of the standpipes.

8.3.7 Carbon dioxide concentrations between 2.3% and 5.6% have been recorded on site. The higher carbon dioxide concentrations have been associated with lower concentrations of oxygen.

8.3.8 No steady flow rates have been detected on site.

8.3.9 Due to the lack of flow rates recorded on site, and the relatively low levels of Carbon Dioxide, the GSV would therefore be QhgCO2 = 0.1 x (5.6/100) = 0.006, which would classify the site as CS1 by Table 2 BS8485:2015+A1:2019. However, due to the presence of shallow coal seams beneath the site, and the Carbon Dioxide levels being repeatedly over 5.0%, we would recommend the site be classified as **CS2.**

9.0 CONTAMINATION

9.1 HUMAN HEALTH RISK ASSESSMENT

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

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

a) To break or remove one of the source ► pathway ►receptor linkages, by specifying an appropriate level of remedial work. Examples of remedial action may include the removal of the contaminated material or alternatively specifying a sufficient capping layer.

b) The alternative approach is to provide a more detailed human health site specific risk assessment. This will involve examining factors such as soil properties, exposure assumptions, groundwater flows and contamination composition.

9.2 CONTAMINATION RESULTS

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

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

9.2.3 It is proposed to redevelop the site for residential properties with private garden areas. Soil results have therefore been assessed against Generic Assessment Criteria (GAC) based on guidelines from the Chartered Institute of Environmental Health (CIEH) and Land Quality Management Ltd (LQM) S4UL document. Where there is no GAC, guidance limits have been adopted from sources referenced in the table below.

9.2.4 In addition to the above, the calculation of SGVs based on an acceptably low level of risk is currently being undertaken. These Category 4 Screening Levels (C4SL) have been calculated for six substances to date by modifying the toxilogical/exposure parameters within CLEA. C4SLs have been used as tier 1 trigger levels within this assessment, superseding the previous CIEH and LQM SGVs.

9.2.5 Assessment of risk is considered as a tiered approach. Assessment based on non intrusive means is considered Tier 1 assessment, comparison against SGVs and GACs is a Tier 2 assessment, and the generation of and comparison with Site Specific Assessment Criteria (SSAC) is a Tier 3 assessment and is conducted where deemed appropriate following the Tier 2 assessment.

9.2.6 The sulphate and acid concentrations have been compared against the BRE digest “Concrete in Aggressive Ground” parts 1-4. This will enable the concrete class to be specified in relation to possible contact with aggressive soils.

9.2.7 The results of the chemical analysis on the 6 samples are presented on the laboratory analysis sheets with Appendix C. A summary of the significance of the results is presented in Table 4.

Table 4

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)	5.2-45	1/6	16.7%
Cadmium	22 (4)	<0.1-0.5	0/6	
Chromium (Total)	130 (2)	14-21	0/6	
Lead	200 (4)	30-190	0/6	
Mercury (Total)	40 (1,5)	<0.05-0.28	0/6	
Selenium	250 (1)	<0.5	0/6	
Copper	2400 (1)	13-72	0/6	
Nickel	180 (1)	8.4-21	0/6	
Zinc	3700 (1)	59-200	0/6	
Sulphate	0.24 (3)	0.05-0.26	0/6	
Thiocyanate	50	0.8-2.3	0/6	
Sulphide	250	36-140	0/6	
Naphthalene	2.3 (1)	<0.1-0.4	0/6	
Benzo(a)pyrene	5 (4)	<0.1-11.0	1/6	16.7%
Benzo(a)anthracene	7.2(1)	<0.1-11.0	1/6	16.7%
Benzo(b)fluoranthene	2.6 (1)	<0.1-7.1	1/6	16.7%
Dibenzo(a,h)anthracene	0.24(1)	<0.1-1.5	1/6	16.7%
PAH (Total)	40	<1.6-150	1/6	16.7%
EPH (Total)	250	220	0/1	
Phenols	760 (1)	<0.3-0.7	0/6	
Asbestos	No fibres	Amosite fibre bundles	1/6	16.7%
pH	6-8	8.2-11.6	6/6	100.0%

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

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

(3) BS 8110 1985 Table 6.1

(4) Category 4 Screening Levels

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

9.2.8 Only the sample of made ground from TP07 to the rear of the garage proved an elevated level of Arsenic of 45 mg/kg which is a minor exceedance.

9.2.9 The made ground from shallow depth in TP06 in the garage forecourt proved positive for elevated levels of PAH (Total) and individual PAH compounds Benzo(a)anthracene (11.0mg/kg), Benzo(b)fluoranthene (7.1mg/kg), Benzo(a)pyrene (11.0mg/kg) and Dibenzo(a,h)anthracene (1.5mg/kg) .

9.2.10 None of the other samples from site contained elevated levels of heavy metals, phytotoxic metals, PAH (Total) or individual PAH compounds.

9.2.11 No elevated levels of EPH (Total) were recorded in the sample that had olfactory evidence of hydrocarbons.

9.2.12 Only the sample from TP02 proved positive for asbestos in the form of Amosite fibre bundles in board fragments. Asbestos quantification undertaken on this sample has proved the sample to be 0.003% asbestos by mass, however all the fibre bundles are bound within the board fragments, relatively immobile and considered non-respirable.

9.2.13 An elevated level of sulphate was only recorded in the made ground of TP02 of 0.26%, with pH values all at 8.2 or above. This corresponds to a design sulphate class DS-2, ACEC class AC-2, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.

9.3 QUALITATIVE RISK ASSESSMENT

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

9.3.2 **SOURCE**

i) Minor elevated level of Arsenic in the made ground from TP07.
ii) Elevated levels of PAH (Total) and individual PAH compounds in the made ground from TP06.
iii) Asbestos in the form of Amosite fibre bundles in TP02.
iv) Elevated levels of Carbon Dioxide during gas monitoring.

9.3.3 **PATHWAYS**

i) Ingestion of contamination material.

ii) Inhalation of contaminated particles.

iii) Dermal contact with the known contamination.

iv) Leaching to controlled waters.

v) Ground gas migration

9.3.4 **RECEPTORS**

i) Residential site users.

ii) Construction and maintenance workers.

iii) Controlled waters.

iv) The building structure.

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

i) Residential site users.

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

Only the sample of made ground from TP07 to the rear of the garage proved an elevated level of Arsenic of 45 mg/kg which is a minor exceedance.

The made ground from shallow depth in TP06 in the garage forecourt proved positive for elevated levels of PAH (Total) and individual PAH compounds Benzo(a)anthracene (11.0mg/kg), Benzo(b)fluoranthene (7.1mg/kg), Benzo(a)pyrene (11.0mg/kg) and Dibenzo(a,h)anthracene (1.5mg/kg) .

Only the sample from TP02 proved positive for asbestos in the form of Amosite fibre bundles in board fragments. Asbestos quantification undertaken on this sample has proved the sample to be 0.003% asbestos by mass, however all the fibre bundles are bound within the board fragments, relatively immobile and considered non-respirable. It is therefore considered a relatively low risk to future site users.

There is currently no suitable topsoil on site, therefore clean material will need to be imported to provide a suitable growing medium and capping to the contaminated made ground on site. Due to the presence of contaminants within the made ground, it

is recommended that clean material is brought to site to form a 600mm clean capping layer consisting of 300mm clean topsoil and 300mm clean subsoils.

Carbon dioxide concentrations between 2.3% and 5.6% have been recorded on site. The higher carbon dioxide concentrations have been associated with lower concentrations of oxygen. No steady flow rates have been detected on site. Due to the lack of flow rates recorded on site, and the relatively low levels of Carbon Dioxide, the GSV would therefore be QhgCO2 = 0.1 x (5.6/100) = 0.006, which would classify the site as CS1 by Table 2 BS8485:2015+A1:2019. However, due to the presence of shallow coal seams beneath the site, and the Carbon Dioxide levels being repeatedly over 5.0%, we would recommend the site be classified as **CS2**.

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.

Contractors should be made aware of the presence of asbestos within the made ground on 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 has been limited areas of contaminated ground encountered on site, however the underlying strata has proved to consist of impermeable clays. It is therefore considered that there is a negligible risk to groundwater and controlled waters from existing contamination on site.

iv) Building Structures.

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

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 GEOTECHNICAL ASSESSMENT

10.1.1 Where the proposed residential properties are to be constructed, the fieldwork generally proved a made ground overlying firm clays with a sandstone bedrock encountered in the south west of the site. For initial design purposes we would envisage a safe bearing capacity of 100kN/m2 where foundations are to be cited onto the firm clay and 150kN/m2 where foundations are cited on the underlying sandstone bedrock.

10.1.2 We would therefore initially suggest that the proposed two storey residential constructions should be constructed on strip/trench fill footings founded entirely onto the clay strata. 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.

10.1.3 Finally, due to the depth of made ground encountered in the former garage forecourt in the north west corner of the site, consideration should be given to a reduced level dig or piling for properties in this area of the site.

10.1.4 The geological maps for the site indicate that there is a fault line crossing the site. The fault is not thought to be active; however we would recommend that the strip foundation design is strengthened in areas affected by the fault line to accommodate any slight differential settlement. This would usually involve doubly reinforcing the foundation within a deeper section of concrete.

10.1.5 Should coal strata be encountered within the foundation, service or drainage excavations, the coal seam should be immediately sealed to prevent spontaneous combustion. All trenches to be infilled with inert material. Any foundations should be taken beneath the coal seam to the underlying natural strata.

10.1.6 All foundations should be placed below a line of 45˚ drawn up from the base of any services or other structures.

10.1.7 Where existing foundations or structures are encountered during construction, these should be totally removed from the excavations to enable the new foundations to be constructed without obstructions.

10.1.8 At present it is not anticipated that excessive ground water control measures will be required. Please note that ground water flows can vary throughout the year and a further assessment should be undertaken if construction work is proposed following a prolonged rainfall event.

10.1.9 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 **LOW** volume change potential.

10.1.10 An elevated level of sulphate was only recorded in the made ground of TP02 of 0.26%, with pH values all at 8.2 or above. This corresponds to a design sulphate class DS-2, ACEC class AC-2, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.

10.2 MINING AND QUARRYING

10.2.1 The Coal Authority report states that the property is in an area where the Coal Authority believes that there is coal at or close to the surface. Historically, shallow and surface coal has been worked by private individuals and these workings have been unrecorded by the Coal Authority.

10.2.2 The Wheatley Lime Coal Seam is shown to outcrop approximately 30m south of the site.

10.2.3 Generally the boreholes proved 1.5m of made ground overlying a mudstone bedrock that extended to the base of the boreholes at 9.0-12.0m below existing ground levels. Within the mudstone strata, two coal seams were encountered:

- Upper coal seam: Encountered in boreholes BH05-BH08. Intact 0.5m thick coal seam encountered at depths of 3.5-4.5m below existing ground levels.

- Lower coal seam: Encountered in all boreholes. Intact 1.0m thick coal seam encountered at depths of 6.0-9.7m below existing ground levels. This coal seam was noted as being soft in BH01 and BH02.

10.2.4 Both coal seams were intact in all eight boreholes indicating that the coal had not been worked beneath the site.

10.2.5 It is considered that the soft ground indicated in the original rotary borehole investigation would be the soft immature coal recorded in two of the more recent boreholes, and not an indication that the coal has been historically worked. There is therefore considered to be negligible risk from unrecorded shallow mine workings beneath the site.

10.3 GROUND FLOOR SLAB – GAS MEASURES

10.3.1 As discussed previously, gas monitoring stations were installed in two locations on site due to the possibility of ground gas migration from probable shallow mine workings in the vicinity of the site.

10.3.2 There has been no methane recorded in any of the standpipes.

10.3.3 Carbon dioxide concentrations between 2.3% and 5.6% have been recorded on site. The higher carbon dioxide concentrations have been associated with lower concentrations of oxygen.

10.3.4 No steady flow rates have been detected on site.

10.3.5 Due to the lack of flow rates recorded on site, and the relatively low levels of Carbon Dioxide, the GSV would therefore be QhgCO2 = 0.1 x (5.6/100) = 0.006, which would classify the site as CS1 by Table 2 BS8485:2015+A1:2019. However, due to the presence of shallow coal seams beneath the site, and the Carbon Dioxide levels being repeatedly over 5.0%, we would recommend the site be classified as CS2.

10.3.6 No Radon Protection measures are required for the site. However, a number of warranty providers consider it good practice to provide basic radon protective measures as standard and they should be consulted at an early stage to confirm their requirements.

10.3.5 We would recommend the following construction details based on a **CS2** classification to achieve a point score of 3.5 or more for type A properties in accordance with BS 8485:1015+A1:2019 tables 5-7:

- 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 slab 0 Points
- A Proprietary Gas Membrane meeting all of the following criteria: 2.0 Points
    - 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 flood 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]

Total **4.5 Points**

10.4 CONTAMINATION ASSESSMENT

10.4.1 Only the sample of made ground from TP07 to the rear of the garage proved an elevated level of Arsenic of 45 mg/kg which is a minor exceedance.

10.4.2 The made ground from shallow depth in TP06 in the garage forecourt proved positive for elevated levels of PAH (Total) and individual PAH compounds Benzo(a)anthracene (11.0mg/kg), Benzo(b)fluoranthene (7.1mg/kg), Benzo(a)pyrene (11.0mg/kg) and Dibenzo(a,h)anthracene (1.5mg/kg) .

10.4.3 Only the sample from TP02 proved positive for asbestos in the form of Amosite fibre bundles in board fragments. Asbestos quantification undertaken on this sample has proved the sample to be 0.003% asbestos by mass, however all the fibre bundles are bound within the board fragments, relatively immobile and considered non-respirable. It is therefore considered a relatively low risk to future site users.

10.4.4 There is currently no suitable topsoil on site, therefore clean material will need to be imported to provide a suitable growing medium and capping to the contaminated made ground on site. Due to the presence of contaminants within the made ground, it is recommended that clean material is brought to site to form a 600mm clean capping layer consisting of 300mm clean topsoil and 300mm clean subsoils.

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

10.4.6 All imported material should be tested for the range of contaminants listed previously in Table 4. Only material found to be below published trigger levels should be deemed uncontaminated and accepted for use on site.

10.4.7 If the imported material is from a Greenfield site, a minimum of 3 samples or 1 per 250m^3 of imported material should be taken for testing, whichever is greater. If it is from a brownfield site, a minimum of 6 samples, or 1 per 100m^3 of imported material should be taken for testing, whichever is greater. Material provided by a commercial supplier should be certified to the same level of testing, with the certificate less than two months old.

10.4.8 Any imported certified material should be placed immediately. If this is not possible, or the material is not certified and sampling is to be carried out prior to being laid, it should be securely stored on site prior to use to prevent possible contamination from any materials on site.

10.4.9 If any areas of made ground are removed off site, they should be taken to a licensed waste site and full documentation should be obtained. Any material to be taken off-site should be suitably quarantined prior to removal to prevent cross contamination. Any relevant chemical test results should be given to the landfill operator, so that they can determine if this material is suitable to be disposed of in their licensed landfill.

11.0 SUGGESTED FURTHER WORK

11.1 Gas membrane installation to be validated.

11.2 Importation of clean material to form a 600mm capping layer to soft landscaped areas.

11.3 Validation of clean capping depth and/or removal of contaminated made ground to be undertaken if required.

12.0 APPROVALS

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

These include:

a) Kirklees Environmental Health Department as required by the building and planning regulations.

b) The NHBC or similar as they will provide the insurance costs to cover the property.

c) The Environment Agency if there are risks of contamination to ground or surface water systems. They will also require notification if material is removed from site and taken to an appropriate tip.

d) Relevant highways and drainage authorities and other service companies may also wish to know about the level of contaminants.

Prepared by



M.Dean. BSc(Hons) HND

Checked by



M. Huddleston. MEng

March 2025

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Lakeland Properties in respect of the proposals described.

APPENDIX A

Site Location Plan

Site Investigation Plan

Typical Site Conceptual Model



FORMER PARKHAM FOODS SITE

395 HALIFAX ROAD

LIVERSEDGE

WF15 8DU

= BOREHOLE

= GAS WELL

= TRIAL PIT

HALIFAX ROAD

Garage

393

379a

Tank

STOCKPILED MATERIAL

STOCKPILED MATERIAL

STOCKPILED MATERIAL

APPROXIMATE LOCATION OF FAULT LINE FROM GEOLOGICAL PLANS

TP01

TP02

TP03

TP04

TP05

TP06

TP07

BH01

BH02

BH03

BH04

BH05

BH06

BH07

BH08

GAS01

GAS02

25000.0000

Rev A Trial Pit locations added 03.03.25 MD

Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Unit 4, Midgley Business Park, Bar Lane, Midgley, WF4 4JJ t 01924 574074

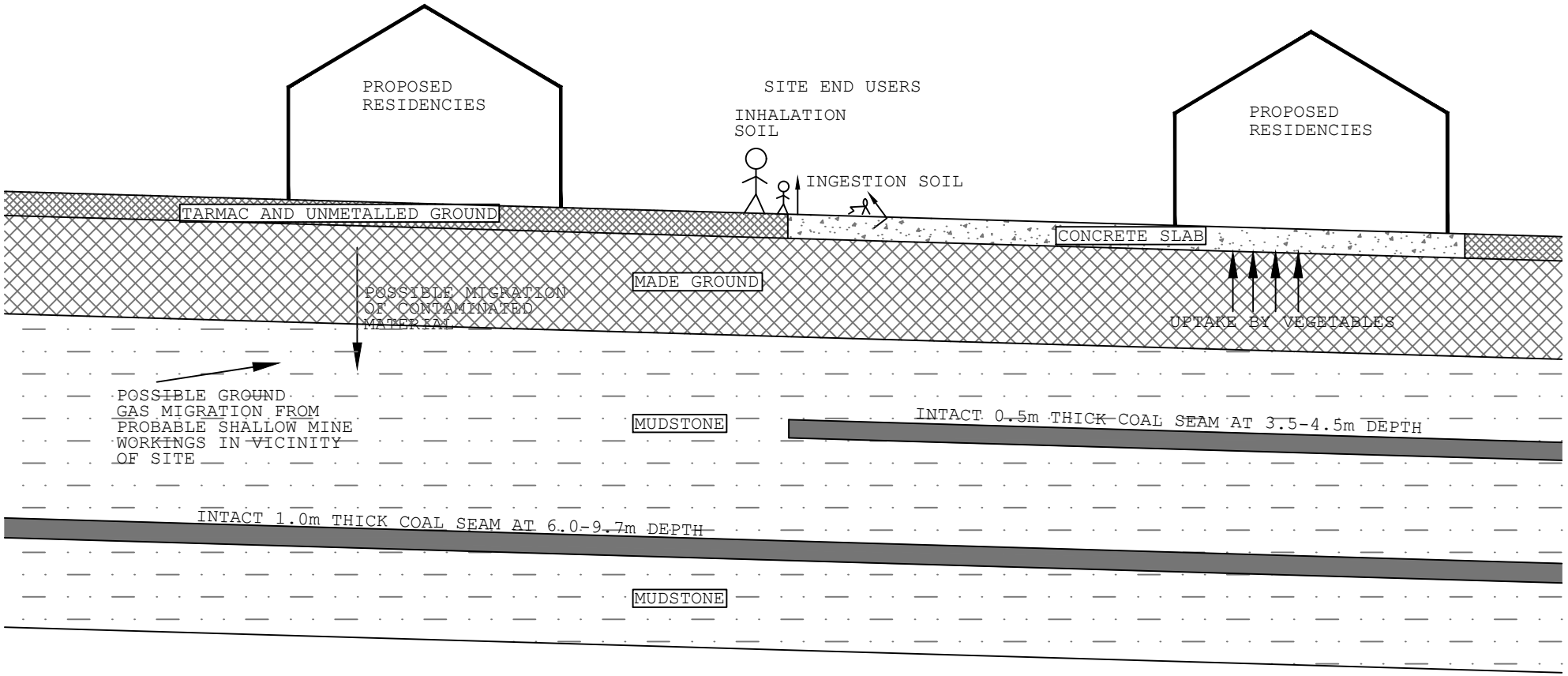
e martin@haighhuddleston.co.uk

Client
LAKELAND

Project
PARKHAM FOODS, HALIFAX ROAD, CLECKHEATON

Detail
SITE INVESTIGATION PLAN

Dwn	Chkd	Date	Scale	Dwg No.
OF	MH	Dec'24	1:500@A1	E15/7342/001A



Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Unit 4, Midgley business Park, Bar Lane, Midgley, WF4 4JJ t 01924 574074

e martin@haighhuddleston.co.uk

Client
LAKELAND

Project
PARKHAM FOODS, HALIFAX ROAD, CLECKHEATON

Detail
Typical Site Conceptual Model

Scale	Dwn	Chkd	Date	Dwg No.
NTS	MD		Mar'25	E15/7342/32

APPENDIX B

Trial Hole Logs

Borehole Logs

TRIAL HOLE NO. 01

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
		Made ground, brick, rubble with clays (depth of made ground varied across trial pit from 1.2-1.7m)
0.5	**0.5**	Sample taken
	(1.2)	
1.0		
	1.2	
		Firm yellowish brown slightly sandy clay
1.5	**(1.0)**	
	1.7	Redundant clay pipe containing standing water.
2.0		
	2.2	
2.5		
3.0		
3.5		

REMARKS:

Ground water encountered during excavation	NO. Standing water in abandoned clay pipe.
Sample taken	YES 0.5m
Sides of excavation remained stable	YES
Level	……..

NOTES:

……

……

TRIAL HOLE NO. 02

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
	0.4	Made ground consisting of bricks/ gravels buried concrete sections and clays Loosely consolidated – trench sides unstable Sample taken
0.5		
	(1.6)	
1.0		
1.5		
	1.6	
		Firm yellowish brown sandy clay
2.0	**(0.7)**	
	2.3	
2.5		
3.0		
3.5		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES 0.4m
Sides of excavation remained stable	Unstable in made ground
Level	……..

NOTES:

……

……

TRIAL HOLE NO. 03

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
		Made ground consisting of bricks and gravels
	0.2	Sample taken
	0.3	
0.5		Firm yellowish brown silty mottled gravel in sandy clay
1.0	**1.0**	Sample taken
	(1.7)	
1.5		
2.0	**2.0**	
2.5		
3.0		
3.5		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES 0.2m and 1.0m
Sides of excavation remained stable	YES
Level	……..

NOTES:

……

……

TRIAL HOLE NO. 04

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
	(0.4)	Dark brown/grey made ground/topsoil with some bricks
	0.4	
0.5		Firm/ stiff orange brick very sandy clay
	0.6	Sample taken
1.0		
	(1.2)	
1.5		
	1.6	
2.0		
2.5		
3.0		
3.5		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES 0.6m
Sides of excavation remained stable	YES
Level	……..

NOTES:

……

……

TRIAL HOLE NO. 05

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
	0.15	Reinforced concrete slab
	0.3	Clean crushed type 1 stone
0.5	**0.6**	Made ground re-engineered crushed brick gravel 6F5 material
	0.8	Firm orange brown clay
1.0	**1.2**	Weak light brown sandstone excavated as horizontal bedded shales
1.5		
2.0		
2.5		
3.0		
3.5		

REMARKS:

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

NOTES:

……

……

TRIAL HOLE NO. 06

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
0.5	**0.4**	Made ground consisting of brick fill/ gravel with large concrete sections very loosely compressed Sample taken
1.0		
1.5		
2.0		
2.5	**2.5**	
3.0	**2.6**	Sample taken Unreinforced concrete slab, light brown sandstone under soft clay Slight odour of hydrocarbons
	3.1	
3.5		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.4m and 2.6m
Sides of excavation remained stable	YES
Level	……..

NOTES:

……

……

TRIAL HOLE NO. 07

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Unit 4, Midgley Business Park, Bar Lane, Midgley WF4 4JJ
t 01924 574074 e info@haighhuddleston.co.uk

Client :	**SWIFT PROPERTIES**	**Job No :**	**7342**
Site :	**HALIFAX ROAD, LIVERSEDGE**	**Date :**	**19/02/2025**

0.0		
0.5		Made ground dark brown topsoil containing roots/ bricks/ gravels
	0.8	Sample taken
1.0		
1.5		
	1.8	
2.0		Firm orange brown very sandy clay
	2.4	
2.5		
3.0		
3.5		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.8m
Sides of excavation remained stable	YES
Level	……..

NOTES:

……

……

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH1

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 3 (5.5) 4 5 6 7					
Soft Coal			(1.0) 8					
Grey Mudstone			9 (4.0) 10 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH2

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 3 (5.5) 4 5 6 7					
Soft Coal			(1.0) 8					
Grey Mudstone			9 (4.0) 10 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH3

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 3 (5.5) 4 5 6 7					
Coal			(1.0) 8					
Mudstone			(1.0) 9					
			10 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH4

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 3 (4.5) 4 5 6					
Coal			(1.0) 7					
Mudstone			(2.0) 8 9					
			10 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH5

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 (2.0) 3 3.5					
Coal			(0.5) 4					
Mudstone			5 (4.5) 6 7 8 8.5					
Coal			9 (1.0)					
Mudstone			10 (2.5) 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH6

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1.5					
Mudstone			2 (2.5) 4					
Coal			(0.5) 4.5					
Mudstone			5 6 (4.2) 7 8 8.7					
Coal			9 (1.0) 9.7					
Mudstone			10 (2.3) 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH7

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1.5					
Mudstone			2 (2.5) 4					
Coal			(0.5) 4.5					
Mudstone			5 6 (4.0) 8 8.5					
Coal			9 (1.0) 9.5					
Mudstone			10 (2.5) 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: BH8

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 (2.5) 3 4					
Coal			(0.5) 4.5					
Mudstone			5 6 (4.0) 7 8 8.5					
Coal			9 (1.0) 9.5					
Mudstone			10 (2.5) 11 12					

Remarks: Borehole reinstated with bentonite

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: GW01

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 (2.5) 3 4					

Remarks: Standpipe installation - 3m slotted, 1m plain.

Logged by: GL

Scale:

FIG:

Unit 4
Midgley Business Park
Bar Lane
Midgley
WF4 4JJ

Tel: 01924 574074
info@haighhuddleston.co.uk

Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Equipment and methods:
Rotary Percussion Drilling Rig

Client: lakeland Developments

Site: 7342 - Parkham Foods, Halifax Road, Cleckheaton

Borehole No: GW02

Ground level:

Date: 30.10.24

Co-ordinates:
E: N:

Description	Reduced level	Legend	Depth (thick)	Sample/Tests				SPT
				Depth	Type	No	Test	
Made ground largely consisting of clays with brick and concrete fragments.			(1.5) 1 1.5					
Mudstone `			2 (2.5) 3 4					

Remarks: Standpipe installation - 3m slotted, 1m plain.

Logged by: GL

Scale:

FIG:

APPENDIX C

Chemical Analysis of Samples

Geotechnical Analysis of Samples

Certificate of Analysis

Certificate Number	25-03750	*Issued:*	10-Mar-25

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

Our Reference	25-03750
Client Reference ~	7342
Order No ~	(not supplied)
Contract Title ~	Parkham Foods
Description	6 Soil samples.
Date Received	20-Feb-25
Date Started	20-Feb-25
Date Completed	10-Mar-25
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

Louise Cook
Contracts Manager

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 25-03750
Client Ref ~ 7342
Contract Title ~ Parkham Foods

Sample ID	Depth	Lab No	Completed	Matrix Description
TP01	0.5	2467442	10/03/2025	Dark brown very gravelly, sandy CLAY including odd rootlets (Possible made ground - brick)
TP02	0.4	2467443	10/03/2025	Dark brown very gravelly, sandy CLAY including odd rootlets (Possible made ground - brick)
TP03	0.2	2467444	10/03/2025	Dark brown very gravelly, sandy CLAY including odd rootlets (Possible made ground - brick)
TP06	0.4	2467445	10/03/2025	Dark brown very gravelly, sandy CLAY including odd rootlets (Possible made ground - brick)
TP06	2.6	2467446	10/03/2025	Brown gravelly, sandy CLAY including odd rootlets hydrocarbon odour
TP07	0.8	2467447	10/03/2025	Dark brown very gravelly, sandy CLAY including odd rootlets (Possible made ground - brick)

Summary of Chemical Analysis
Soil Samples

Our Ref 25-03750
Client Ref ~ 7342
Contract Title ~ Parkham Foods

			Lab No	2467442	2467443	2467444	2467445	2467446	2467447
			Sample ID ~	TP01	TP02	TP03	TP06	TP06	TP07
			Depth ~	0.50	0.40	0.20	0.40	2.60	0.80
			Other ID ~						
			Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date ~	19/02/2025	19/02/2025	19/02/2025	19/02/2025	19/02/2025	19/02/2025
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	24	6.5	14	21	5.2	45
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.2	0.1	0.3	< 0.1	0.4
Chromium	DETSC 2301#	0.15	mg/kg	15	16	15	19	14	21
Copper	DETSC 2301#	0.2	mg/kg	40	14	26	35	13	72
Lead	DETSC 2301#	0.3	mg/kg	84	30	36	100	29	190
Mercury	DETSC 2325#	0.05	mg/kg	0.11	< 0.05	< 0.05	0.10	< 0.05	0.28
Nickel	DETSC 2301#	1	mg/kg	18	8.4	17	17	20	21
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	200	110	66	150	59	150
Inorganics									
pH	DETSC 2008#		pH	8.3	11.0	8.7	11.6	8.8	8.2
Thiocyanate	DETSC 2130#	0.6	mg/kg	2.3	0.9	0.8	2.2	0.8	2.2
Total Organic Carbon	DETSC 2084#	0.5	%	6.3	2.2	6.3	9.3	4.3	8.6
Sulphide	DETSC 2024*	10	mg/kg	110	60	100	140	36	140
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.16	0.26	0.05	0.20	0.06	0.19
Petroleum Hydrocarbons									
EPH (C10-C40)	DETSC 3311#	10	mg/kg					220	
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.4	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.5	2.0	0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	4.3	0.1	0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	4.8	< 0.1	0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.4	0.4	< 0.1	23	0.3	1.3
Anthracene	DETSC 3301	0.1	mg/kg	0.1	0.1	< 0.1	7.3	< 0.1	0.3
Fluoranthene	DETSC 3301	0.1	mg/kg	0.6	0.5	< 0.1	27	0.3	2.6
Pyrene	DETSC 3301	0.1	mg/kg	0.6	0.5	< 0.1	22	0.3	2.4
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.4	0.2	< 0.1	11	0.2	1.4
Chrysene	DETSC 3301	0.1	mg/kg	0.3	0.2	< 0.1	10	0.2	1.4
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.2	0.2	< 0.1	7.1	0.1	1.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.3	0.3	< 0.1	4.8	0.2	0.8
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.4	0.4	< 0.1	11	0.3	1.5
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.4	0.3	< 0.1	7.1	0.3	1.0
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	1.5	0.1	0.2
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.3	0.1	< 0.1	5.5	0.2	0.8
PAH 16 Total	DETSC 3301	1.6	mg/kg	3.9	3.3	< 1.6	150	4.6	15
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.7	< 0.3	< 0.3	0.5	0.6	0.4

Summary of Asbestos Analysis
Soil Samples

Our Ref 25-03750
Client Ref ~ 7342
Contract Title ~ Parkham Foods

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2467442	TP01 0.50	SOIL	NAD	none	Jason Barsby
2467443	TP02 0.40	SOIL	Amosite	Amosite present as fibre bundles in board fragments	Jason Barsby
2467444	TP03 0.20	SOIL	NAD	none	Jason Barsby
2467445	TP06 0.40	SOIL	NAD	none	Jason Barsby
2467446	TP06 2.60	SOIL	NAD	none	Jason Barsby
2467447	TP07 0.80	SOIL	NAD	none	Jason Barsby

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 25-03750
Client Ref ~ 7342
Contract ~ Parkham Foods

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2467442	TP01 0.50 SOIL	19/02/25	GJ 250ml, PT 1L		
2467443	TP02 0.40 SOIL	19/02/25	GJ 250ml, PT 1L		
2467444	TP03 0.20 SOIL	19/02/25	GJ 250ml, PT 1L		
2467445	TP06 0.40 SOIL	19/02/25	GJ 250ml, PT 1L		
2467446	TP06 2.60 SOIL	19/02/25	GJ 250ml, PT 1L		
2467447	TP07 0.80 SOIL	19/02/25	GJ 250ml, PT 1L		

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

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

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

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

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

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Certificate of Analysis

Certificate Number	25-04963	*Issued:*	12-Mar-25

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

Our Reference	25-04963
Client Reference ~	7342
Order No ~	(not supplied)
Contract Title ~	Parkham Foods
Description	1 Soil sample.
Date Received	20-Feb-25
Date Started	06-Mar-25
Date Completed	12-Mar-25
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

Reyhan Irfan
Operations Manager

2139

Summary of Asbestos Analysis

Samples

Our Ref 25-04963
Client Ref ~ 7342
Contract Title ~ Parkham Foods

Lab No	Sample ID	Sample Location	Material Type	Result	Comment*	Analyst

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.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 25-04963
Client Ref ~ 7342
Contract Title ~ Parkham Foods

Lab No		2474592
Sample ID ~		TP02
Depth ~		0.40
Other ID ~		
Sample Type ~		
Sampling Date ~		19/02/2025
Sampling Time ~		

Test	**Method**	**Units**		
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %		**0.003**
Gravimetric Quantification (a)	DETSC 1102	Mass %		0.003
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %		na
Quantification by PCOM (c)	DETSC 1102	Mass %		na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g		na
Breakdown of Gravimetric Analysis (a)				
Mass of Sample		g		868.22
ACMs present*		type		Board
Mass of ACM in sample		g		0.0607
% ACM by mass		%		0.007
% asbestos in ACM		%		40
% asbestos in sample		%		0.003
Breakdown of Detailed Gravimetric Analysis (b)				
% Amphibole bundles in sample		Mass %		na
% Chrysotile bundles in sample		Mass %		na
Breakdown of PCOM Analysis (c)				
% Amphibole fibres in sample		Mass %		na
% Chrysotile fibres in sample		Mass %		na
Breakdown of Potentially Respirable Fibre Analysis (d)				
Amphibole fibres		Fibres/g		na
Chrysotile fibres		Fibres/g		na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 25-04963
Client Ref ~ 7342
Contract ~ Parkham Foods

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2474592	TP02 0.40 SOIL	19/02/25	GJ 250ml, PT 1L		

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

Normec 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.

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

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Environmental
Geotechnical
Specialists

RGS

LABORATORY REPORT

job number	C/5079/25/L/7738
date	07/03/2025
site address	Haigh Huddleston & Associates Limited Parkham Foods Halifax Road, Liversedge, West Yorkshire, WF15 6JQ
date scheduled	20/02/2025
date issued	07/03/2025
issued by	H J Letch

Please consider the environment before printing this report.

Constructionline
A UK GOVERNMENT CERTIFICATION SERVICE

QMS ISO 9001 : 2015 REGISTERED Cert No. 14123657

QMS ISO 14001 : 2015 REGISTERED Cert No. 14127804

QMS ISO 45001 : 2018 REGISTERED Cert No. 14130281

CITATION APPROVED Registered Member

UKAS United Kingdom Accreditation Service

<ENVIRONMENTAL><GEOTECHNICAL>

Blank Page

Constructionline
A UK GOVERNMENT CERTIFICATION SERVICE
QMS ISO 9001 : 2015 REGISTERED
QMS ISO 14001 : 2015 REGISTERED
QMS ISO 45001 : 2018 REGISTERED
Registered Member
UKAS United Kingdom Accreditation Service

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

8948

Accredited to ISO/IEC 17025:2017

Rogers Geotechnical Services Ltd

Issue No: 007 **Issue date:** 31 May 2024

Offices 1 & 2
Barncliffe Business Park
Near Bank
Shelley
HD8 8LU
United Kingdom

Contact: Emma Pearce
Tel: +44 (0)1484 607977
E-Mail: emma.pearce@rogersgeotech.co.uk
Website: www.rogersgeotech.co.uk

Testing performed at the above address only

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS for civil engineering purposes	Water content	BS 1377-2:2022
	Liquid limit - cone penetrometer (definitive)	BS 1377-2:2022
	Liquid limit - one point cone penetrometer	BS 1377-2:2022
	Plastic limit	BS 1377-2:2022
	Plasticity index and liquidity index	BS 1377-2:2022
	Linear Shrinkage	BS 1377-2:2022
	Density - linear measurement	BS 1377-2:2022
	Particle size distribution - wet sieving	BS 1377-2:2022
	Particle size distribution - dry sieving	BS 1377-2:2022
	Particle size distribution - sedimentation - pipette method	BS 1377-2:2022
	Uniformity coefficient	Specification for Highway Works Series 600 Table 6/1 footnote 5
	Particle density - gas jar	BS 1377-2:2022
	Dry density/water content relationship (2.5 kg rammer)	BS 1377-2:2022

8948

Accredited to ISO/IEC 17025:2017

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

Rogers Geotechnical Services Ltd

Issue No: 007 **Issue date:** 31 May 2024

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS for civil engineering purposes (continued)	Dry density/ water content relationship (4.5 kg rammer)	BS 1377-2:2022
	Dry density/water content relationship (vibrating hammer)	BS 1377-2:2022
	California Bearing Ratio (CBR)	BS 1377-2:2022
	One-dimensional consolidation properties	BS 1377-2:2022
	Unconsolidated undrained triaxial test	BS 1377-2:2022
GEOTECHNICAL INVESTIGATION and TESTING - Laboratory testing of soil	Water content	BS EN ISO 17892-1:2014 +A1:2022
	Bulk density - linear measurement method	BS EN ISO 17892-2:2014
	Determination of particle density – fluid pycnometer method	BS EN ISO 17892-3:2015
	Determination of particle size distribution -sieving method -pipette method	BS EN ISO 17892-4:2016
	Incremental loading oedometer test	BS EN ISO 17892-5: 2017
	Unconsolidated undrained triaxial test	BS EN ISO 17892-8:2018
	Determination of liquid limit by the fall cone method	BS EN ISO 17892-12 2018 +A2:2022
	Determination of plastic limit	BS EN ISO 17892-12 2018 +A2:2022
	Plasticity Index and Liquidity Index	BS EN ISO 17892-12 2018 +A2:2022
END		

Disclaimer

The results reported herein relate only to the material supplied to the laboratory.

-

This report may not be reproduced other than in full, unless with prior written approval of the issuing laboratory.

ENVIRONMENTAL > GEOTECHNICAL

GEOTECHNICAL TESTING RESULTS

<ENVIRONMENTAL> <GEOTECHNICAL>

Please consider the environment before printing this report.

Constructionline
A UK GOVERNMENT CERTIFICATION SERVICE

QMS ISO 9001 : 2015 REGISTERED Cert No. 14123657

QMS ISO 14001 : 2015 REGISTERED Cert No. 14127804

QMS ISO 45001 : 2018 REGISTERED Cert No. 14130281

CITATION APPROVED Registered Member

UKAS United Kingdom Accreditation Service

RGS Environmental Geotechnical Specialists

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

Blank Page

ENVIRONMENTAL > GEOTECHNICAL

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

Summary of Classification Test Results

Project No.	Project Name
C/5079/25/L/7738	Parkham Foods

Hole No.	Sample				Soil Description	Density bulk	Density dry	w	Passing 425µm	LL	PL	PI	Particle density	1pt/4pt	Date	Increase/Decrease
	Ref	Top	Base	Type		Mg/m^3		%	%	%	%	%	Mg/m^3			
TP03	1	1.00		D	Soft orangish brown gravelly silty CLAY.				42	42	23	19			20-Feb	
TP04	1	0.00		D	Soft dark brown sandy silty CLAY.				82	47	26	21			20-Feb	

All tests performed in accordance with BS1377-2:2022 and BS EN ISO 17892-12 2018+A2:2022 unless specified otherwise
All Liquid Limit Tests performed on a 80g/30 Degree Cone unless specified otherwise

Key

Density test
Linear measurement unless :
wd - water displacement
wi - immersion in water

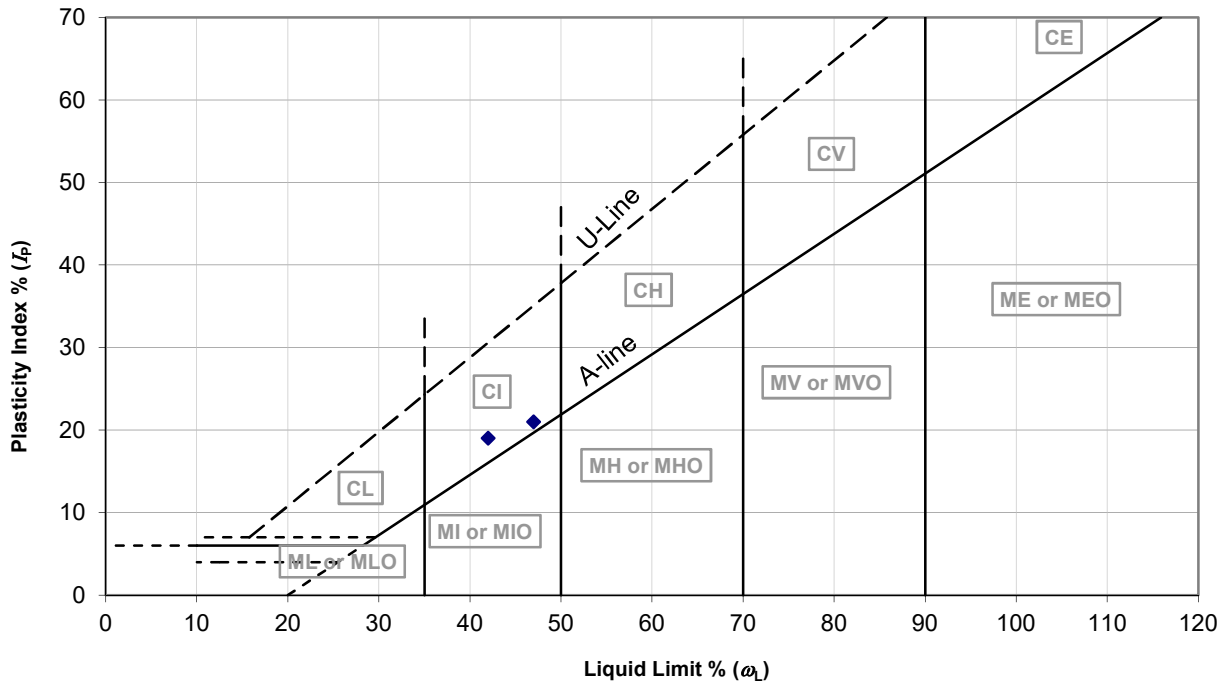
Liquid Limit
4pt cone unless :
cas - Casagrande method
1pt - single point test

Particle density
sp - small pyknometer
gj - gas jar

Date Printed	Approved By	Table
07/03/2025	Harry	1
		sheet 1

Rogers Geotechnical Services Ltd. Offices 1&2, Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU	**Classification of Index Properties**	**C/5079/25/L/7738**
Project Name: Parkham Foods	**BS EN ISO 17892-12 2018+A2:2022**	Fig. 2 / Sheet. 1
Location:		Input By: Harry
Client: Haigh Huddleston & Associates		Check By: Harry

Location	Depth (m)	Water Content (ω) (%)	Liquid Limit (ω_L) (%)	Plastic Limit (ω_P) (%)	Plasticity Index (I_P) (%)	Retained by 0.425mm (%)	Modified (ω) (ω') (%)	Modified (I_P) (I_P') (%)	Liquidity/ Consistency (I_L) (%)	Liquidity/ Consistency (I_C) (%)	Casagrande Class	N.H.B.C Class (%)
TP03	1.00		42	23	19	58		8			C I	*
TP04	0.00		47	26	21	18		17			C I	LOW



End of Report

ENVIRONMENTAL GEOTECHNICAL

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

APPENDIX D

Groundsure Geo Report

Coal Mining Report

Groundsure
LOCATION INTELLIGENCE

Haigh Huddleston & Associates

99-101, LEEDS ROAD,
DEWSBURY, WF12 7BU

Groundsure Reference:	GS-5418554
Your Reference:	LAKELAND_7342
Report Date	11 Sep 2018
Report Delivery Method:	Email - pdf

Geo Insight

Address: 395 HALIFAX ROAD, HIGHTOWN, LIVERSEDGE, WF15 8DU

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**395 HALIFAX ROAD, HIGHTOWN, LIVERSEDGE, WF15 8DU**
Date:	**11 Sep 2018**
Reference:	**GS-5418554**
Client:	**Haigh Huddleston & Associates**

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	26-Mar-2012
Grid Reference:	418624,423953
Site Size:	0.73ha

Contents Page

Contents Page ... 3
Overview of Findings ... 5
1:10,000 Scale Availability ... 8
Availability of 1:10,000 Scale Geology Mapping ... 9
1 Geology (1:10,000 scale) ... 10
1.1 Artificial Ground map (1:10,000 scale) ... 10
1. Geology 1:10,000 scale ... 11
1.1 Artificial Ground ... 11
1.2 Superficial Deposits and Landslips map (1:10,000 scale) ... 12
1.2 Superficial Deposits and Landslips ... 13
1.2.1 Superficial Deposits/ Drift Geology ... 13
1.2.2 Landslip ... 13
1.3 Bedrock and linear features map (1:10,000 scale) ... 14
1.3 Bedrock and linear features ... 15
1.3.1 Bedrock/ Solid Geology ... 15
1.3.2 Linear features ... 16
2 Geology 1:50,000 Scale ... 18
2.1 Artificial Ground map ... 18
2. Geology 1:50,000 scale ... 19
2.1 Artificial Ground ... 19
2.1.1 Artificial/ Made Ground ... 19
2.1.2 Permeability of Artificial Ground ... 19
2.2 Superficial Deposits and Landslips map (1:50,000 scale) ... 20
2.2 Superficial Deposits and Landslips ... 21
2.2.1 Superficial Deposits/ Drift Geology ... 21
2.2.2 Permeability of Superficial Ground ... 21
2.2.3 Landslip ... 21
2.2.4 Landslip Permeability ... 21
2.3 Bedrock and linear features map (1:50,000 scale) ... 22
2.3 Bedrock, Solid Geology & linear features ... 23
2.3.1 Bedrock/Solid Geology ... 23
2.3.2 Permeability of Bedrock Ground ... 25
2.3.3 Linear features ... 25
3 Radon Data ... 26
3.1 Radon Affected Areas ... 26
3.2 Radon Protection ... 26
4 Ground Workings map ... 27
4 Ground Workings ... 28
4.1 Historical Surface Ground Working Features derived from Historical Mapping ... 28
4.2 Historical Underground Working Features derived from Historical Mapping ... 29
4.3 Current Ground Workings ... 29
5 Mining, Extraction & Natural Cavities ... 32
5.1 Historical Mining ... 32
5.2 Coal Mining ... 33
5.3 Johnson Poole and Bloomer ... 33
5.4 Non-Coal Mining ... 33
5.5 Non-Coal Mining Cavities ... 34
5.6 Natural Cavities ... 34
5.7 Brine Extraction ... 34
5.8 Gypsum Extraction ... 34
5.9 Tin Mining ... 34
5.10 Clay Mining ... 35
6 Natural Ground Subsidence ... 36
6.1 Shrink-Swell Clay map ... 36
6.2 Landslides map ... 37
6.3 Ground Dissolution of Soluble Rocks map ... 38
6.4 Compressible Deposits map ... 39
6.5 Collapsible Deposits map ... 40
6.6 Running Sand map ... 41

6 Natural Ground Subsidence..... 42
6.1 Shrink-Swell Clays.....42
6.2 Landslides.....42
6.3 Ground Dissolution of Soluble Rocks.....43
6.4 Compressible Deposits.....43
6.5 Collapsible Deposits.....43
6.6 Running Sands.....44
7 Borehole Records..... 46
8 Estimated Background Soil Chemistry..... 47
9 Railways and Tunnels map..... 48
9 Railways and Tunnels..... 49
9.1 Tunnels 49
9.2 Historical Railway and Tunnel Features 49
9.3 Historical Railways.....50
9.4 Active Railways.....50
9.5 Railway Projects.....50

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?	No
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 landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	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 linear features 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?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
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 landslip 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 linear features	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 linear features within 500m of the study site boundary?	Yes

Section 3: Radon

3. Radon	3.1Is 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.
	3.2Radon 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	0	0	13	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	13
4.3 Current Ground Workings	0	0	0	1	5

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	13
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	0	1	4
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

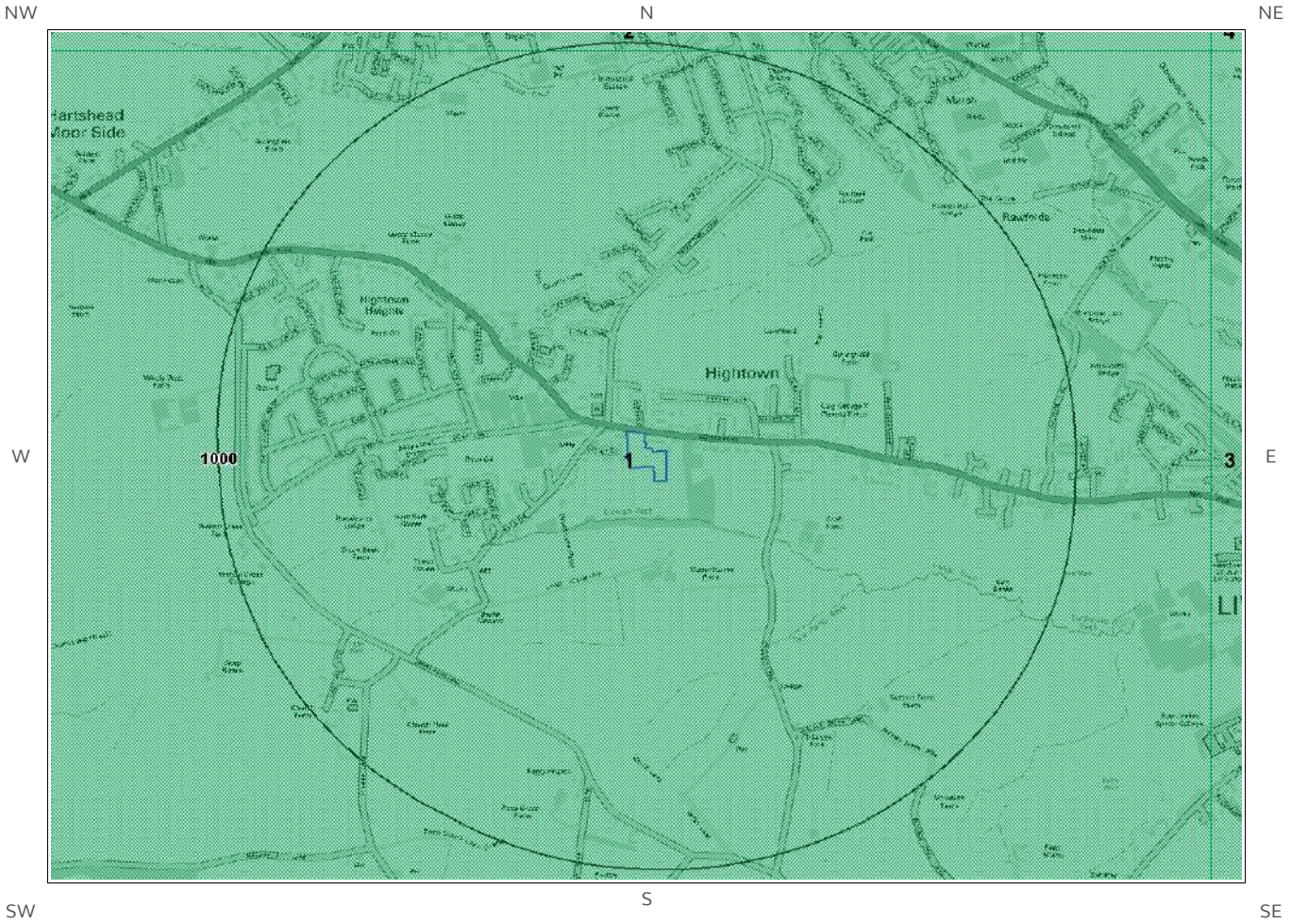
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Very Low
6.2 Landslides	Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Negligible

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	1

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	9	5	0

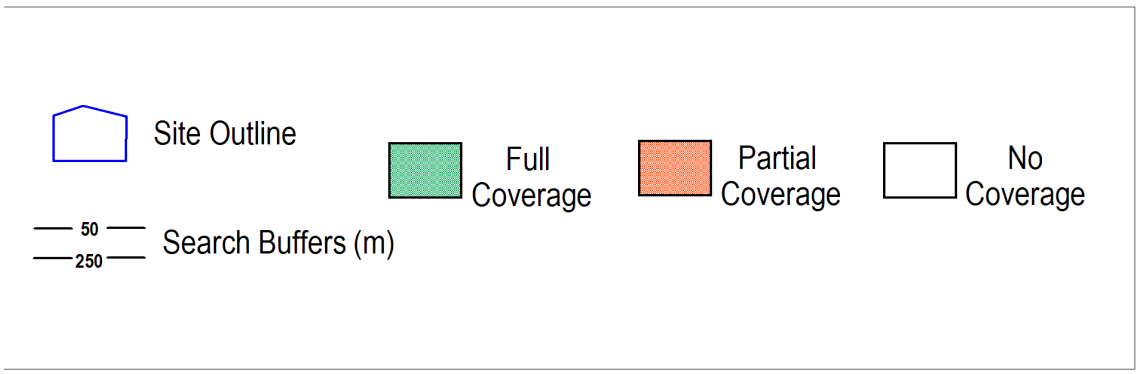
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



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	981.0	Some deposits are mapped	Full	Full	Some deposits are mapped
3	1329.0	Some deposits are mapped	Full	Full	Some deposits are mapped
4	1683.0	Some deposits are mapped	Full	Full	No coverage

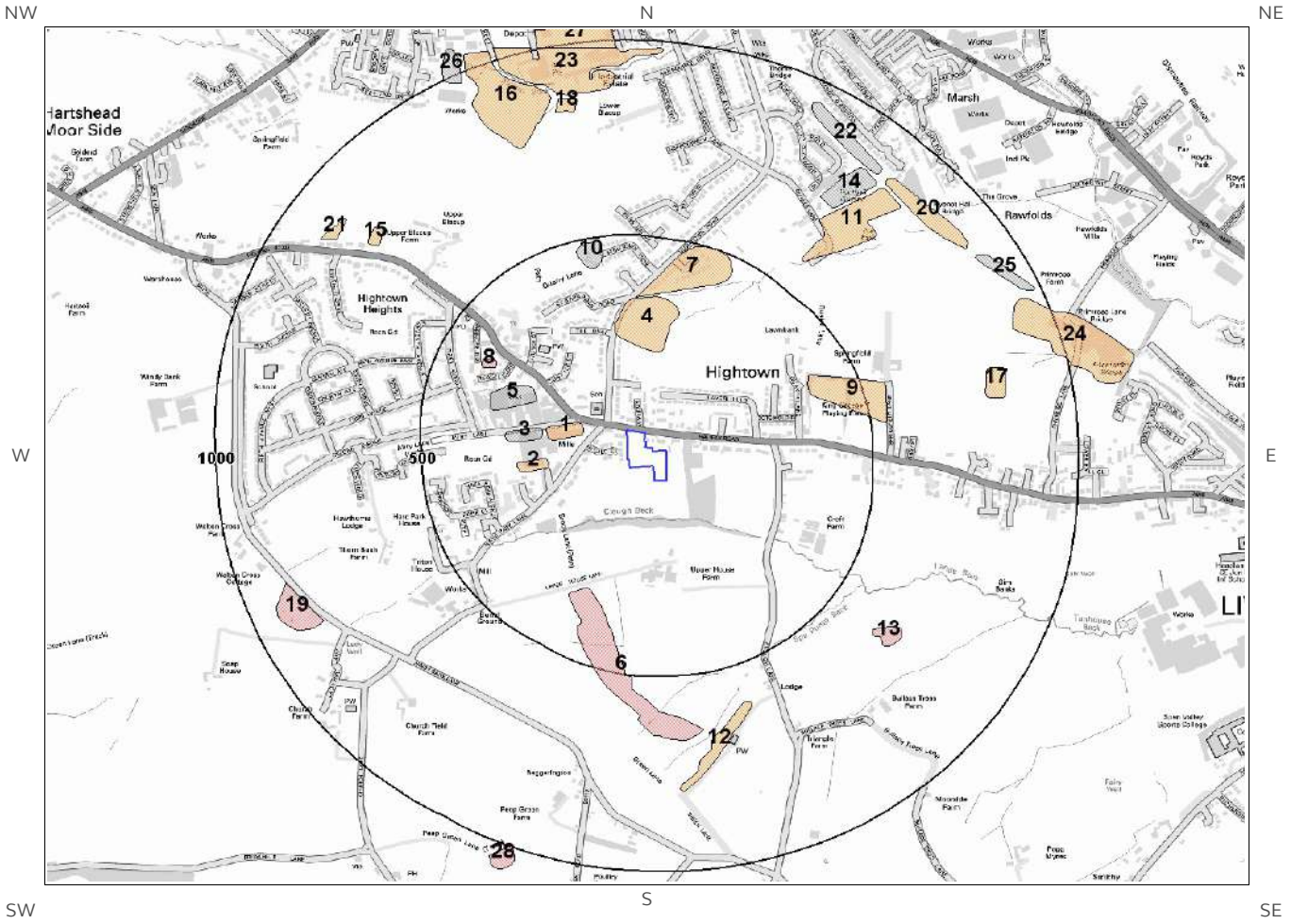
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

1.1 Artificial Ground

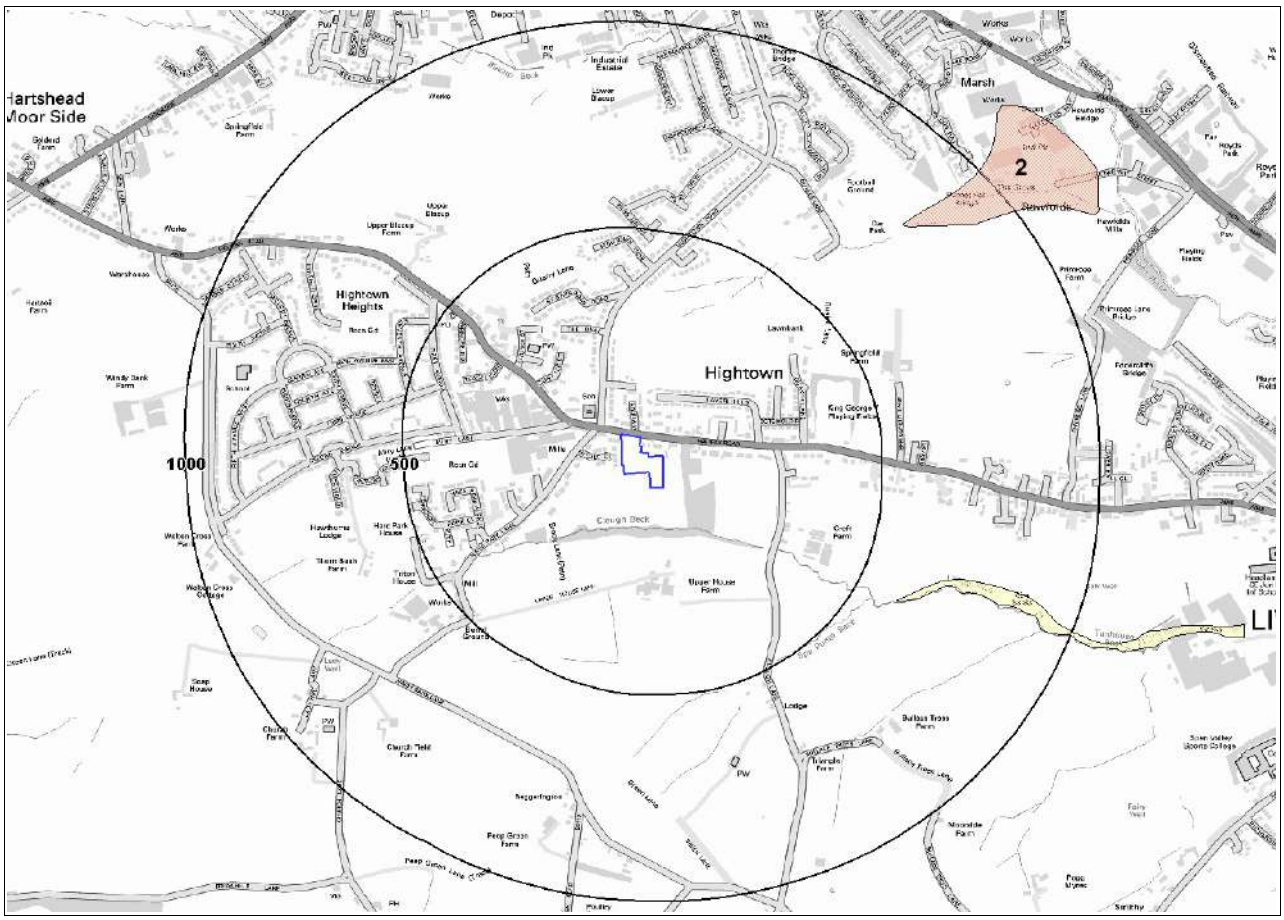
The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

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	103.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	195.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	204.0	W	WGR-VOID	Worked Ground (Undivided)	Void
4	209.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	232.0	W	WGR-VOID	Worked Ground (Undivided)	Void
6	318.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
7	341.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	357.0	NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
9	377.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
10	421.0	N	WGR-VOID	Worked Ground (Undivided)	Void

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

NW N NE



W E

SW S SE

Artificial Ground Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

500
1000
Search Buffers (m)

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? No

Database searched and no data found.

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

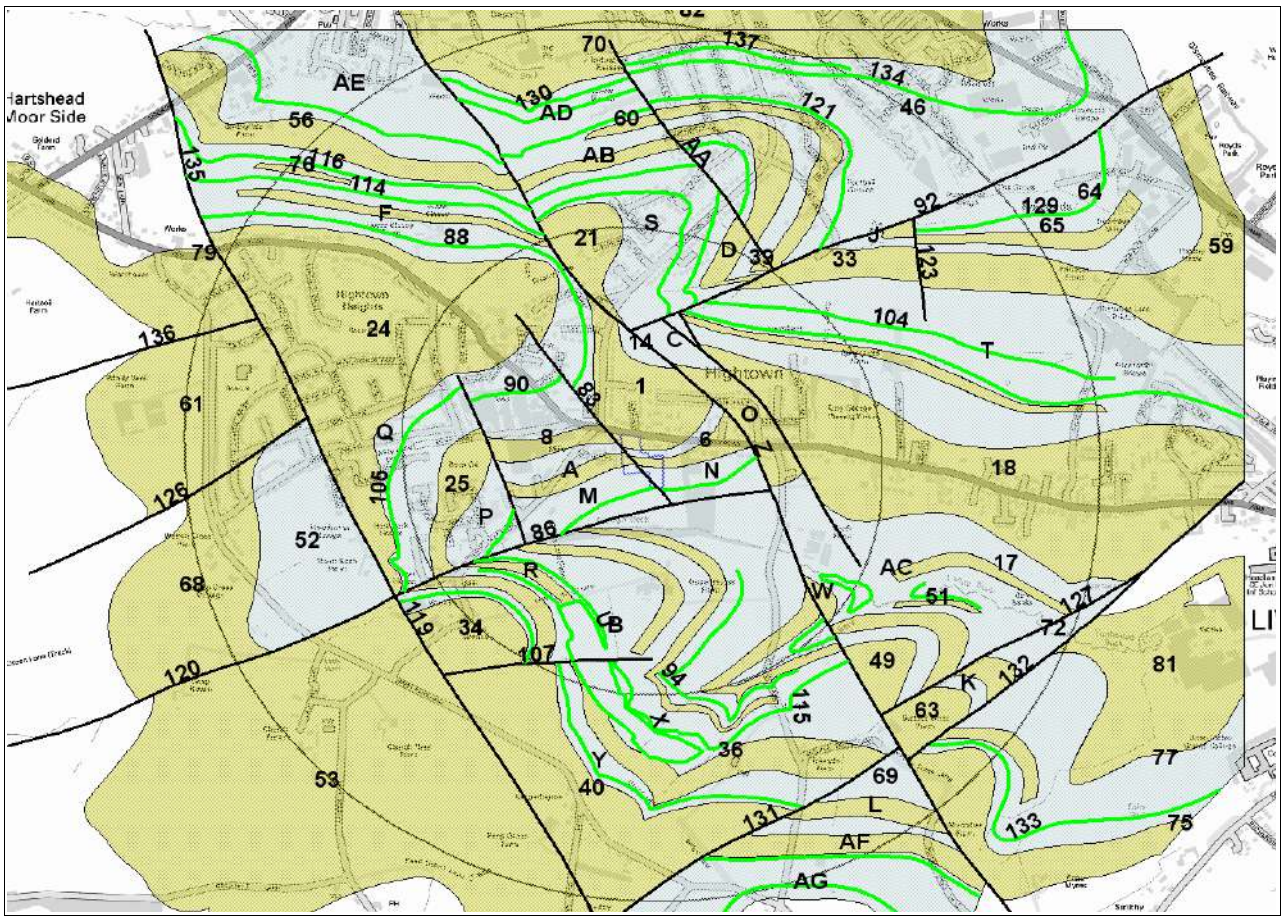
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)

NW N NE

W E

SW S SE



Bedrock and linear features Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
2	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
3N	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
4A	0.0	On Site	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
5A	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
6	0.0	On Site	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
7M	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
8	10.0	W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
9B	44.0	S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
10Q	51.0	NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
11F	90.0	NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
12B	106.0	S	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
13	163.0	S	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
14	175.0	N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
15O	176.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
16C	190.0	N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
17	241.0	E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
18	250.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
19S	251.0	N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
20C	253.0	NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
21	255.0	N	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
22T	261.0	NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
23P	267.0	W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
24	286.0	NW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
25	295.0	W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
26	298.0	N	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
27R	301.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
28V	352.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
29W	378.0	SE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
30D	388.0	N	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
31E	391.0	SE	FHR-SDST	Falhouse Rock - Sandstone	Langsettian Sub-age
32	392.0	SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
33	413.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
34	424.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
35D	424.0	NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
36	455.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
37Y	459.0	SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
38E	462.0	SE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
39	472.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
40	477.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
41F	479.0	N	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age

1.3.2 Linear features

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

ID	Distance (m)	Direction	Category Description	Feature Description
83	0.0	On Site	FAULT	Normal fault, inferred; crossmarks on downthrow side

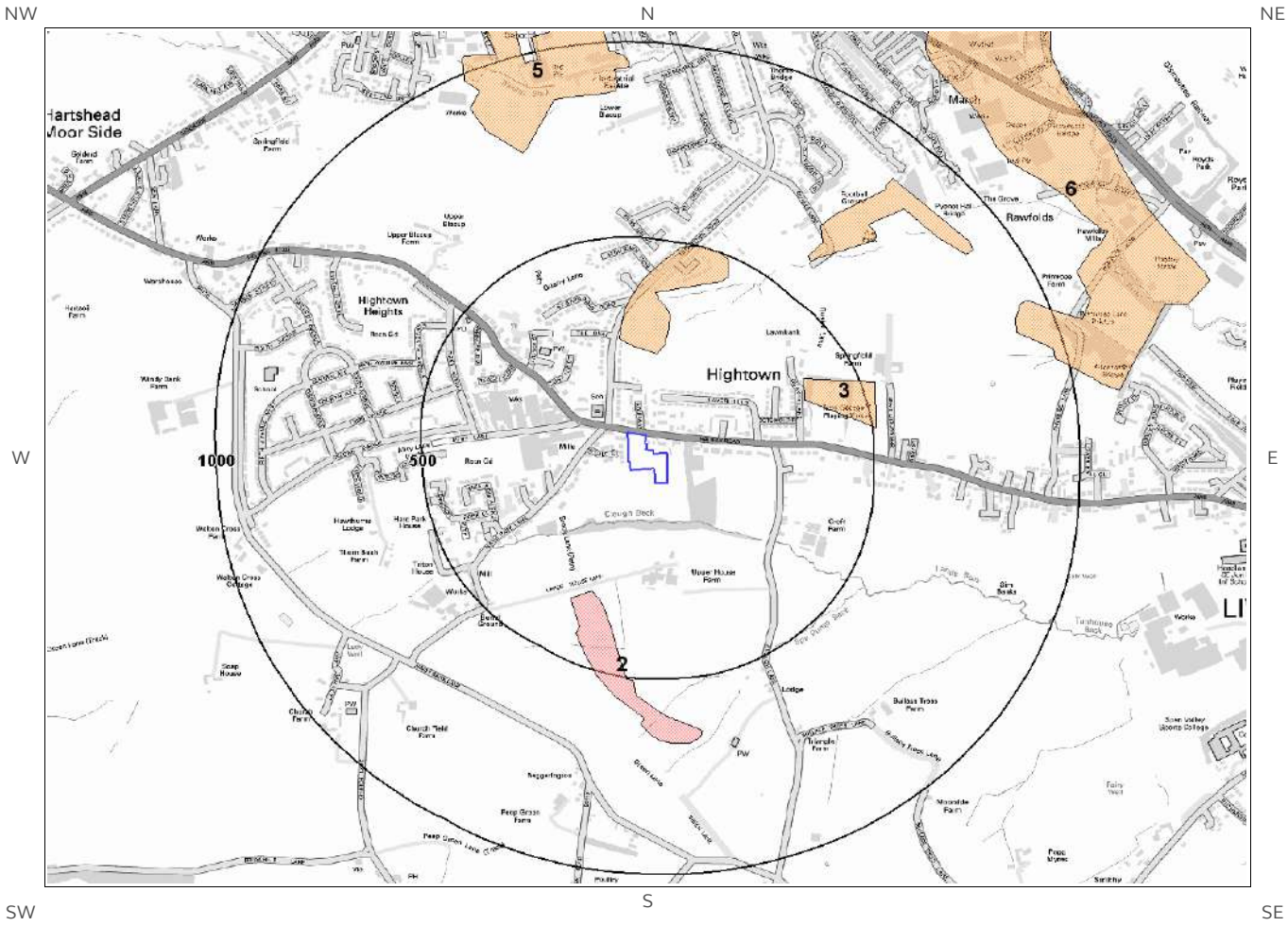
ID	Distance (m)	Direction	Category Description	Feature Description
84M	0.0	On Site	ROCK	Coal seam, observed
85N	5.0	S	ROCK	Coal seam, inferred
86	44.0	S	FAULT	Normal fault, inferred; crossmarks on downthrow side
87N	45.0	SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
88	157.0	NW	ROCK	Coal seam, inferred
89Z	175.0	NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
90	195.0	NW	ROCK	Coal seam, inferred
91O	250.0	NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
92	251.0	N	FAULT	Normal fault, inferred; crossmarks on downthrow side
93C	253.0	NE	FAULT	Normal fault, inferred; downthrow not specified
94	258.0	SE	ROCK	Coal seam, inferred
95P	267.0	W	ROCK	Coal seam, inferred
96Q	267.0	W	FAULT	Normal fault, inferred; crossmarks on downthrow side
97R	291.0	SW	ROCK	Coal seam, inferred
98S	298.0	N	ROCK	Coal seam, inferred
99U	318.0	SW	ROCK	Coal seam, observed
100T	321.0	N	ROCK	Coal seam, inferred
101U	323.0	SW	ROCK	Coal seam, observed
102D	338.0	N	ROCK	Coal seam, inferred
103R	341.0	SW	ROCK	Coal seam, inferred
104	357.0	NE	ROCK	Coal seam, inferred
105	383.0	W	ROCK	Coal seam, inferred
106V	410.0	SW	ROCK	Coal seam, inferred
107	413.0	S	FAULT	Normal fault, inferred; crossmarks on downthrow side
108W	417.0	SE	ROCK	Coal seam, inferred
109X	423.0	S	ROCK	Coal seam, observed
110X	426.0	S	ROCK	Coal seam, observed
111Y	471.0	SW	ROCK	Coal seam, inferred
112Z	480.0	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



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

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	210.0	N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	315.0	SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	358.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

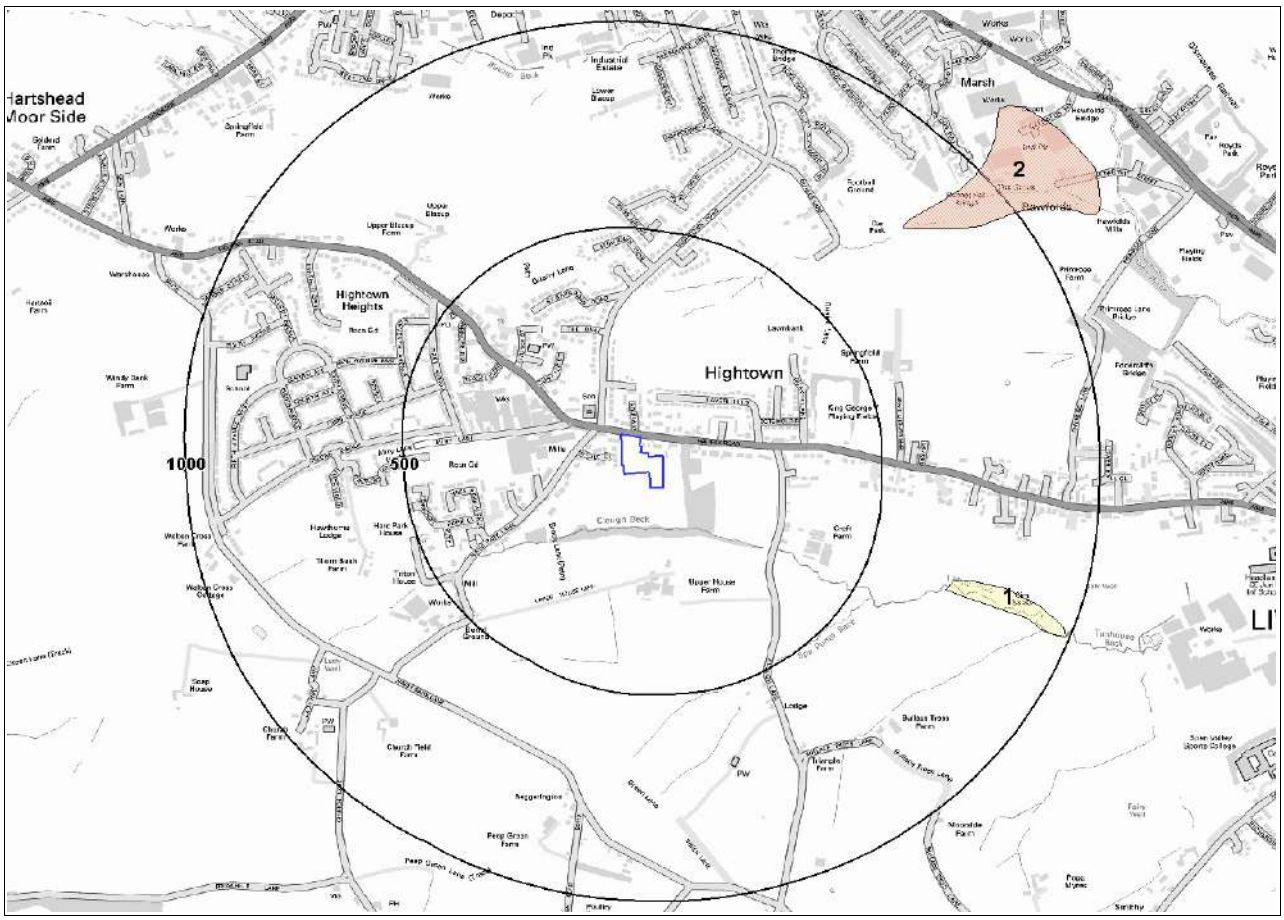
2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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

NW N NE



W E

SW S SE

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

500
1000
Search Buffers (m)

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? No

Database searched and no data found.

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

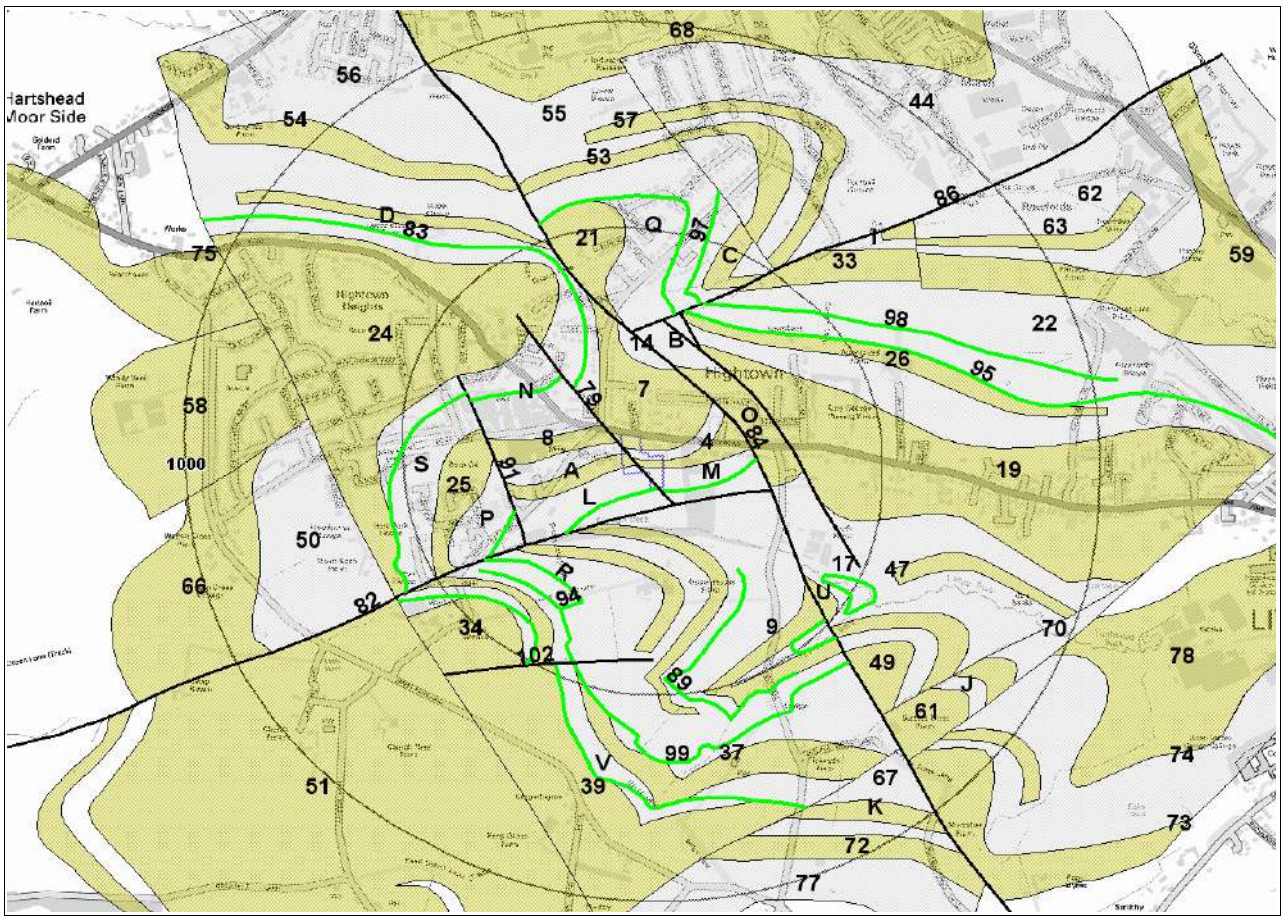
Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)

NW N NE

W E

SW S SE



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

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
1L	0.0	On Site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2M	0.0	On Site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
3A	0.0	On Site	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
4	0.0	On Site	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
5A	0.0	On Site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	0.0	On Site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
7	0.0	On Site	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
8	8.0	W	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
9	45.0	S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10N	49.0	NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11D	87.0	NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	98.0	S	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
13	166.0	S	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
14	171.0	N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
15O	174.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
16B	187.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
17	244.0	E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18Q	248.0	N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
19	249.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
20B	251.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	258.0	N	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
22	261.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
23P	267.0	W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
24	284.0	NW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
25	293.0	W	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
26	295.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
27S	318.0	W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
28T	366.0	SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
29U	381.0	SE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
30C	386.0	N	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
31	391.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
32E	397.0	SE	FHR-SDST	FALHOUSE ROCK - SANDSTONE	WESTPHALIAN
33	410.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
34	421.0	SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
35C	435.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
36V	457.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
37	457.0	SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
38D	471.0	N	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
39	476.0	SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
40E	476.0	SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND 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
49.0	NW	Fracture	High	Low

2.3.3 Linear features

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

ID	Distance	Direction	Category Description	Feature Description
79	0.0	On Site	FAULT	Fault, inferred
80L	0.0	S	ROCK	Coal seam, inferred
81M	9.0	S	ROCK	Coal seam, inferred
82	45.0	S	FAULT	Fault, inferred
83	156.0	NW	ROCK	Coal seam, inferred
84	174.0	NE	FAULT	Fault, inferred
85N	193.0	NW	ROCK	Coal seam, inferred
86	248.0	N	FAULT	Fault, inferred
87O	249.0	NE	FAULT	Fault, inferred
88B	251.0	NE	FAULT	Fault, inferred, displacement unknown
89	258.0	SE	ROCK	Coal seam, inferred
90P	267.0	W	ROCK	Coal seam, inferred
91	267.0	W	FAULT	Fault, inferred
92R	294.0	SW	ROCK	Coal seam, inferred
93Q	306.0	N	ROCK	Coal seam, inferred
94	315.0	SW	ROCK	Coal seam, inferred
95	320.0	N	ROCK	Coal seam, inferred
96R	345.0	SW	ROCK	Coal seam, inferred
97	346.0	NE	ROCK	Coal seam, inferred
98	353.0	NE	ROCK	Coal seam, inferred
99	358.0	SW	ROCK	Coal seam, inferred
100S	368.0	W	ROCK	Coal seam, inferred
101T	413.0	SW	ROCK	Coal seam, inferred
102	415.0	S	FAULT	Fault, inferred
103U	425.0	SE	ROCK	Coal seam, inferred
104V	476.0	SW	ROCK	Coal seam, inferred
105E	477.0	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.

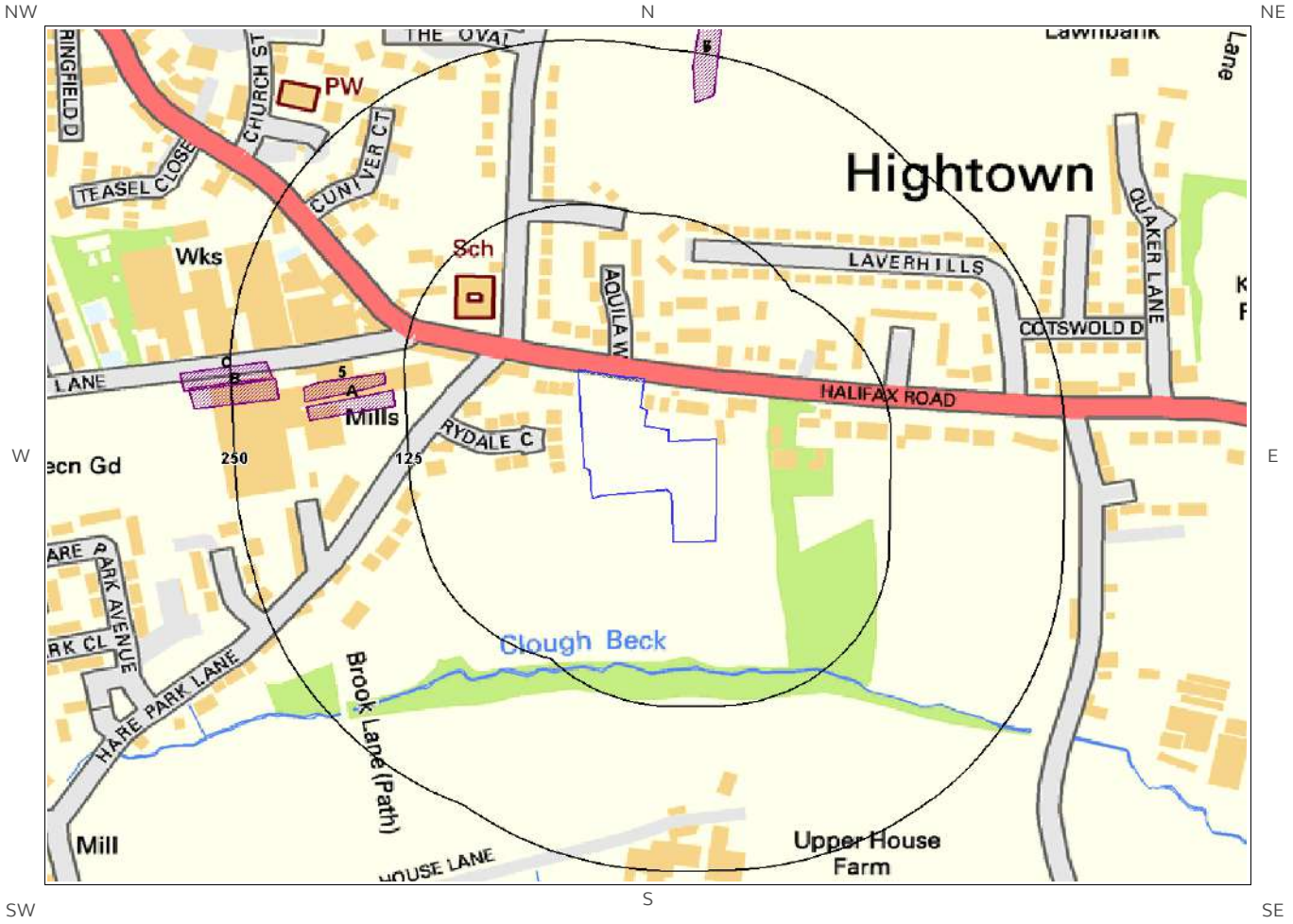
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

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

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

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	133.0	W	418408 423992	Reservoir	1931
2A	133.0	W	418408 423992	Pond	1892
3A	133.0	W	418408 423992	Reservoir	1948
4A	133.0	W	418408 423992	Pond	1905
5	139.0	W	418404 424006	Pond	1951
6	212.0	N	418598 424346	Unspecified Ground Workings	1975
7	212.0	N	418598 424346	Unspecified Ground Workings	1985
8B	216.0	W	418324 424001	Reservoir	1931
9B	216.0	W	418324 424001	Reservoirs	1892
10B	216.0	W	418324 424001	Reservoirs	1948
11B	216.0	W	418324 424001	Reservoirs	1905
12C	220.0	W	418319 424014	Reservoirs	1951
13C	220.0	W	418319 424014	Pond	1966

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
Not shown	657.0	NE	419212 424345	Unspecified Old Shaft	1905
Not shown	658.0	NE	419217 424337	Unspecified Old Shaft	1892
Not shown	756.0	N	418819 424821	Colliery	1892
Not shown	783.0	E	419462 424133	Disused Colliery	1905
Not shown	783.0	E	419462 424133	Colliery	1892
Not shown	844.0	E	419637 424240	Disused Colliery	1931
Not shown	844.0	E	419637 424240	Colliery	1905
Not shown	844.0	E	419637 424240	Disused Colliery	1948
Not shown	917.0	S	418569 422972	Unspecified Shafts	1892
Not shown	922.0	S	418580 422966	Unspecified Shafts	1892
Not shown	925.0	NE	419660 424233	Colliery	1892
Not shown	930.0	NE	419519 424357	Unspecified Old Shafts	1931
Not shown	941.0	NE	419526 424368	Unspecified Old Shafts	1931

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.

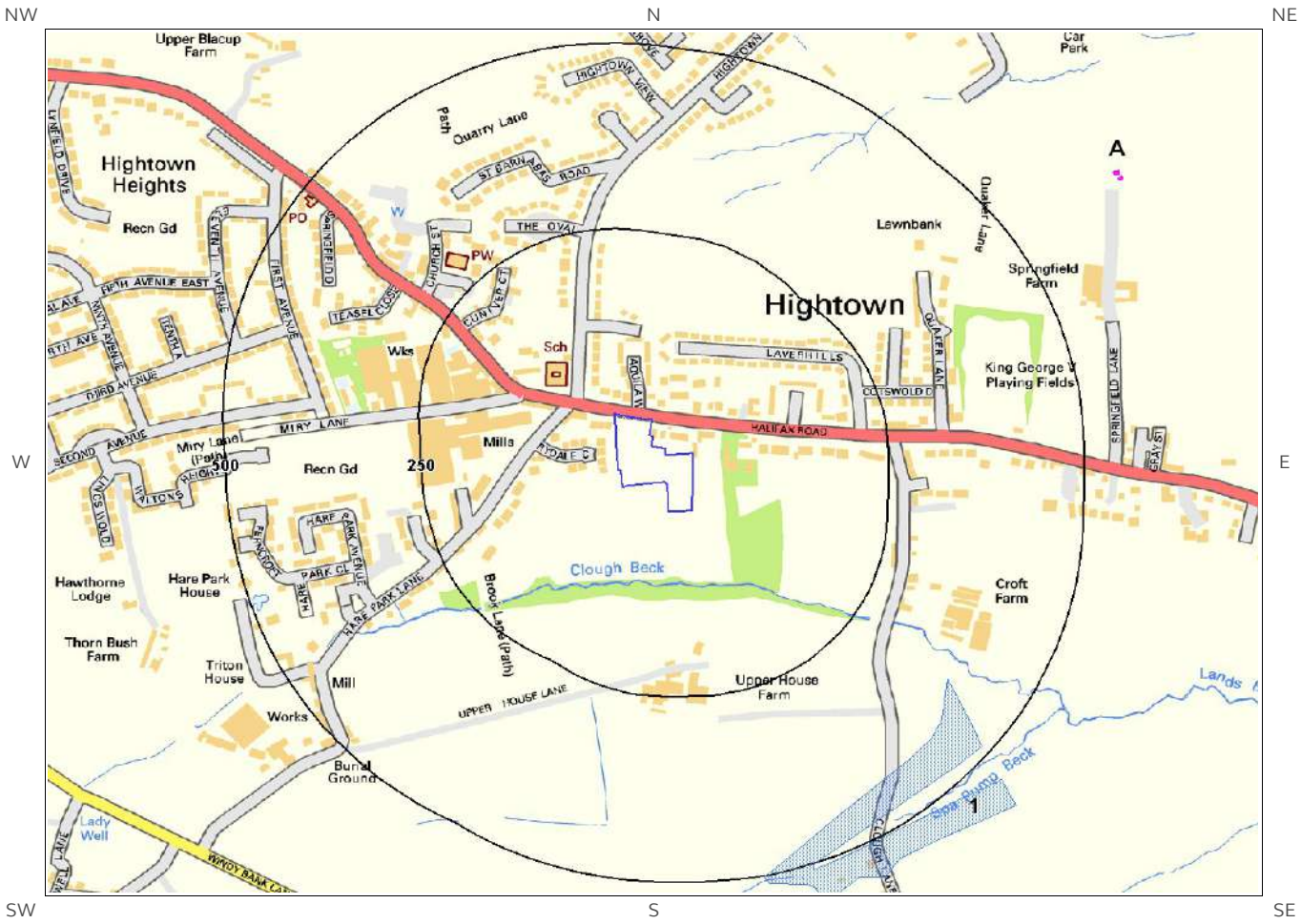
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

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	481.0	N	418472 424490	Sandstone	Upper Blakeup	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	517.0	SE	418917 423435	Coal, Deep	Spa Pump Mill Coal Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	647.0	SE	419198 423515	Sandstone	Quarry Fields	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	675.0	SE	418963 423281	Coal, Deep	Bay Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	880.0	N	418822 424869	Coal, Deep	Woodside	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	999.0	E	419626 424259	Coal, Deep	Stanley	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

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

Search Buffers (m) — 250 — 500

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

- Highly likely
- Likely
- Unlikely
- Highly unlikely
- Rare

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
6A	657.0	NE	419212 424345	Unspecified Old Shaft	1905
7A	658.0	NE	419217 424337	Unspecified Old Shaft	1892
Not shown	756.0	N	418819 424821	Colliery	1892
Not shown	783.0	E	419462 424133	Colliery	1892
Not shown	783.0	E	419462 424133	Disused Colliery	1905
Not shown	844.0	E	419637 424240	Colliery	1905
Not shown	844.0	E	419637 424240	Disused Colliery	1931
Not shown	844.0	E	419637 424240	Disused Colliery	1948
Not shown	917.0	S	418569 422972	Unspecified Shafts	1892
Not shown	922.0	S	418580 422966	Unspecified Shafts	1892
Not shown	925.0	NE	419660 424233	Colliery	1892
Not shown	930.0	NE	419519 424357	Unspecified Old Shafts	1931
Not shown	941.0	NE	419526 424368	Unspecified Old Shafts	1931

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	397.0	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	640.0	NW	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	831.0	N	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	979.0	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	981.0	N	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 the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

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

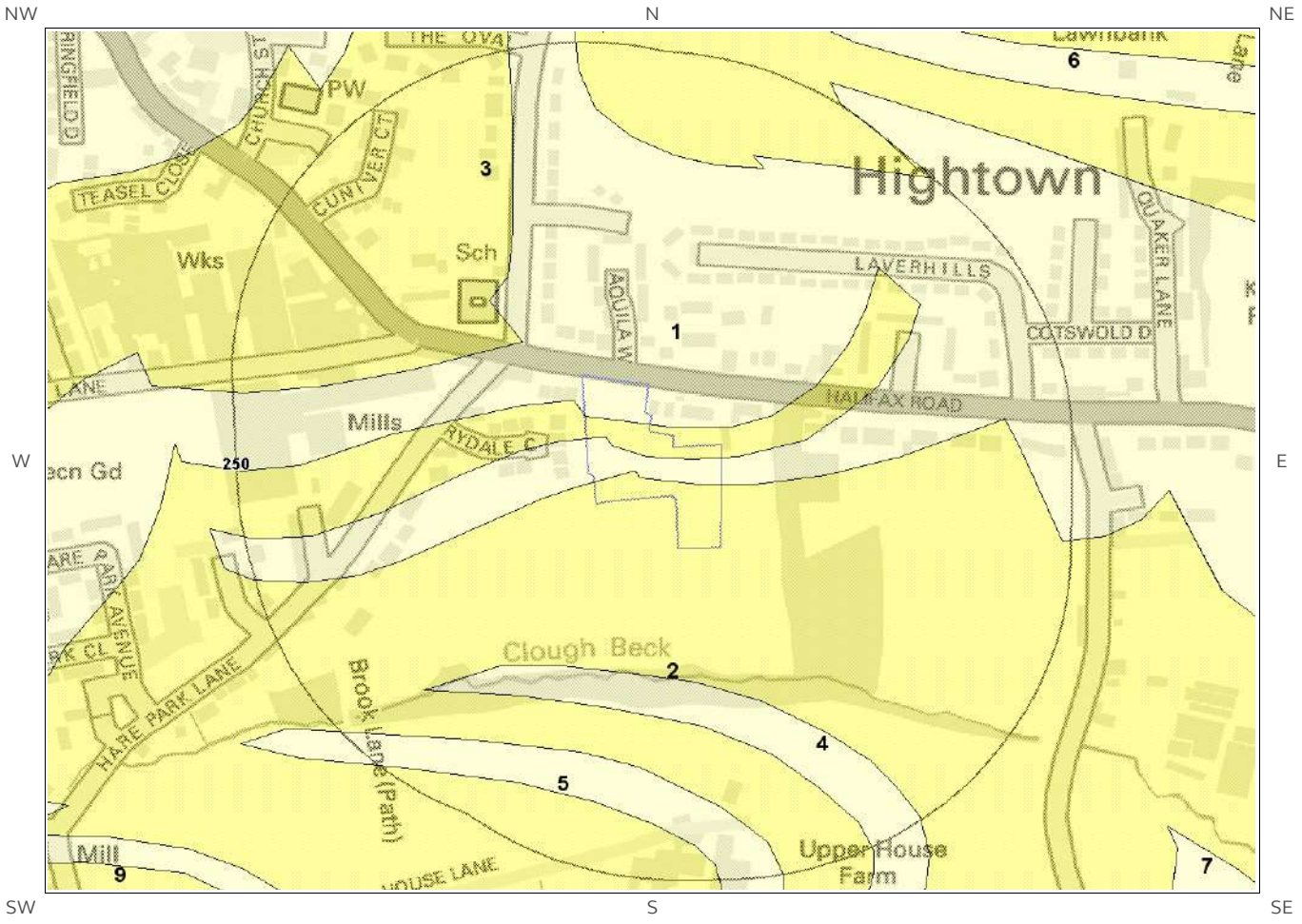
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

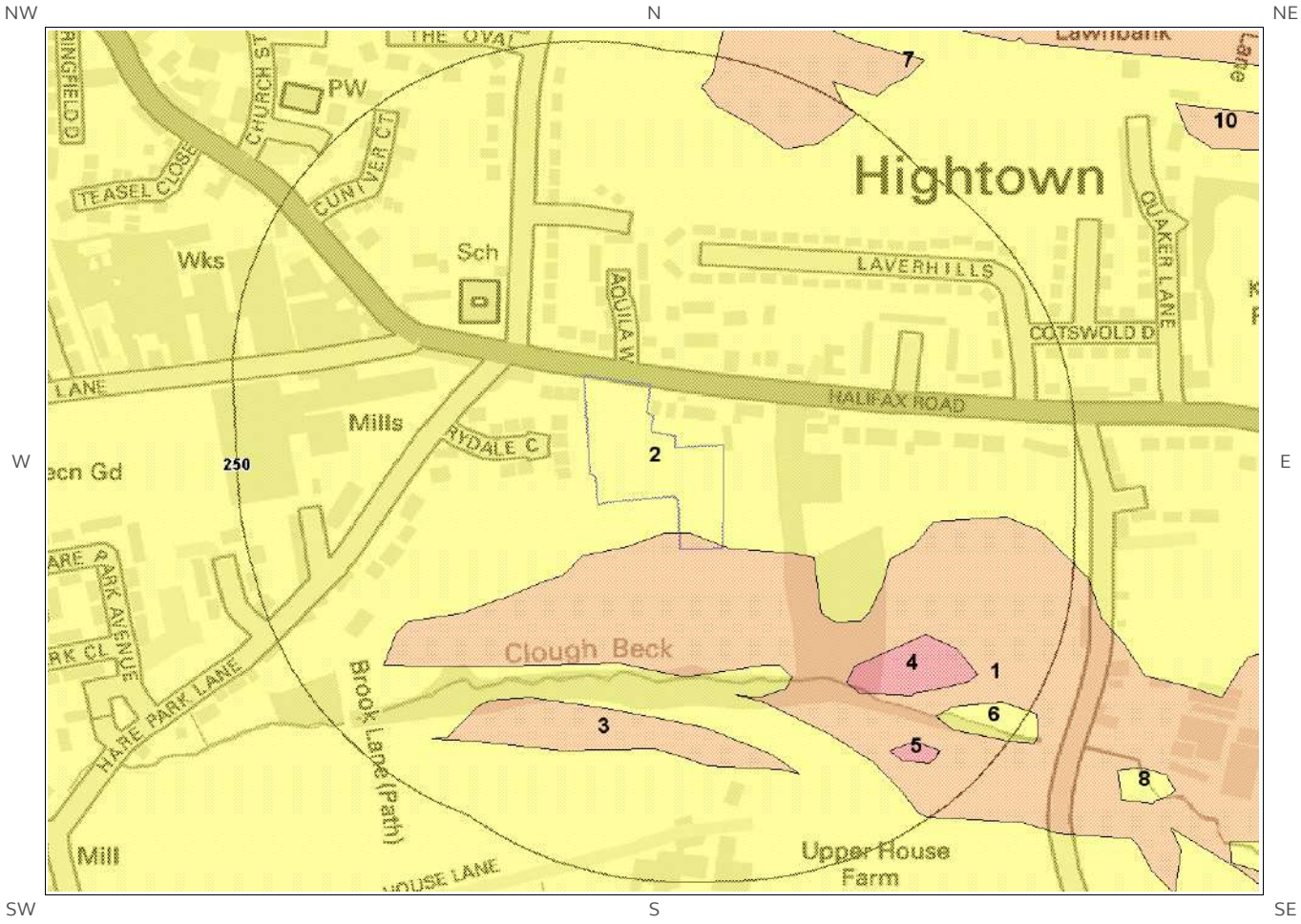


Shrink Swell Clay Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6.2 Landslides map

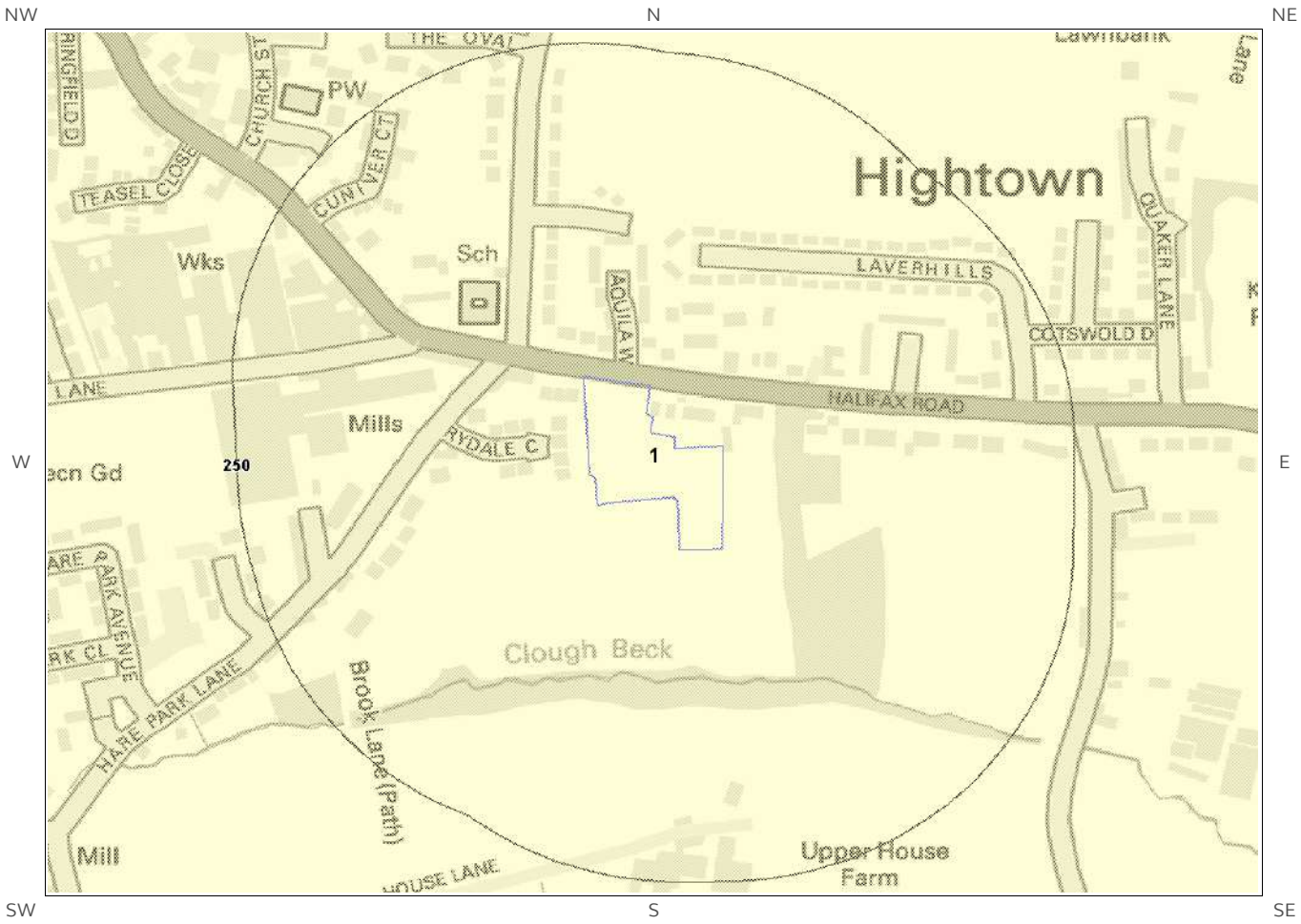


Landslides Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6.3 Ground Dissolution of Soluble Rocks map

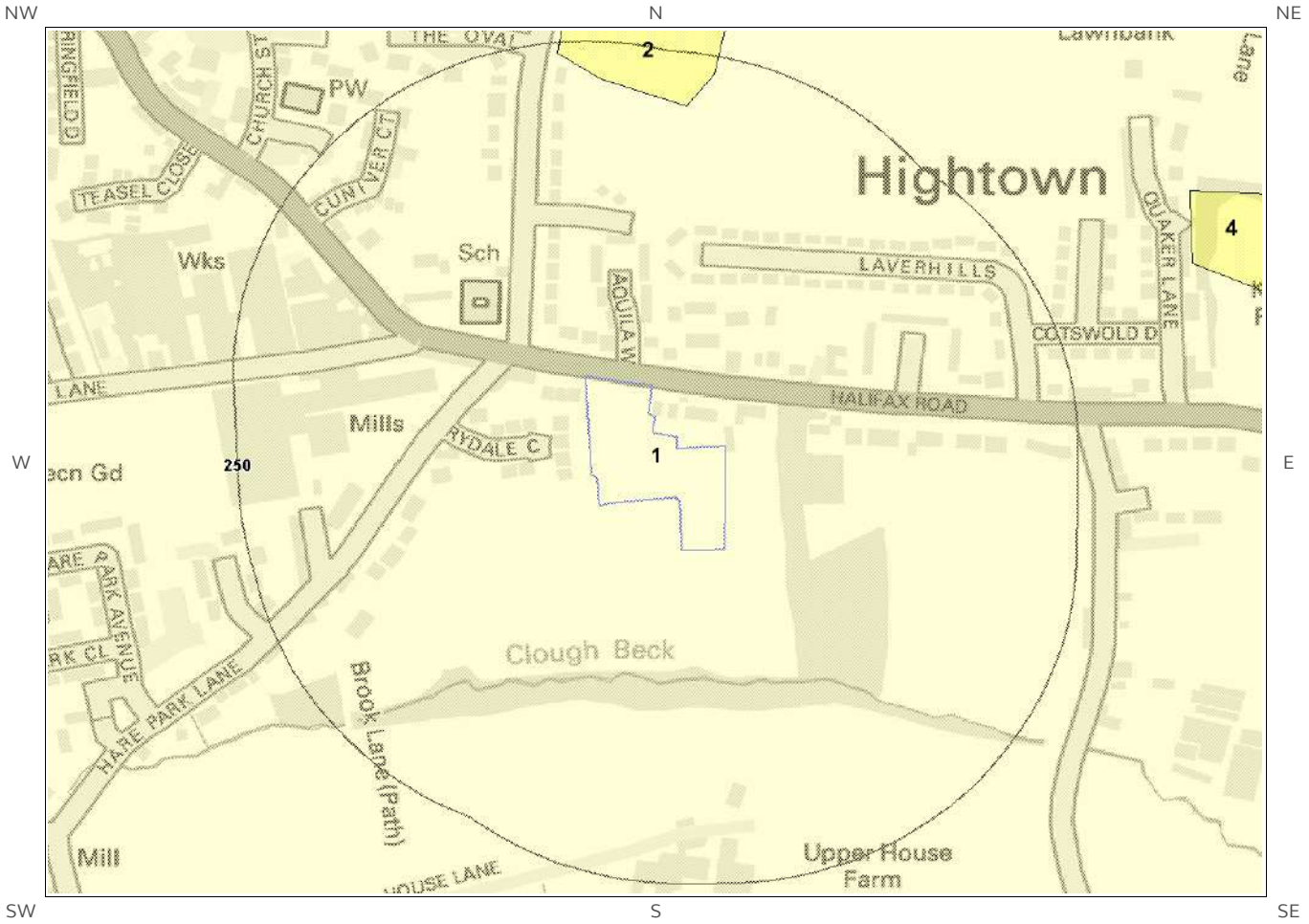


Ground Dissolution Soluble Rocks Legend

© Crown copyright and database rights 2018. Ordnance Survey licence 100035207.



6.4 Compressible Deposits map

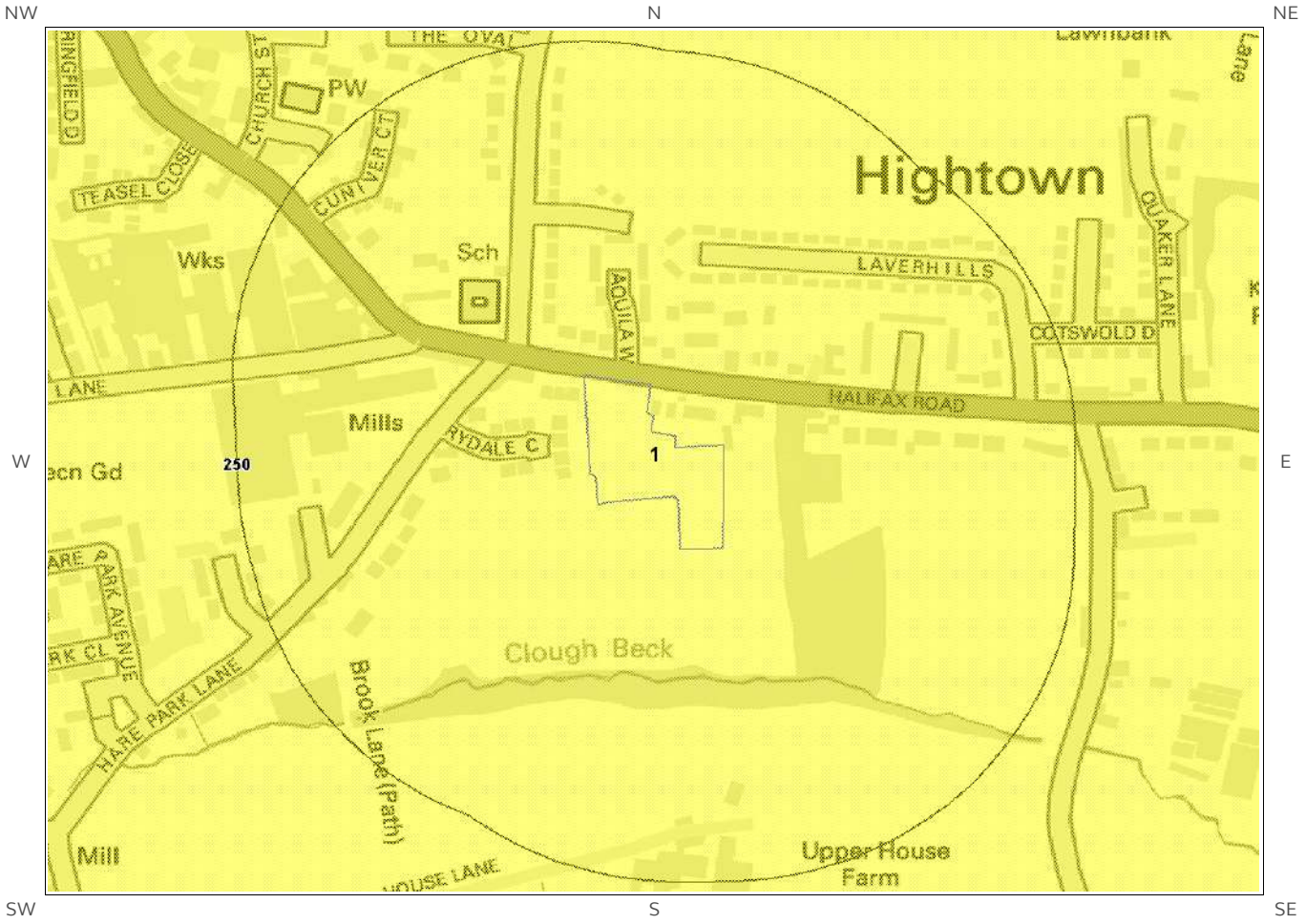


Compressible Deposits Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6.5 Collapsible Deposits map

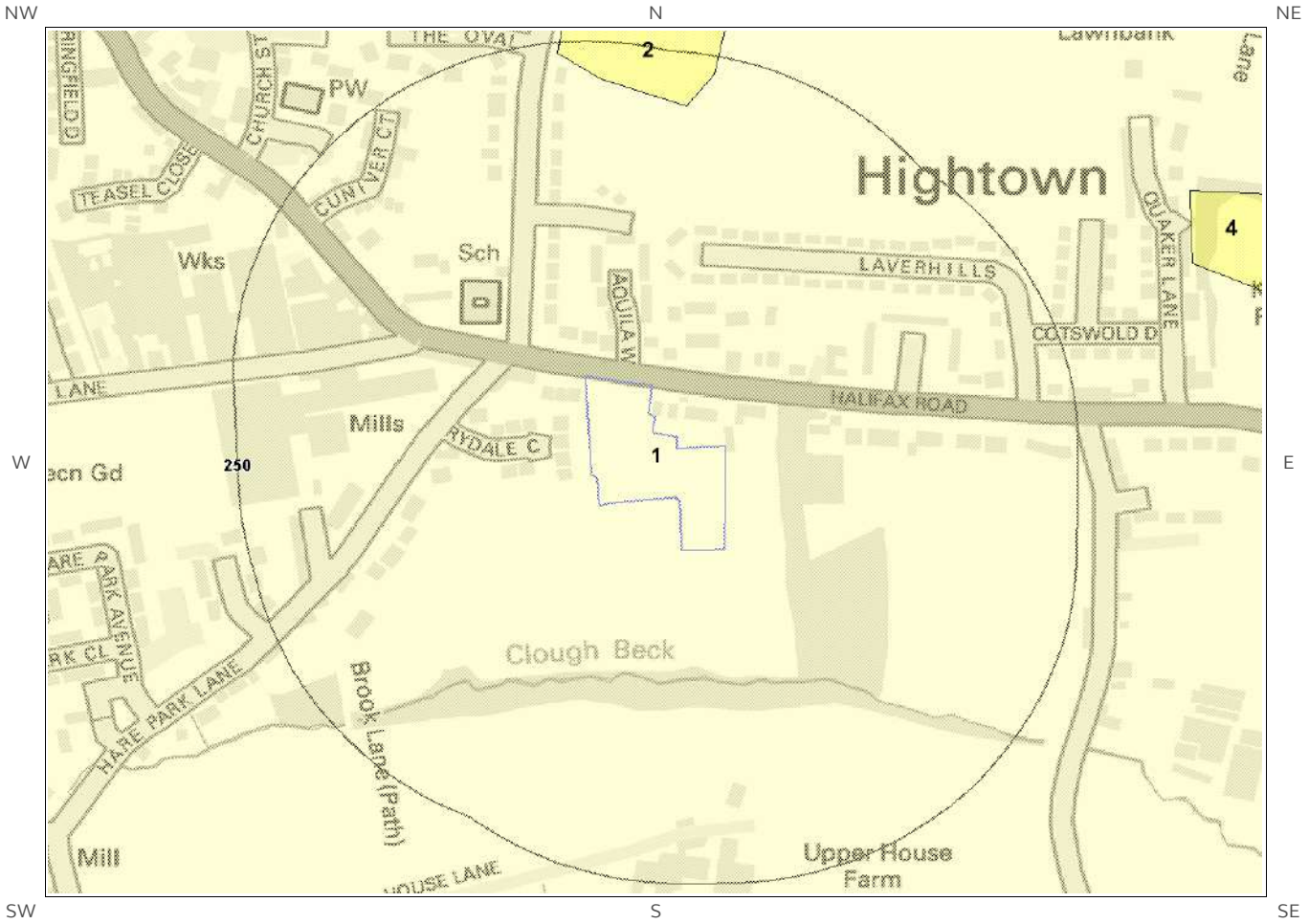


Collapsible Deposits Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6.6 Running Sand map



Running Sand Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



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	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
3	49.0	NW	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.

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	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.

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

ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

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

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

6.4 Compressible Deposits

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

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

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.

7 Borehole Records map



Borehole Records Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

Borehole Locations

125
250
Search Buffers (m)

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: 1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	210.0	W	418366 424061	SE12SE11	287.0	VICTORIA WORKS LIVERSEDGE YORKS

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/43549

8 Estimated Background Soil Chemistry

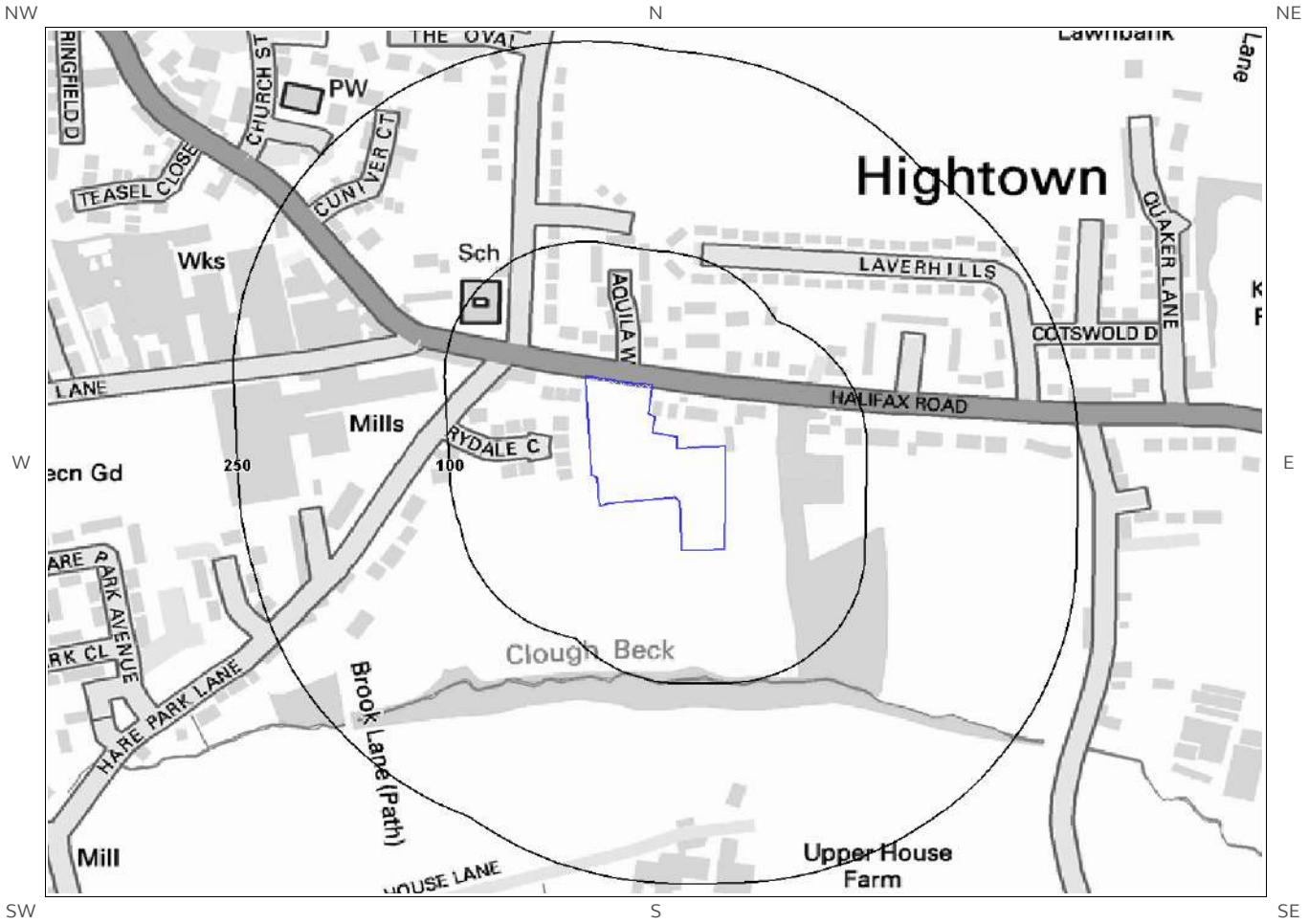
Records of background estimated soil chemistry within 250m of the study site boundary: 14

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	25 - 35 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
8.0	W	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
8.0	W	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
8.0	W	RuralSoil	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
45.0	S	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
49.0	NW	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg

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

9 Railways and Tunnels map



Railways and Tunnels Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.
© OpenStreetMapContributors

- Site Outline
- 250 / 500 Search Buffers (m)
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

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?	No
Have any historical railway or tunnel features 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.

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? 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.

9.4 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

Kingsley Dunham Centre
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**
Main switchboard: 020 7654 8000

Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettel Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email:**enquiries.gs@jpb.co.uk**
Website: **www.jpb.co.uk**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Tel: 08456 050505
Website: http://www.ordnancesurvey.co.uk/

Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website:**http://www1.getmapping.com/**

Peter Brett Associates
Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail:**reading@pba.co.uk**
Website:**http://www.peterbrett.com/home**

Acknowledgements: Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-may25-2018

The Coal Authority

Resolving the impacts of mining

CON29M Non-Residential Mining Report





395 HALIFAX ROAD
HIGHTOWN
LIVERSEDGE
KIRKLEES
WF15 8DU



Date of enquiry:	11 September 2018
Date enquiry received:	11 September 2018
Issue date:	11 September 2018
Our reference:	51001934876002
Your reference:	7342 Lakeland

CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority, at the time we answer the search.

Client name

HAIGH HUDDLESTON & ASSOCIATES

Enquiry address

395 HALIFAX ROAD, HIGHTOWN, LIVERSEDGE, KIRKLEES, WF15 8DU



Approximate position of property

Map data

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

Ordnance Survey Licence number: 100020315

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

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	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	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 1 seam of coal at 140m to 180m depth, and last worked in 1906.

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. Please refer to the Comments section of this report for further information.

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 of the enquiry boundary, since 31st 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 not in an area where a notice to withdraw support has been given.

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.

Comments on the Coal Authority information

The Coal Authority own the copyright in this report and the information used is protected by our database right.

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 enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.

Disclaimer

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

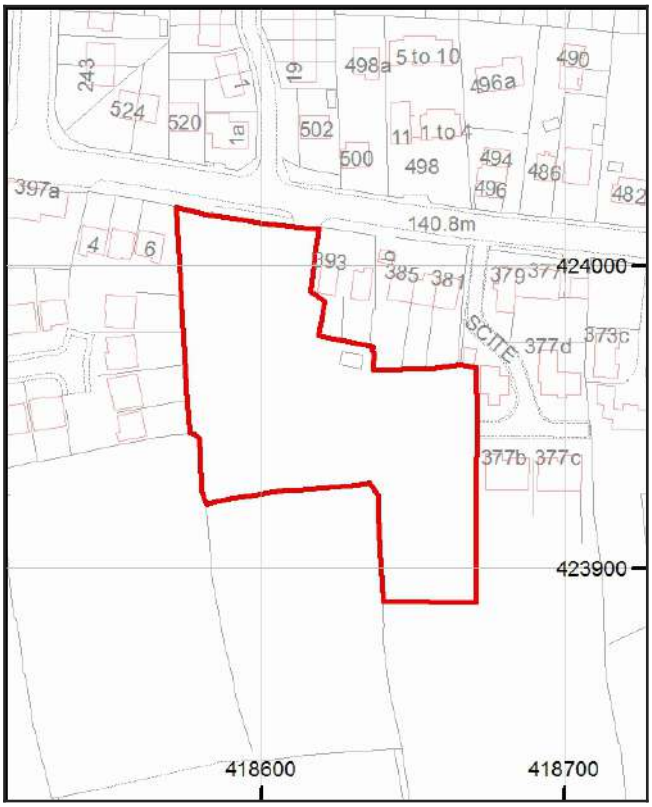
Alternative formats

If you would like this report in an alternative format, please contact our communications team.

Enquiry boundary

Key

Approximate position of enquiry boundary shown



Map data

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

Ordnance Survey Licence number: 100020315

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

APPENDIX E

Groundsure Enviro Report

Historical Plans

Haigh Huddleston & Associates

99-101, LEEDS ROAD,
DEWSBURY, WF12 7BU

Groundsure Reference:	GS-5418553
Your Reference:	LAKELAND_7342
Report Date	11 Sep 2018
Report Delivery Method:	Email - pdf

Enviro Insight

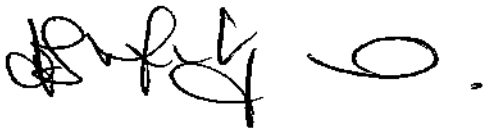
Address: 395 HALIFAX ROAD, HIGHTOWN, LIVERSEDGE, WF15 8DU

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**395 HALIFAX ROAD, HIGHTOWN, LIVERSEDGE, WF15 8DU**
Date:	**11 Sep 2018**
Reference:	**GS-5418553**
Client:	**Haigh Huddleston & Associates**

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	26-Mar-2012
Grid Reference:	418624,423953
Site Size:	0.73ha

Report Reference: GS-5418553
Client Reference: LAKELAND_7342

Contents Page

Contents Page 3
Overview of Findings 6
Using this report 10
1. Historical Land Use 11
1. Historical Industrial Sites 12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping....12
1.2 Additional Information – Historical Tank Database....14
1.3 Additional Information – Historical Energy Features Database....15
1.4 Additional Information – Historical Petrol and Fuel Site Database....15
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database....15
1.6 Historical military sites....16
1.7 Potentially Infilled Land....16
2. Environmental Permits, Incidents and Registers Map 18
2. Environmental Permits, Incidents and Registers 19
2.1 Industrial Sites Holding Licences and/or Authorisations....19
2.1.1 Records of historic IPC Authorisations within 500m of the study site:....19
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:....19
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:....20
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:....20
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:....20
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site: 21
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:....21
2.1.8 Records of Licensed Discharge Consents within 500m of the study site:....21
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site: 22
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:....22
2.2 Dangerous or Hazardous Sites....22
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents....22
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:....22
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:....23
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990....23
3. Landfill and Other Waste Sites Map 24
3. Landfill and Other Waste Sites 25
3.1 Landfill Sites....25
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site: 25
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site: 25
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:....26
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:....26
3.2 Other Waste Sites....27
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site: 27
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site: 27
4. Current Land Use Map 29
4. Current Land Uses 30
4.1 Current Industrial Data....30
4.2 Petrol and Fuel Sites....30
4.3 National Grid High Voltage Underground Electricity Transmission Cables....31
4.4 National Grid High Pressure Gas Transmission Pipelines....31

5. Geology 32
5.1 Artificial Ground and Made Ground 32
5.2 Superficial Ground and Drift Geology 32
5.3 Bedrock and Solid Geology 32
6 Hydrogeology and Hydrology 33
6a. Aquifer Within Superficial Geology 33
6b. Aquifer Within Bedrock Geology and Abstraction Licences 34
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences 35
6d. Hydrogeology – Source Protection Zones within confined aquifer 36
6e. Hydrology – Watercourse Network and River Quality 37
6.Hydrogeology and Hydrology 38
6.1 Aquifer within Superficial Deposits 38
6.2 Aquifer within Bedrock Deposits 38
6.3 Groundwater Abstraction Licences 38
6.4 Surface Water Abstraction Licences 39
6.5 Potable Water Abstraction Licences 39
6.6 Source Protection Zones 39
6.7 Source Protection Zones within Confined Aquifer 40
6.8 Groundwater Vulnerability and Soil Leaching Potential 40
6.9 River Quality 40
6.9.1 Biological Quality: 40
6.9.2 Chemical Quality: 41
6.10 Ordnance Survey MasterMap Water Network 41
6.11 Surface Water Features 46
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea) 47
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map 48
7 Flooding 49
7.1 River and Coastal Zone 2 Flooding 49
7.2 River and Coastal Zone 3 Flooding 49
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating 49
7.4 Flood Defences 49
7.5 Areas benefiting from Flood Defences 49
7.6 Areas benefiting from Flood Storage 50
7.7 Groundwater Flooding Susceptibility Areas 50
7.8 Groundwater Flooding Confidence Areas 50
8. Designated Environmentally Sensitive Sites Map 51
8. Designated Environmentally Sensitive Sites 52
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site: 52
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site: 52
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site: 52
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site: 52
8.5 Records of Ramsar sites within 2000m of the study site: 52
8.6 Records of Ancient Woodland within 2000m of the study site: 53
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site: 53
8.8 Records of World Heritage Sites within 2000m of the study site: 53
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site: 53
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site: 53
8.11 Records of National Parks (NP) within 2000m of the study site: 53
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site: 54
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site: 54

8.14 Records of Green Belt land within 2000m of the study site: 54
9. Natural Hazards Findings 55
9.1 Detailed BGS GeoSure Data 55
9.1.1 Shrink Swell 55
9.1.2 Landslides 55
9.1.3 Soluble Rocks 55
9.1.4 Compressible Ground 56
9.1.5 Collapsible Rocks 56
9.1.6 Running Sand 56
9.2 Radon 57
9.2.1 Radon Affected Areas 57
9.2.2 Radon Protection 57
10. Mining 58
10.1 Coal Mining 58
10.2 Non-Coal Mining 58
10.3 Brine Affected Areas 58
Contact Details 59
Standard Terms and Conditions 61

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	0	0	27	65
1.2 Additional Information – Historical Tank Database	0	2	10	7
1.3 Additional Information – Historical Energy Features Database	0	0	2	14
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	1	0	3	3
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	13	36

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	7	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	1
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	1	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	2	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	11
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	4
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	1	2
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	2	0	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	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	9

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	6	Not searched
4.2 Records of Petrol and Fuel Sites	0	1	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 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	None identified
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 Records of Strata Classification in the Superficial Geology within 500m of the study site	None identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	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	2	0	1
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	#250GWV #	#500GWV #	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	6	48	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 Enviroment Agency Zone 2 floodplains within 250m of the study site	None identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Limited potential
7.8 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	0	0	0	1
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	0	0	1
8.14 Records of Green Belt land	1	0	0	0	0	7

Section 9: Natural Hazards

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

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	Identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

Note: Maps

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

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

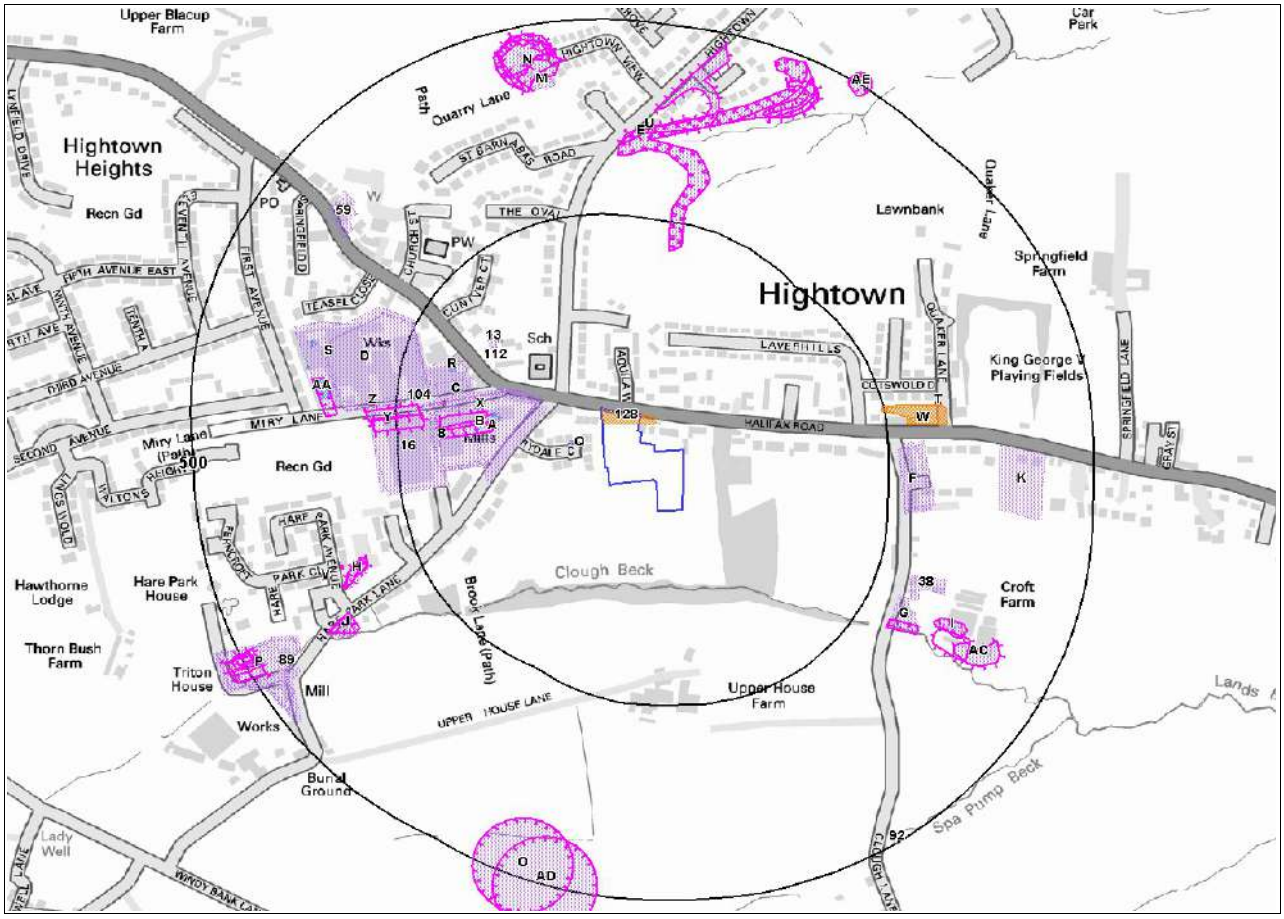
All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use

NW N NE

W E

SW S SE



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

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: 92

ID	Distance [m]	Direction	Use	Date
1A	66	W	Unspecified Mill	1892
2A	66	W	Unspecified Mill	1905
3B	73	W	Unspecified Commercial/Industrial	1975
4B	73	W	Unspecified Mills	1966
5A	76	W	Unspecified Mills	1951
6B	77	W	Unspecified Mills	1931
7B	77	W	Unspecified Mills	1931
8	77	W	Unspecified Mills	1985
9B	77	W	Unspecified Mills	1938
10B	79	W	Unspecified Mills	1948
11B	79	W	Unspecified Mills	1931
12A	133	W	Chimney	1966
13	149	NW	Smithy	1905
14C	153	W	Unspecified Shed	1892
15C	163	W	Dye Works	1905
16	191	W	Unspecified Mills	1975
17D	207	W	Unspecified Works	1985
18D	209	W	Dye Works	1951
19D	209	W	Unspecified Works	1975
20D	209	W	Unspecified Works	1966
21D	210	W	Dye Works	1931
22D	210	W	Dye Works	1931
23D	211	W	Dye Works	1938
24E	212	N	Unspecified Ground Workings	1975
25E	212	N	Unspecified Ground Workings	1985
26D	214	W	Dye Works	1948
27D	214	W	Dye Works	1931
28F	261	E	Leather Works	1931
29F	261	E	Leather Works	1948
30F	261	E	Unspecified Works	1938
31F	266	E	Unspecified Mill	1975
32F	266	E	Leather Works	1951

33F	266	E	Unspecified Commercial/Industrial	1985
34F	266	E	Unspecified Commercial/Industrial	1966
35G	285	E	Sewage Works	1938
36G	288	SE	Sewage Works	1931
37G	288	SE	Sewage Works	1948
38	291	E	Oil Works	1892
39G	292	SE	Sewage Works	1931
40G	292	SE	Sewage Works	1931
41H	311	W	Refuse Heap	1951
42H	312	W	Refuse Heap	1938
43H	313	W	Refuse Heap	1948
44H	313	W	Refuse Heap	1931
45I	337	SE	Unspecified Ground Workings	1951
46I	337	SE	Unspecified Ground Workings	1966
47H	340	W	Unspecified Hole	1905
48AB	343	N	Refuse Heap	1966
49J	356	SW	Sewage Works	1951
50J	359	SW	Unspecified Works	1966
51J	359	SW	Unspecified Commercial/Industrial	1975
52J	359	SW	Unspecified Commercial/Industrial	1985
53J	359	SW	Sewage Works	1931
54J	359	SW	Sewage Works	1931
55J	360	SW	Sewage Works	1938
56J	361	SW	Sewage Works	1931
57J	361	SW	Sewage Works	1948
58AC	374	SE	Refuse Heap	1985
59	380	NW	Unspecified Mills	1892
60K	385	E	Leather Works	1931
61K	385	E	Leather Works	1931
62L	412	NE	Refuse Heap	1966
63L	412	N	Unspecified Heap	1985
64M	414	N	Quarry House	1931
65M	414	N	Quarry House	1931
66N	417	N	Unspecified Quarry	1905
67N	417	N	Unspecified Quarry	1892
68N	420	N	Unspecified Quarry	1966
69N	420	N	Unspecified Quarry	1931
70N	420	N	Unspecified Quarry	1948
71O	423	S	Unspecified Hole	1948
72O	423	S	Unspecified Hole	1931
73O	423	S	Unspecified Hole	1905
74P	426	SW	Unspecified Mills	1951

75P	426	SW	Unspecified Mills	1966
76P	431	SW	Unspecified Mills	1948
77P	431	SW	Unspecified Mills	1931
78P	431	SW	Unspecified Mills	1938
79P	432	SW	Unspecified Mills	1931
80P	432	SW	Unspecified Mills	1931
81AD	437	S	Unspecified Hole	1892
82N	440	N	Unspecified Quarry	1951
83	445	SW	Unspecified Mills	1892
84P	446	SW	Unspecified Mill	1985
85P	446	SW	Unspecified Mill	1975
86N	447	N	Unspecified Quarry	1931
87N	447	N	Unspecified Quarry	1931
88P	449	SW	Unspecified Mills	1905
89	449	SW	Chimney	1966
90N	453	N	Unspecified Quarry	1938
91AE	487	NE	Refuse Heap	1892
92	492	SE	Unspecified Tank	1951

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: 19

ID	Distance (m)	Direction	Use	Date
93Q	27	W	Unspecified Tank	1933
94Q	32	W	Unspecified Tank	1933
95A	123	W	Tanks	1938
96A	127	W	Unspecified Tank	1922
97A	128	W	Tanks	1938
98X	142	W	Tanks	1987
99A	150	W	Unspecified Tank	1907
100A	150	W	Unspecified Tank	1894
101R	184	W	Tanks	1987
102R	190	W	Unspecified Tank	1965
103R	191	W	Unspecified Tank	1969
104	218	W	Unspecified Tank	1987
105F	278	E	Unspecified Tank	1956
106F	278	E	Unspecified Tank	1956
107AA	331	W	Unspecified Tank	1987
108S	337	W	Unspecified Tank	1987
109S	355	W	Tanks	1987

110S	359	W	Tanks	1957
111S	359	W	Tanks	1957

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: 16

ID	Distance (m)	Direction	Use	Date
112	143	NW	Electricity Substation	1987
113C	189	W	Electricity Substation	1987
114Y	257	W	Electricity Substation	1987
115Z	274	W	Electricity Substation	1987
116T	312	E	Electricity Substation	1990
117T	312	E	Electricity Substation	1978
118T	312	E	Electricity Substation	1996
119T	312	E	Electricity Substation	1993
120U	361	N	Electricity Substation	1993
121U	361	N	Electricity Substation	1996
122U	362	N	Electricity Substation	1990
123U	362	N	Electricity Substation	1978
124U	362	N	Electricity Substation	1968
125U	363	N	Electricity Substation	1969
126V	364	W	Electricity Substation	1970
127V	365	W	Electricity Substation	1987

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: 7

ID	Distance (m)	Direction	Use	Date
128	0	On Site	Garage	1996
129T	246	E	Garage	1996
130T	246	E	Garage	1993
131T	248	E	Garage	1969
132W	274	E	Garage	1978
133W	274	E	Garage	1990
134W	274	E	Garage	1968

1.6 Historical military sites

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

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

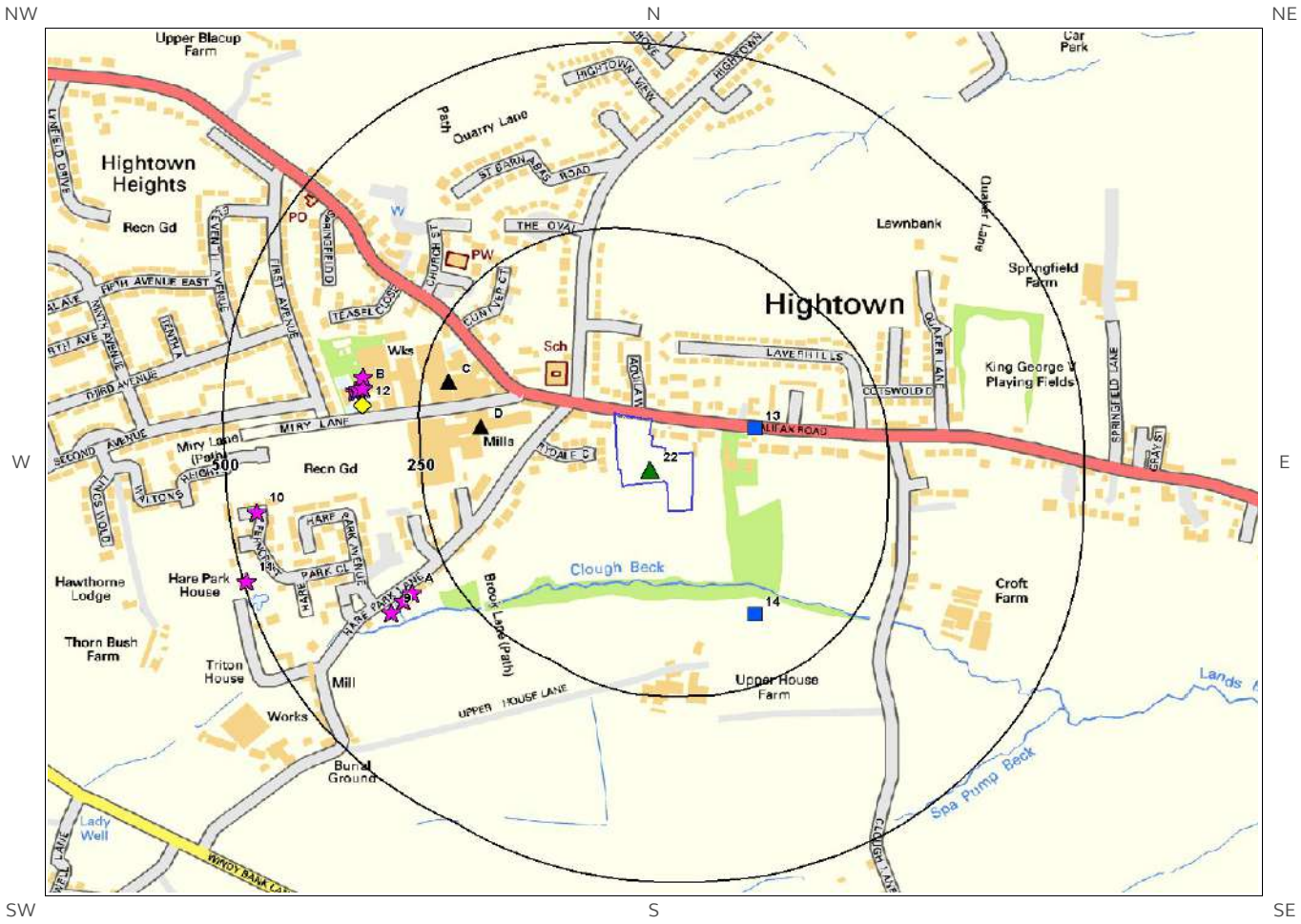
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 49

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

ID	Distance(m)	Direction	Use	Date
135B	133	W	Reservoir	1931
136B	133	W	Pond	1905
137B	133	W	Reservoir	1948
138B	133	W	Pond	1892
139X	139	W	Pond	1951
140E	212	N	Unspecified Ground Workings	1975
141E	212	N	Unspecified Ground Workings	1985
142Y	216	W	Reservoirs	1905
143Y	216	W	Reservoir	1931
144Y	216	W	Reservoirs	1948
145Y	216	W	Reservoirs	1892
146Z	220	W	Pond	1966
147Y	220	W	Reservoirs	1951
148G	288	SE	Sewage Works	1931

149G	288	SE	Sewage Works	1948
150H	311	W	Refuse Heap	1951
151H	313	W	Refuse Heap	1948
152H	313	W	Refuse Heap	1931
153AA	321	W	Reservoirs	1892
154AA	321	W	Reservoirs	1905
155AA	321	W	Reservoirs	1948
156AA	321	W	Reservoir	1931
157I	337	SE	Unspecified Ground Workings	1966
158I	337	SE	Unspecified Ground Workings	1951
159V	340	W	Unspecified Hole	1905
160AB	343	N	Refuse Heap	1966
161AC	346	SE	Pond	1892
162J	356	SW	Sewage Works	1951
163J	361	SW	Sewage Works	1931
164J	361	SW	Sewage Works	1948
165AC	374	SE	Refuse Heap	1985
166L	412	NE	Refuse Heap	1966
167L	412	N	Unspecified Heap	1985
168N	417	N	Unspecified Quarry	1905
169N	417	N	Unspecified Quarry	1892
170N	420	N	Unspecified Quarry	1966
171N	420	N	Unspecified Quarry	1948
172N	420	N	Unspecified Quarry	1931
173O	423	S	Unspecified Hole	1948
174O	423	S	Unspecified Hole	1931
175O	423	S	Unspecified Hole	1905
176AD	437	S	Unspecified Hole	1892
177N	440	N	Unspecified Quarry	1951
178P	482	SW	Pond	1892
179P	483	SW	Reservoir	1951
180AE	487	NE	Refuse Heap	1892
181P	487	SW	Pond	1905
182P	488	SW	Reservoir	1948
183P	488	SW	Reservoir	1931

2. Environmental Permits, Incidents and Registers Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

- Site Outline
- Search Buffers (m) — 250 / 500
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

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:

7

The following Part A(1) and IPPC Authorised Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
23D	173	W	418400 424000	Operator: Owens Corning Veil Uk Ltd Installation Name: - Process: GLASS & GLASS FIBRE; GLASS FIBRE MANUFACTURE	Permit Number: BL1576 Original Permit Number: BL1576 EPR Reference: - Issue Date: 1-4-2003 0:00:00 Effective Date: 4-4-2003 0:00:00 Last date noted as effective: 2004-10-01 Status: Superseded By Pas
24C	216	W	418360 424060	Operator: Harrison Gardner And Co Ltd Installation Name: Victoria Dyeworks Process: COATING, PRINTING AND TEXTILES; PRE-TREATING BY WASHING ETC >10T/DAY	Permit Number: BR5086IV Original Permit Number: BR5086IV EPR Reference: - Issue Date: 23/12/2002 Effective Date: 13/1/2003 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
25C	216	W	418360 424060	Operator: Harrison Gardner And Co Ltd Installation Name: Victoria Dyeworks Process: COATING, PRINTING AND TEXTILES; PRE-TREATING BY WASHING ETC >10T/DAY	Permit Number: KP3234SP Original Permit Number: BR5086IV EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2018-03-01 Status: Refused
26C	216	W	418360 424060	Operator: Harrison Gardner And Co Ltd Installation Name: - Process: COATING, PRINTING & TEXTILES; PRE-TREATING BY WASHING ETC >10T/DAY	Permit Number: BU9254 Original Permit Number: BR5086 EPR Reference: - Issue Date: 2-7-2003 0:00:00 Effective Date: 2-7-2003 0:00:00 Last date noted as effective: 2004-10-

ID	Distance (m)	Direction	NGR	Details	
					01 Status: Superseded By Pas
27C	216	W	418360 424060	Operator: Harrison Gardner And Co Ltd Installation Name: Victoria Dyeworks Process: COATING, PRINTING AND TEXTILES; PRE-TREATING BY WASHING ETC >10T/DAY	Permit Number: YP3638MP Original Permit Number: BR5086IV EPR Reference: - Issue Date: - Effective Date: 16/11/2006 00:00:00 Last date noted as effective: 2018-03-01 Status: Surrender Effective
28C	216	W	418360 424060	Operator: Harrison Gardner And Co Ltd Installation Name: Victoria Dyeworks Process: COATING, PRINTING AND TEXTILES; PRE-TREATING BY WASHING ETC >10T/DAY	Permit Number: BU9254IQ Original Permit Number: BR5086IV EPR Reference: - Issue Date: 2/7/2003 Effective Date: 2/7/2003 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
29C	216	W	418360 424060	Operator: Harrison Gardner And Co Ltd Installation Name: - Process: COATING, PRINTING & TEXTILES; PRE-TREATING BY WASHING ETC >10T/DAY	Permit Number: BR5086 Original Permit Number: BR5086 EPR Reference: - Issue Date: 23-12-2002 0:00:00 Effective Date: 13-1-2003 0:00:00 Last date noted as effective: 2005-10-03 Status: Superseded By Variation

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Details	
12	322	W	418250 424030	Name: Harrison Gardner & Co Ltd, Liversedge Status: Not Active Receiving Water: -	Authorised Substances: Permethrin

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	
22	0	On Site	418616 423940	Address: Arrow Service Station, 395 Halifax Rd, Hightown, Liversidge, WF15 8DU Process: Waste Oil Burner <0.4 MW 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:

2

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

ID	Distance (m)	Direction	NGR	Details	
13	86	NE	418750 424000	Address: 28 QUAKER LANE, HIGHTOWN, LIVERSEDGE, WEST YORKSHIRE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 650 Permit Version: 1	Receiving Water: TRIB OF SPEN RIVER Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 14/01/1957 Effective Date: 14-Jan-1957 Revocation Date: -
14	161	SE	418750 423750	Address: PROPOSED BUNGALOW AT UPPER HOUSE FM, CLOUGH LANE, HIGHTOWN, LIVERSEDGE, WEST YORKSHIRE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 2769 Permit Version: 1	Receiving Water: CLOUGH BROOK TO RIVER CALDER Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 16/09/1971 Effective Date: 16-Sep-1971 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:

11

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

ID	Distance (m)	Direction	NGR	Details	
1A	306	SW	418312 423778	Incident Date: 29-Jul-2002 Incident Identification: 95388 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
2A	321	SW	418301 423767	Incident Date: 25-Jun-2003 Incident Identification: 168696 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3B	324	W	418250 424053	Incident Date: 26-Aug-2003 Incident Identification: 185262 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4B	326	W	418250 424069	Incident Date: 25-Jul-2003 Incident Identification: 176786 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

ID	Distance (m)	Direction	NGR	Details	
5B	329	W	418244 424052	Incident Date: 10-Sep-2003 Incident Identification: 188839 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
6B	330	W	418243 424049	Incident Date: 17-Sep-2003 Incident Identification: 190619 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
7B	333	W	418240 424048	Incident Date: 01-Oct-2003 Incident Identification: 193592 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
8B	333	W	418240 424051	Incident Date: 06-Aug-2003 Incident Identification: 179870 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
9	342	SW	418286 423751	Incident Date: 28-Jul-2003 Incident Identification: 177309 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
10	464	W	418115 423887	Incident Date: 07-Aug-2003 Incident Identification: 179691 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Sulphide Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
11	498	W	418101 423794	Incident Date: 19-Dec-2003 Incident Identification: 207587 Pollutant: Inorganic Chemicals/Products Pollutant Description: Acids	Water Impact: Category 1 (Major) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

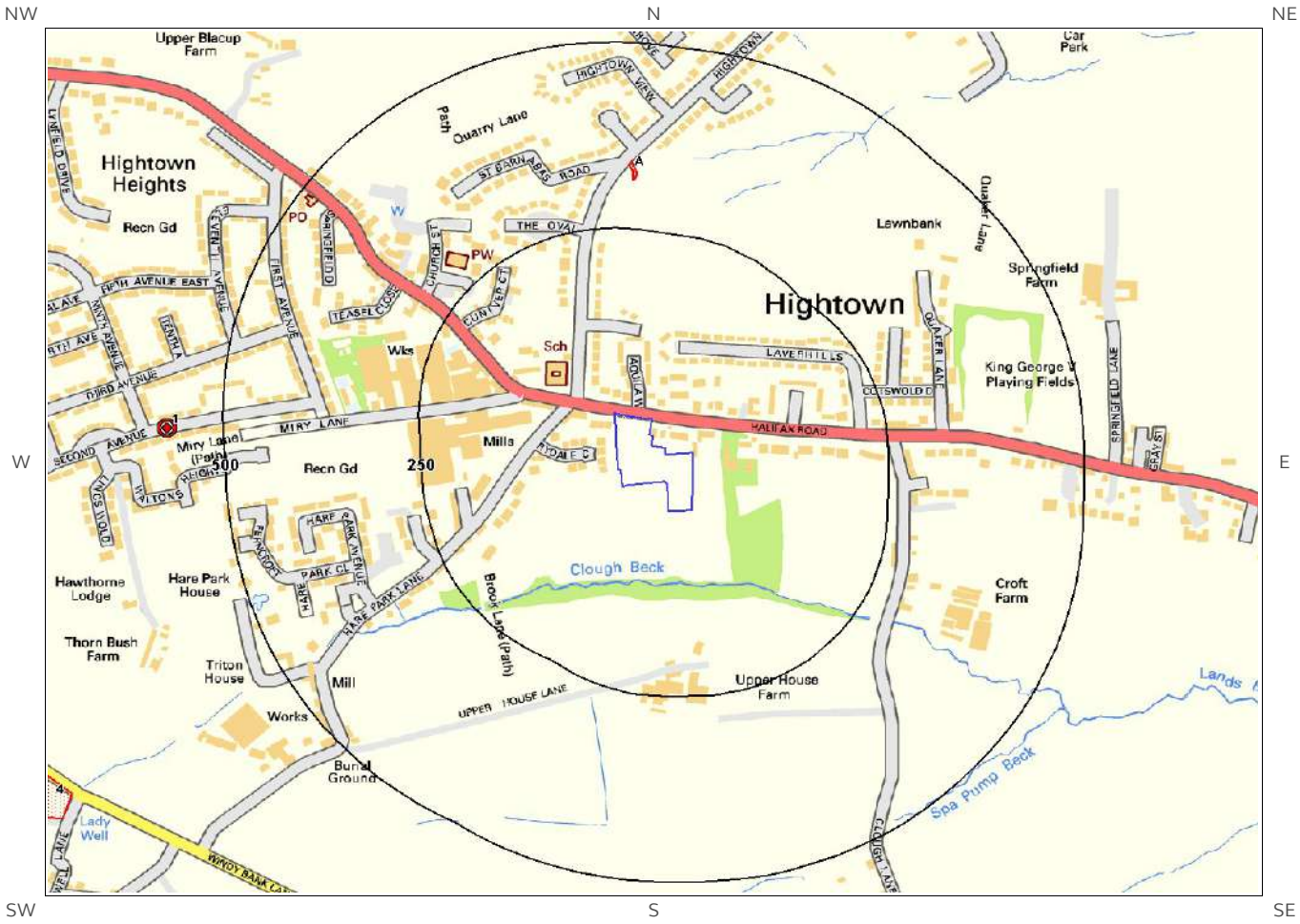
Database searched and no data found.

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

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

250 / 500 Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

5

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	
4	814	SW		Site Address: Land adjoining Windy Bank Lane, Hightown Heights, Liversedge Waste Licence: Yes Site Reference: 4700/0537 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 26-Nov-1985 Licence Surrendered: 18-Jun-1993 Licence Holder Address: Windy Bank Farm, Hightown, Liversedge Operator: - Licence Holder: Mr Billy France First Recorded: 31-Dec-1985 Last Recorded: 31-Dec-1993
Not shown	1036	NE		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: -
Not shown	1068	N		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	1138	NE		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

ID	Distance (m)	Direction	NGR	Details	
					First Recorded: - Last Recorded: -
Not shown	1392	E		Site Address: Headlands Road, Liversedge, Yorkshire Waste Licence: - Site Reference: - Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Spenborough Borough council Licence Holder: - First Recorded: - Last Recorded: -

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

3

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

ID	Distance (m)	Direction	NGR	Details	
1	572	W	418000.0 424000.0	Address: Knowles Top, Ashday, Elland, W Yorks BGS Number: 926.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	1107	NE	419400.0 424800.0	Address: Pyenof Hall Works, Cleckheaton, Yorks BGS Number: 1145.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	1459	E	420100.0 423600.0	Address: Headlands Rd, Liversedge, Yorkshire BGS Number: 1096.0	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:

5

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
18A	315	N	418595 424346	Refuse Tip	1967 mapping	Polygon
19A	315	N	418595 424346	Refuse Tip	1969 mapping	Polygon
Not shown	1353	N	418295 425356	Refuse Tip	1966 mapping	Polygon
Not shown	1353	N	418296 425356	Refuse Tip	1968 mapping	Polygon
Not shown	1446	E	420145 423596	Refuse Tip	1971 mapping	Polygon

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

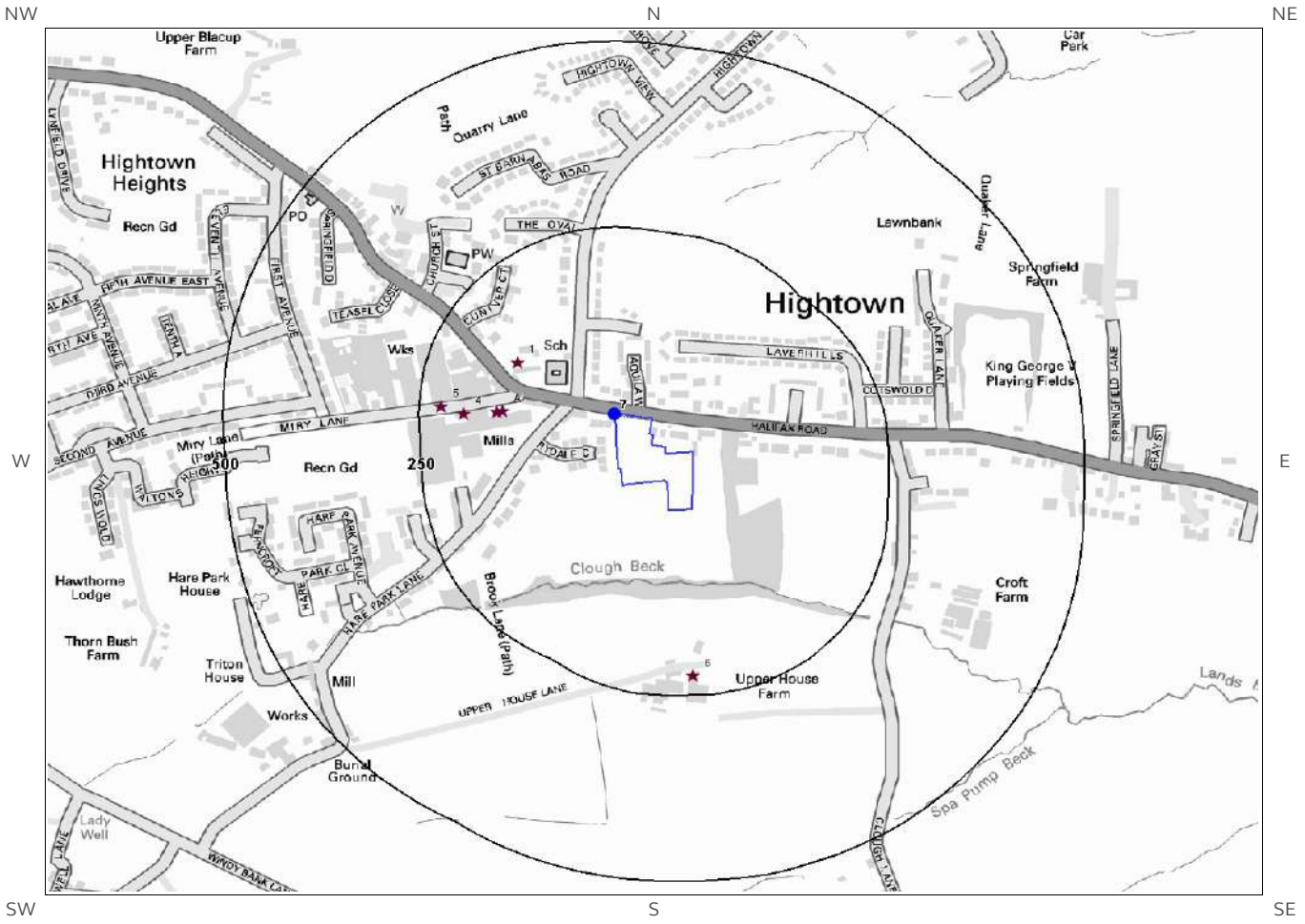
9

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1092	N	418240 425060	Site Address: Unit 10, West End Mills, Brick Street, Cleckheaton, West Yorkshire, BD19 5EH Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JTS001 EPR reference: EA/EPR/FP3995ZP/A001 Operator: J T Shingleton & Son Waste Management licence No: 61053 Annual Tonnage: 4999.0	Issue Date: 30/11/1995 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: J T Shingleton & Son Correspondence Address: -
Not shown	1092	N	418240 425060	Site Address: Unit 10, West End Mills, Brick Street, Cleckheaton, BD19 5EH Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JTS001 EPR reference: - Operator: J T Shingleton & Son Waste Management licence No: 61053 Annual Tonnage: 0.0	Issue Date: 30/11/1995 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: J T Shingleton & Son Correspondence Address: Unit 10, West End Mills, Brick Street, Cleckheaton, BD19 5EH
Not shown	1094	N	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: -
Not shown	1094	N	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	Issue Date: 11/08/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: H Smith & Son Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
				Operator: H Smith & Son Waste Management licence No: 61028 Annual Tonnage: 4999.0	
Not shown	1104	NW	418113 425024	Site Address: 10, Bank Street, Cleckheaton, West Yorkshire, BD19 5EP Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CLE014 EPR reference: EA/EPR/JP3692ZV/A001 Operator: Mr Wajid Hussain Rehman / Tanveer Mohammed Waste Management licence No: 65495 Annual Tonnage: 2400.0	Issue Date: 05/05/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bank Street Site Correspondence Address: -
Not shown	1105	NW	418113 425025	Site Address: 10, Bank Street, Westgate, Cleckheaton, West Yorkshire, BD19 5EP Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AHU001 EPR reference: EA/EPR/GP3195ZT/T001 Operator: Hussain Amjad Waste Management licence No: 61015 Annual Tonnage: 4500.0	Issue Date: 16/09/1991 Effective Date: 24/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Cleckheaton Auto Dismantlers Correspondence Address: -
Not shown	1120	NW	418129 425048	Site Address: 10, Bank Street, Westgate, Cleckheaton, West Yorks, WF15 8HQ Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TKE001 EPR reference: - Operator: T Kelly Waste Management licence No: 61015 Annual Tonnage: 0.0	Issue Date: 16/09/1991 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Cleckheaton Auto Dismantlers Correspondence Address: 756, Halifax Road, Liversedge, Cleckheaton, West Yorks, WF15 8HQ
Not shown	1459	E	420100 423600	Site Address: Headlands Road Depot, Headlands Road, Liversedge, West Yorkshire, WF15 6PR Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KMC001 EPR reference: BP3996ZJ/A001 Operator: Kirklees Metropolitan Council Waste Management licence No: 65526 Annual Tonnage: 24999.0	Issue Date: 12/01/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Headlands Road Depot Correspondence Address: -
Not shown	1459	E	420100 423600	Site Address: Headlands Road Depot, Headlands Road, Liversedge, West Yorkshire, WF15 6PR Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KMC001 EPR reference: EA/EPR/BP3996ZJ/A001 Operator: Kirklees Council Waste Management licence No: 65526 Annual Tonnage: 24999.0	Issue Date: 12/01/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Headlands Road Depot Correspondence Address: -

4. Current Land Use Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 6

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	142	NW	Electricity Sub Station	418448 424088	WF15	Electrical Features	Infrastructure and Facilities
2A	144	W	Tank	418428 424022	WF15	Tanks (Generic)	Industrial Features
3A	151	W	Tank	418421 424021	WF15	Tanks (Generic)	Industrial Features
4	193	W	Electricity Sub Station	418379 424019	WF15	Electrical Features	Infrastructure and Facilities
5	222	W	Tank	418350 424029	WF15	Tanks (Generic)	Industrial Features
6	223	S	Butterfield Plant Sales	418670 423665	Upper House Farm, Upper House Lane, Liversedge, WF15 8ES	Construction Plant	Construction Services

4.2 Petrol and Fuel Sites

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

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

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
7	1	W	418571 424018	Obsolete	Hightown Service Station, 395, Halifax Road, Halifax Road, Hightown, Liversedge, West Yorkshire, WF15 8DU	Not Applicable	Obsolete

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

---

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

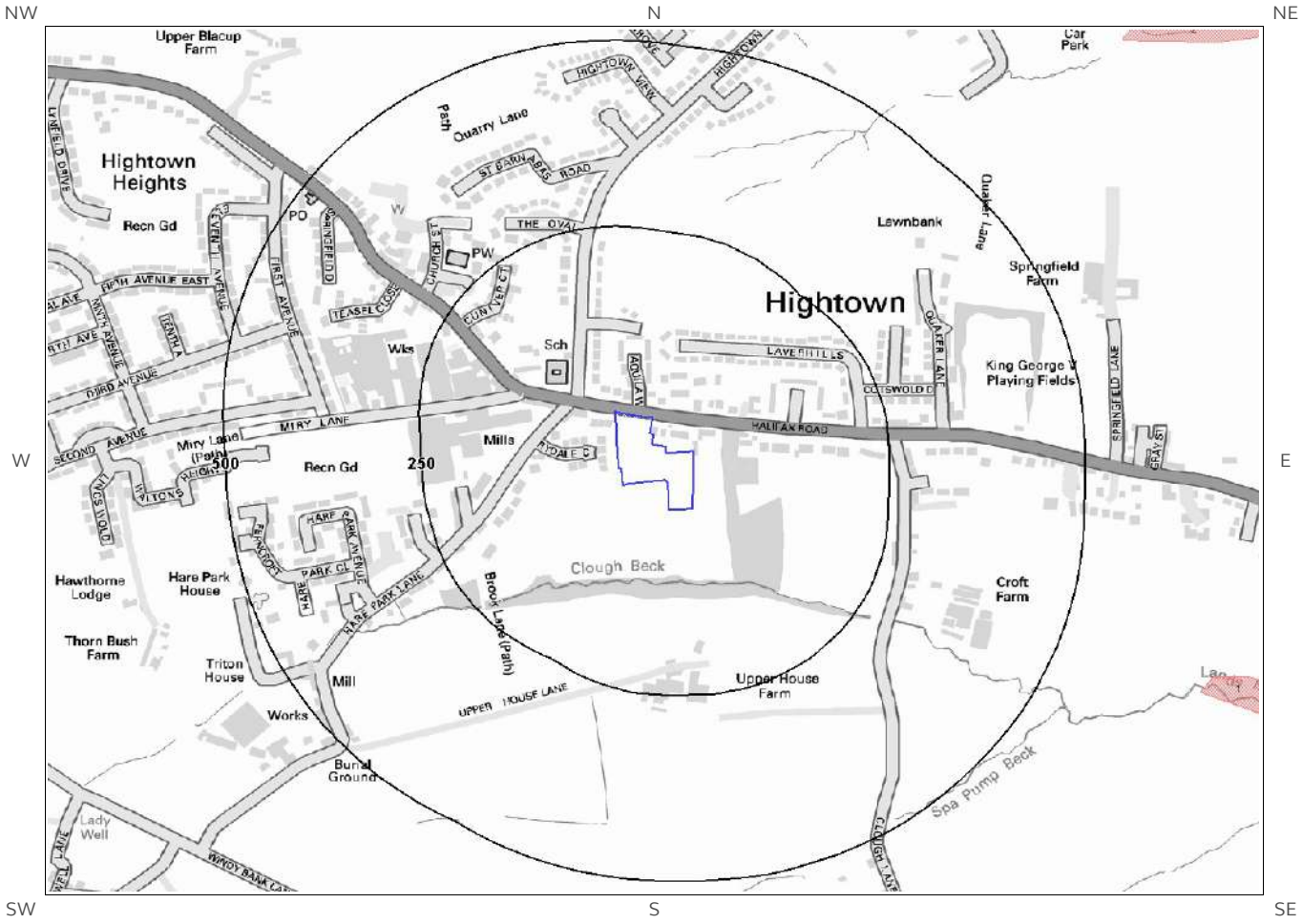
The database has been searched on site, including a 50m buffer.

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



© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.

Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.

Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

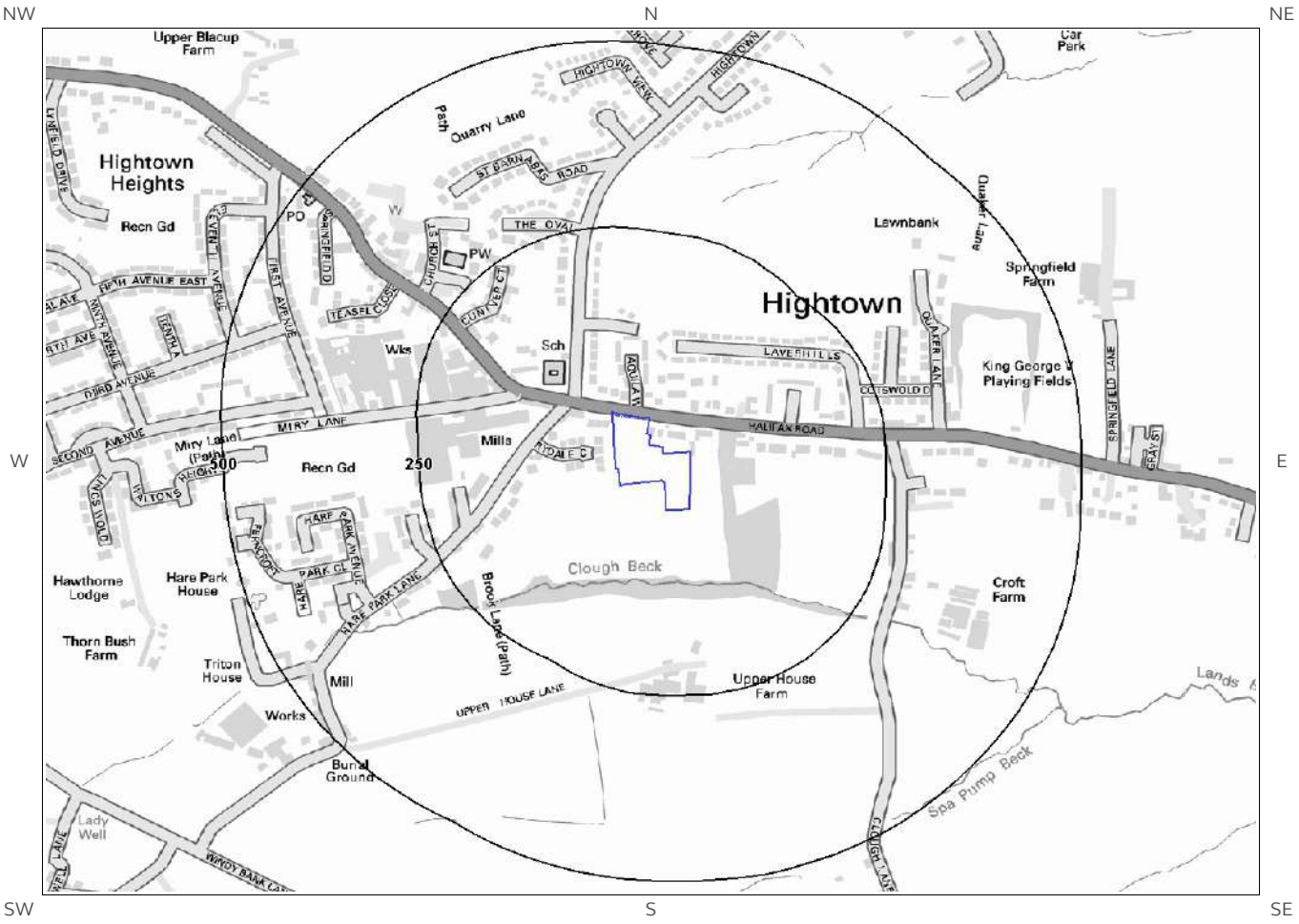
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

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



© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.

Site Outline

250 Search Buffers (m)
500

Source Protection Zone 1 - Inner Catchment

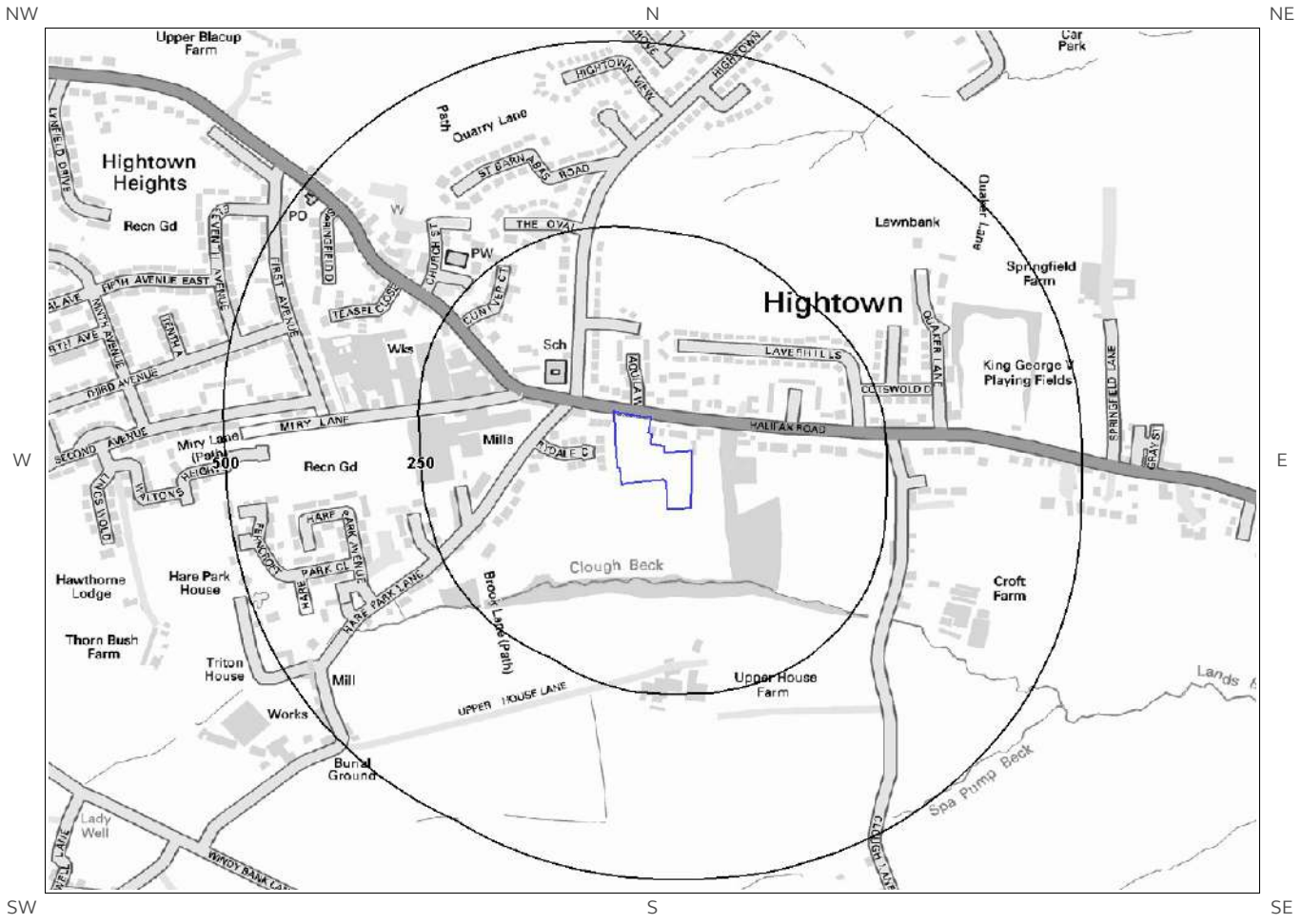
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



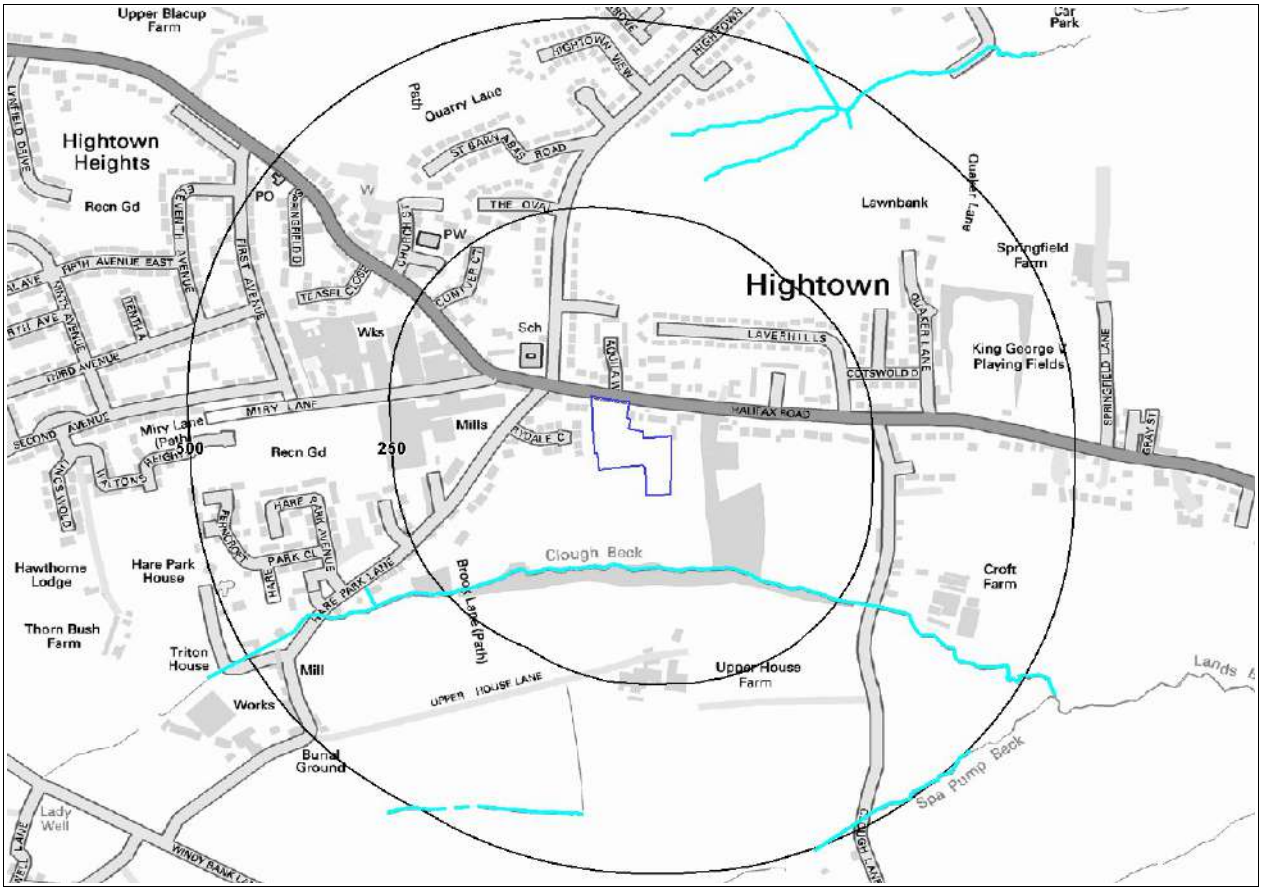
© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

250 / 500 Search Buffers (m)

Tidal River

Inland River

Underground or Elevated Tidal River

Underground or Elevated Inland River

Foreshore

General Quality Assessment: Chemistry

Canal

Underground or Elevated Canal

Lock or Flight of Locks

Lake, Reservoir, or Marsh

Drain or Transfer

General Quality Assessment: Biology

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property No

Database searched and no data found.

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.

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	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

Groundwater Abstraction Licences within 2000m of the study site Identified

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

ID	Distance (m)	Direction	NGR	Details	
3	274	W	418310 424100	Status: Historical Licence No: 2/27/13/198 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - LIVERSEDGE Data Type: Point Name: HARRISON GARDNER & CO LTD	Annual Volume (m^3): 112464 Max Daily Volume (m^3): 340.8 Original Application No: - Original Start Date: 09/10/1998 Expiry Date: 31/12/2007 Issue No: 101 Version Start Date: 06/06/2000 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
4	342	W	418230 424040	Status: Historical Licence No: 2/27/13/198 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - LIVERSEDGE Data Type: Point Name: HARRISON GARDNER & CO LTD	Annual Volume (m^3): 112464 Max Daily Volume (m^3): 340.8 Original Application No: - Original Start Date: 09/10/1998 Expiry Date: 31/12/2007 Issue No: 101 Version Start Date: 06/06/2000 Version End Date:
Not shown	1893	W	416700 424300	Status: Historical Licence No: 2/27/13/197 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - CLIFTON BRIGHOUSE Data Type: Point Name: NEWSMITH STAINLESS LIMITED	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 18/09/1995 Expiry Date: 31/10/2002 Issue No: 100 Version Start Date: 27/05/1998 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	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.
91	S	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.
240	N	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.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

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

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

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

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	95 S	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
3	95 S	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
2	157 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	157 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	237 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
5	237 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
4	307 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	307 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): Not Provided
5	328 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	328 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	331 SW	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
8	331 SW	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
7	348 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	348 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	356 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	356 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	369 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
11	369 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
10	408 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	408 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
11	419 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
13	419 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
12	426 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	426 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	433 SW	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	433 SW	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	454 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	454 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	459 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	459 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	460 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
17	460 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	460	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: Underground

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	460 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	466 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	466 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	466 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	466 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
20	476 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	476 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	488 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
22	488 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	488 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	488 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	494 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
24	494 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
25	494 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
Not shown	494 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	494 SE	Clough Beck	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
Not shown	494 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
26	498 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	498 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	499 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9
Not shown	499 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Aire and Calder Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9

6.11 Surface Water Features

Surface water features within 250m of the study site | Identified

The following surface water records are not represented on mapping:

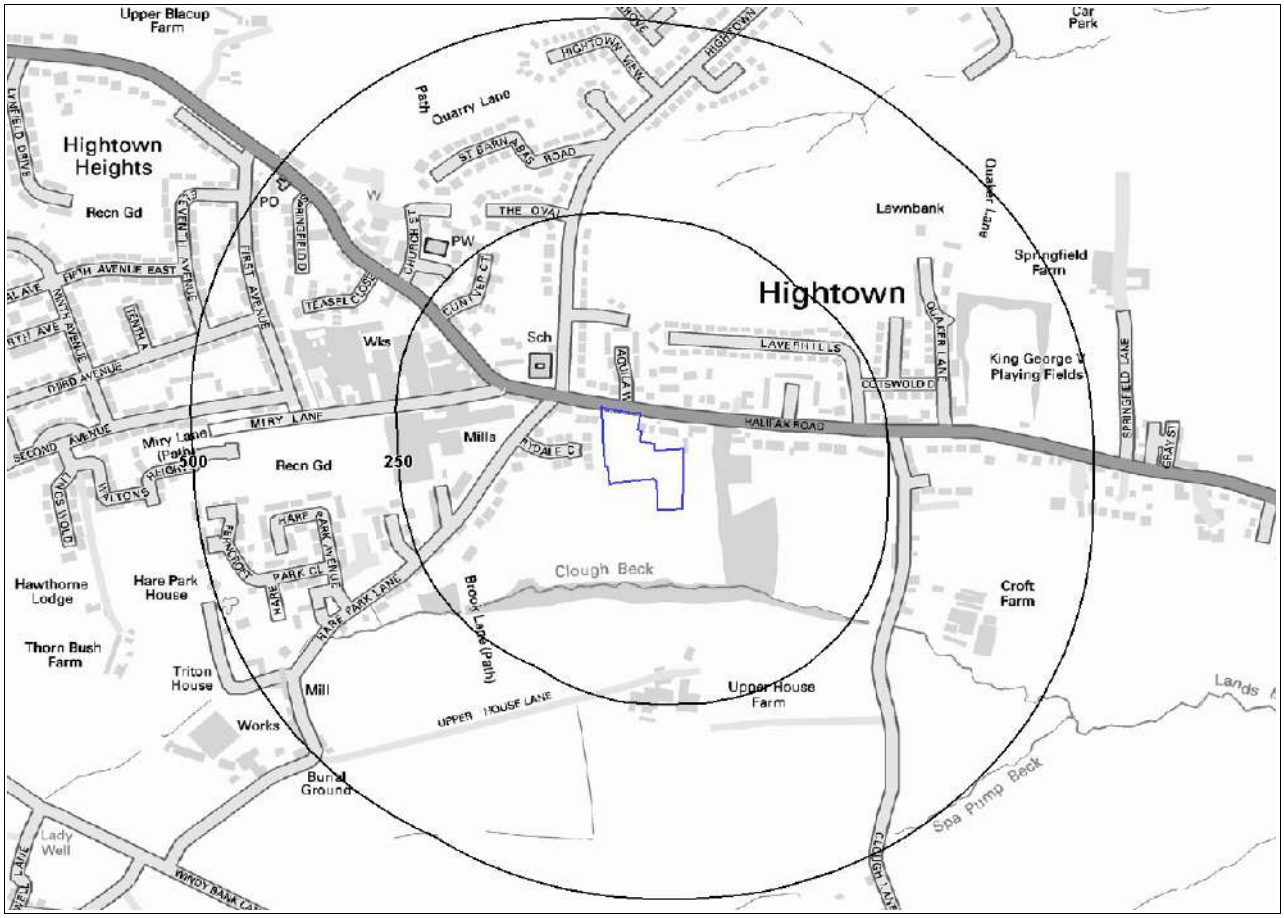
Distance (m)	Direction
93	S
157	SE
243	SW

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

NW N NE

W E

SW S SE



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

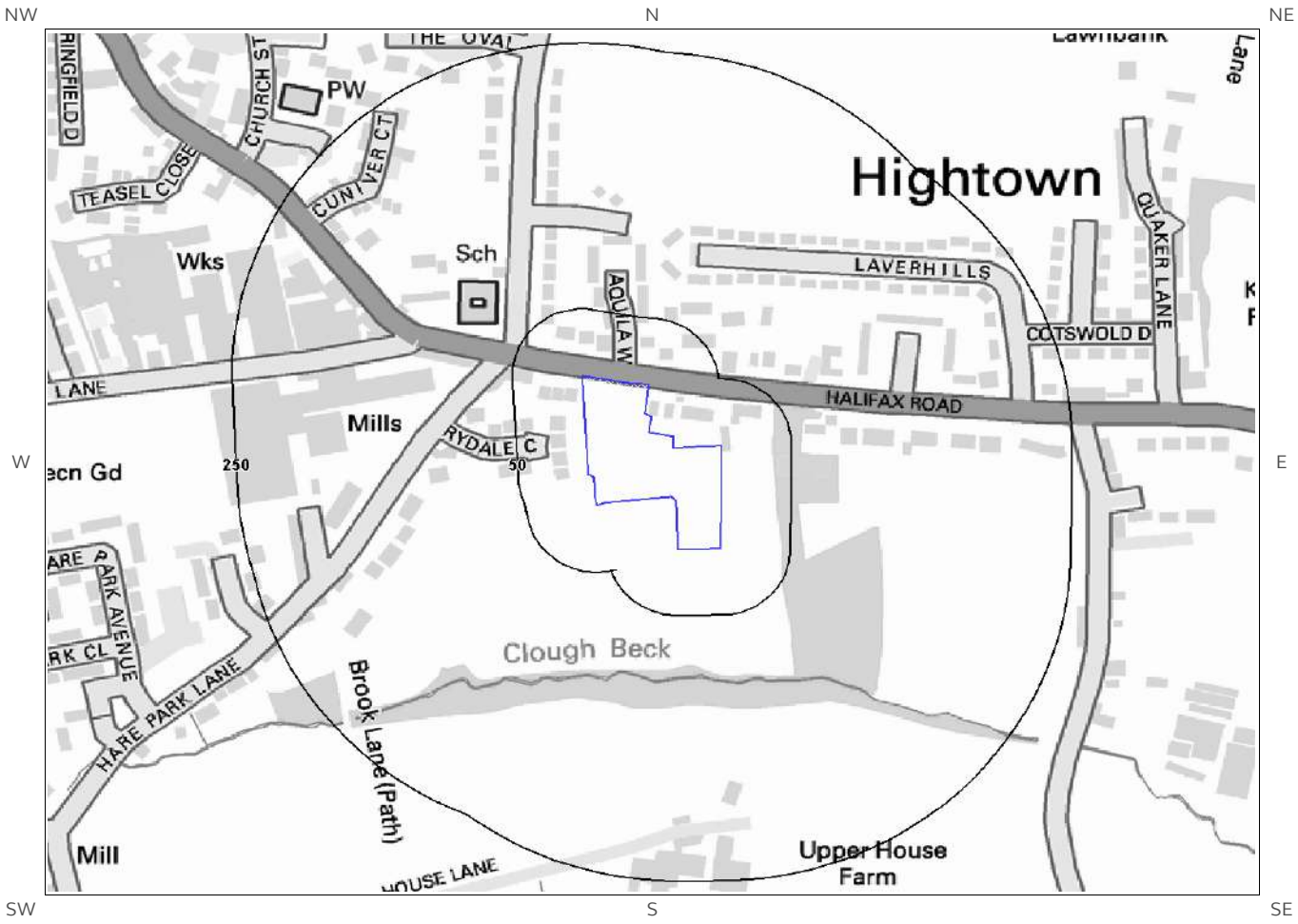
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

100 / 250 Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

Report Reference: GS-5418553
Client Reference: LAKELAND_7342

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — None identified

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

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — None identified

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

Database searched and no data found.

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

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

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site	None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site	Identified
Clearwater Flooding or Superficial Deposits Flooding	Clearwater Flooding

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

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

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.

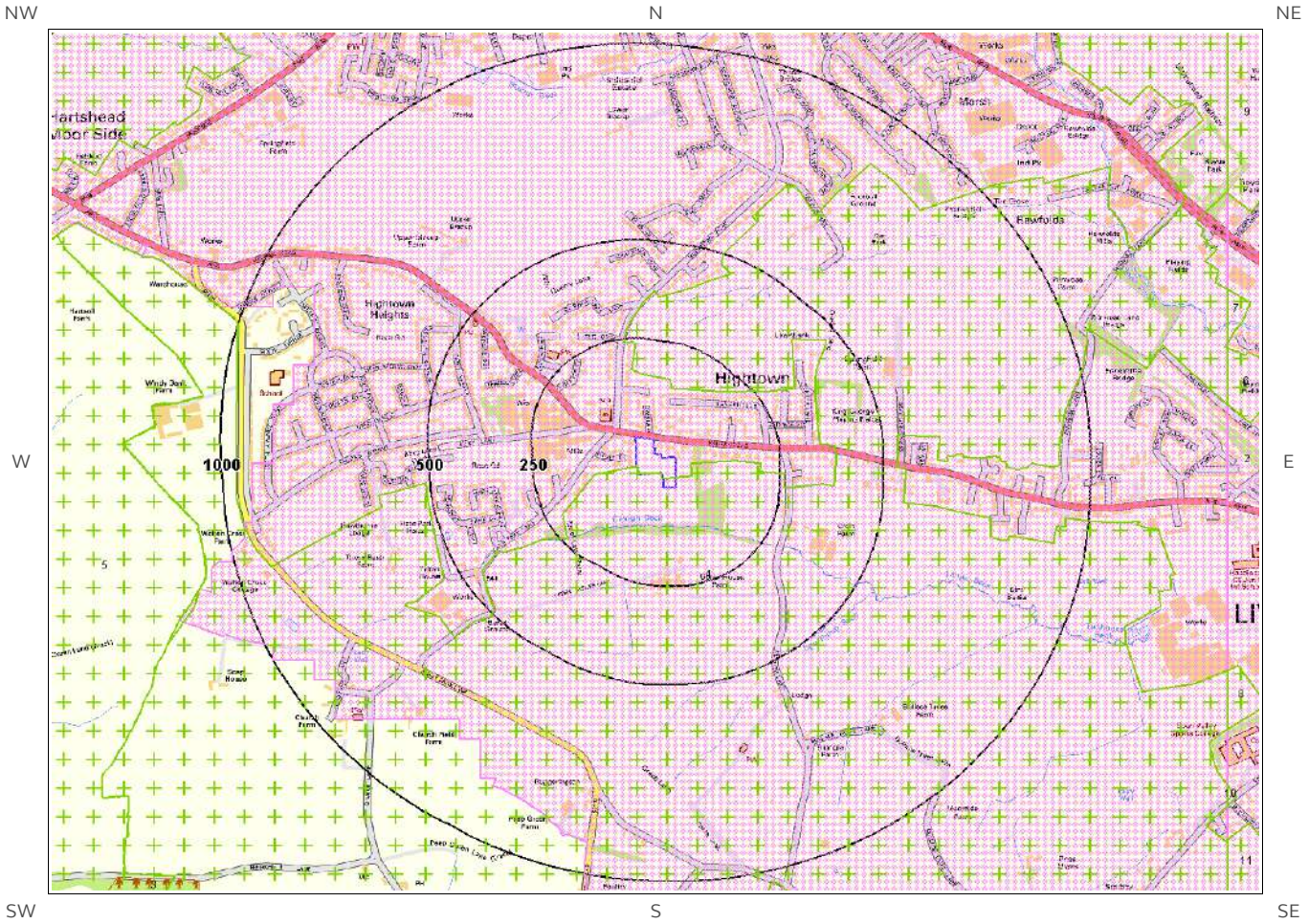
7.8 Groundwater Flooding Confidence Areas

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



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

Site Outline

100
250
Search Buffers (m)

AONB

National Park

SSSI

Special Protection Areas

Nitrate Vulnerable Zones

Green Belt

Environmentally Sensitive Areas

Special Areas of Conservation

World Heritage Sites

Nitrate Sensitive Areas

Ancient Woodland

National Nature Reserve

Local Nature Reserves

Ramsar Sites

8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site	Identified

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

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
3	1480	SW	UNKNOWN	Ancient Replanted Woodland

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

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
1	0	On Site	Existing	DEFRA
2	1329	E	Existing	DEFRA

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

8

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

ID	Distance	Direction	Green Belt Name	Local Authority Name
4	0	On Site	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
5	1047	W	Liverpool, Manchester and West Yorks Greenbelt	Calderdale District (B)
6	1336	E	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
7	1360	E	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
8	1409	E	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
9	1489	NE	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
10	1531	SE	Liverpool, Manchester and West Yorks Greenbelt	Kirklees District (B)
11	1602	SE	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

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

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

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

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

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

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

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Negligible

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

Hazard
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.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Very Low

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

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

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site — Negligible

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

Hazard
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.

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

9.2 Radon

9.2.1 Radon Affected Areas

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

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — Identified

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

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

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

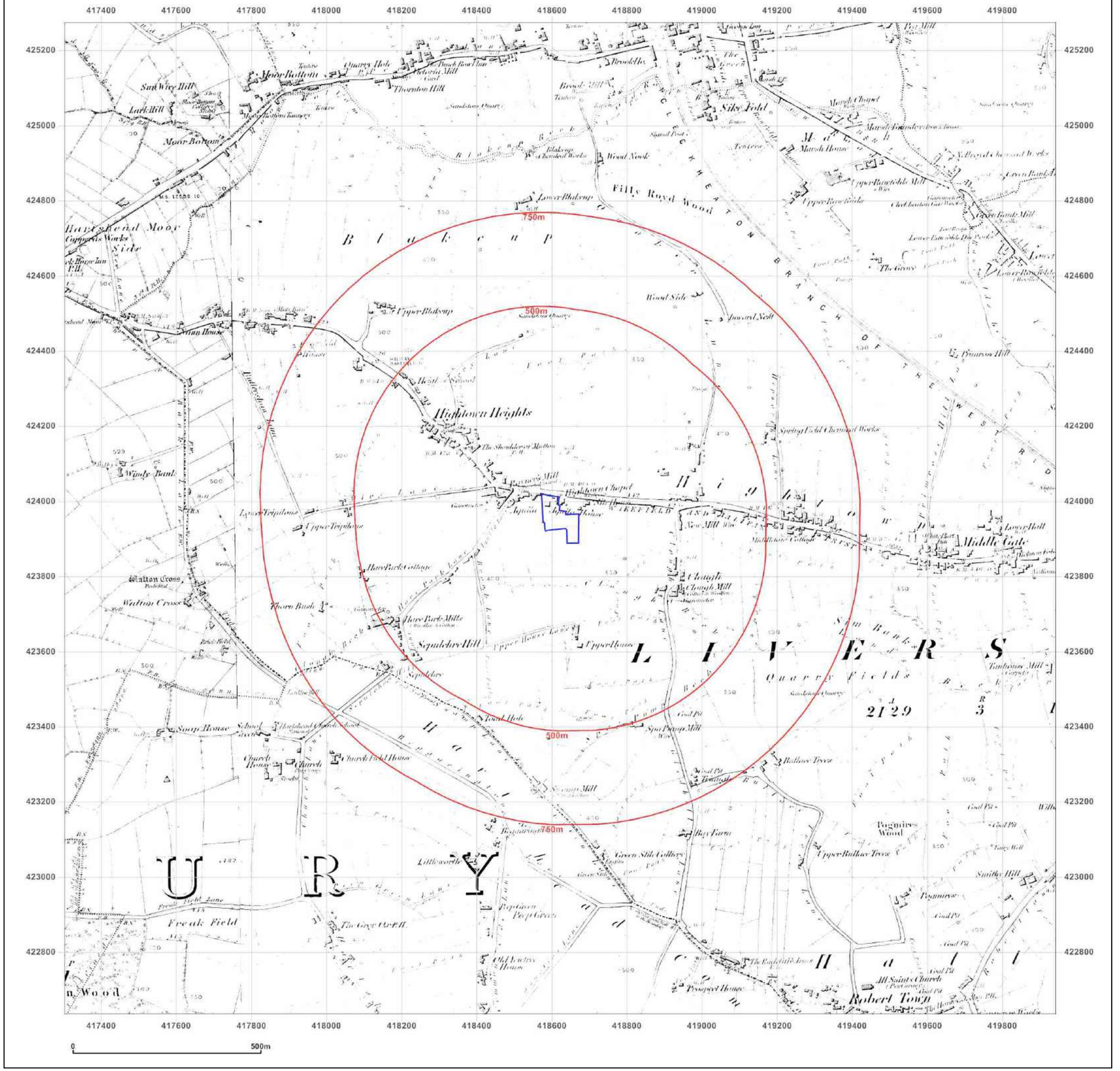
Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.
PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].
This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1854**

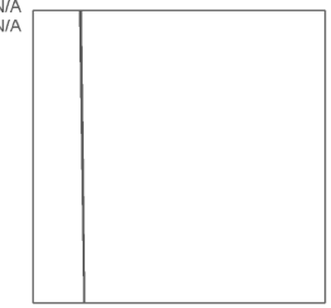
Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1849
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

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



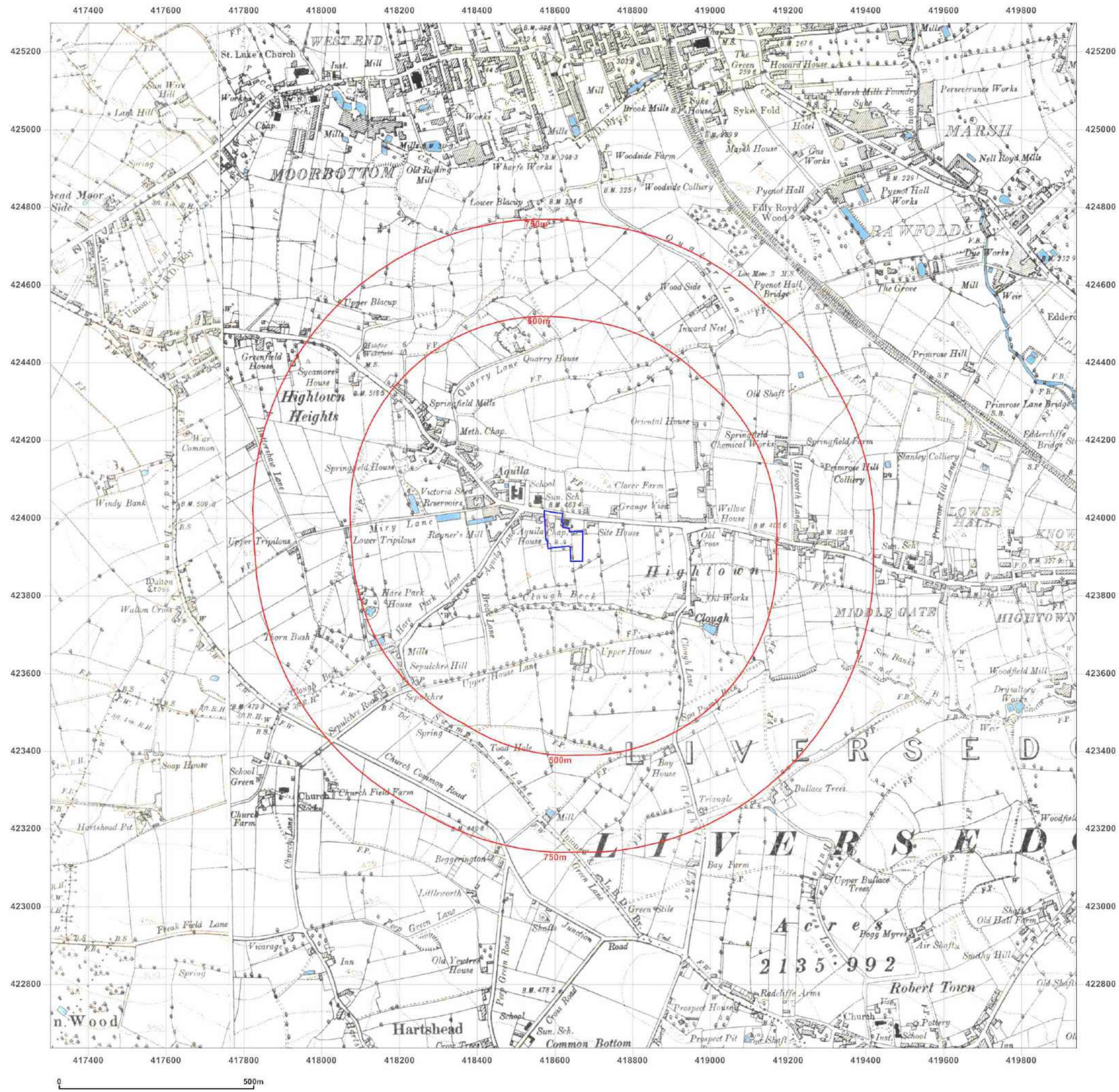
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



![Groundsure Insights]

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1892**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

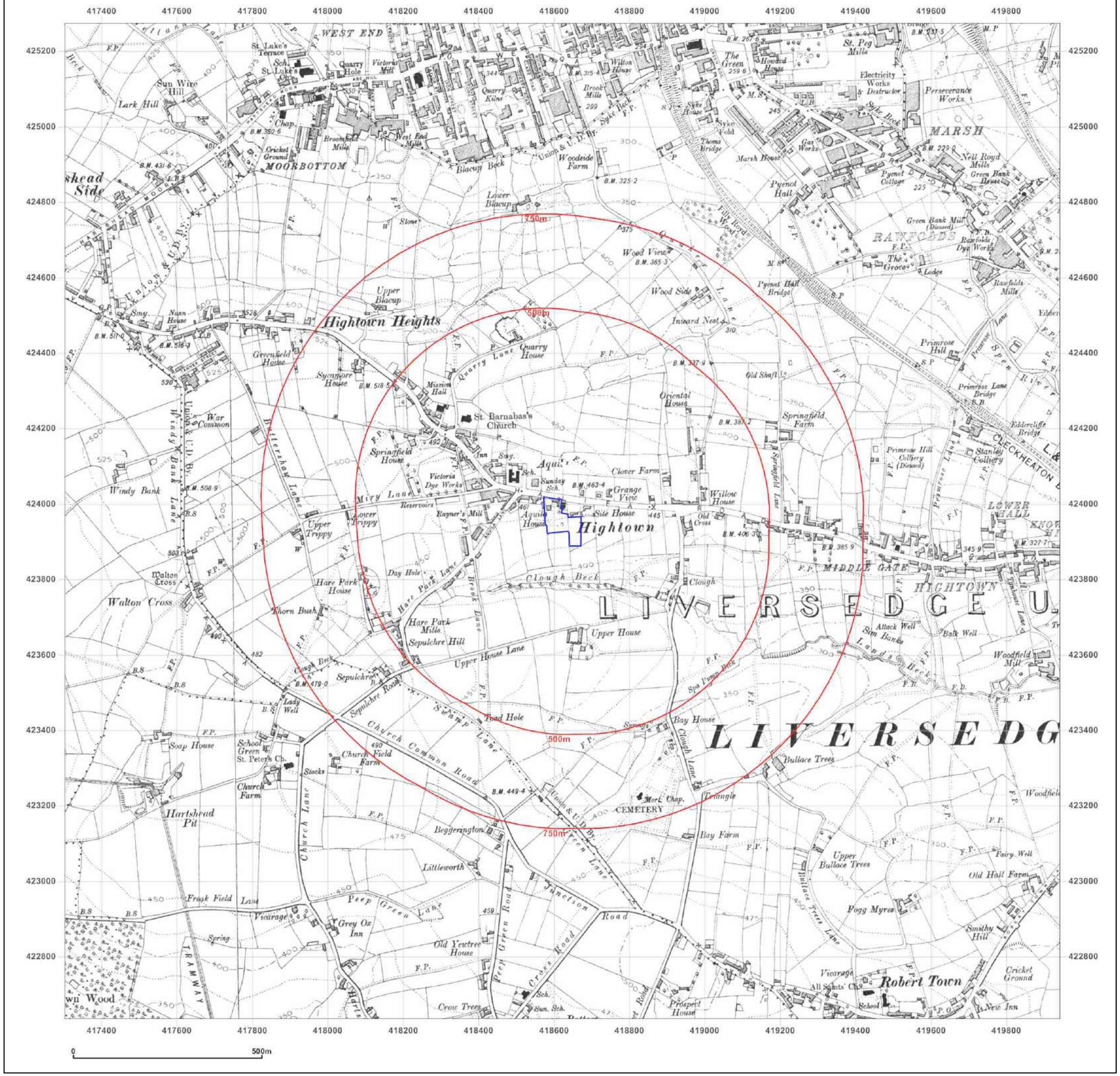
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

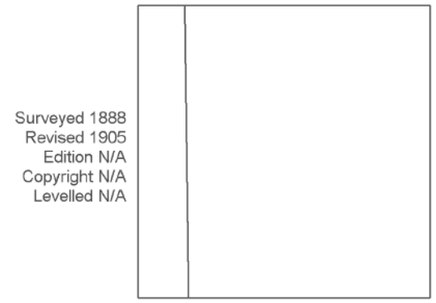
Map Name: County Series

Map date: **1905**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Powered by

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1931**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1849
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

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

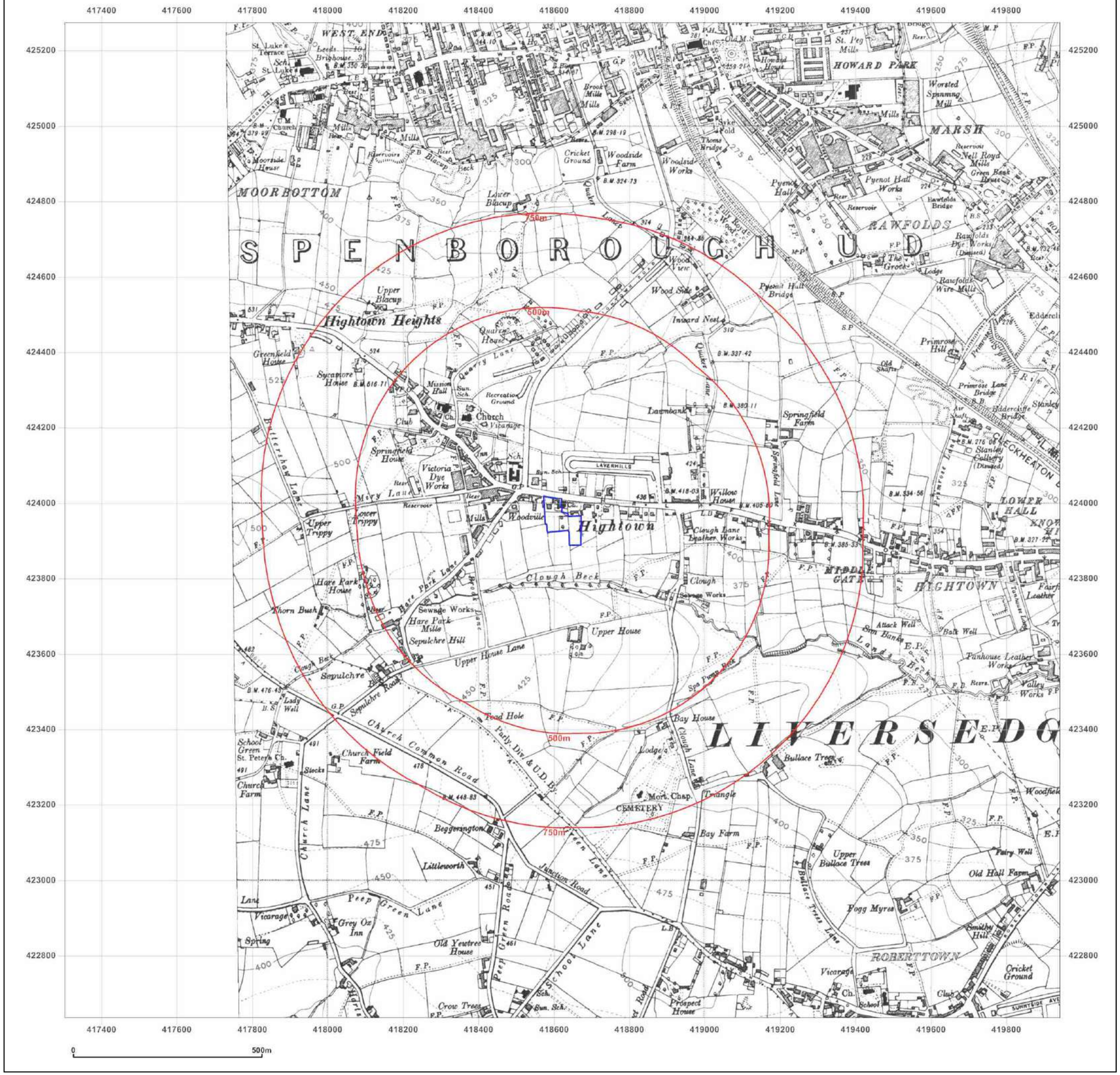
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1931**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

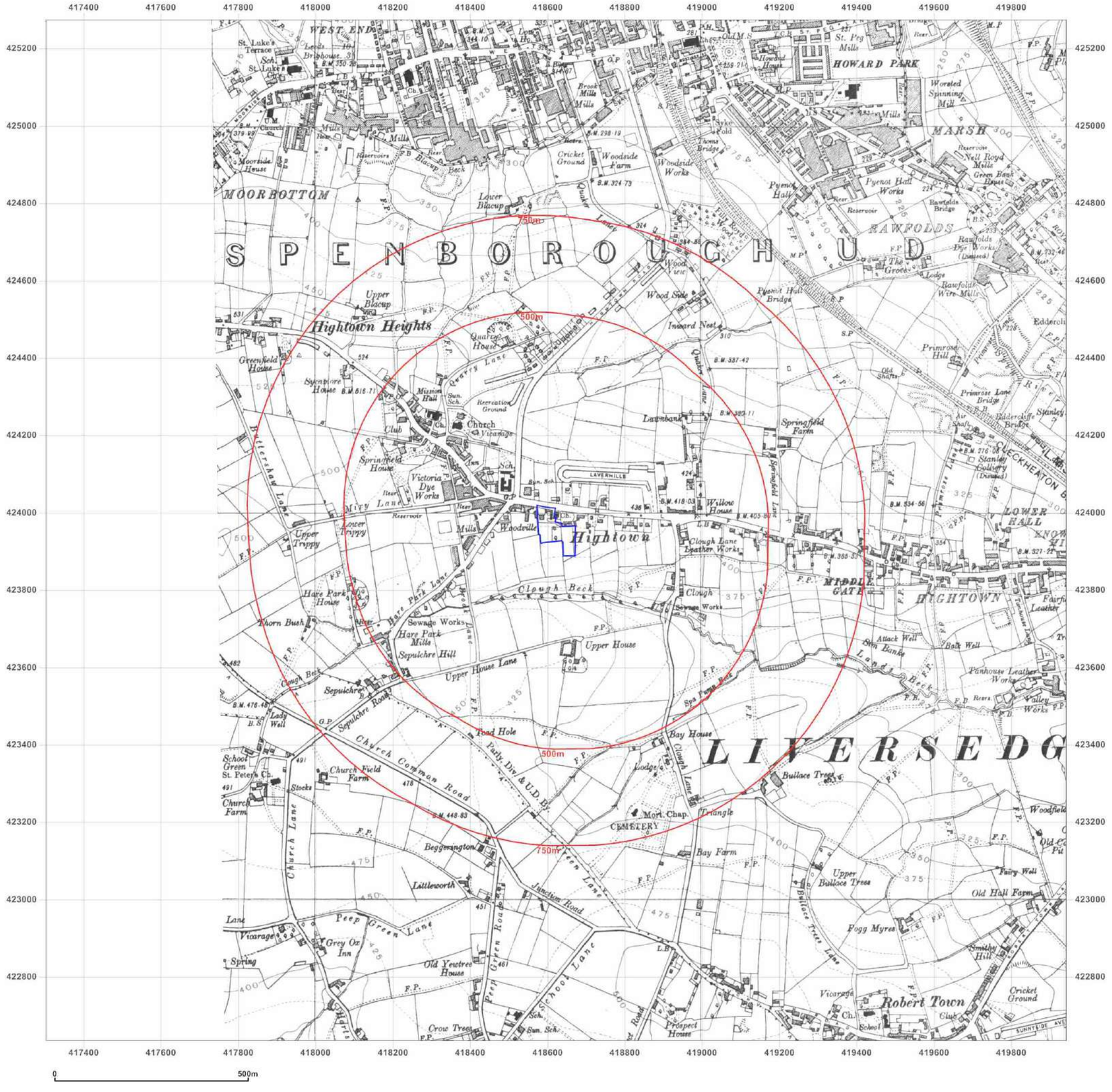
Powered by

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

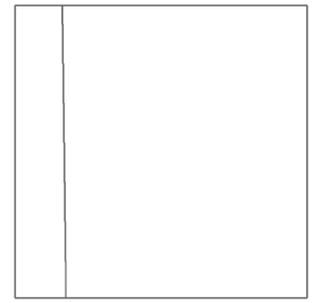
Map Name: County Series

Map date: **1931**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



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

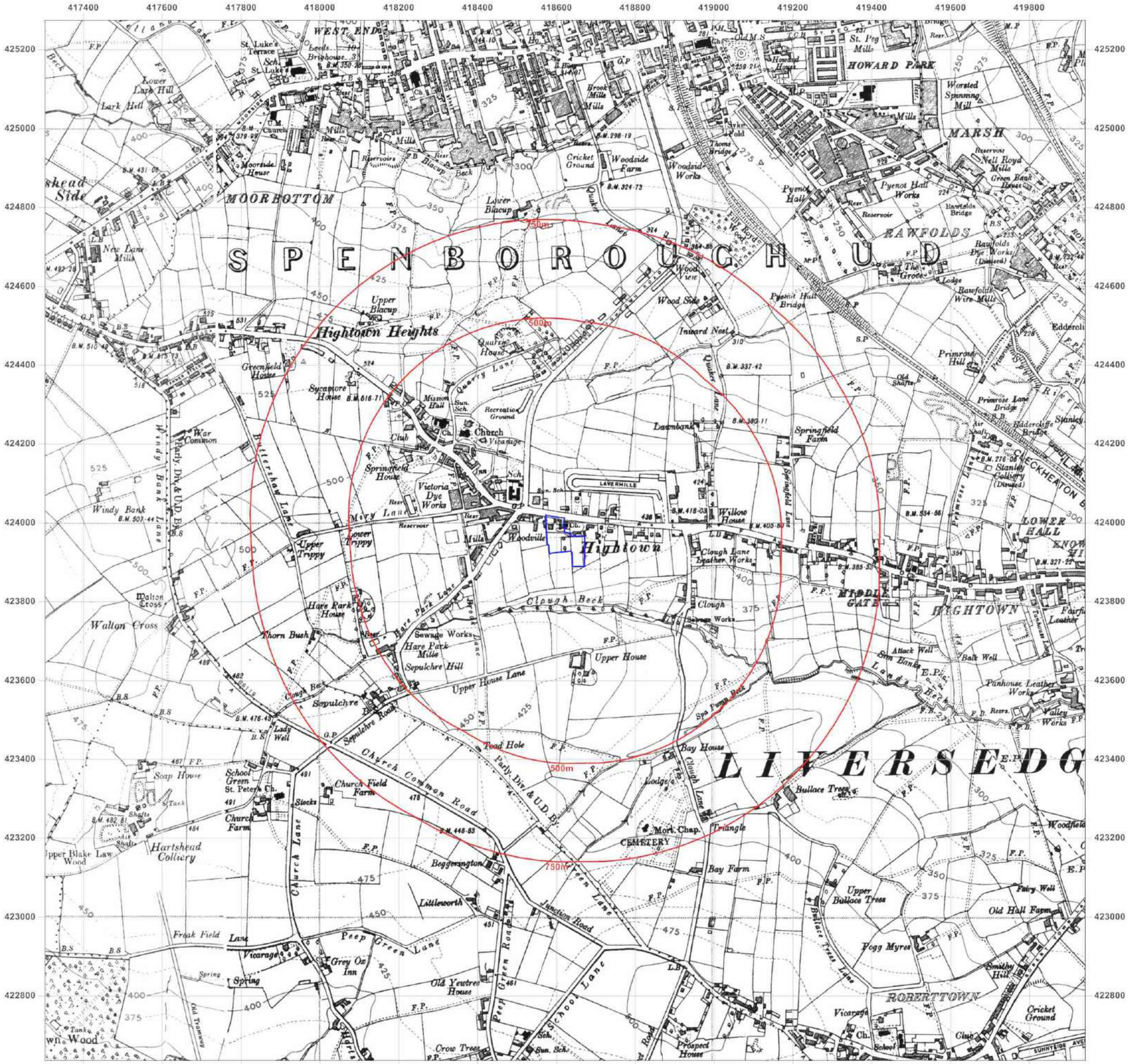
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

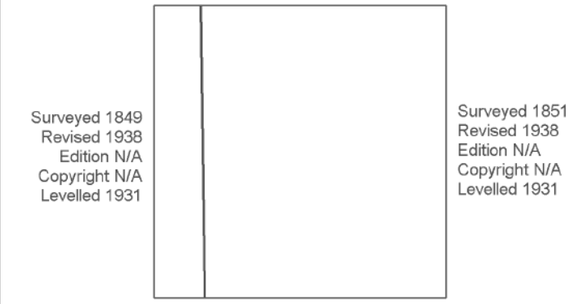
Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1849
Revised 1948
Edition 1948
Copyright N/A
Levelled N/A

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

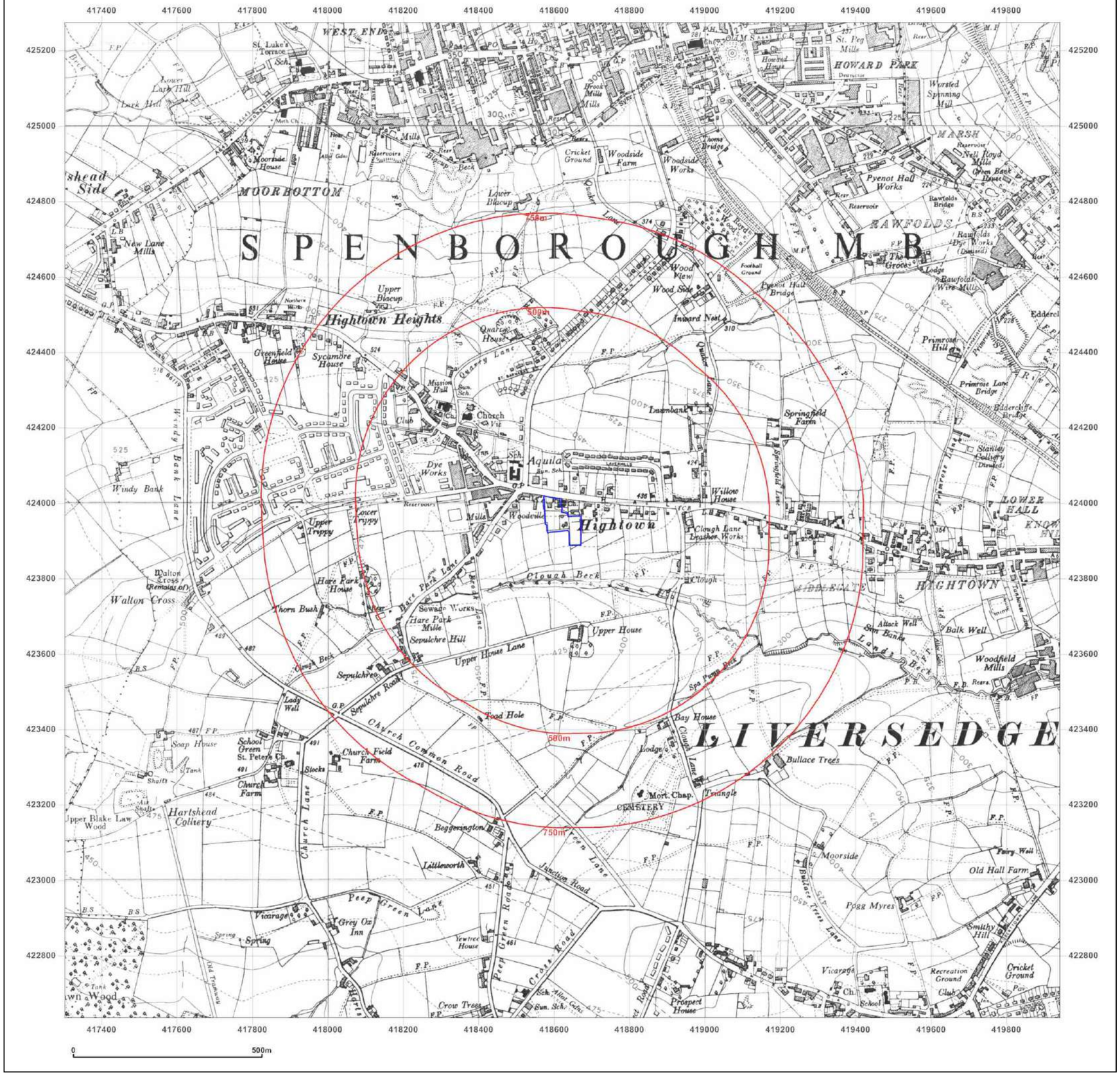
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: Provisional

Map date: **1951-1955**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

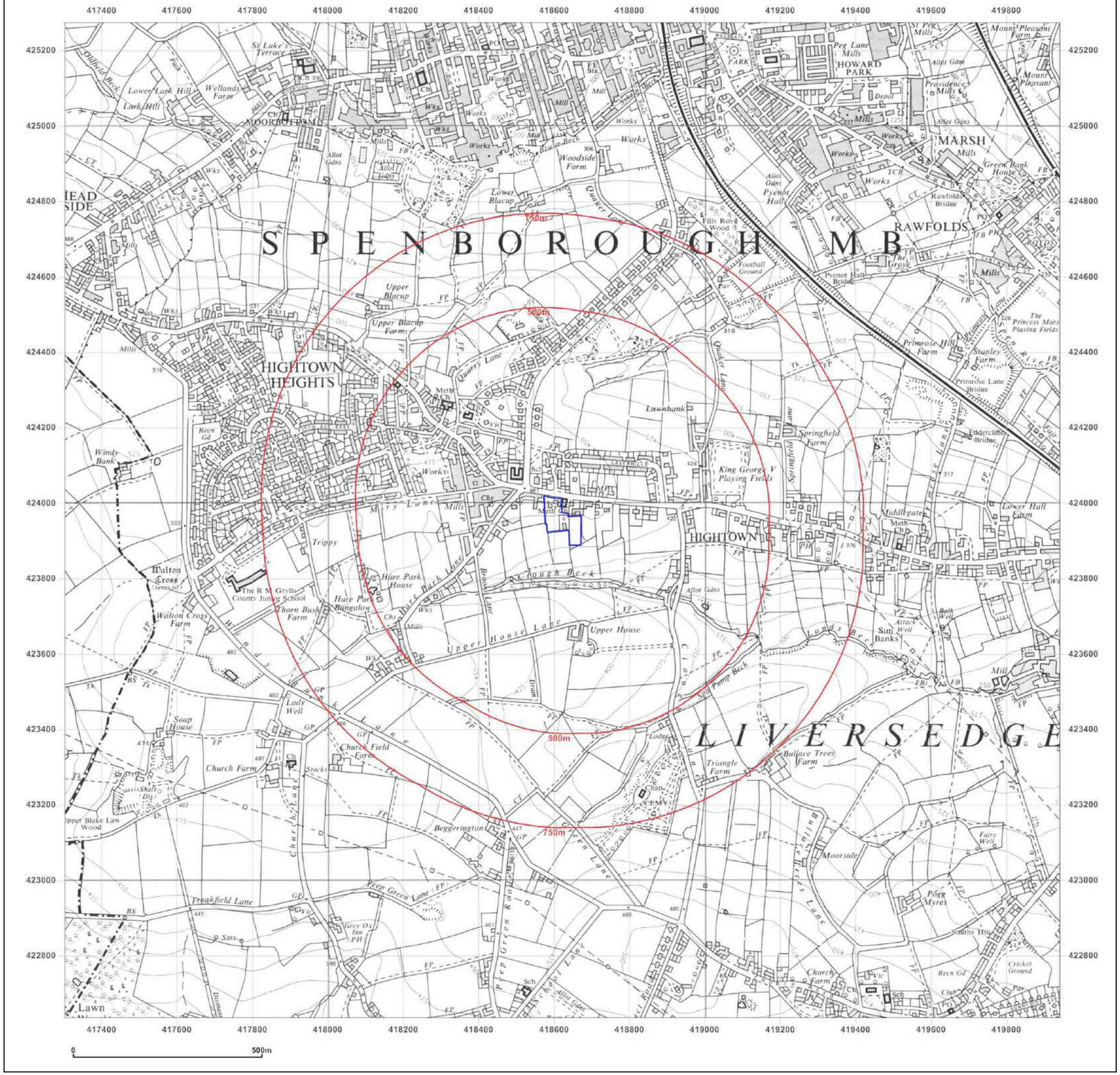
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: Provisional

Map date: **1966-1967**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

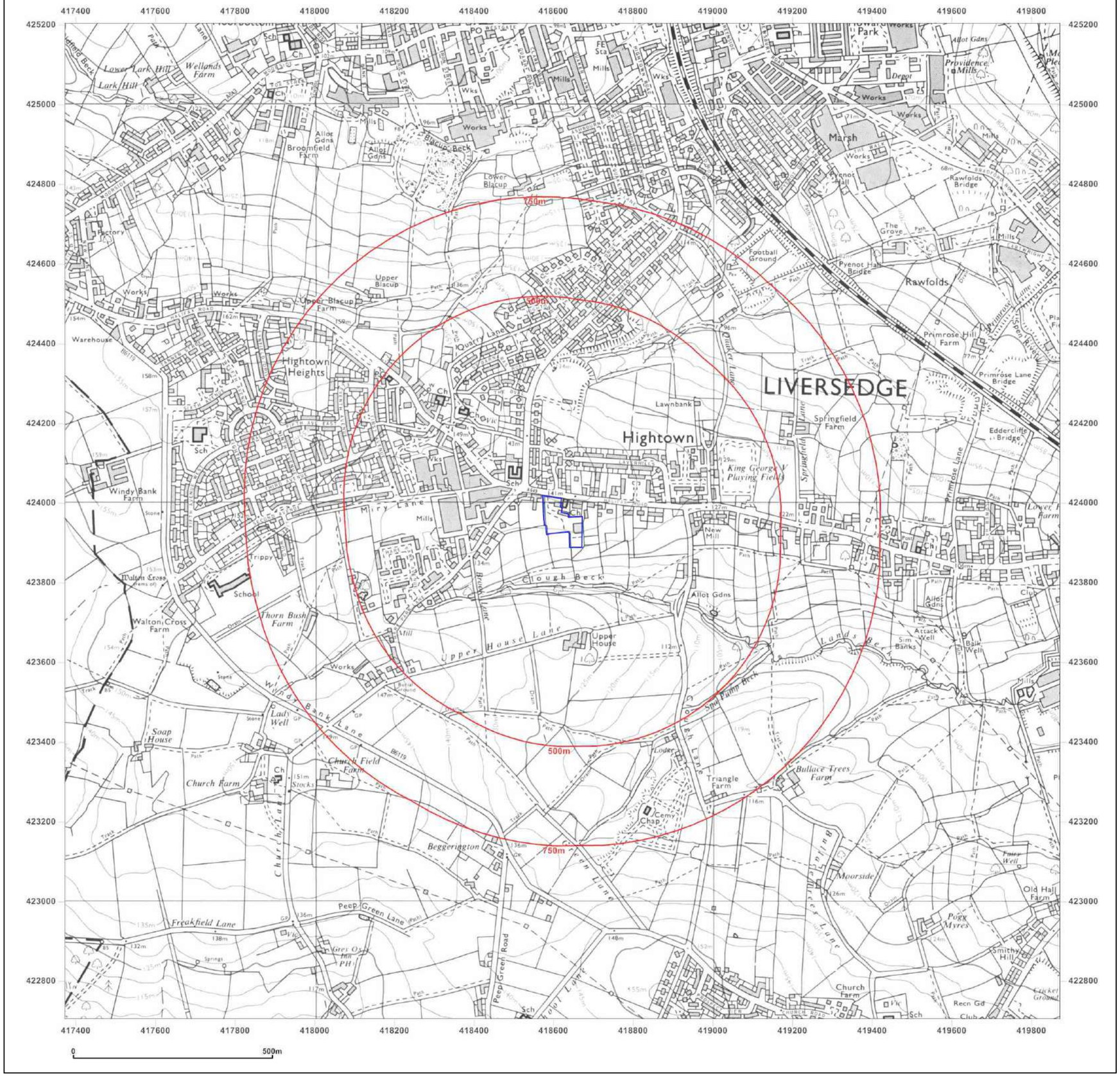
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1974-1975**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

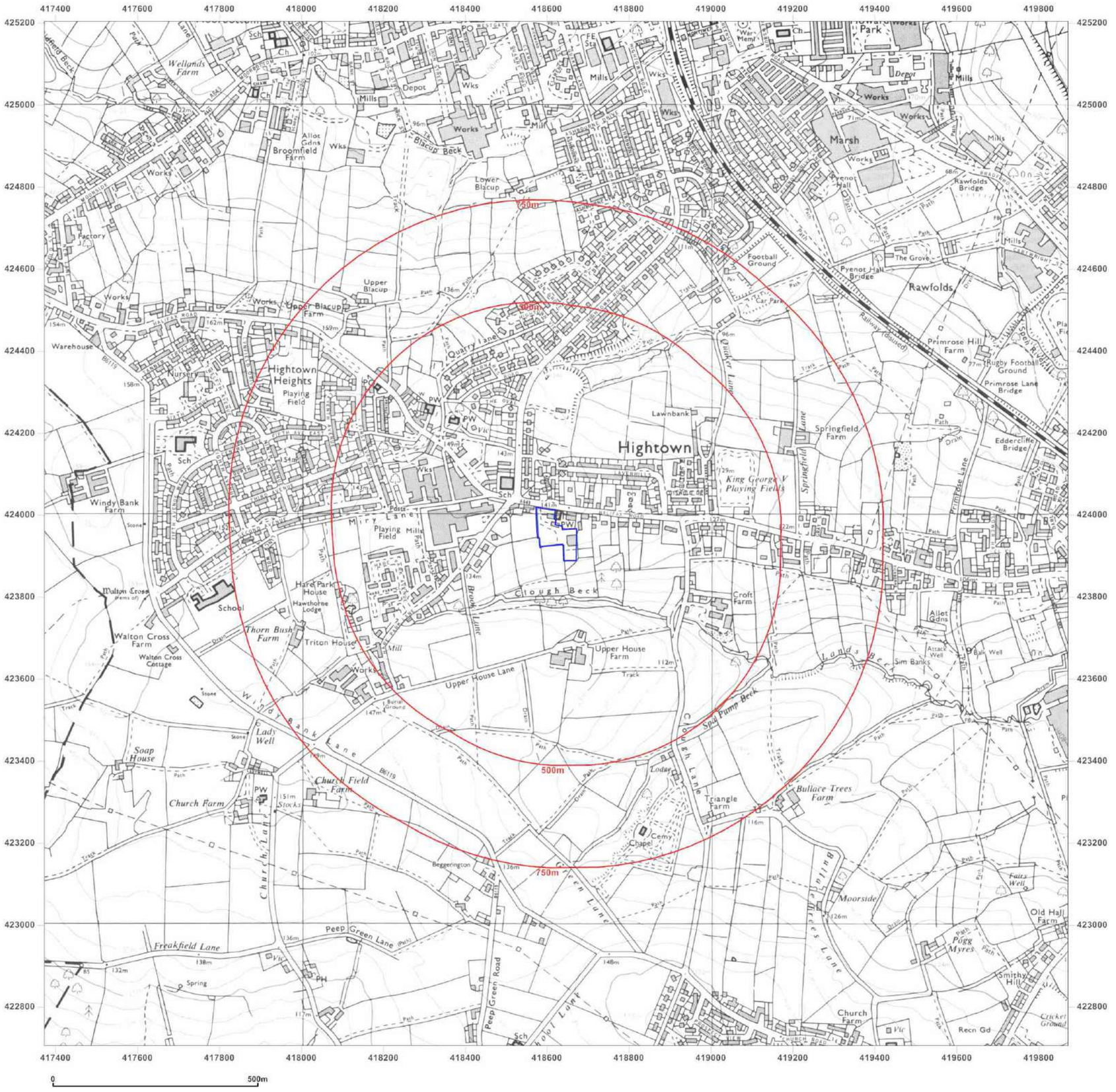
Powered by

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1983-1985**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: 1:10,000 Raster

Map date: **2002**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2002

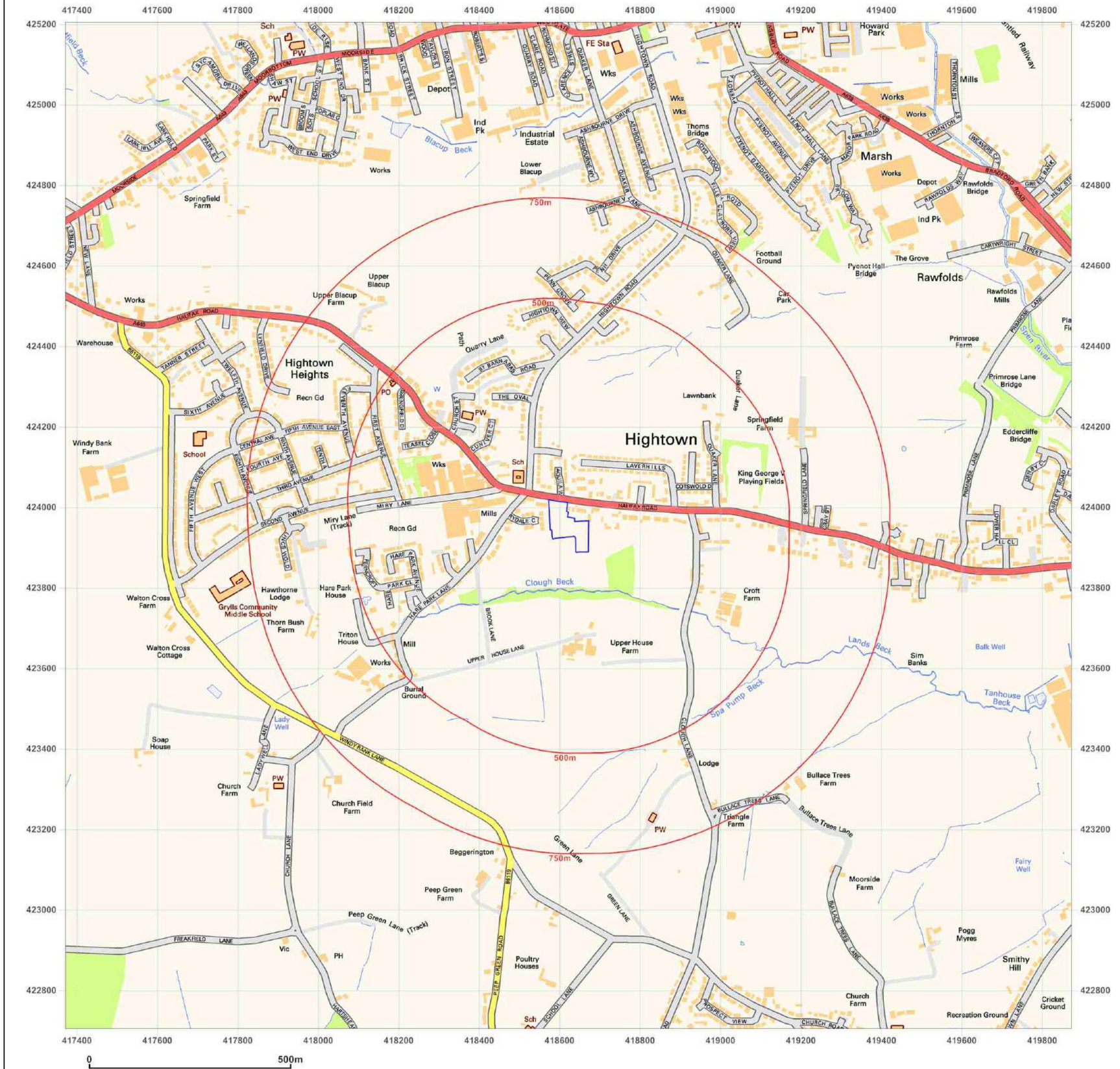
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2010

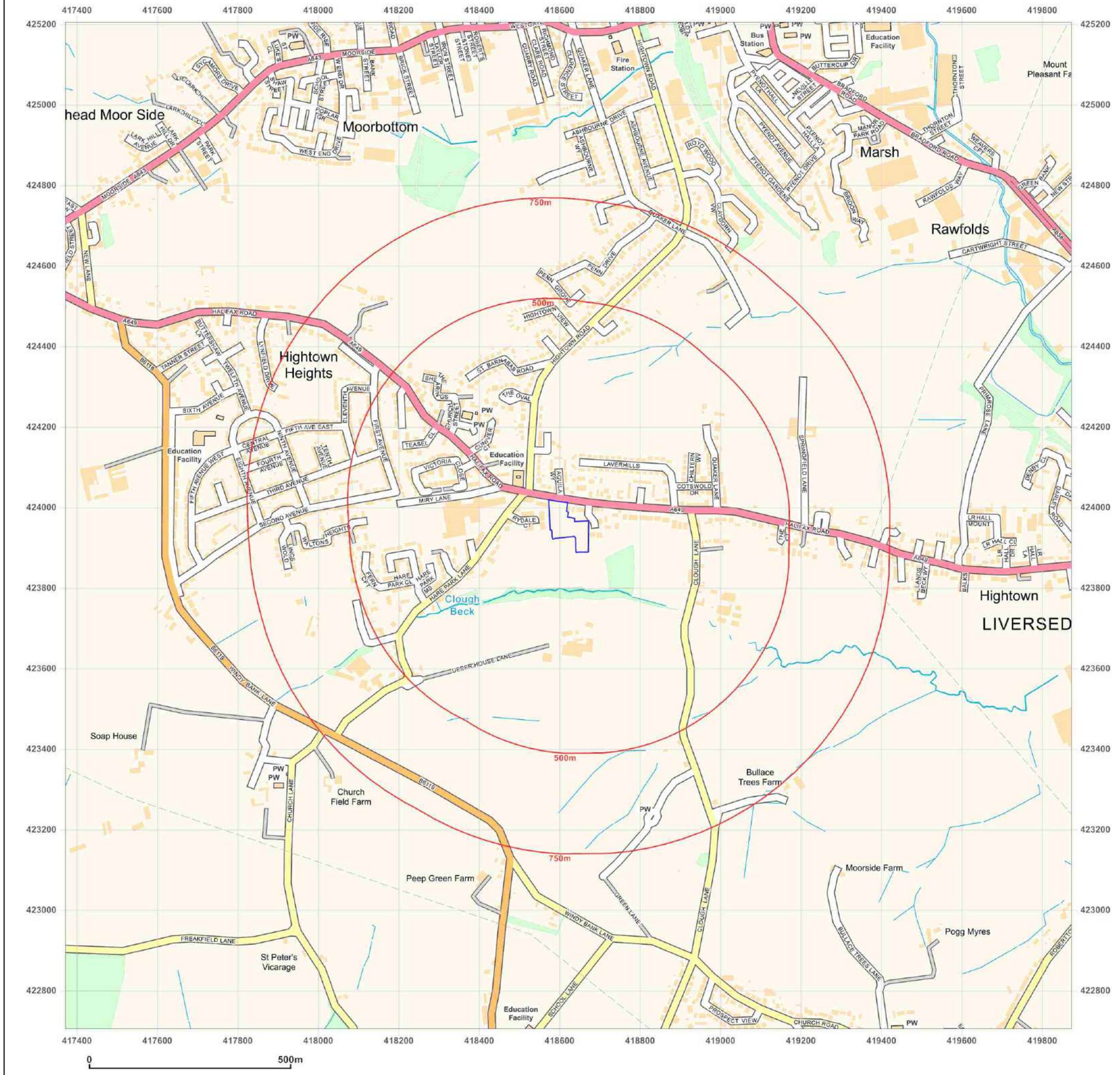
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid
Map date: **2014**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
S

2014

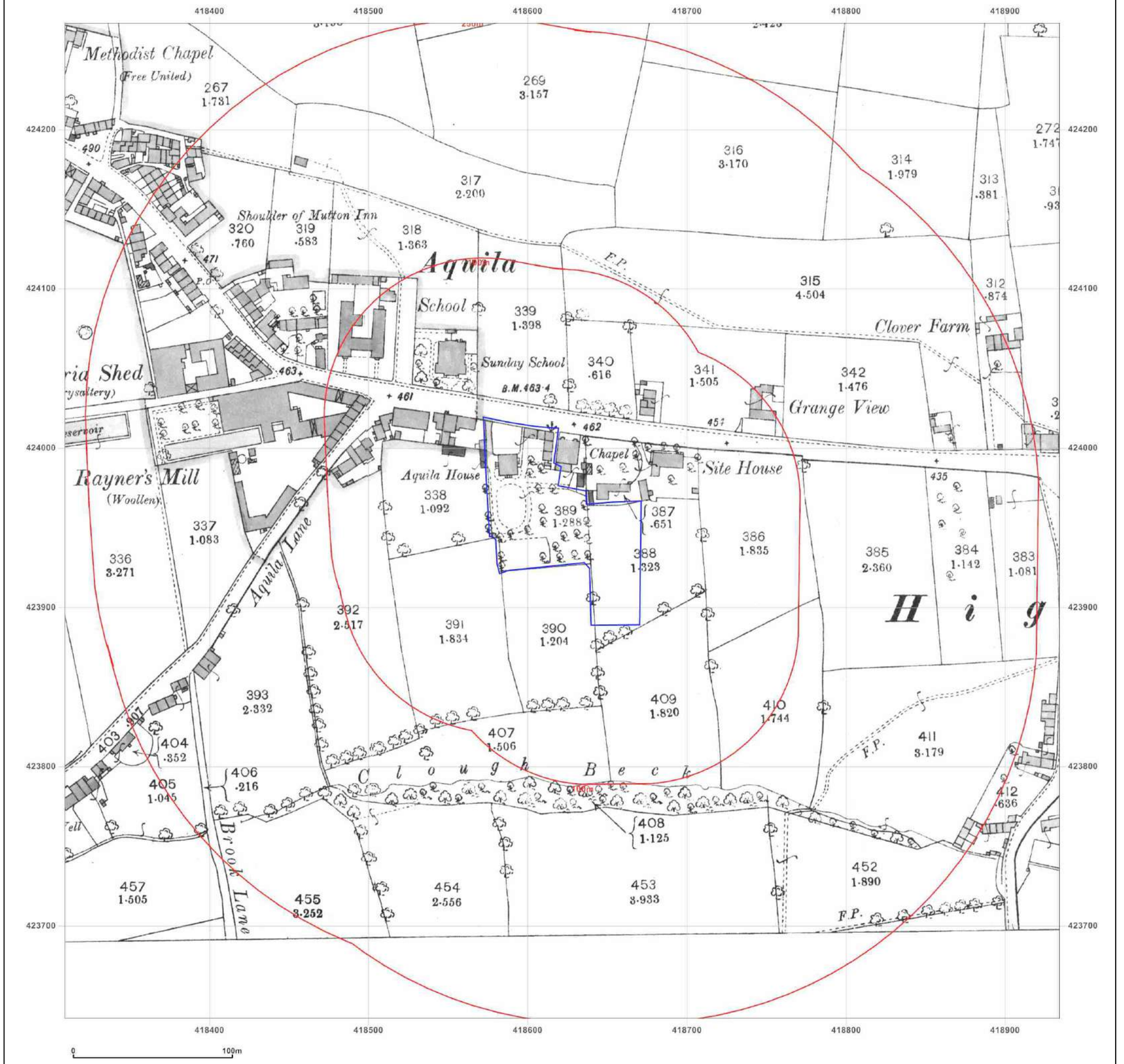
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1894**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

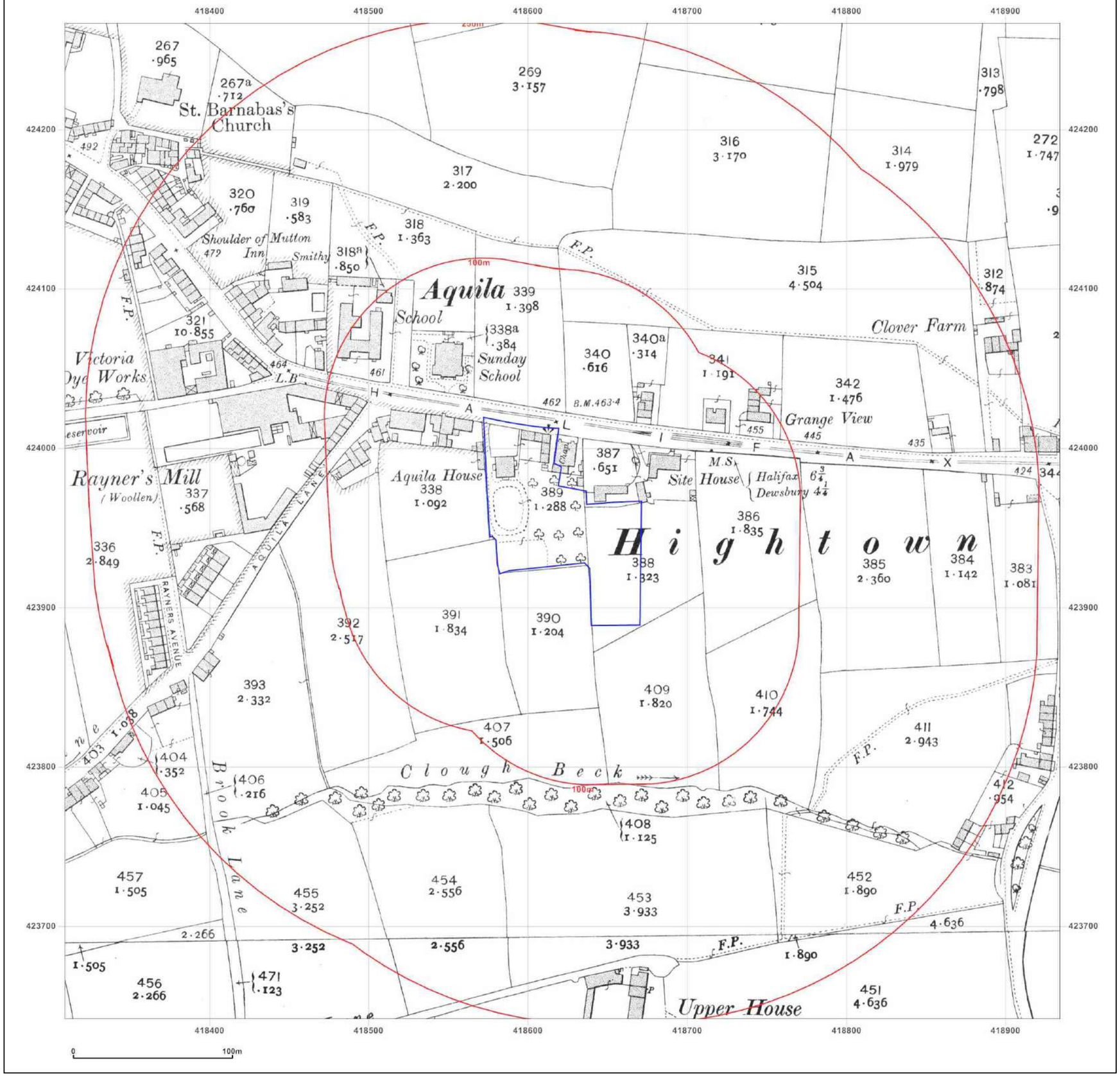
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

Map date: **1907**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

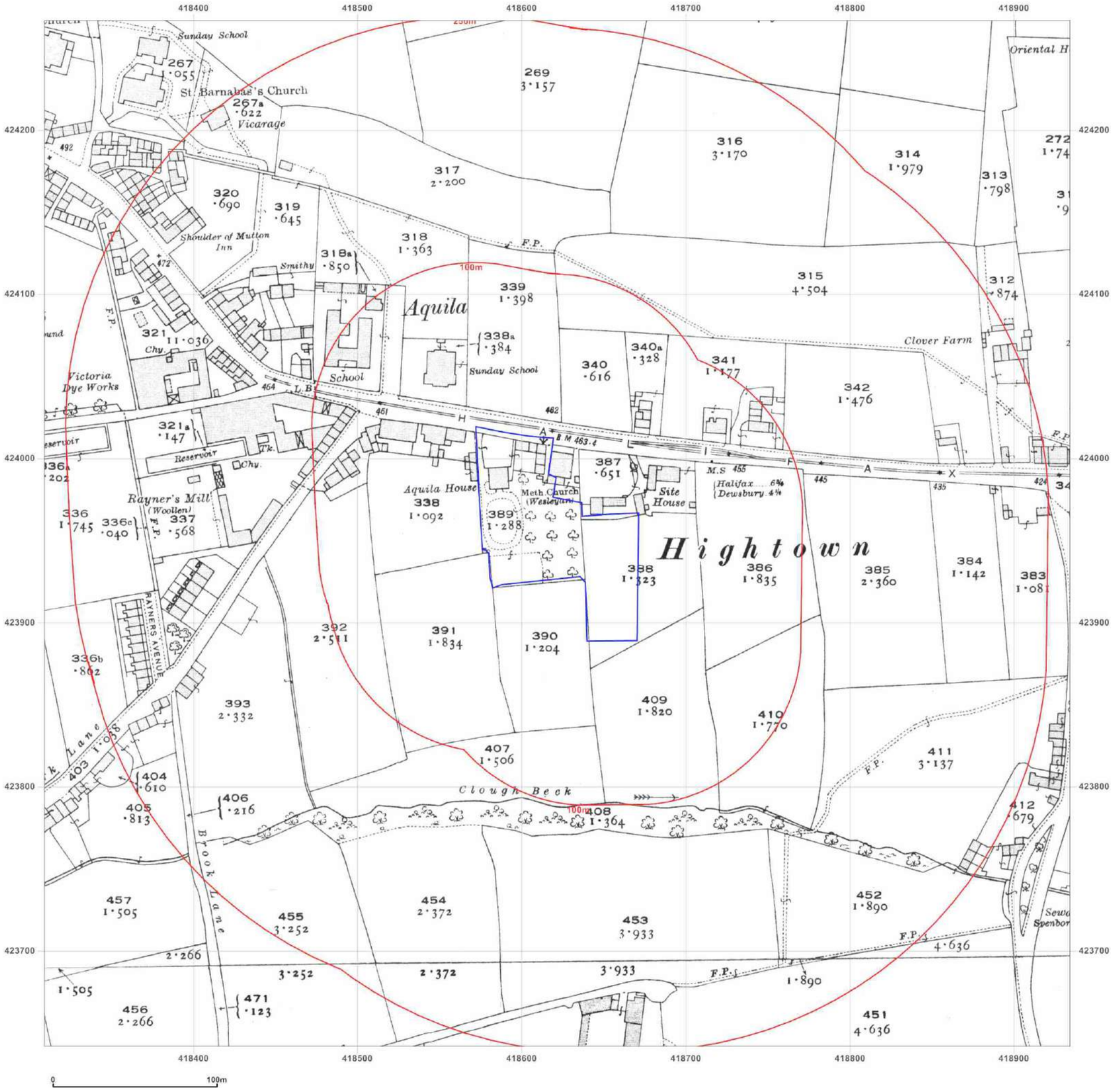
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

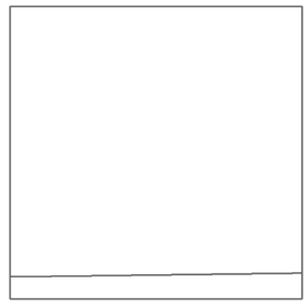
Map date: **1922**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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



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

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

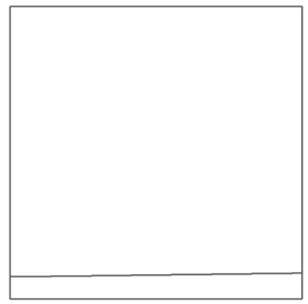
Map date: **1933**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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



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

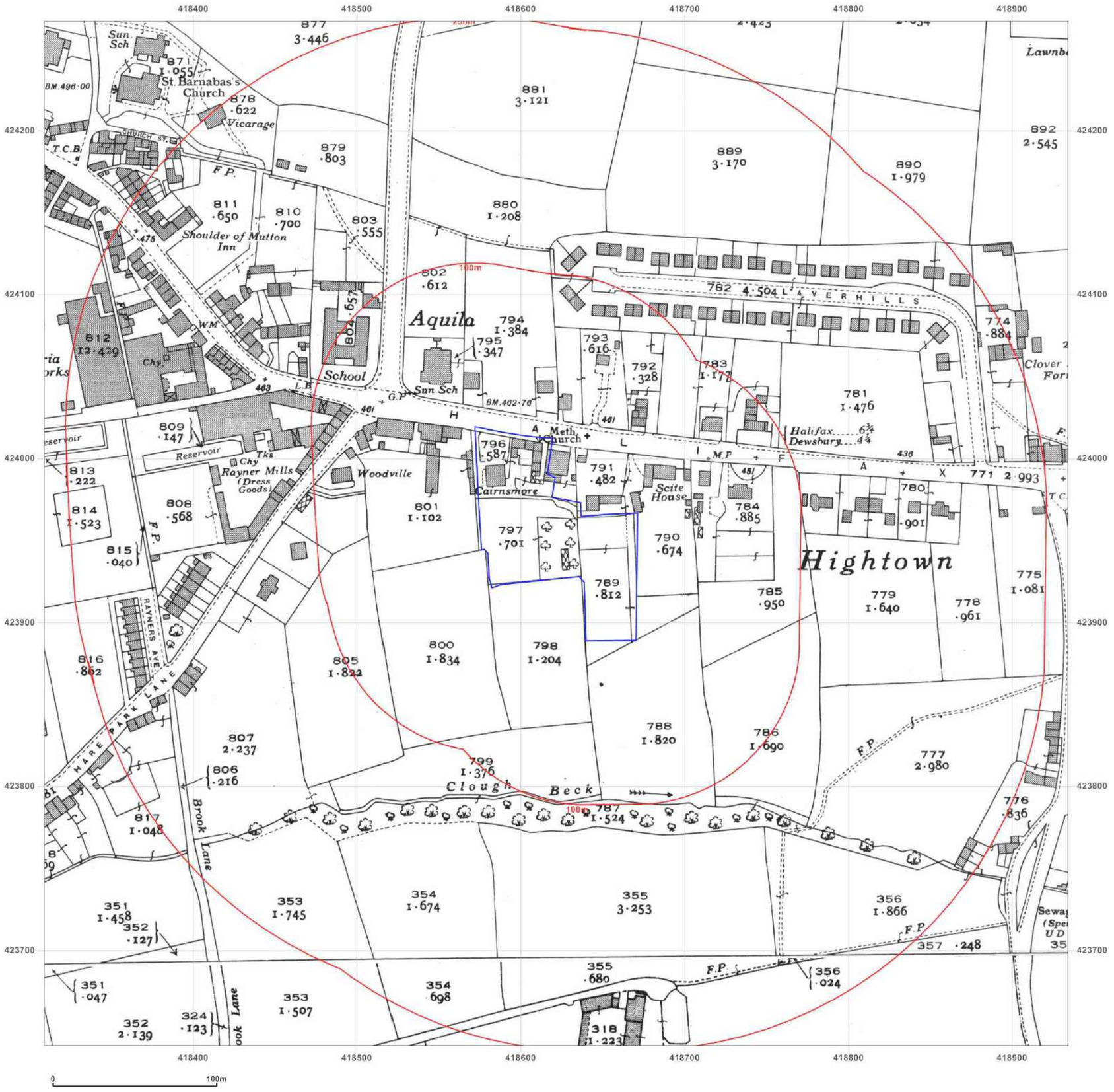
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: County Series

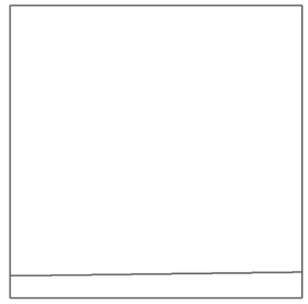
Map date: **1938**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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



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

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1956-1957**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

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

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

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

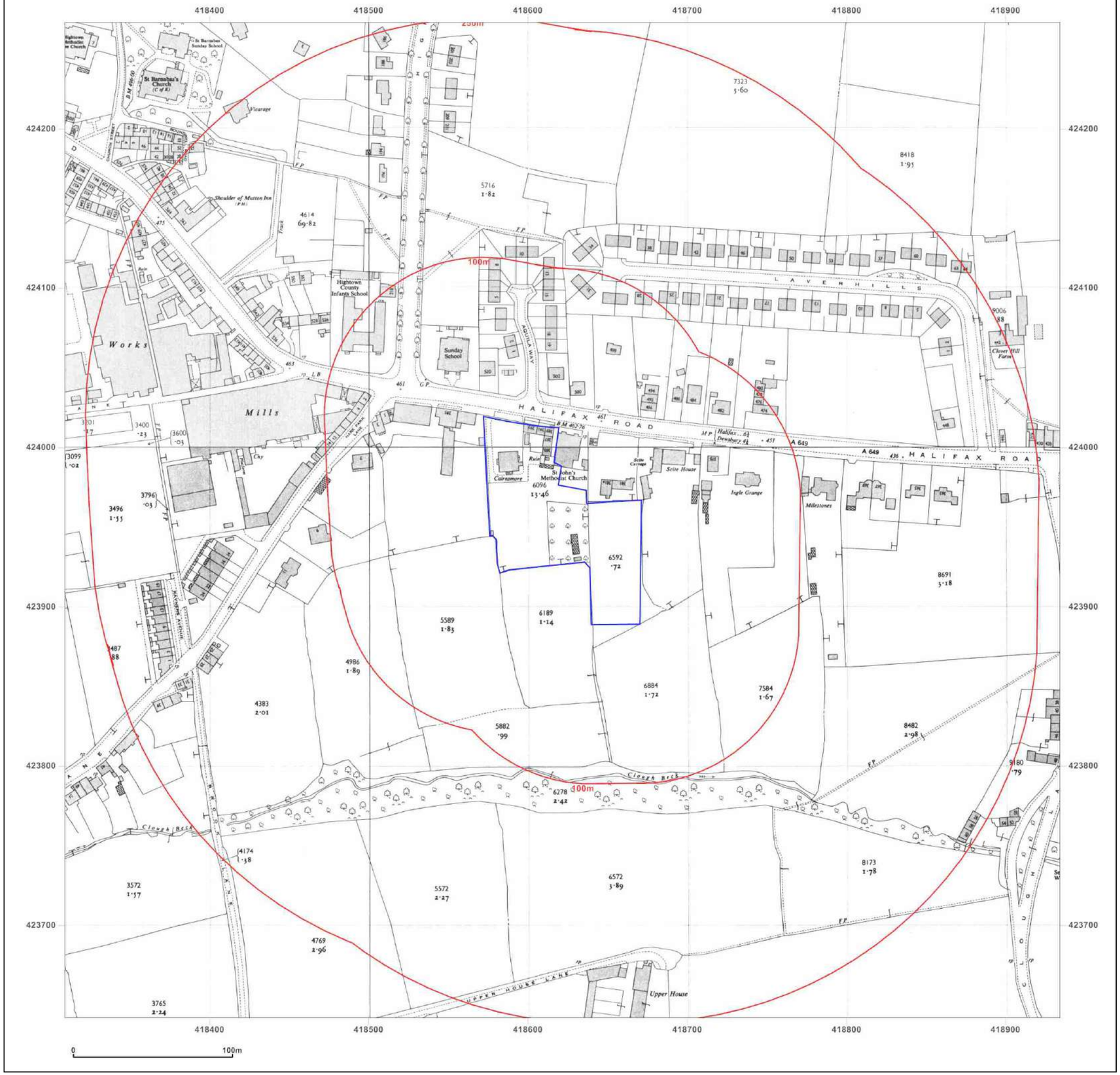
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1956-1957**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1957
Revised 1957
Edition 1958
Copyright N/A
Levelled 1931

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

Powered by

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1957-1958**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

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

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

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

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1967
Revised 1969
Edition N/A
Copyright 1970
Levelled 1962

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1965-1970**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1957
Revised 1964
Edition N/A
Copyright 1965
Levelled 1962

Surveyed 1957
Revised 1967
Edition N/A
Copyright 1968
Levelled 1962

Surveyed 1956
Revised 1969
Edition N/A
Copyright 1970
Levelled 1962

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1974-1975**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

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

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

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

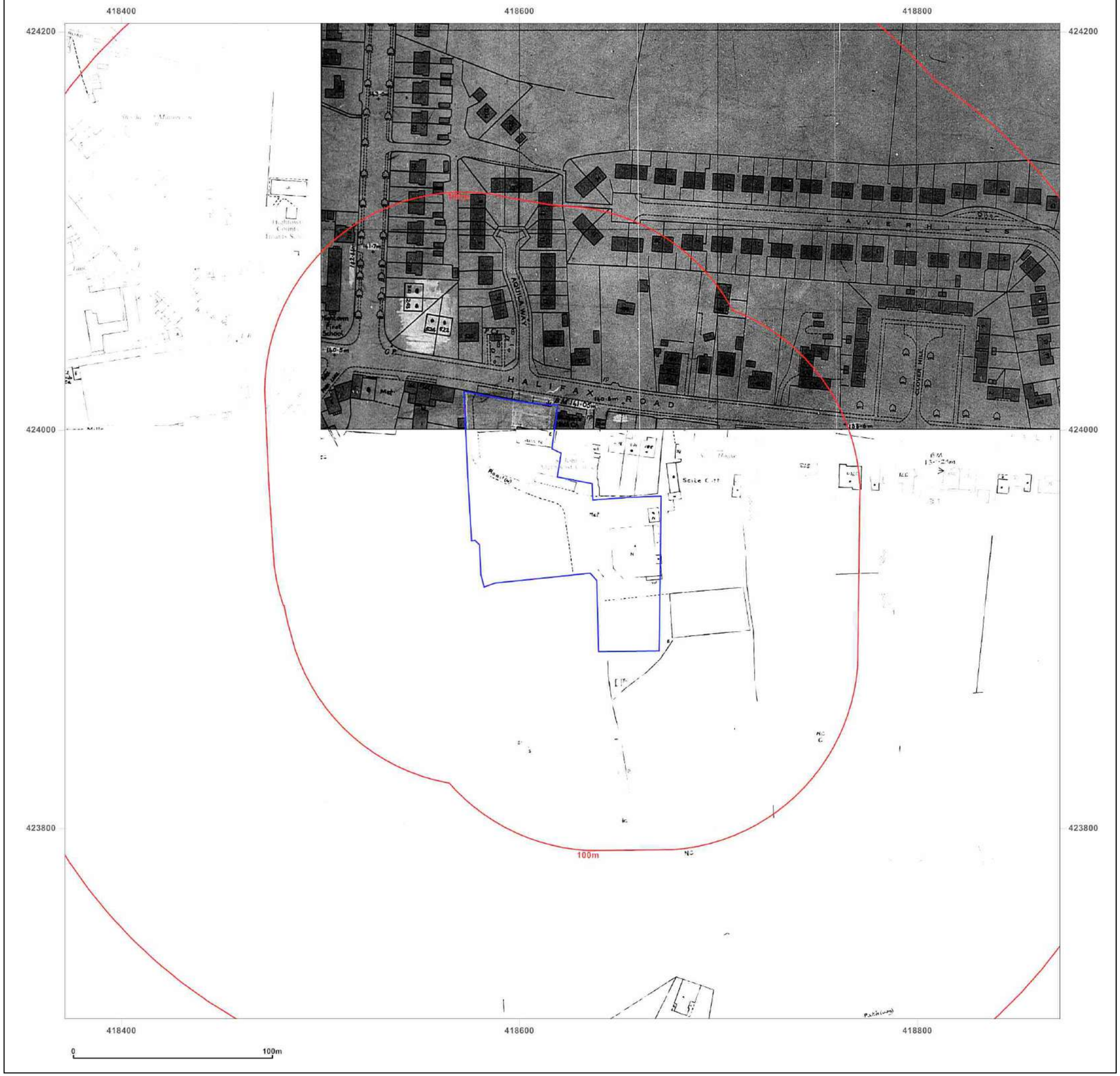
Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1975-1978**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

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

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1987-1990**

Scale: 1:1,250

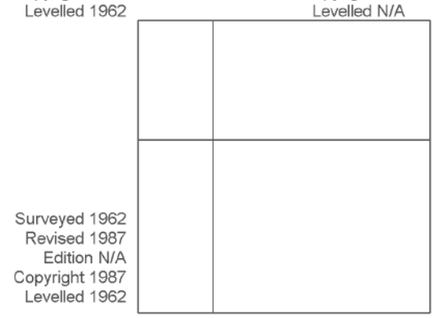
Printed at: 1:2,000

N
W E
S

Surveyed 1957
Revised 1985
Edition N/A
Copyright 1987
Levelled 1962

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

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



Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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



Groundsure INSIGHTS

Site Details:

395 HALIFAX ROAD,
HIGHTOWN, LIVERSEDGE,
WF15 8DU

Client Ref: LAKELAND_7342
Report Ref: GS-5418555
Grid Ref: 418621, 423954

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

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

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

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

Powered by OS

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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 September 2018

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