

Figure 7: Risk of Flooding from Surface Water - Depth

Source: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>; Accessed April 2020

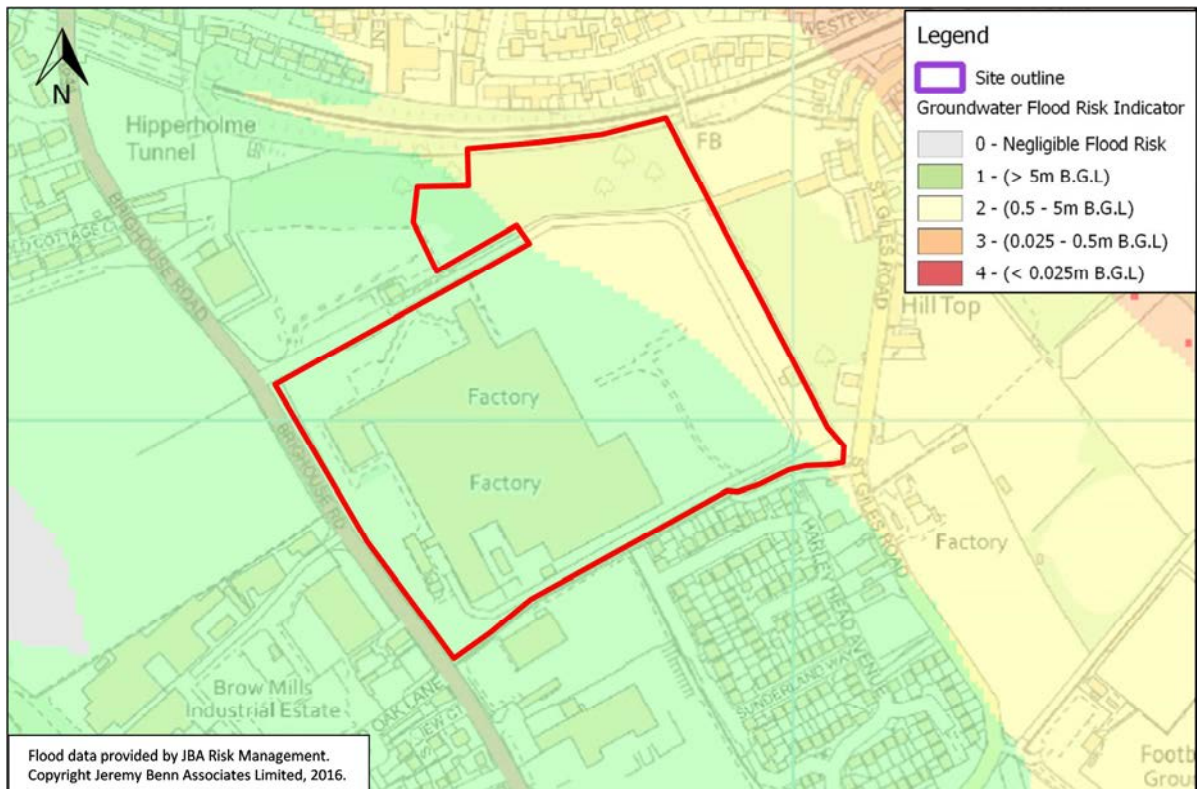


Figure 8: Risk of Flooding from Groundwater

Source: blueskymapshop.com; Accessed April 2020

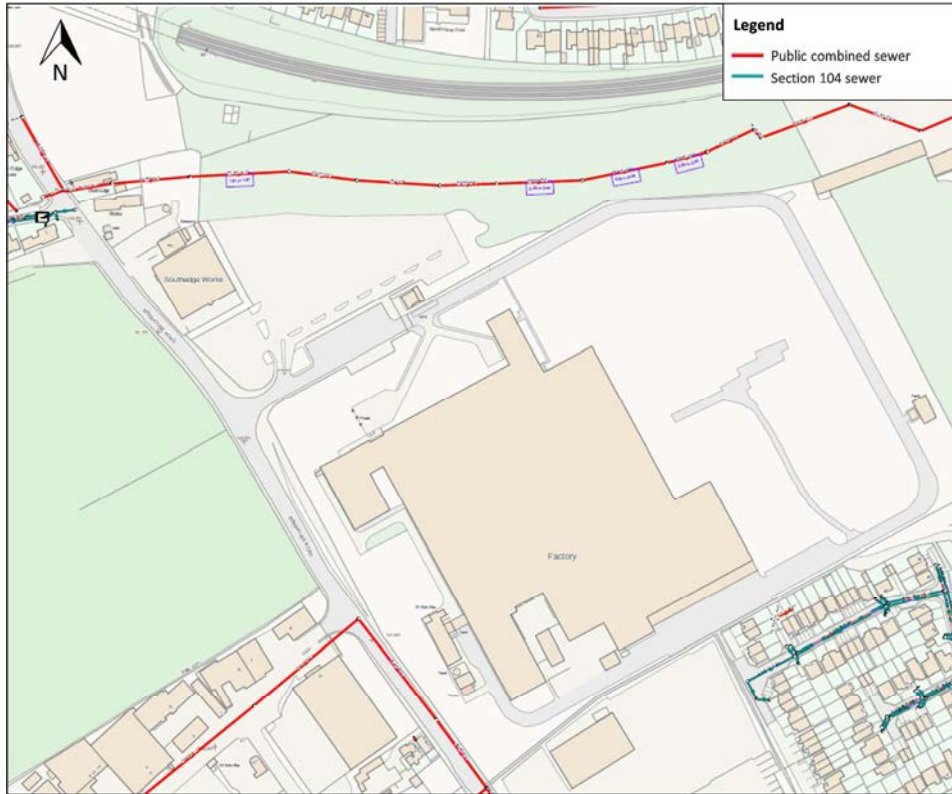


Figure 9: Yorkshire Water Sewer Records

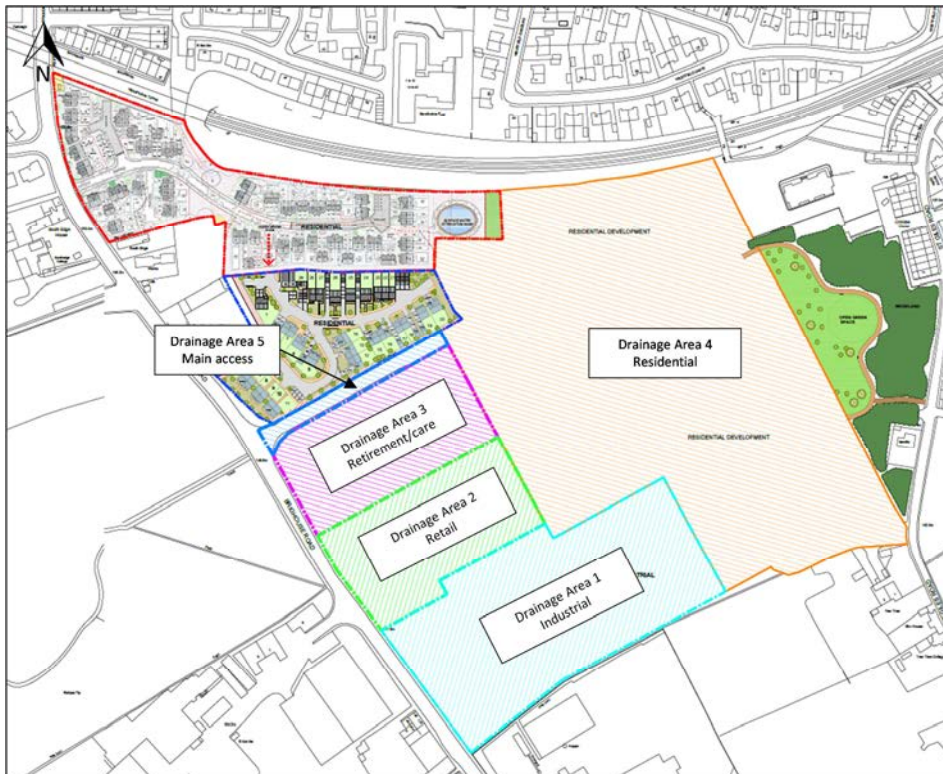


Figure 10: Drainage Areas

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APPENDIX 4

PHASE 1 GROUND REPORT



Phase 1 Desk Study Assessment
Brighthouse Road, Calderdale, HX3 8EF



Revision number: 1
Report status: Final
Date: September 2019

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1.0 INTRODUCTION

1.1 Context and Objectives of the Phase 1 Environmental Assessment

Swan Environmental Services Ltd (Swan) was retained by Crosslee PLC via Swangate Land and Development to undertake a Phase I (desk based) Environmental Assessment of land encompassing the Lightcliffe Factory and adjacent areas, Brighthouse Road, Hipperholme, Brighthouse, Calderdale, HX3 8DE. The Site location is shown in Appendix A.

The overall aim of the Phase I Environmental Assessment (Phase 1 Report) is to assess the environmental risk and to assess any potentially complete pollutant linkages associated with the site's redevelopment.

It is understood that the proposed redevelopment will involve the construction of a number of residential properties and associated gardens.

1.2 Scope of Works

A pdf electronic copy of the Phase 1 Report will be provided and the scope of works include:

- A review of published geological, hydrogeological and hydrological information to establish the Site's environmental setting;
- A review of published historical and current Ordnance Survey maps to establish the history of the Site and its immediate surroundings;
- A review of publicly available information from regulatory authority databases, obtained from the Groundsure database;
- Develop a conceptual site model and assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors; and,
- A summary of conclusions and recommendations

2.0 INFORMATION SOURCES

One of the objectives of this Phase I Desk Study is to collate:

- Information concerning potential contaminants, pathways and receptors; and,
- Other relevant characteristics of the site and its surrounds.

This involves a study of the site's current and historical land use and is best achieved via a combination of desk-based research and regulatory consultation. In this case, Swan has carried out a desk study, the data gathering exercise is described in the sections that follow.

2.1 Desk Study

Swan has reviewed the following sources of information in order to characterise the site and its surrounds, including:

- Envirocheck Report including historical mapping (see Appendix A)
- BGS onshore geo Index <http://mapapps2.bgs.ac.uk/geoindex/home.html>;
- Flooding information <https://flood-map-for-planning.service.gov.uk/>

2.2 Risk Classification

Swan has utilised the available information, together with our experience to assess the environmental risks. Definitions of the risk terms used are provided on the following table.

Table 1 – Risk Classification

Risk	Description
Negligible	No contamination risk has been identified which are likely to affect development. No investigation is necessary.
Low	No significant contaminated land risks have been encountered that are likely to affect development, it is possible that investigation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issues associated with the site which will adversely affect its re-development. Minor or localised contamination may be present.
Moderate	Some potential contaminated land risks have been identified that require investigation. The risks identified are unlikely to affect the entire site or preclude development.
Moderate-High	Some potentially significant contaminated land risks have been identified that require investigation. The risks are not likely to prevent redevelopment.
High	Significant potential contaminated land risks have been identified. Investigation is required and a remediation strategy is likely to be required.

3.0 CURRENT AND HISTORIC LAND USE

3.1 Site Location

The site extends to 14.45 hectares (ha) and is located to the east of Halifax, off Brighthouse Road, Hipperholme, Brighthouse, Calderdale, HX3 8EF. (The Site). The grid reference to the centre of the Site is 412795, 425063.

The site is irregular in shape and is situated on the western boundary of Brighthouse Road.

The Site location is illustrated in the current map extracts and aerial photo extract in Appendix A.

3.2 Current Land Use On-site and Surrounding Area

The Site is currently a working factory in the south west of the site with wooded areas to the north and east. There is car parking to the north west and a road allowing access to the factory which runs from the east and north of the site.

The site can be accessed via one ingress and egress point along its western boundary off Brighthouse Road.

The land use around the site is as follows;

- North- Residential Properties, wooded areas and a lorry yard to the north east.
- West – Brewery to the north west, Brighthouse Road, residential properties and an industrial estate with numerous units.
- East – Residential Properties, wooded and grassland with a golf course beyond.
- South – Residential properties, commercial vehicle yard, building supplier and quarry stone merchants and Hove Edge beyond.

3.3 Historic Land Use on Site and Surrounding Area

The Envirocheck historical map extracts are presented in Appendix A and the review of the key information is summarised in Table 2 below.

Table 2 – Historical Land Use

Map Edition	Site	Surroundings
1854	<p>Part of Yew Tree Farm is located within the south eastern corner. Railway line located in the north of the site, running in an east to west direction along the site's northern boundary with Hipperholme Tunnel along the site's North West boundary.</p>	<p>The surrounding area is comprised of the following;</p> <p>Hipperholme Tunnel and railway line is located directly adjacent to the north of the site. Lightcliffe railway station is approximately 450m north east of the site.</p> <p>Residential properties, Victoria Terrace located approximately 150m north, German House 200m north, Rock Terrace approximately 400m north and the Crescent 300m north. Lydgate House is located approximately 300m north of the site.</p> <p>Hipperholme Tannery is located approximately 275m north west.</p> <p>There are schools approximately 500m north east and 600m north east of the site. Gaubert Hall Quarry is located approximately 150m east of the site.</p> <p>Residential properties labelled as Sunny Side, Sunny Cliffe and Hill Top are all located within 100m of the site, the closest being approximately 10m from the site's eastern boundary.</p> <p>Crows Nest Park is labelled approximately 250m east of the site, with a building labelled as Crow Nest and a water body approximately 650m east of the site.</p> <p>South of the site there are a number of shafts and old shafts labelled, these are located approximately 100m from the site boundary, the closest being approximately 80m north west of the site.</p> <p>Broad Oak Quarries is annotated approximately 250m south of the site. Broad Oak is residential in nature and located approximately 20m south west.</p> <p>Red Beck is located 487m south west running in a north west to south east direction with Upper Lake 500m south west of the site. Walter Clough Mill is approximately 650m</p>

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		<p>south east of the site.</p> <p>Two Sandstone Quarries are labelled 250m south west and 350m south west of the site.</p>
1893	<p>Yew Tree Quarries is located in the north east of the site with associated buildings.</p> <p>Yew Tree Farm in south east.</p>	<p>The surrounding areas are comprised of the following;</p> <p>Stubbins Quarries is located 100m south west of the site.</p> <p>Sunny Vale Gardens is annotated 500m west of the site and Sunny Bank is located 750m west of the site.</p> <p>Broad Oak Quarries is annotated approximately 250m south of the site.</p> <p>Hill Edge Cottage is located approximately 200m south west and Pleasant View approximately 150m south west of the site.</p> <p>Lydgate is a cluster of residential properties located approximately 200m north east of the site.</p> <p>A Mill is now annotated 500m north west of the site. A water body is adjacent to the Mill alongside Badger Lane approximately 600m north west of the site.</p>
1905 - 1907	<p>Nonslip Stone Works is located in the central western area of the site, with a Silex Brick and Sandstone Works in the eastern area of the site.</p> <p>There is a reservoir annotated in the north of the site and a number of mineral railway lines labelled across the site.</p>	<p>Two of the Mineral railway lines which run onto site, originate from Harley Head Quarries located 250m south of the site. The other originates from old shafts 100m north west of the site. The mineral railway lines on site also run to join the line north of the site as it comes out of Hipperholme Tunnel approximately 50m north east of the site.</p> <p>Rough Heys Quarry is now annotated approximately 150m south east of the site.</p> <p>Broad Oak Quarries are now located south of Pleasant View approximately 250m south west of the site.</p> <p>Tuck Royds Quarries is located south of Broad Oak Quarries approximately 300m south east of the site.</p>
1922	<p>Glazed Brick Works and associated tanks and chimneys now annotated in south east of the site, with a stone works in the central and north western area.</p>	<p>Hipperholme to the north west of the site is now increased in residential properties.</p> <p>A timber yards is now annotated north west of the site, approximately 300m from the site.</p> <p>Gaubert Hall Quarry is now labelled as disused.</p>

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	<p>An old sandstone shaft is now annotated in the south east of the site.</p> <p>Mineral railways and Silex Works remain present.</p>	
1938	<p>Site remains the same apart from filter beds are now annotated in the north of the site replacing the former reservoir.</p>	<p>Brow Mill is now located approximately 110m south west of the site. Yew Tree Quarry is now 100m south of the site.</p> <p>Nonslip stone works now located 80m south of the site, with mineral railway lines adjacent.</p> <p>Rough Heys Quarry is now annotated as disused.</p> <p>Pond Quarries now annotated 500m south of the site.</p> <p>Hill Top Poultry Farm now annotated 250m south east of the site.</p> <p>Allen's Fire Clay Works 750m south west of the site.</p>
1948	No Change.	<p>Stubbins Quarries and Broak Oak Quarries are now both annotated as disused.</p> <p>Mineral Railway line now labelled approximately 250m east of the site, originated from on site and runs in a north to south direction.</p> <p>Slead Syke Nurseries approximately 1km from the site.</p>
1955	No Change.	No significant change.
1973-1976	<p>Mineral Railways, filter beds, Silex Works, Sandstone Works and Brick Works no longer annotated. There is now a large factory building annotated in the south western section of the site. An access road is shown to run along the northern boundary of the factory to the east and back along the southern boundary.</p>	<p>Works now annotated adjacent to the site in the north west.</p> <p>Southedge Quarry now annotated 250m north west of the site.</p> <p>Brewery annotated 500m north west of the site.</p> <p>Works located 100m south west of the site.</p> <p>A garage is now annotated 150m south of the site.</p> <p>A further works is labelled 100m south of the south.</p> <p>Walterclough Coal and Clay Pit now annotated.</p> <p>Works is annotated 550m south east of the site.</p>
1981-1984	No change.	Works annotated adjacent to the site in the north west is now labelled as Southedge

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		<p>Works.</p> <p>Foundry now annotated approximately 275m south west of the site.</p> <p>Works and kilns located approximately 700m south west of the site.</p>
2001	No Change.	<p>Brow Quarry Industrial Estate now annotated across Brighthouse Road, approximately 10m from the site.</p> <p>Stoneworks now labelled approximately 100m south east of the site.</p>
2010	No Change.	No significant change.
2019	No Change.	No significant change.

4.0 CURRENT AND HISTORIC LAND USE/SITE CONDITIONS

4.1 Geology

Based on the information included within the Envirocheck Report and the publicly available BGS onshore geindex <http://mapapps2.bgs.ac.uk/geindex/home.html> accessed on 25th September 2019, the following ground conditions are anticipated:

Table 3 – Geology

Geological Unit	Type	Description
Artificial Ground	Infilled Group	Artificial Deposit
Solid	Elland Flags	Sandstone

4.2 Historic Mining / Quarrying

The Envirocheck report indicates the site has a number of historical surface ground workings on site. Historical maps dating back to 1938 have shown a number of workings which are listed below;

- Brick works
- Cuttings
- Filter beds

The Envirocheck report indicates that the site has a number of historical surface ground workings between 6m and 247m from the site boundary, these are listed from historical maps dating back from 1892 until 1981;

- Unspecified Heap
- Unspecified quarry
- Unspecified pit
- Disused quarry
- Unspecified quarries
- Refuse heap.

The Envirocheck Report indicates that there are a number of underground working features known to be on site, historical maps dating back to 1948 indicate that the following were on site from 1948 until 1905;

- Sandstone shaft
- Unspecified disused shaft
- Tunnel

The Envirocheck Report indicates that there are a number of underground working features known to be in the vicinity of the site, historical maps dating back to 1948 indicate that the following were on site from 1892 until 1989;

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- Clay and coal pit
- Unspecified old shaft
- Unspecified disused shaft
- Unspecified shafts
- Tunnel
- Colliery
- Air Shaft

The site is in an area affected by coal mining, as the site lies in or in proximity to the coal mining reporting areas as defined by the Coal Authority;

- There are no. 72 known old shafts and unspecified shafts located in the vicinity of the site, located between 71m and 982m distance from the site boundary.

The site is also in an area of non-coal mining with Elland Flag Sandstone Mines known to be on site, and Elland Flag Sandstone Mines 510m north east, 775m east and 875m north east.

A Coal Authority Consultants Report has been obtained, contained within Appendix B, and the results of this were:

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Abandoned mine plan catalogue numbers

None noted

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

Faults under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

No investigative or remedial activity was recorded within 50 metres of the boundary.

No future works noted and no further information highlighted.

Non-Coal Mining Risks are summarised in Table 4 below.

Table 4 – Hazard Risk Designation

Hazard	Site Risk Designation
Collapsible Ground	Very Low
Compressible Ground	Moderate
Ground Dissolution	Negligible/No Hazard
Landslide	Very Low
Running Sand	Very Low
Swelling / Shrinking Clay	Negligible/No Hazard

4.3 Hydrogeology

4.3.1 Aquifer Characteristics

According to the Envirocheck Report, the site is indicated to be underlain by a Secondary A Aquifer which is understood to be associated with the Artificial Superficial Geology.

The underlying Bedrock Geology of Elland Flag Sandstone is also classed as a Secondary A Aquifer.

Secondary A Aquifers are defined by the Environment Agency as 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. In most cases, Secondary aquifers are aquifers previously designated as minor aquifer.

4.3.2 Groundwater Abstractions

The Envirocheck report indicates that there no recorded groundwater abstraction within 1km of the site.

4.3.3 Source Protection Zone

The Envirocheck report indicates that the site is not located in a Source Protection Zone.

4.4 Hydrology

The Envirocheck report records that there are no surface water features located within 250m of the study site. The nearest surface water feature, is located 487m to the southwest of the site. The report indicates that the watercourse is named as Red Beck.

4.4.1 Surface Water Abstractions

The Envirocheck report indicates that there are two recorded historical surface water abstractions located 700m south west of the site. The water was abstracted from reservoirs and used for general use.

4.4.2 Flooding Potential

The government website <https://flood-map-for-planning.service.gov.uk/> accessed on 25th September 2019, identifies the site as being within a Flood Zone 1. A Flood Zone 1 doesn't require a Flood Risk Assessment if the development is smaller than 1 hectare and not affected by other sources of flooding. As this site is larger than 1 hectare, there may be a requirement for a flood risk assessment or affected by other sources of flooding or in an area with critical drainage problems.

The Envirocheck report indicates that river and coastal zone 2 and 3 flooding has not been identified. Risk of flooding from rivers and seas (RoFAS) is very low.

The Envirocheck report states that there are groundwater flooding susceptibility areas within 50m of the site boundary.

4.5 Waste Disposal Sites

The Envirocheck report indicates that from Environment Agency/Natural Resources Wales landfill data, there are two recorded landfills located within 1km of the site. The nearest is located 235m east of the site which deposited household, commercial and industrial waste and 794m south east for biodegradable waste.

The Envirocheck report indicates from Environment Agency/Natural Resources Wales landfill data that there are no.15 sites within 1km of the site which are represented by points or polygons on the Envirocheck Landfill and Other Waste Sites map. The nearest is located 23m northwest of the site and is known to have deposited inert, industrial, and commercial waste.

The Envirocheck report indicates, from BGS/DoE non-operational landfill site records, that there are known to be no. 7 sites within 1km of the site, the closest is 234m east of the site. Of these sites, no. 5 are noted to not pose a risk to the aquifer, however Southend Tip 302m west and Pond Quarry 405m south east are known to pose a risk to the underlying Aquifer.

The Envirocheck report indicates, from Landfills from Local Authority and historical mapping records that's there are no. 5 refuse tips within 1km of the site. The closest known to have been 205m east of the site.

The Envirocheck report indicates, from Environment Agency/Natural Resources Wales

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licenced waste records that there are no. 6 sites within 1km of the site, the closest is 251m south west.

The Envirocheck report indicates that there are no registered waste treatment, transfer or disposal sites located within 1km of the site.

4.6 Infilled Land

The Envirocheck report indicates that there are no. 38 areas of potentially infilled ground on site. These areas are associated with the past land uses dated between 1892 and 1984, which are listed below;

- Glazed Brick Works
- Unspecified Old Shaft
- Refuse Heap
- Filter bed
- Brick Works
- Unspecified Ground Workings
- Reservoir
- Cuttings
- Tunnel.

The Envirocheck report indicates that there are No. 289 areas of potentially infilled ground within 500m of the site.

4.7 Radon Risk Potential

The Envirocheck report indicates that the site is not in a Radon Affected Area, as less than 1% of properties are above the action level. As such, no radon protective measures are necessary.

4.8 Environmental Sensitivity

Overall, the site setting is considered to be of Moderate sensitivity, due to the following reasons:

- The site currently has a working factory in the south west;
- Historically the site has had a number of different potentially polluting land uses - Mineral railways, glazed brickworks with tanks and chimneys, Brick and Sandstone Works;
- The underlying Secondary A Aquifer;
- The absence of groundwater or surface water abstractions within a 500m radius of the site;
- The nearest historical landfill located 23m northwest of the site, known to have deposited inert, industrial, and commercial waste;
- The absence of groundwater Source Protection Zone(s); and,
- The residential land uses within the surrounding area.

5.0 REGULATORY INFORMATION AND CONSULTATION

5.1 Regulatory Database

The following environmental data has been obtained from a summary of information databases summarised in the Groundsure Report.

Table 5 Regulatory Databases Summary

Item	0m-249m	250m-500m	Details
Records of Part A(2) and Part B activities and enforcements	2	1	Current Part B Permit on site, for coating processes. Historical Part B Permit 134m south east for the use of bulk cement. Historical Part B Permit 487m west for the use of bulk cement.
Environmentally Sensitive Sites (SSSI, SAC, SPA, RAMSAR, LNR)	1	0	Greenbelt land recorded 3m east of the site, named Liverpool, Manchester and West Yorks Greenbelt.
Landfill Site, Waste Treatment / Transfer and Disposal Sites	5	1	The nearest landfill is historical and is located 23m north west of the site which deposited inert materials. The second is known to be 235m east of the site which deposited household, commercial and industrial waste. Two landfills located 251m south west taking non-biodegradable wastes and one 255m east for household, commercial and industrial waste. Material Recycling facility 443m west of the site.

The Envirocheck report indicates that there were two recorded Pollution Incidents within 1km of the site. The pollution incidents were for Atmospheric Pollutants and Effects from smoke, the other was not disclosed. Both incidents were located 467m west of the site and was classified as a Water Impact, Category 4 – No Impact; Land Impact, Category 3 – Minor incident; and an Air Impact Category 2 – Significant.

6.0 PRELIMINARY RISK ASSESSMENT

6.1 Land Quality Risk Assessment

This section of the report uses the information gathered in previous sections and aims to identify the potential Contaminants, Pathways and Receptors present on site. The elements of the Conceptual Model built in the subsections below are also used in Section 7, which considers the Potential Pollutant Linkages, their significance and acceptability in an Environmental Risk Assessment.

6.2 Contaminants (Sources)

The statutory guidance for Part IIA, DETR Circular 02/2000, defines a Contaminant as: *“a substance which is in, on or under the land and which has the potential to cause harm or to cause pollution of controlled waters”*. As a result of this review, the following potential contaminant sources have been identified on site:

On-Site

- Former Nonslip Stone Works is located central and north western area of the site.
- Former Silex Brick and Sandstone Works in the eastern area of the site.
- Railway line and sidings along the site’s northern boundary.
- Hipperholme Tunnel along the north western boundary of the site.
- A number of mineral railway lines labelled across the site.
- Former Glazed Brick Works and associated tanks and chimneys in south east of the site.
- Potential for infill of sandstone shaft in the south east of the site.
- Potential for Asbestos within the current factory building on site due to date of construction circa 1973.
- Potential for contaminated or gas producing infilled material to be present in former filter beds and reservoirs in the north and west of the site.
- There are known to be no. 38 areas of potentially infilled ground on site.

Off-Site

- Historical landfill located 23m northwest of the site and is known to have deposited inert, industrial, and commercial waste.
- Other landfills in the vicinity, 235m east of the site which deposited household, commercial and industrial waste. Two landfills located 251m south west taking non-biodegradable wastes and one 255m east for household, commercial and industrial waste.
- Material Recycling facility 443m west of the site.
- Brow Mills Industrial Estate (former works) approximately 10m south west of the site.
- Works 100m south, 75m west and directly adjacent to the site in the north west.
- Stoneworks approximately 150m south east.
- Garage approximately 150m south.

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- Commercial vehicle yard adjacent to the south west of the site.
- Disused Quarries surrounding the site, the closest being approximately 10m west of the site.
- Mineral railways directly adjacent to the south of the site.
- There are known to be no. 289 areas of potentially infilled ground within 500m of the site.

6.3 Receptors

The statutory guidance for Part IIA, DETR Circular 02/2000, defines a Receptor as: *“either (a) a living organism, a group of organisms, an ecological system or a piece of property which (i) is in a category listed in Table A as a type of receptor, and (ii) is being, or could be, harmed, by a contaminant; or (b) controlled waters which are being, or could be, polluted by a contaminant”.*

Table 6 lists all of the receptors to be considered to be present. Those that are not considered present are excluded from further assessment at this stage.

Table 6 - Potential Contaminant Receptors

Receptor	Description
Human Health	Future site construction workers Future site users (residents) Future site maintenance workers Neighbouring site residents
Controlled waters	Secondary A Aquifers underlying the site.
Other	Buildings and underground services including drinking water supply pipes. No ecologically sensitive receptors have been identified within 1km of the Site.

6.4 Pathways

The statutory guidance for Part IIA, DETR Circular 02/2000, defines a Pathway as: *“One or more routes or means by, or through, which a receptor: (a) is being exposed to, or affected by, a contaminant; or (b) could be exposed or affected”.*

Following an assessment of the environmental and geological setting of the site and considering the proposed land use, it is considered that a number of potential pathways for contaminant impact could exist. Tables 7 below examines the human and environmental exposure pathways separately and indicate which pathways are considered further.

Table 7 Potential Contaminant Pathway and Linkages

Source	Pathway Description
On-Site Contaminant Sources	<p>There are known to be no. 38 areas of potentially infilled ground on site, due to the former landuse; reed beds, reservoirs, shafts, the nonslip stone works, the Silex (brick and sandstone works) and the glazed brick works. There is no information available on what sites were filled in, what they were filled with and when.</p> <p>There is potential for localised contamination to be present resulting from the railway line in the north of the site and the known historical mineral railway lines. Any localised contamination (if present) could represent an unacceptable risk to human health (construction workers or future site users) via ingestion, dermal contact and / or inhalation or dust / volatile vapours.</p> <p>Asbestos fibres represent a potential risk to human health via inhalation during the redevelopment.</p> <p>Localised soil contamination (if present) may represent a risk to the underlying groundwater aquifer via leaching and migration.</p>
Off-Site Sources	<p>There are known to be no. 289 areas of potentially infilled ground within 500m of the site; historical landfills, stonework, disused quarries, ground workings, tunnel, old shafts, cuttings, lake, refuse heap and ponds. There is little information available on what such sites were filled with and whether they've been filled in at all, these could potentially pose a significant potential risk.</p> <p>The numerous works in the vicinity could pose a potential threat also, depending on the nature of the works and how close there are to the site. There is also a commercial vehicle yard adjacent to the south west of the site.</p> <p>According to the Envirocheck Report, Southend Tip 302m west and Pond Quarry 405m south east are known to pose a risk to the underlying Aquifer.</p>

7.0 PRELIMINARY CONCEPTUAL MODEL

7.1 Environmental Risk Assessment

This section presents the conceptual model for the proposed redevelopment of the site. Those potential contaminants, pathways and receptors that are present are now integrated within the context of potential pollutant linkages.

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Table 8 Environmental Risk Assessment

Source	Potential chemicals of concern	Receptor	Potential Pathway	Potential Consequence of completed linkage	Likelihood of linkage	Significance of Risk	Explanation
Localised contamination associated with infilled material and made ground on site in areas where the former sandstone shafts, filter beds, reservoir, stone works, brick and sandstone works and glazed brick works were historically located	Metals, PAHs, TPHs, BTEX and MTBE, PCBs, Phenols and Asbestos	Future Site Construction workers Future site users Future site residents Future site maintenance workers	Direct Contact, ingestion and inhalation	Medium	Medium	Medium	Potential for contamination due to unknown nature and location of infilled material. There are known to be no. 38 areas of potentially infilled ground on site. There is potential for ground gas to be generated by the unknown nature of the material. Risk can be managed through the use of appropriate PPE and good hygiene practises in-line with industry best practise.
		Secondary A Aquifers	Leaching and migrating	Medium	Unlikely	Low	Potential for contamination due to unknown nature of infilled material. Contaminants could potentially leach into the Aquifers beneath the site.
		Neighbouring Site Residents	Direct Contact, ingestion and inhalation	Medium	Unlikely	Low	The site is fenced off due to its current land use, therefore it is very unlikely that any nearby residents will be able to access the site.

Phase 1 Desk Study Assessment

Source	Potential chemicals of concern	Receptor	Potential Pathway	Potential Consequence of completed linkage	Likelihood of linkage	Significance of Risk	Explanation
Localised contamination associated with historical tanks onsite	Metals, PAH's, TPH, BTEX and MTBE, VOCs, SVOCs, Phenols and PCBs	Future Site Construction workers Future site users Future site maintenance workers	Direct Contact, ingestion and inhalation	Medium	Medium	Moderate	Localised contamination potential associated with the known 5 former tanks. If the tanks on site were well maintained, this will minimise the likelihood and severity of any contamination. The area where the former tanks were located is now covered by the factory building footprint. However, when the factory is demolished a comprehensive intrusive investigation is recommended to assess the risk. During the investigation, risk can be managed through the use of appropriate PPE and good hygiene practises in-line with industry best practise.
		Neighbouring Residents in the vicinity of the site	Direct Contact, ingestion and inhalation, migration	Medium	Unlikely	Low	The site is fenced off due to its current land use and the factory footprint covers the area where the majority of the former tanks were located. Neighbouring residents are unlikely to come in to contact with any impacted soils that may be present at the site.
		Secondary A Aquifers	Leaching and downward Migration	Medium	Unlikely	Low	The presence of hardstanding and building cover across the area where the majority of the former tanks were located will reduce the infiltration of precipitation and therefore reduce the mobility of subsurface contamination (if any). It is unknown as to the fate of these tanks. Further investigation is recommended

Phase 1 Desk Study Assessment

Source	Potential chemicals of concern	Receptor	Potential Pathway	Potential Consequence of completed linkage	Likelihood of linkage	Significance of Risk	Explanation
							to confirm nature of the ground and any contamination that may be present.
Asbestos Fibres within building fabric	Asbestos Fibres	Future Site Construction workers	Inhalation	Severe	Likely	High	Asbestos potentially within building fabric. Demolition and disposal should be undertaken in line with asbestos regulations if any is present and by an appropriately licenced contractor. During works appropriate PPE, PRE and dust control measures should be used.
		Future site users	Inhalation	Severe	Unlikely	Moderate/low	Asbestos removal will be completed prior to redevelopment, if present.
		Future site maintenance workers	Inhalation	Severe	Unlikely	Moderate/low	There is potential for residual fibres to remain in soils following the demolition if not removed properly.
		Neighbouring Site Residents	Inhalation	Severe	Unlikely	Moderate/low	Very unlikely that any nearby residents will be on site during demolition works. The works should be managed in order to eliminate the potential liberation of fibres, if present.
Localised contamination associated with historical mineral railway lines across site, railway line in the north and the mineral lines in the surrounds of	Metals, Phenols, Sulphates, PCBs, Herbicides, Asbestos, Hydrocarbons, BTEX and MTBE, TPHs, PAHs	Future Site Construction workers Future site users Future site maintenance workers	Direct Contact, ingestion and inhalation	Medium	Unlikely	Low	Wide spread contamination is considered to be unlikely, however localised contamination where the railway lines were formerly located is a possibility. Intrusive investigation is recommended to assess the risk.
		Secondary A Aquifers underlying the site	Leaching and downward Migration	Mild	Unlikely	Very Low	Localised contamination is considered a possibility on site. The factory building will reduce the infiltration of precipitation and therefore reduce the

Phase 1 Desk Study Assessment

Source	Potential chemicals of concern	Receptor	Potential Pathway	Potential Consequence of completed linkage	Likelihood of linkage	Significance of Risk	Explanation
the site							mobility of subsurface contamination (if any) in the south west of the site. However in the north east and southern areas, mobility of potential contaminants cannot be discounted.
Contaminants associated with the inert landfill 23m north west and the other known landfills and historical landfills within the vicinity of the site.	Methane, carbon dioxide gas. Phenols, PAHs, Cyanides, Sulphates and metals	Secondary A Aquifers underlying the site	Leaching and downward Migration	Severe	Low	Medium	Contaminants may be relatively immobile in stabilised landfills, however the more soluble organic and inorganic components may continue to be leached out by infiltrating water if the landfills are not capped properly. Depending on the construction of the cells gas may migrate to the site.
Works and historical Works in vicinity of the site, closest works is adjacent to the site in the north west.	Metals, Phenols, PCBs, PAHs, Cyanides, Sulphates and phenols.	Secondary A Aquifers underlying the site	Leaching and downward Migration	Severe	Low	Medium	Unknown what type of works are shown by the historical maps. Unknown which chemicals (if any) would be stored on site, or which chemicals would be used in the processes carried out on site.
Contaminants associated with the commercial vehicle yard adjacent to	Metals, PAH's, TPH, BTEX and MTBE, VOCs, SVOCs, Phenols and PCBs	Secondary A Aquifers underlying the site	Leaching and downward Migration	Medium	Medium	Medium	Localised contamination potential associated with the garage developed circa 1973-1976, and the commercial vehicle yard. If underground tanks on site have been well maintained, monitored and

Phase 1 Desk Study Assessment

Source	Potential chemicals of concern	Receptor	Potential Pathway	Potential Consequence of completed linkage	Likelihood of linkage	Significance of Risk	Explanation
<p>the south west of the site and the garage 150m south west of the site</p>							<p>any leaks or spills have been correctly dealt with then risks will be lowered. If the vehicles within the vehicle yard have been stored correctly and the site has the correct contained drainage system on site this will minimise the likelihood and severity of any contamination. However, a comprehensive intrusive investigation is recommended on site to assess the risk. During the investigation, risk can be managed through the use of appropriate PPE and good hygiene practises in-line with industry best practise.</p>

8.0 RECOMMENDATIONS AND CONCLUSIONS

8.1 Conclusion

Based on the information contained in this report, the following conclusions can be drawn:

- The site currently comprises a factory in the south west of the site, with trees and soft landscaping across the north east and south of the site. There is also a hard-standing access road on site.
- This site is to be re-developed into residential properties.
- Historically, the site was a Former Nonslip Stone Works, Former Silex Brick and Sandstone Works, Former Glazed Brick Works, Railway line and sidings along the site's northern boundary.
- A number of mineral railway lines labelled across the site.
- Potential for infill of sandstone shaft in the south east of the site.
- Potential for Asbestos within the current factory building on site due to date of construction circa 1973.
- Potential for contaminated / gas producing infilled material to be present in former filter beds and reservoirs in the north and west of the site.
- 5 former tanks noted to be on the site, with the footprint of the factory.
- The site is indicated to be underlain by a Secondary A Aquifer which is understood to be associated with the Artificial Superficial Geology.
- The underlying Bedrock Geology of Elland Flag Sandstone is also classed as a Secondary A Aquifer.
- The Site is not located within a Groundwater Source Protection Zone.
- The site lies in or in proximity to the coal mining reporting areas as defined by the Coal Authority;
 - Coal Authority Report cites no issues.
- The site is also in an area of non-coal mining with Elland Flag Sandstone Mines known to be on site, and Elland Flag Sandstone Mines 510m north east, 775m east and 875m north east.
- The Envirocheck report indicates that the site is not in a Radon Affected Area, as less than 1% of properties are above the action level. As such, no radon protective measures are necessary.
- The closest historic landfill is located 23m north west of the site.
- The Envirocheck report indicates that there are no.38 areas of potentially infilled land on site.
- The Envirocheck report indicates that there are no. 289 areas of potentially infilled ground within 500m of the site. The nearest is located 6m north of the site and relates to an unspecified heap.

Potential contamination sources are considered to be localised and widespread, associated with the historical usage, and infilled areas referred to in the Envirocheck report.

Based on the information contained in this report and with due regard to the proposed future residential land use, it is the opinion of Swan that the site represents a **Moderate to High risk** with respect to environmental liability issues, but the identified risks can be effectively managed. The findings of this report should not prevent successful redevelopment of the Site.

Future intrusive works should be aimed at reducing the risk profile.

8.2 Recommendations

Based on the available information, no existing land contamination issues have been identified that are considered likely to prevent development of the site for residential use of the site, provided appropriate mitigation measures are undertaken. A summary of the recommendations is provided below:

- A Fully Comprehensive Phase 2 Environmental Investigation is to be carried out to determine any contamination risks associated with the site's former uses and current factory land use. This investigation will look for;
 - Any made ground with potential to create gas.
 - Potential chemicals associated with the former mineral railway lines, railway line to the north west and known former tanks on site.
 - Contaminants in potentially infilled ground.
 - Evidence of sandstone mine shaft backfill
- In the event that suspected contamination is encountered during the redevelopment, a watching brief may be required. Any suspected contamination should be sampled and classified if disposal as encountered and required. It should be noted that the responsibility for securing a safe development rests with the developer.
- Construction workers should adopt appropriate procedures to manage health and safety risks associated with any contamination.
- Asbestos report should be completed and any asbestos should be removed from the factory building prior to demolition.

9.0 CLOSURE

This report has been prepared by Swan with all reasonable skill, care and diligence.

This report should be used for information purposes only and should not be construed as a comprehensive characterisation of all site conditions.

This report is based on a variety of third party and some publicly available information. Swan does not and cannot guarantee the authenticity of this information.

This report is for the exclusive use of Crosslee PLC and Swangate Land and Development; no warranties or guarantees are expressed or should be inferred by any third parties. Any such party relies upon the report at their risk.

Swan disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

APPENDIX A – DESK STUDY INFORMATION

Site Details:

Client Ref: EMS_567572_762507
 Report Ref: EMS-567572_762507
 Grid Ref: 412769, 425050

Map Name: County Series

Map date: 1854

Scale: 1:10,560

Printed at: 1:10,560



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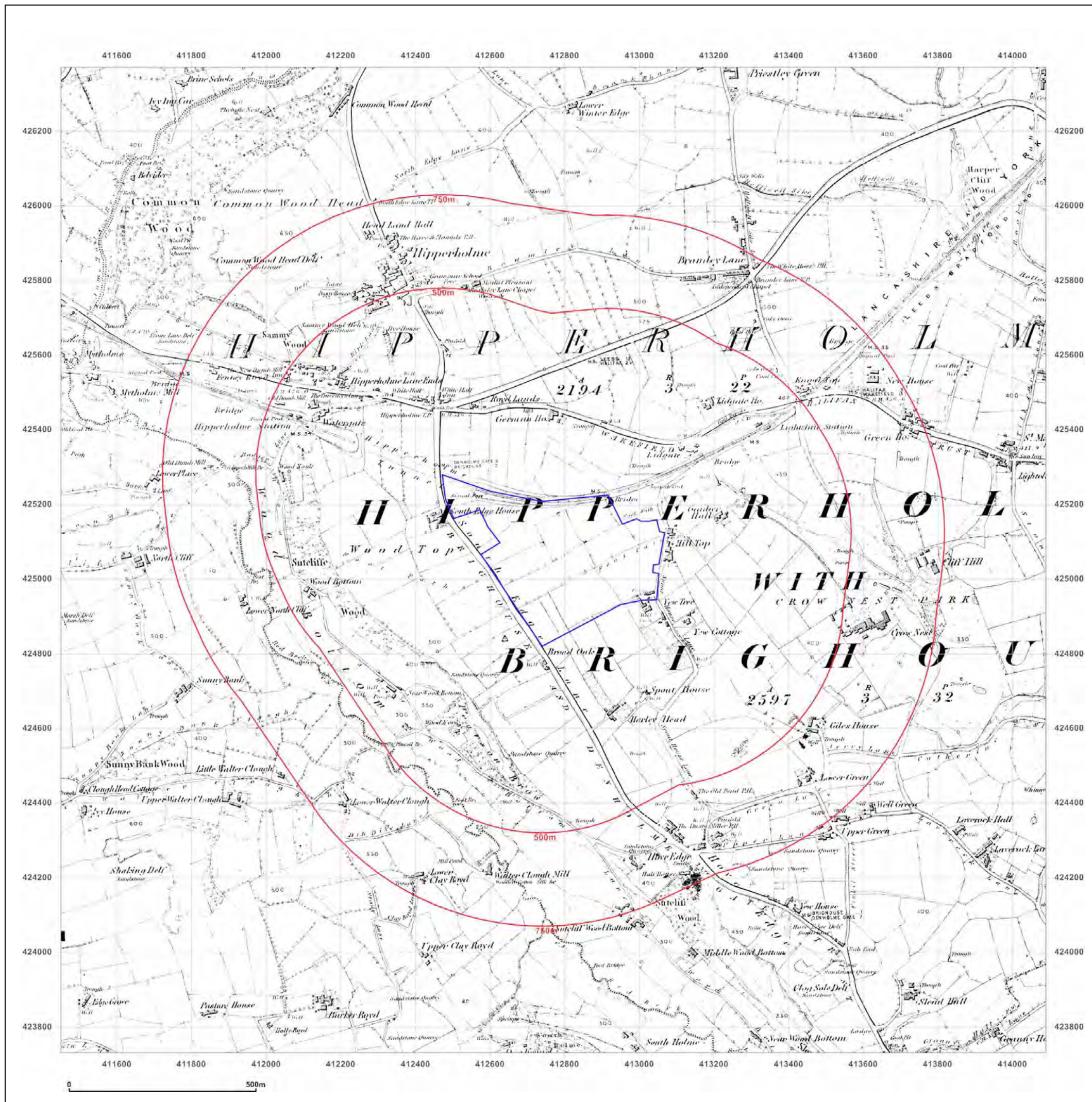


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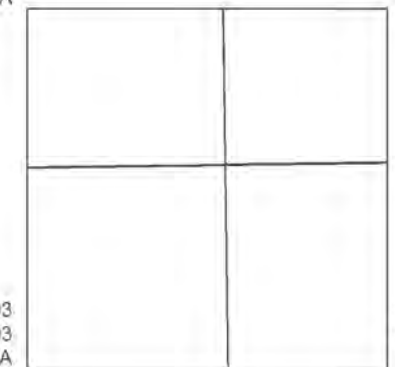
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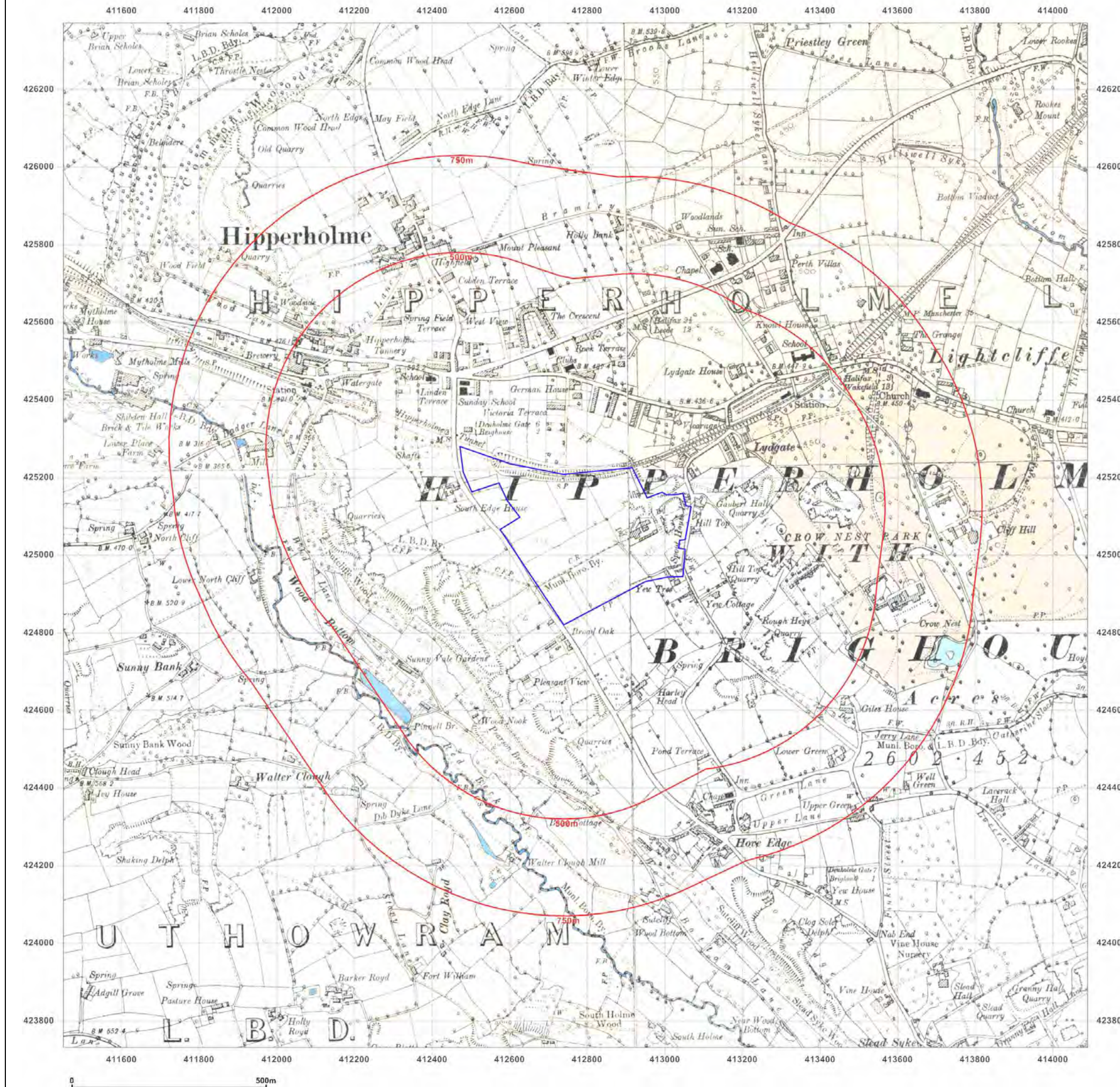
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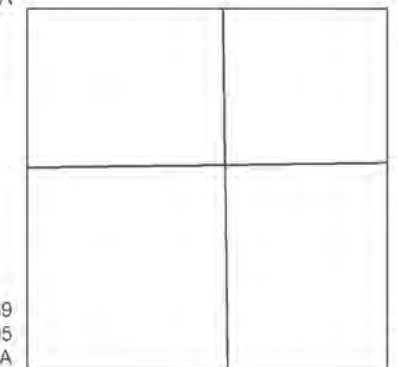
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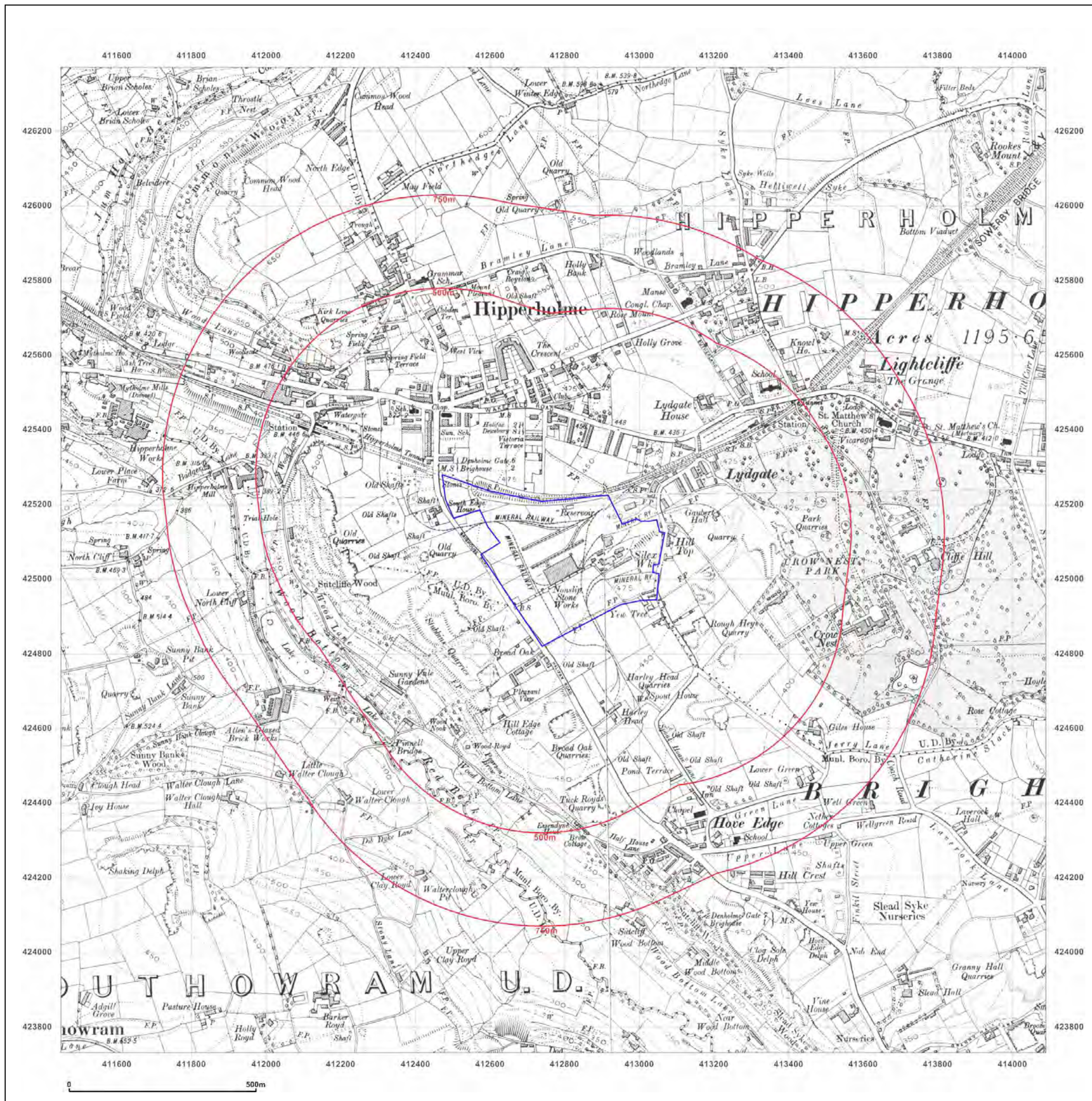


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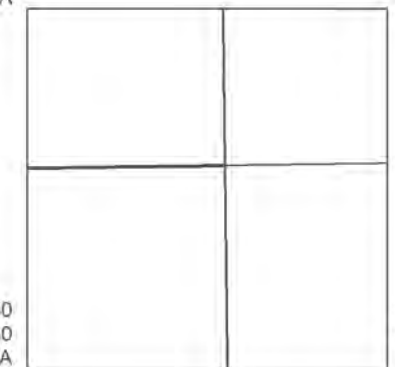
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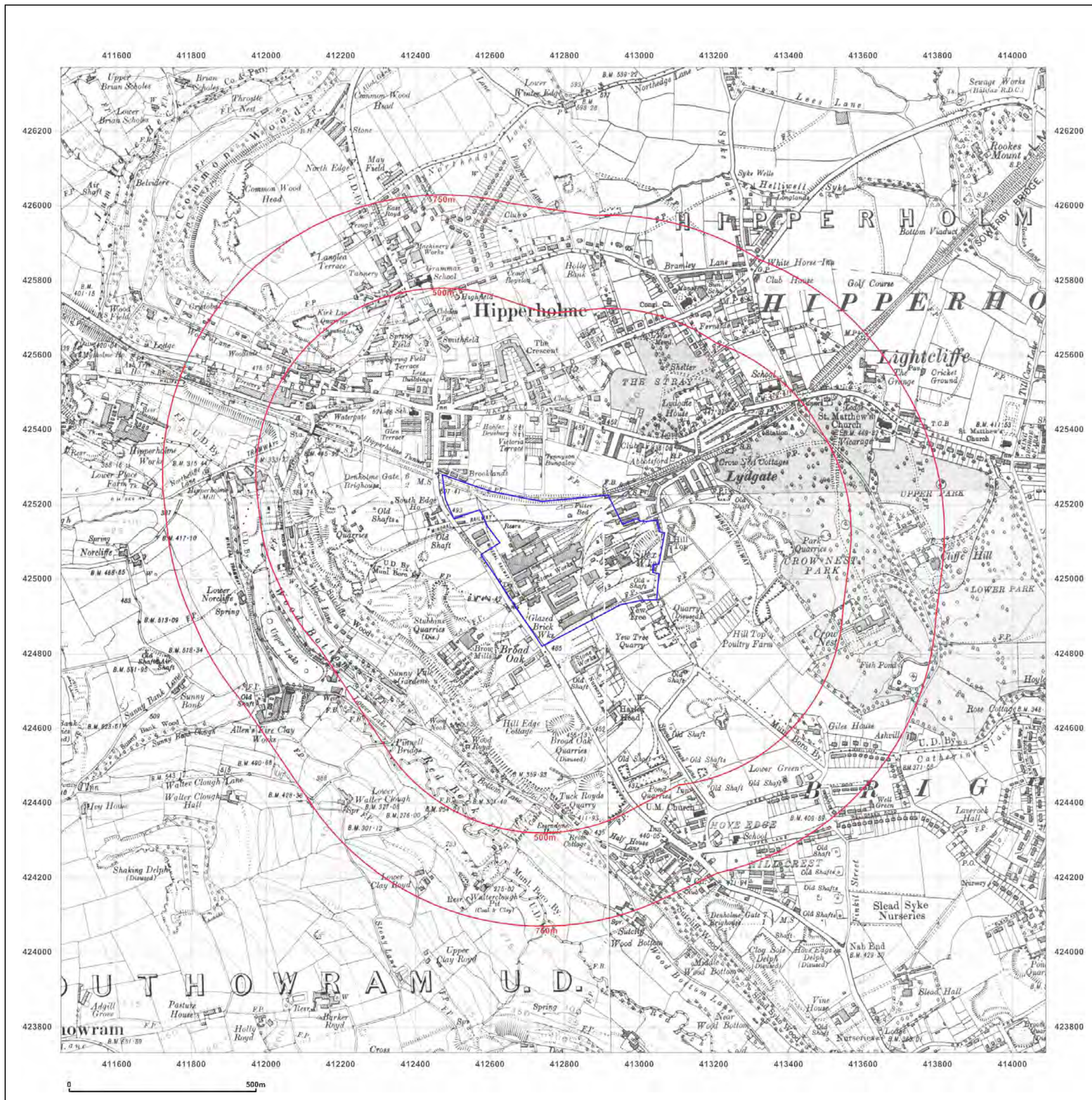


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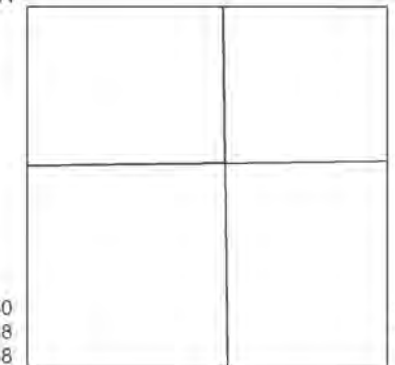
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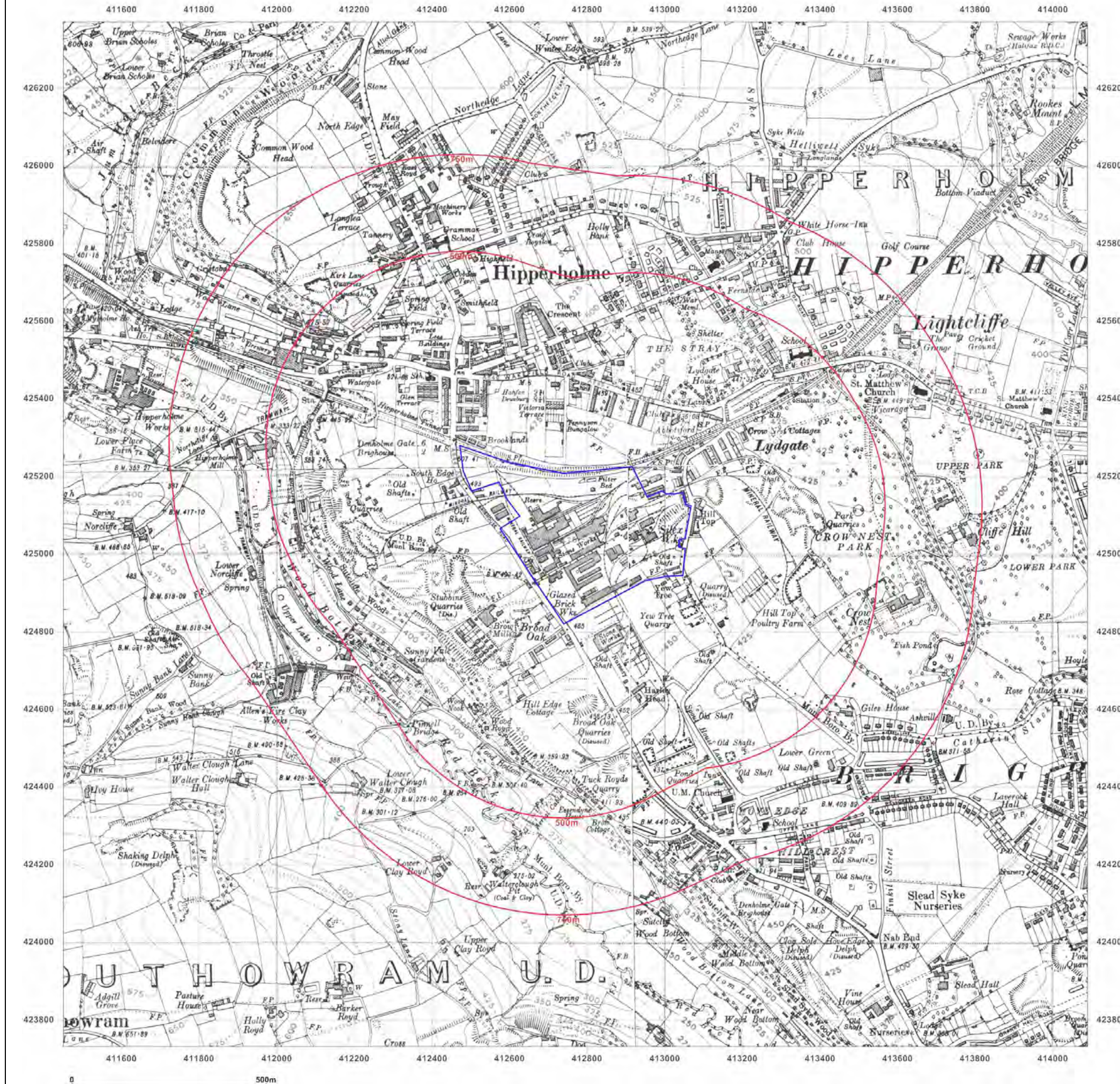


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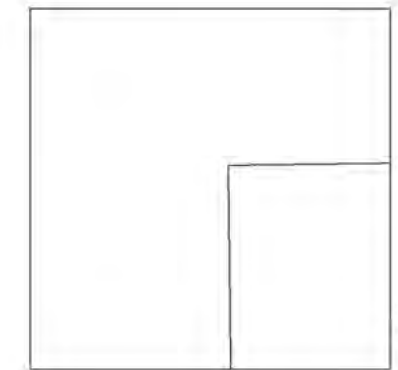
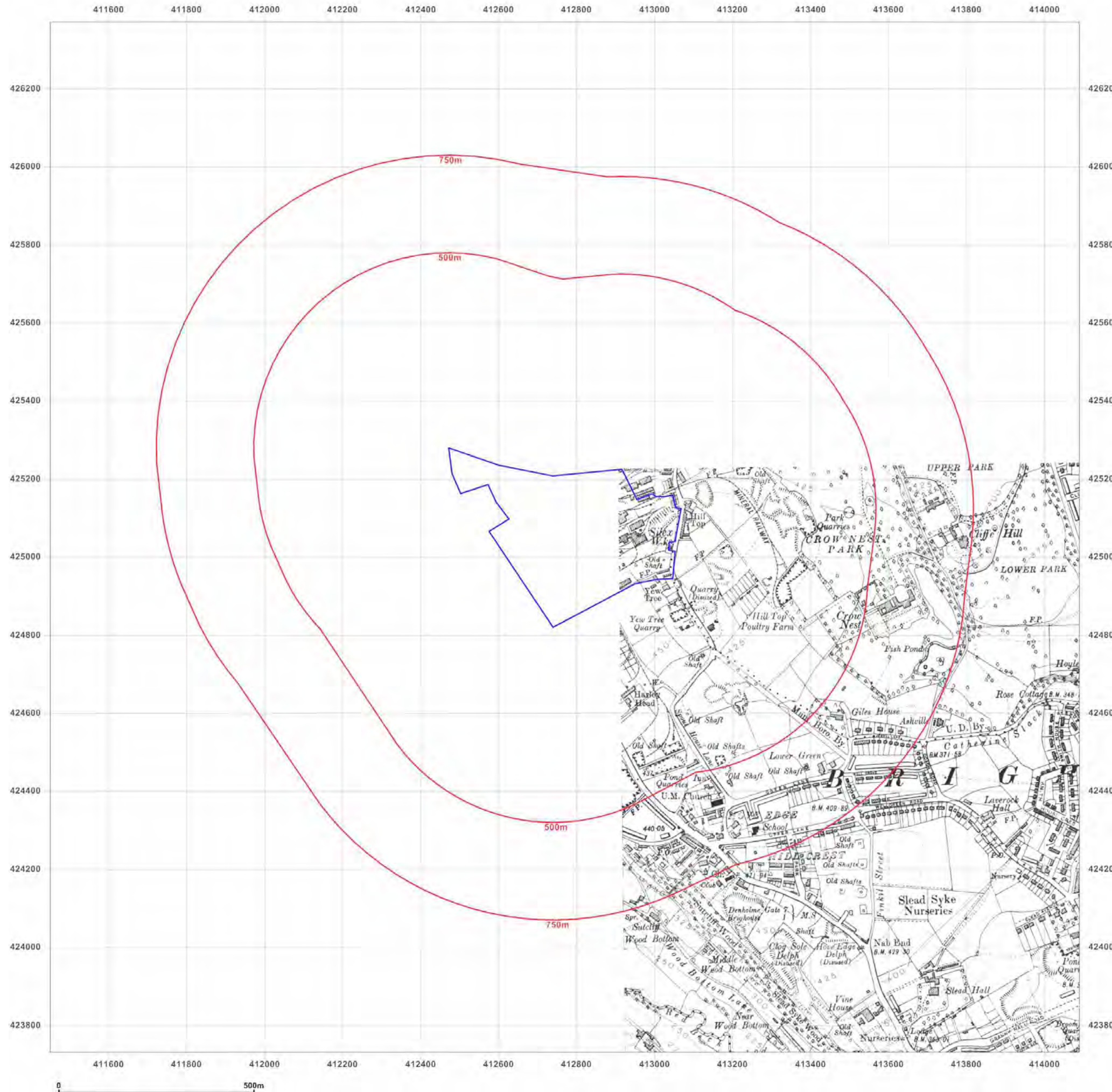
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Map date: 1938

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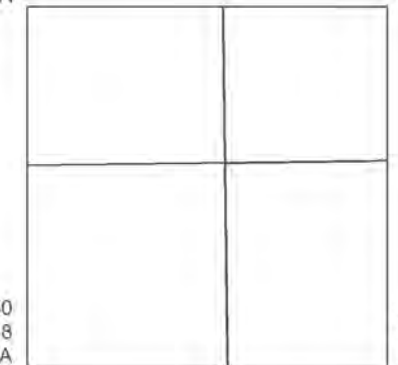
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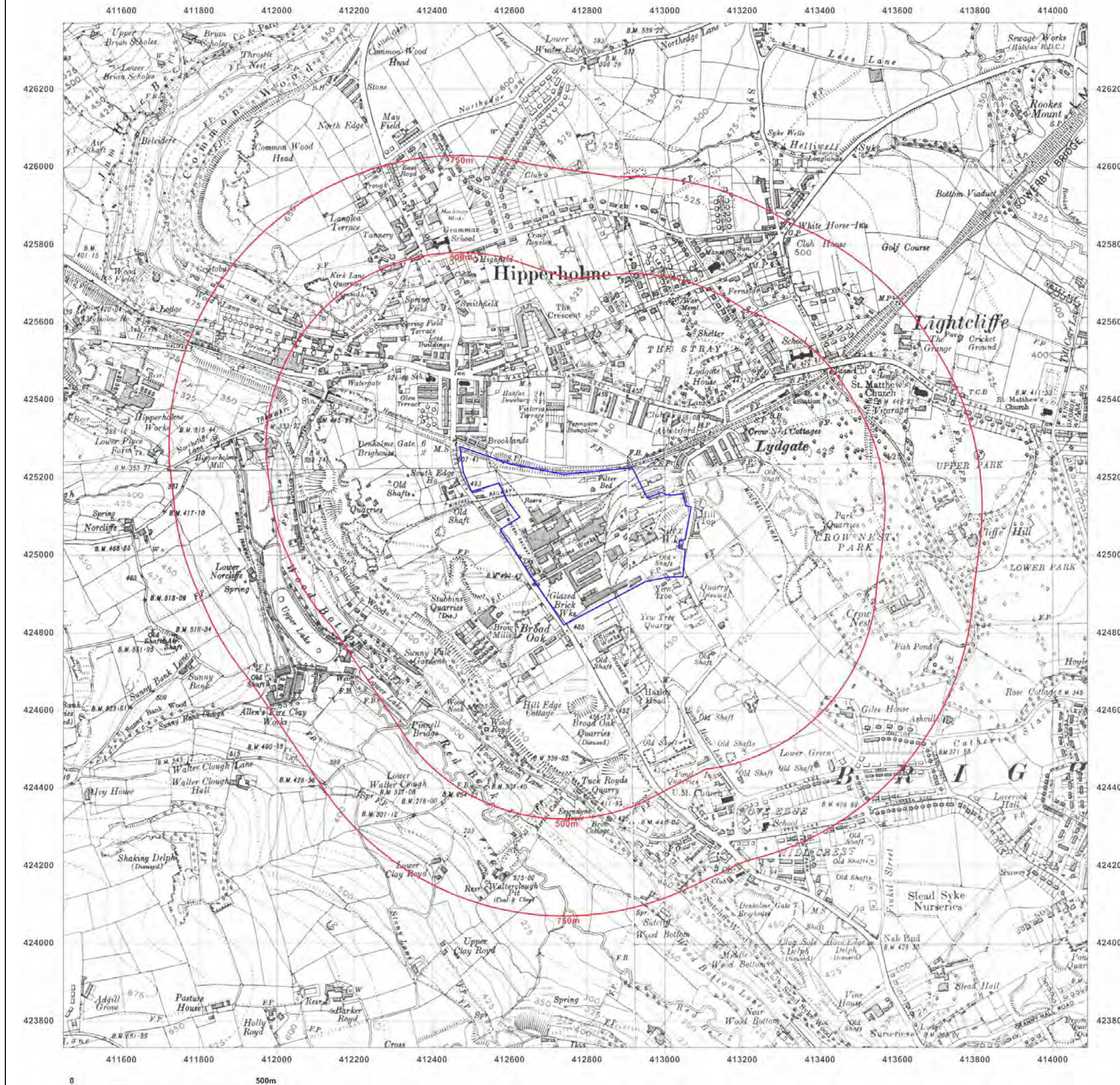
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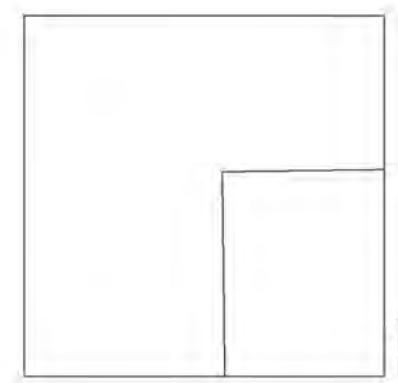
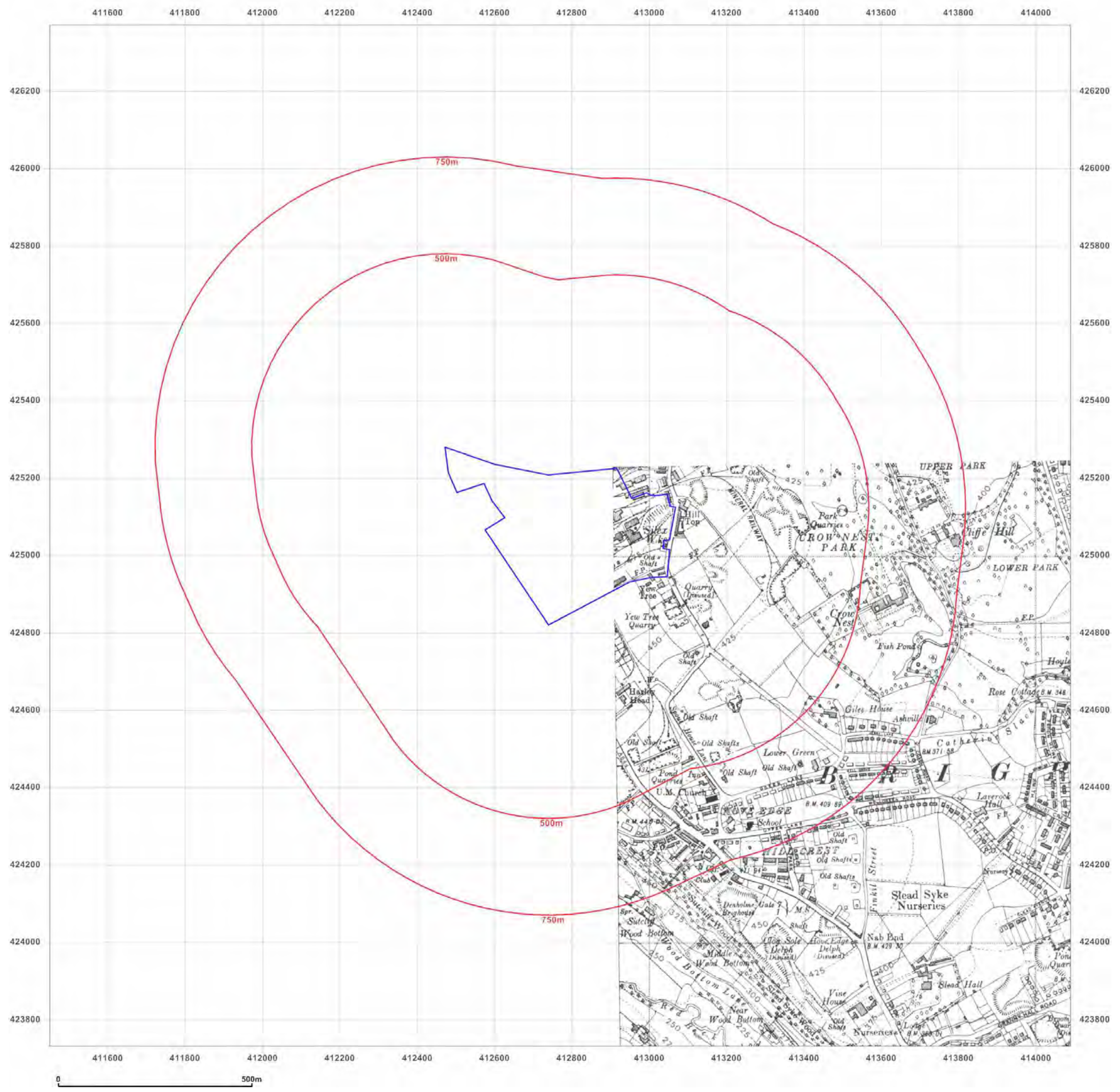
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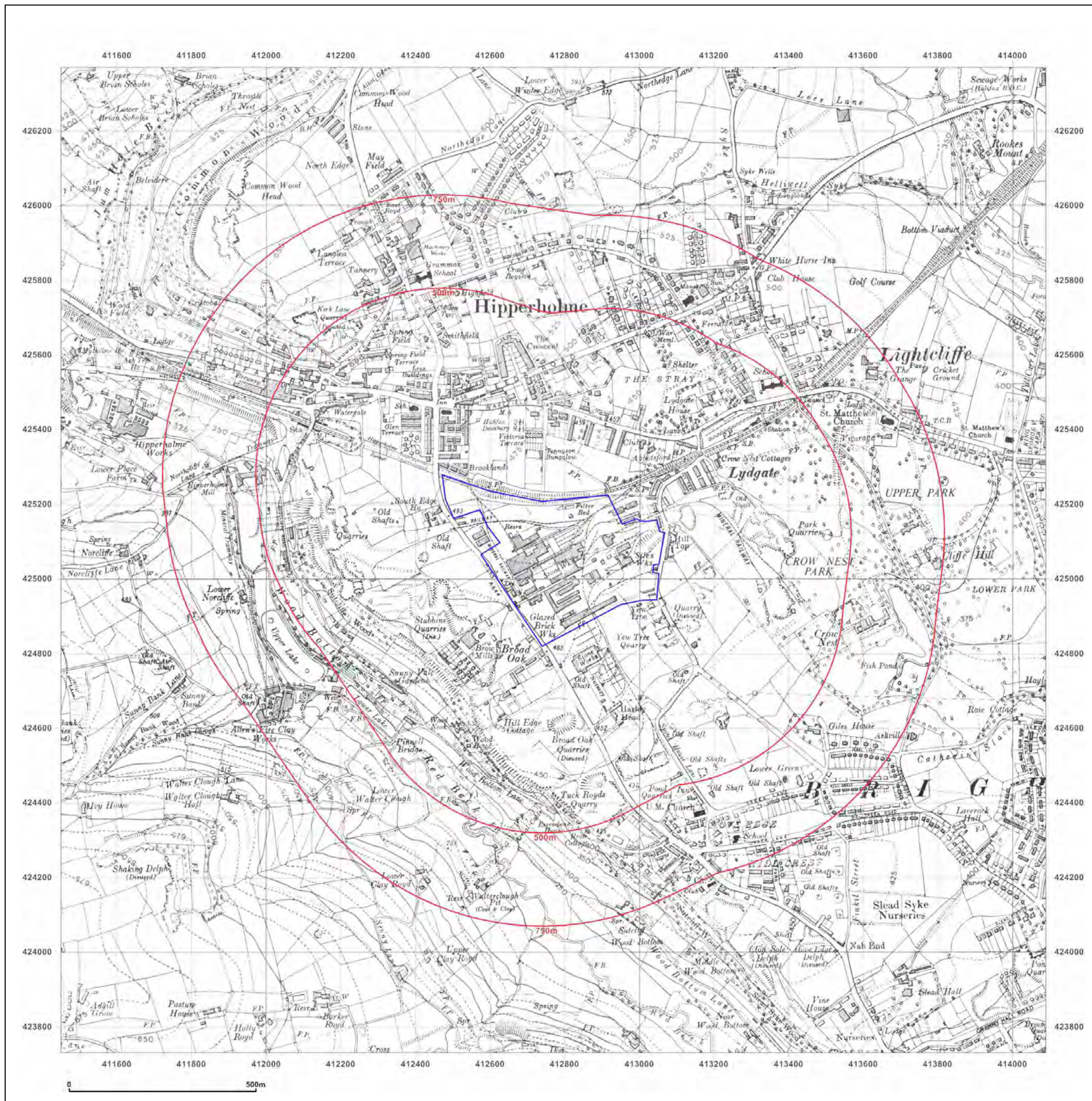


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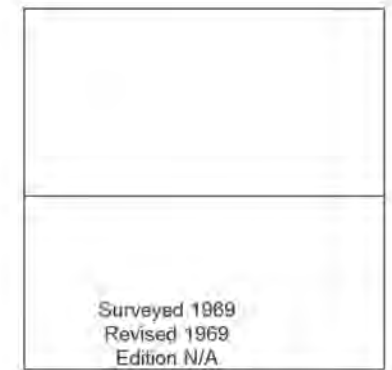
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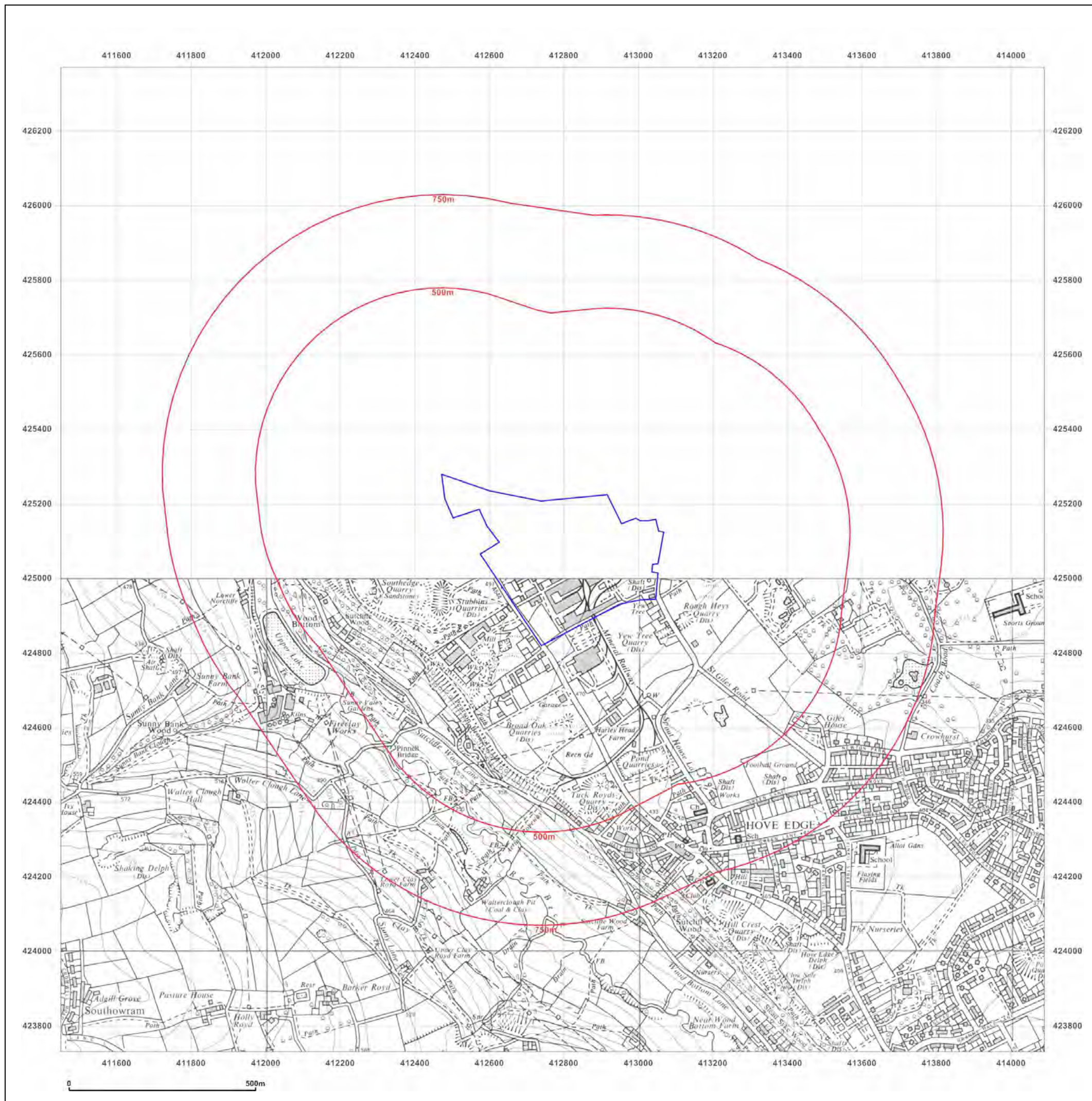


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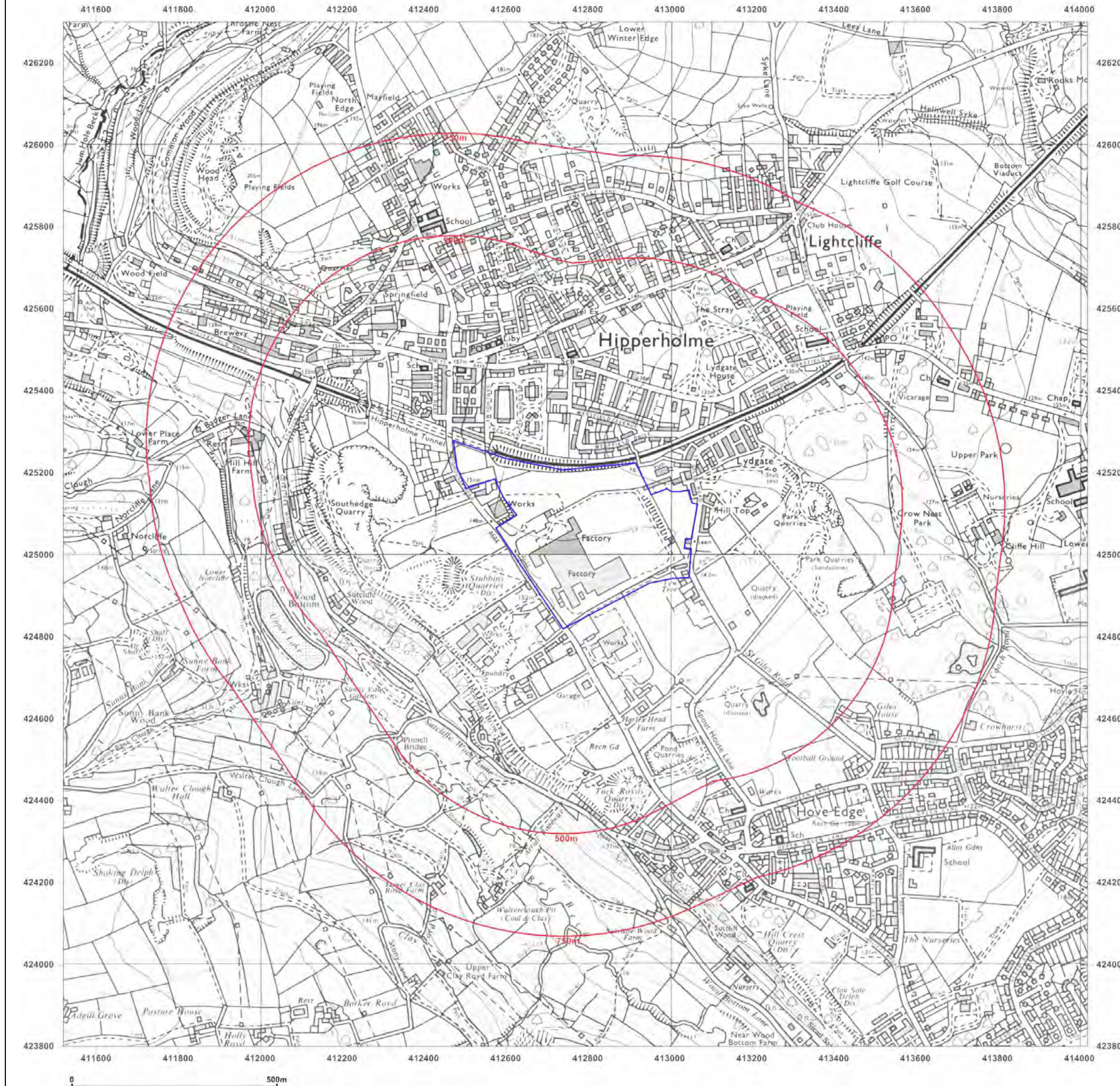


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Map Name: National Grid

Map date: 1981-1984

Scale: 1:10,000

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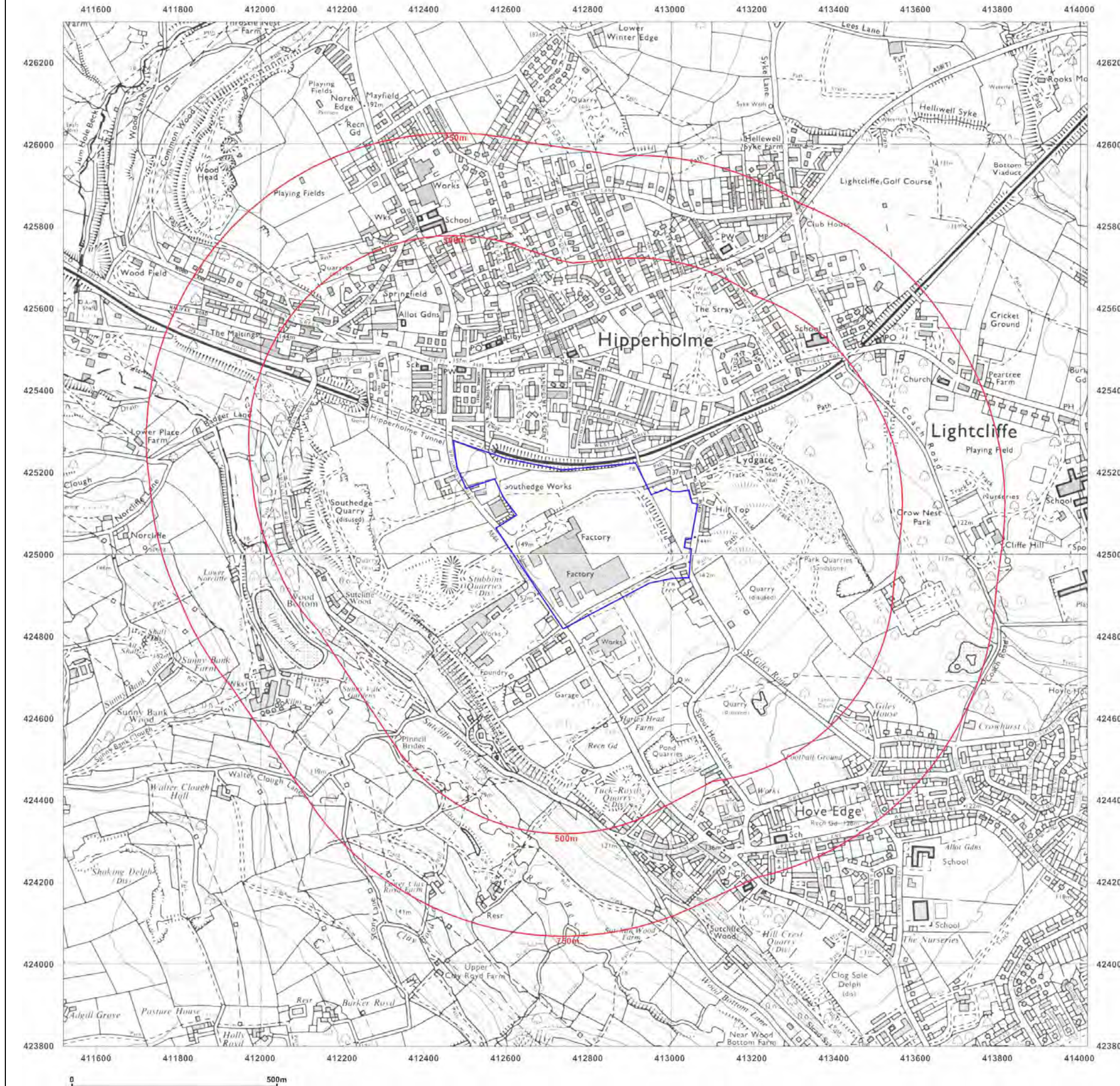


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Grid Ref: 412769, 425050

Map Name: National Grid

Map date: 1989

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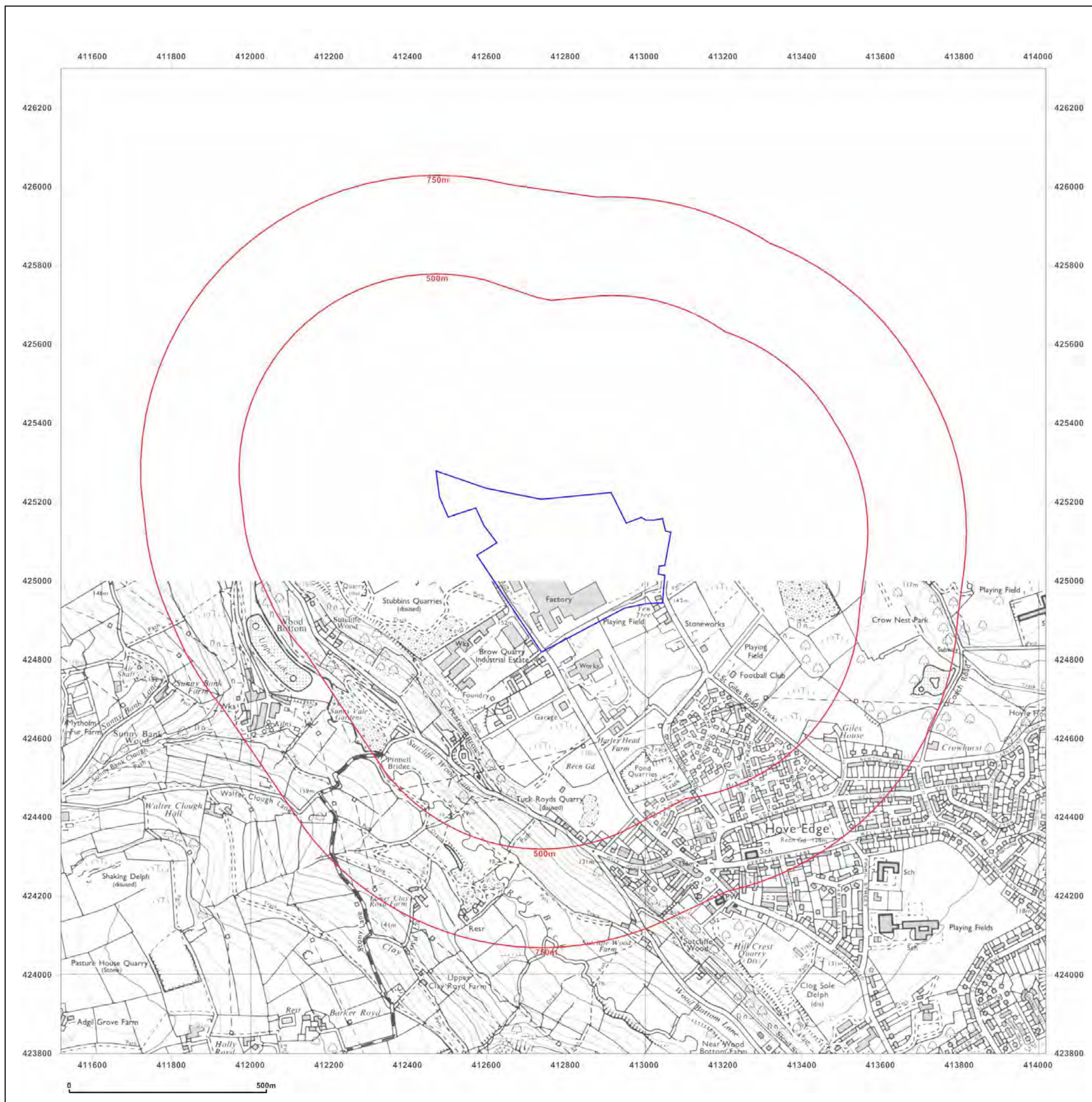


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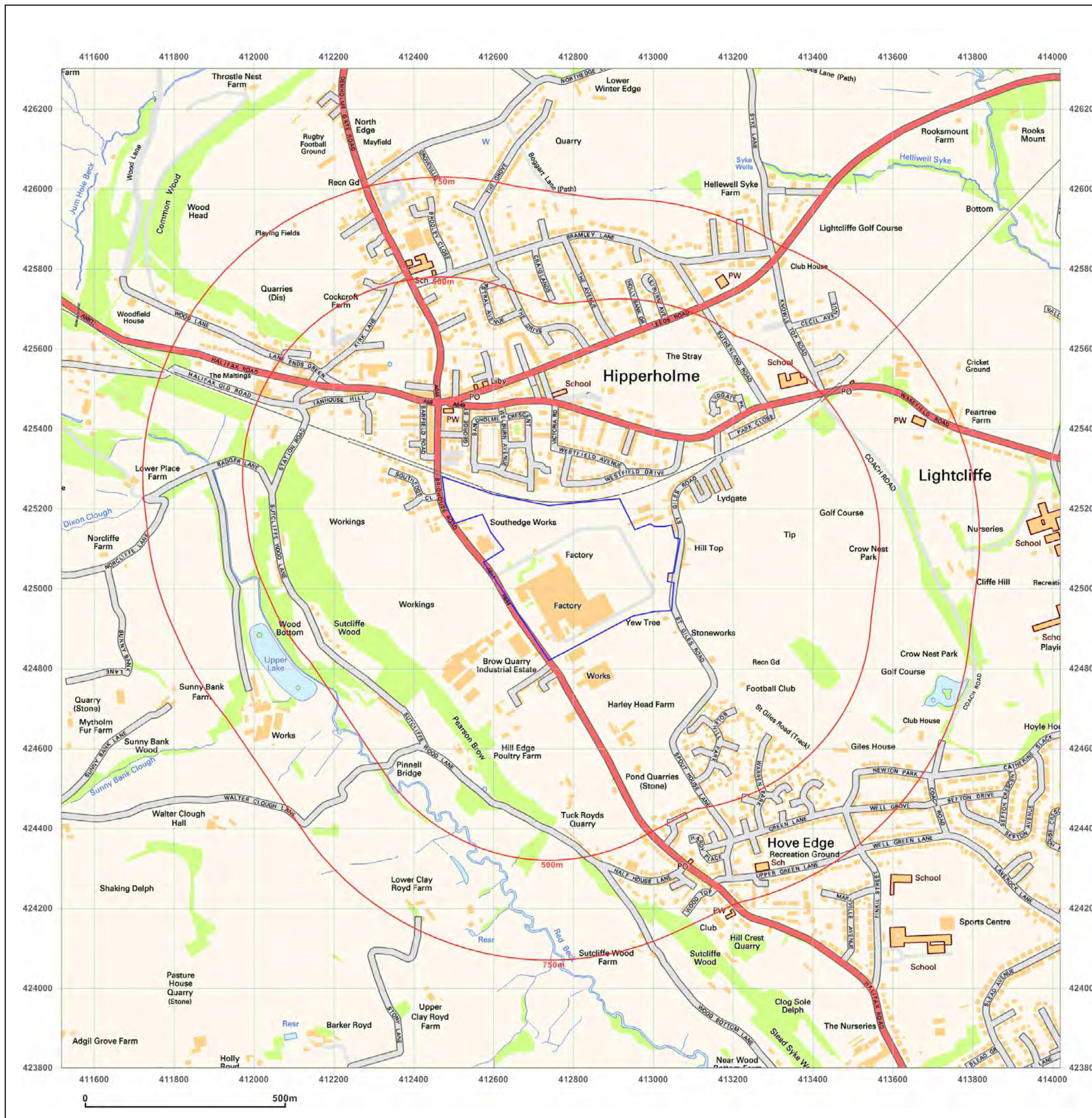
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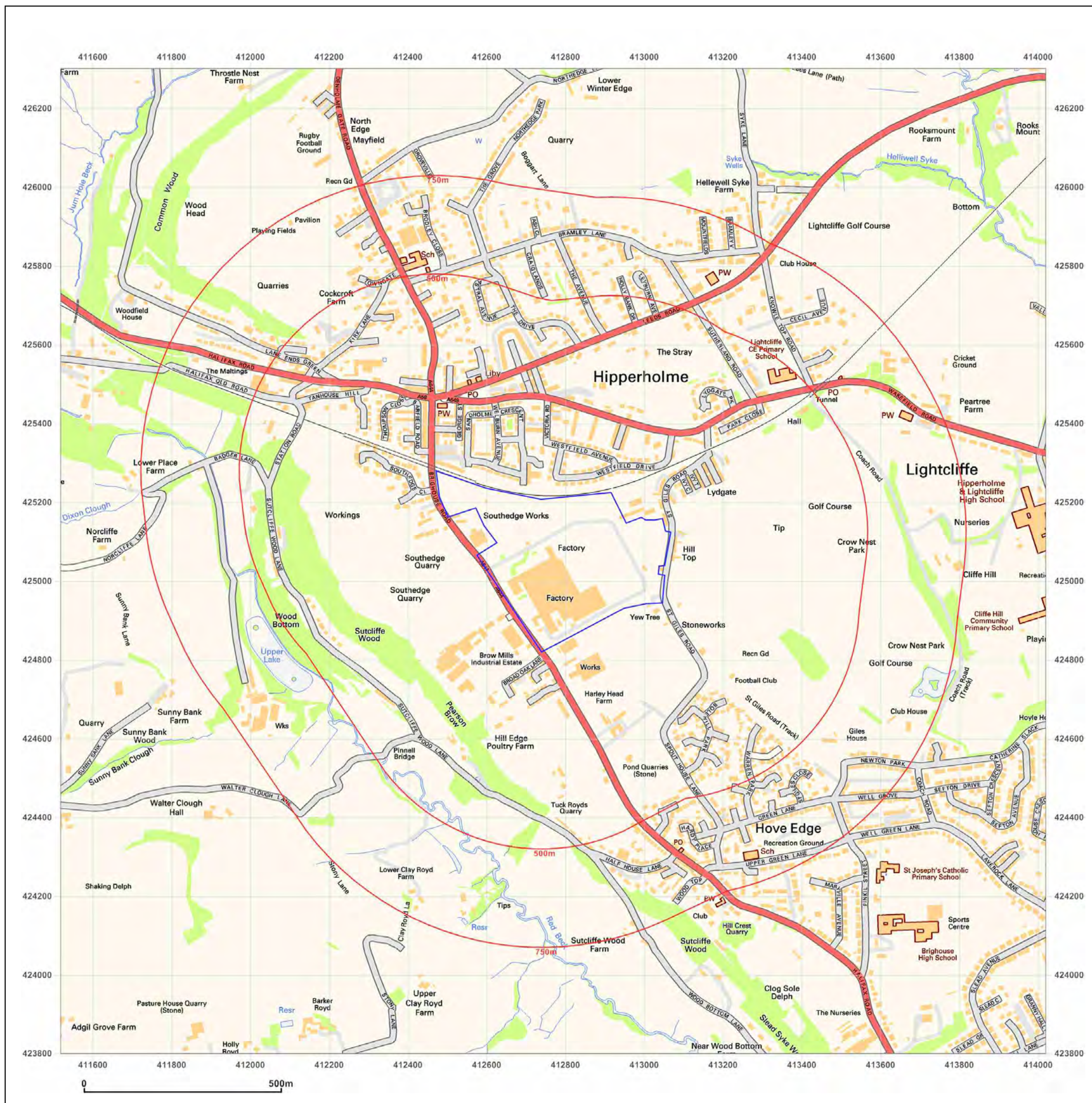
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Map date: 2010

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Site Details:

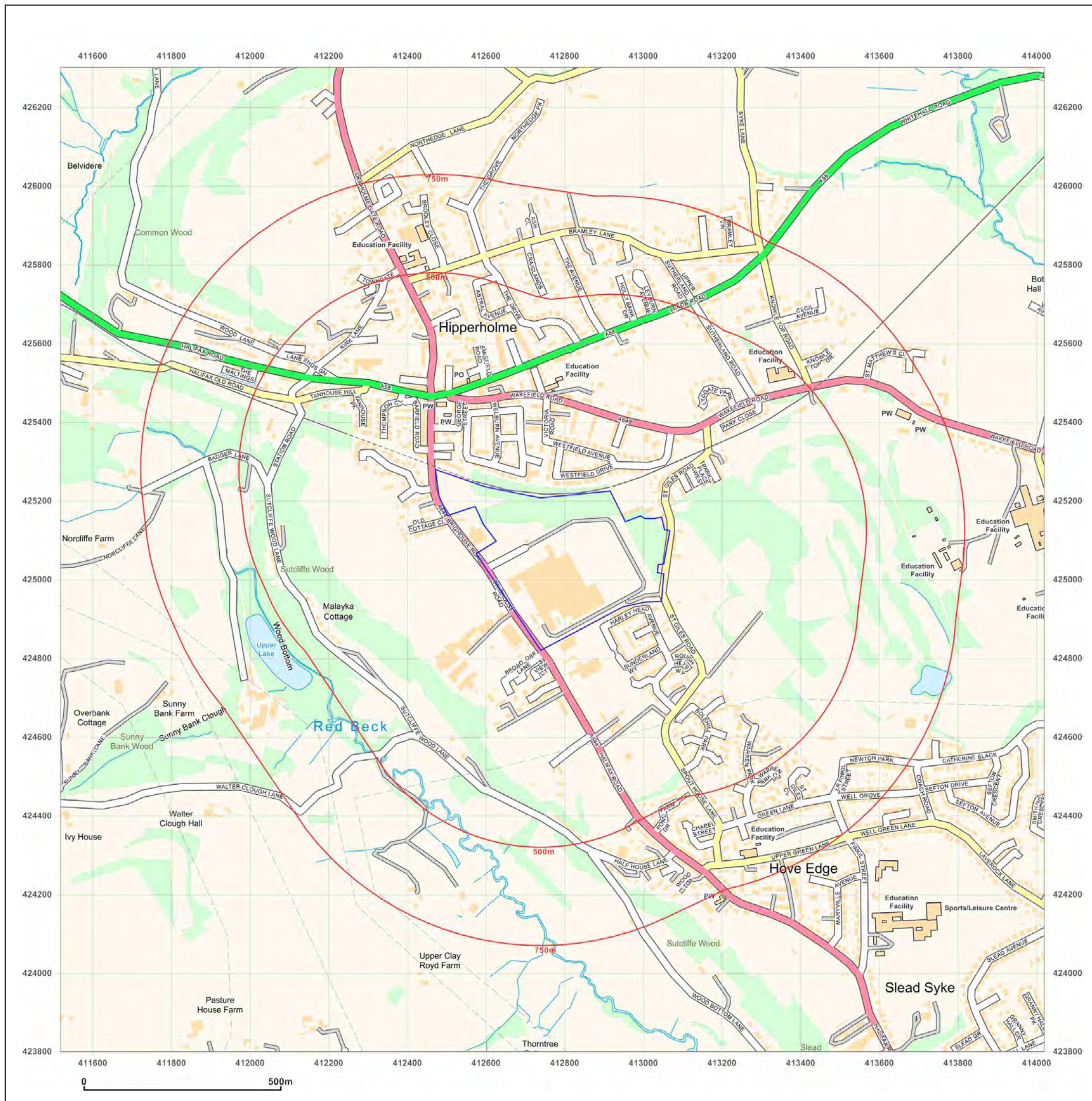
Client Ref: EMS_567572_762507
Report Ref: EMS-567572_762507
Grid Ref: 412769, 425050

Map Name: National Grid

Map date: 2019

Scale: 1:10,000

Printed at: 1:10,000



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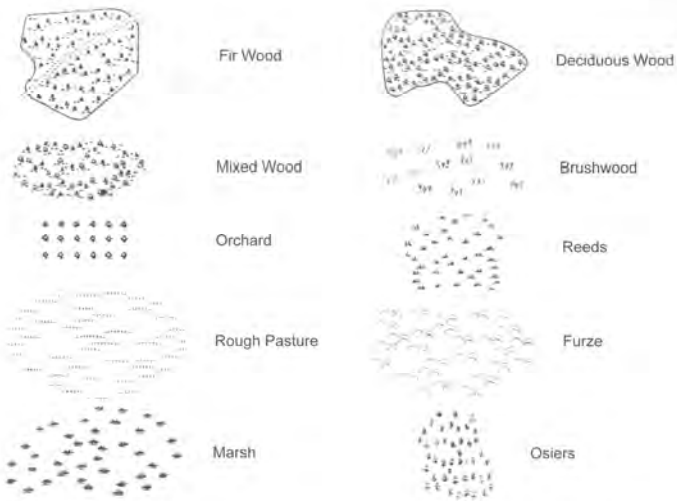
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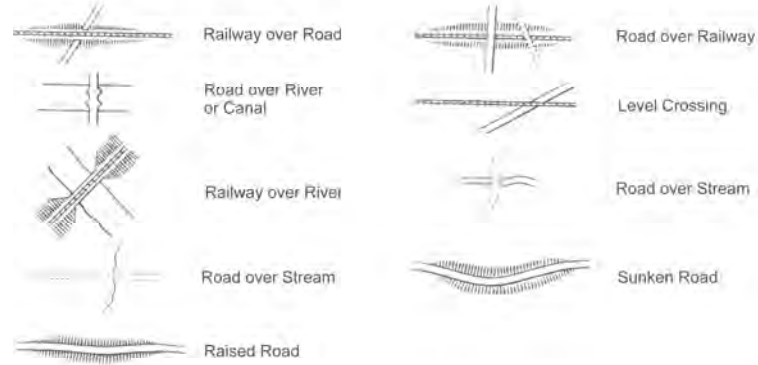
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County Series 1:10,560 scale

VEGETATION



ROADS



RAILWAYS



GENERAL FEATURES



BOUNDARIES



National Grid 1:10,000 scale

HEIGHTS (METRES)

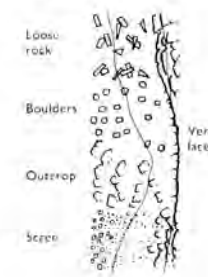
Values are given in metres above mean sea level at Newlyn.

Surface heights determined by ground survey or air survey.

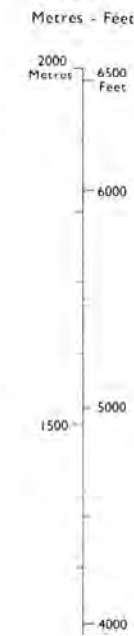
Bench marks and their values are shown on large scale maps, and bench mark lists containing fuller and possibly later levelling information are obtainable from the Director General, Ordnance Survey.

Contours are at 5 metres vertical interval.

ROCK FEATURES



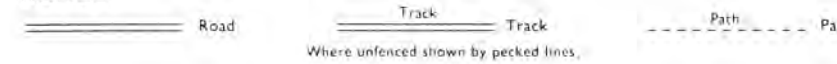
CONVERSION SCALE



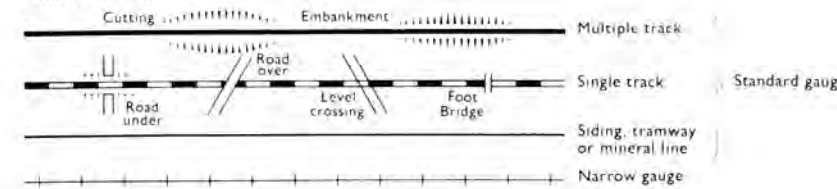
ABBREVIATIONS

BP,BS	Boundary Post or Stone	PO	Post Office
Ch	Church	PC	Public Convenience
CH	Club House	PH	Public House
F Sta	Fire Station	S	Stone
FB	Foot Bridge	Spr	Spring
Fn	Fountain	TCB	Telephone Call Box
GP	Guide Post	TCP	Telephone Call Post
MP,MS	Mile Post or Stone	TH	Town Hall
P	Pole or Post	W	Well
Poi Sta	Police Station	Y	Youth hostel

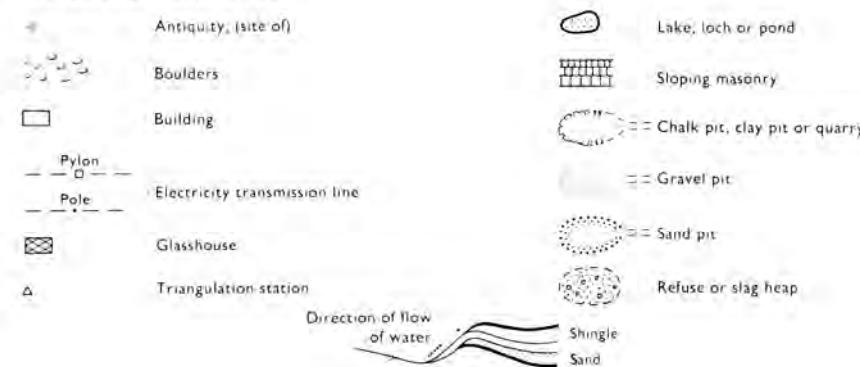
ROADS



RAILWAYS



GENERAL FEATURES



VEGETATION



Historical Map Pack Legend

County Series & National Grid 1:10,560 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

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Technical Helpline

Tel 08444159000

groundsureinsight@groundsure.com
www.groundsure.com

County Series 1:2,500 scale

National Grid 1:2,500 / 1:1,250 scale



Historical Map Pack Legend

GENERAL FEATURES

Wood	Marsh	Reeds
Fir	Mixed Wood	Brush Wood
Orchard	Bush	Rough Pasture
Ford	Stepping Stones	Ferry
Lock	Waterfall	Quarry
Shingle	Gravel Pit	

Trigonometrical Station
 507 Δ Altitude at Trigonometrical Station
 B.M. 325 \square Bench Mark
 342 + Surface Level
 Permanent Traverse Station
 Antiquities (site of)
 Arrow denotes flow of water

ROADS

Road over single stream, Road crossing railway, Road over River or Canal

RAILWAYS

Railway crossing River or Canal, Railway crossing Road, Level Crossing, Embankment, Cutting

ABBREVIATIONS

Trigonometrical Station	Sluice
607 Δ Altitude at Trigonometrical Station	Trough
B.M. 325 \square Bench Mark	Spring
342 + Surface Level	Well
Permanent Traverse Station	Mooring Ring
Antiquities (site of)	Mooring Post
Arrow denotes flow of water	Boundary Stone
	Boundary Post

GENERAL FEATURES

Non-casual Trees	Sluice	Electricity (site of)
Cholla Tree	Cliff	Culvert
Sprayed Trees	Cave Entrance	Direction of water flow
Orchard Trees	Rock	Electricity Pylon
Copse, Giller	Boulders	ETL Electricity Transmission Line
Scrub	Sloping Masonry	Triangulation Station
Bracken	Roofed Building	Traverse Station (permanent)
Heath	Glasshouse	Bench Mark
Rough Grassland	Archway	Surface Level
Heath, listings	Change of boundary marking	Revision Point (instrumentally fixed)
Reeds	see AREAS notes	Revision Point & Bench Mark coincident

Top, Slopes, Quarry, Refuse Heap, Sloping Masonry
 Flat Rock, Sand, Sand Pit, Culvert, Archway
 Shingle, Boulders, Gravel Pit, Cliff Face, Glazed Roof Building

BOUNDARIES

England & Wales

- County Boundary (geographical)
- County & Civil Parish Boundary coterminous
- Admin County or County Borough Boundary
- London Borough Boundary
- County District Boundaries based on civil parish

England, Wales & Scotland

- Civil Parish Boundary
- Baro (or Burgh) Const. & Ward Bdy. Parly & Ward Boundaries based on civil parish
- Co Const Bdy
- Baro (or Burgh) Const & Ward Bdy. Parly & Ward Boundaries not based on civil parish

Scotland

- County Boundary (geographical)
- Co Cnl Bdy. County Council Boundary
- Co of City Bdy. County of the City Boundary
- Co of City Bdy.
- Burgh Bdy. Burgh Boundary
- Burgh Bdy.
- Dist Bdy. District Council Boundary
- Dist Bdy.

* Not with parish † Coincident with parish

ABBREVIATIONS

B.H. Beer House	F Sta. Fire Station	M.P.U. Mail Pick-up	S.L. Signal Light
B.M. Bench Mark	G.P. Guide Post	M.S. Mile Stone	S.S. Sluice
B.P. Boundary Post	G.V.C. Gas Valve Compound	N.T. National Trust	S.P. Signal Post
B.S. Boundary Stone	H. Hydrant or Hydraulic	N.T.L. Normal Tidal Limit	S.P. Spring
C. Crane	ha. Heccaras	N.T.S. National Trust for Scotland	S.Sta. Signal Station
C.H. Club House	L.B. Letter Box	P. Pillar, Pole or Post	T.C.B. Telephone Call Box
Chy. Chimney	L.B.Sta. Lighthouse	P.C. Public Convenience	T.C.P. Telephone Call Post
Co. Captain	L.C. Level Crossing	P.C.B. Police Call Box	Tk. Tank or Truck
D.F. Drinking Fountain	L.G. Loading Gauge	P.H. Public House	Tr. Trough
Dk. Dock	L.Ha. Lighthouse	P.O. Post Office	Tr. Traverse Station
E.P. Electricity Pillar or Post	L.Twr. Lighting Tower	P. Pump	W. Wall
E.T.L. Electricity Transmission Line	M. Meas	P.T.P. Police Telephone Pillar	W.B. Weighbridge
F.A. Fire Alarm	M.H.W. Mean High Water	Rsr. Reservoir	Wd.P. Wind Pump
F.A.P. Fire Alarm Pillar	M.H.W.S. Mean High Water Springs	R.H. Road House	Wks. Works
F.B. Filter Bed, Foot Bridge	M.L.W. Mean Low Water	R.P. Revision Point	W.P. Water Point
F.B.M. Fundamental Bench Mark	M.L.W.S. Mean Low Water Springs	S. Stone	W.T. Water Tap
F.S. Flagstaff	M.P. Mile or Mooring Post	S.B. Signal Box	

County Series 1:1,250 scale ~ County Series & National Grid 1:2,500 scale

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emapsite

Report Reference: EMS-567572_762508

Building A2 Office 1052 Cody Technology Park,
Old Ively Road,
Farnborough, GU14 0LX

Your Reference: EMS_567572_762508

Report Date 20 Sep 2019

Report Delivery Method: Email - pdf

Geo Insight

Address: ,

Dear Sir/ Madam,

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

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
Groundsure Geo Insight

Address: ,
Date: 20 Sep 2019
Reference: EMS-567572_762508
Client: emapsite

NW N NE



SW S SE

Aerial Photograph Capture date: 02-Jul-2018
Grid Reference: 412795,425063
Site Size: 14.4534ha

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Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of 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?	Yes
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	Yes
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	No
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	No
	2.2.3 Are there any records of 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

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

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

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

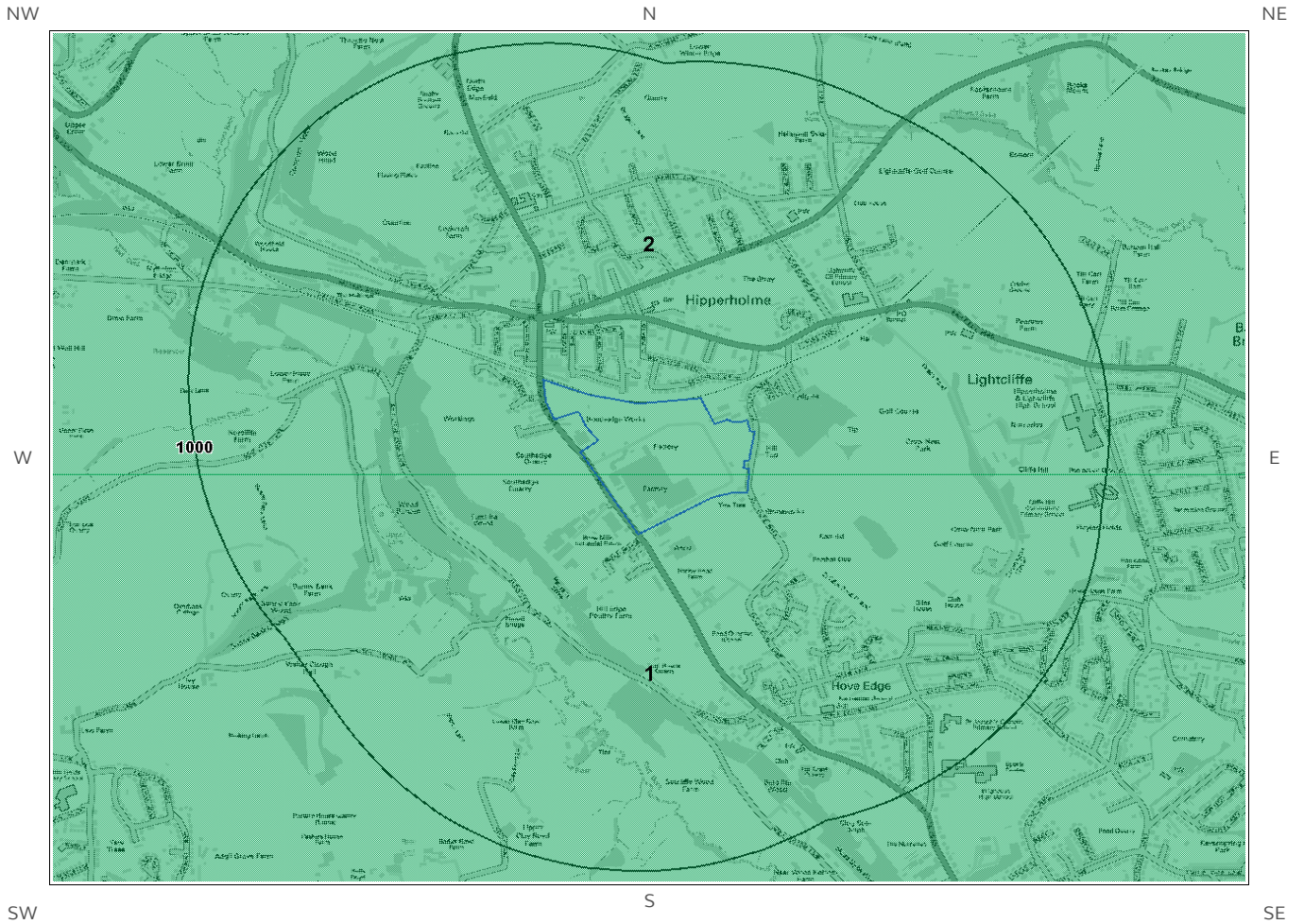
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	31	13	133	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	8	0	25	16	45
4.3 Current Ground Workings	2	0	27	25	40

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	2	0	25	11	45
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*	2	0	0	0	3
5.5 Non-Coal Mining Cavities	2	6	13	7	13
5.5 Natural Cavities	0	0	0	0	0

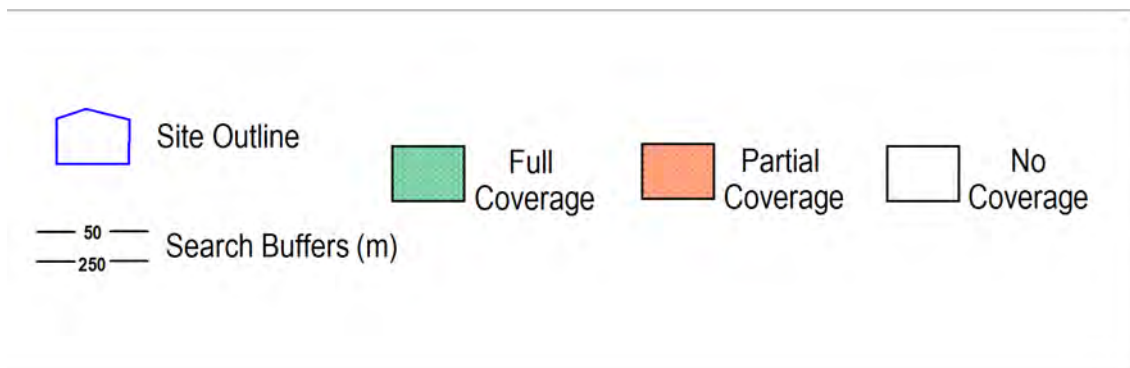
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence					
6.1 Shrink-Swell Clay	Negligible				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Moderate				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records					
7 BGS Recorded Boreholes	0	0	14		
Section 8: Estimated Background Soil Chemistry					
8 Records of Background Soil Chemistry	10	0	0		
Section 9: Railways and Tunnels					
9.1 Tunnels	0	1	0	Not Searched	
9.2 Historical Railway and Tunnel Features	68	10	42	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	2	10	8	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	Some deposits are mapped
2	0.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N3	1933.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N4	1937.0	Some deposits are mapped	Full	Full	Some deposits are mapped

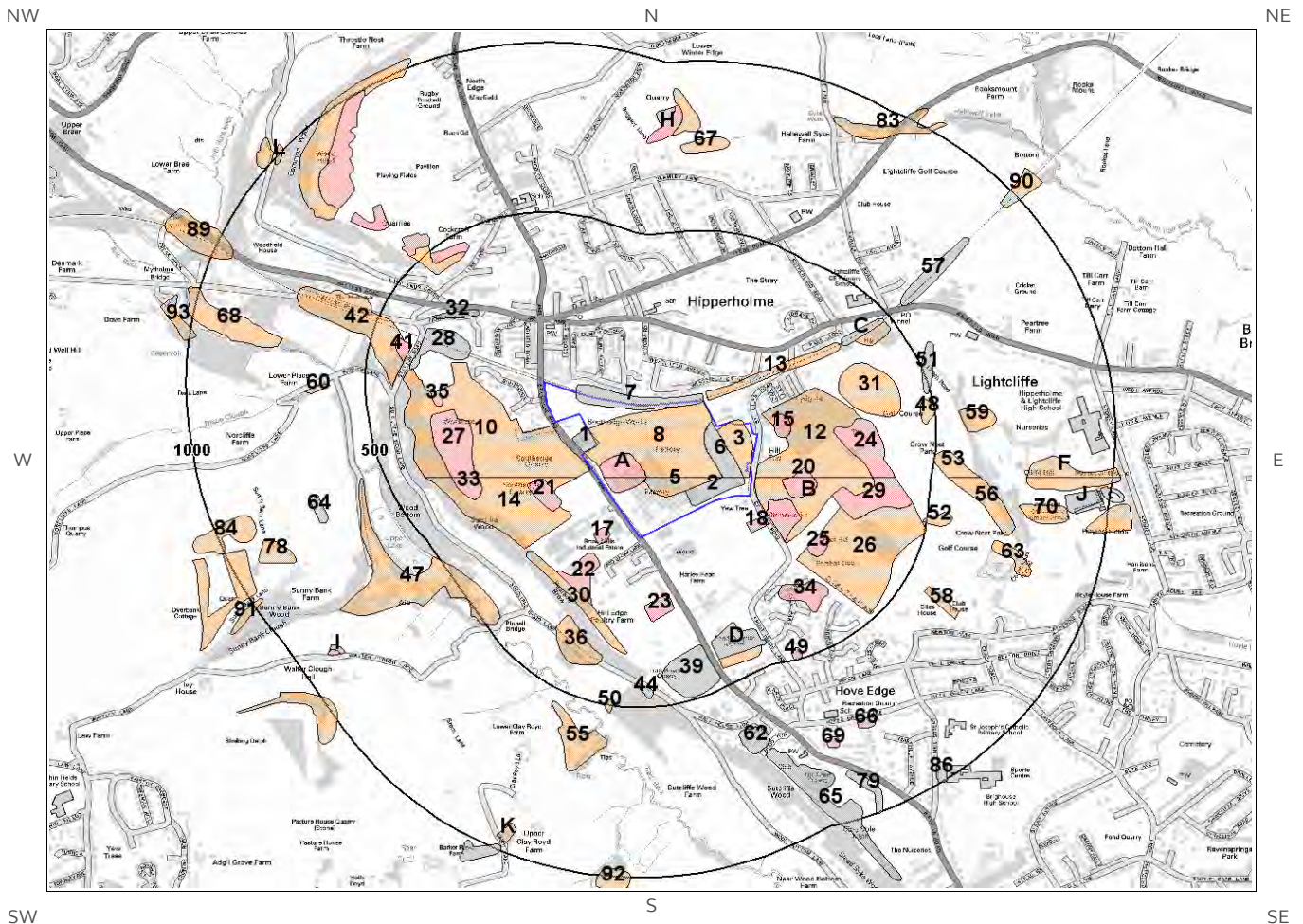
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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1. Geology 1:10,000 scale

1.1 Artificial Ground

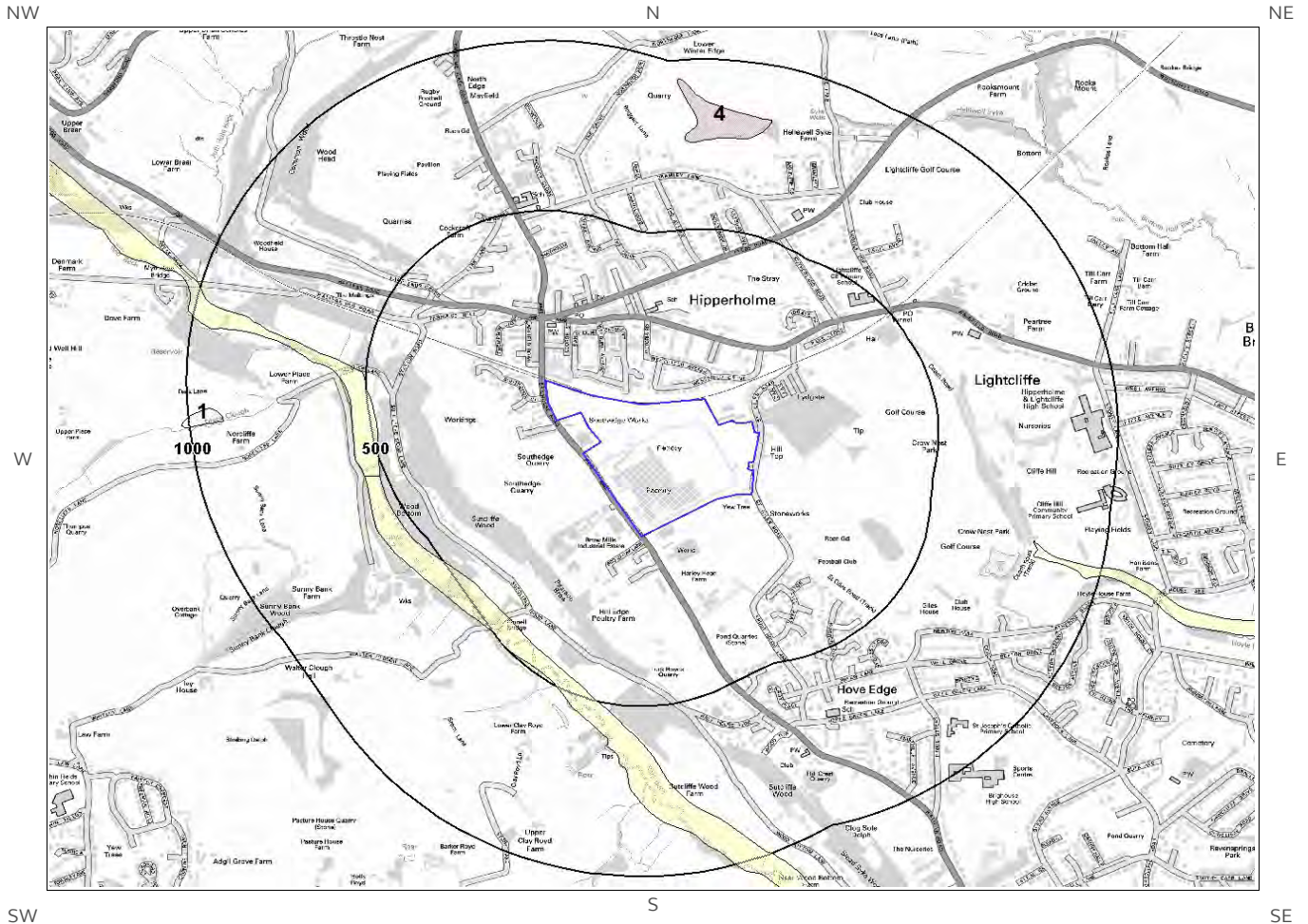
The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	WGR-VOID	Worked Ground (Undivided)	Void
2	0.0	On Site	WGR-VOID	Worked Ground (Undivided)	Void
3	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4A	0.0	On Site	WMGR-ARTDP	Infilled Ground	Artificial Deposit
5	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	0.0	On Site	WGR-VOID	Worked Ground (Undivided)	Void
7	0.0	On Site	WGR-VOID	Worked Ground (Undivided)	Void
8	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
9A	0.0	On Site	WMGR-ARTDP	Infilled Ground	Artificial Deposit
10	5.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
11B	10.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
12	12.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
13	13.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
14	47.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
15	49.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
16B	53.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
17	62.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
18	73.0	S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
19B	86.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
20	110.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
21	123.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
22	132.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
23	184.0	S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
24	213.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
25	220.0	SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
26	220.0	SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
27	223.0	W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
28	224.0	W	WGR-VOID	Worked Ground (Undivided)	Void
29	227.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
30	236.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
31	260.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
32	269.0	NW	WGR-VOID	Worked Ground (Undivided)	Void
33	272.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
34	279.0	S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
35	288.0	W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
36	301.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
37D	341.0	SE	WGR-VOID	Worked Ground (Undivided)	Void
38C	345.0	NE	WGR-VOID	Worked Ground (Undivided)	Void
39	356.0	SE	WGR-VOID	Worked Ground (Undivided)	Void
40C	379.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
41	384.0	W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
42	399.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
43D	419.0	SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
44	427.0	S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
45E	430.0	NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
46E	441.0	NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
47	445.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
48	460.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
49	465.0	S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
50	482.0	S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
51	483.0	E	WGR-VOID	Worked Ground (Undivided)	Void




52	489.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
53	496.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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



Artificial Ground Legend

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-  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? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
2	437.0	SW	ALV-XCSV	Alluvium - Clay, Sand And Gravel	Clay, Sand And Gravel
3	483.0	W	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

1.2.2 Landslip

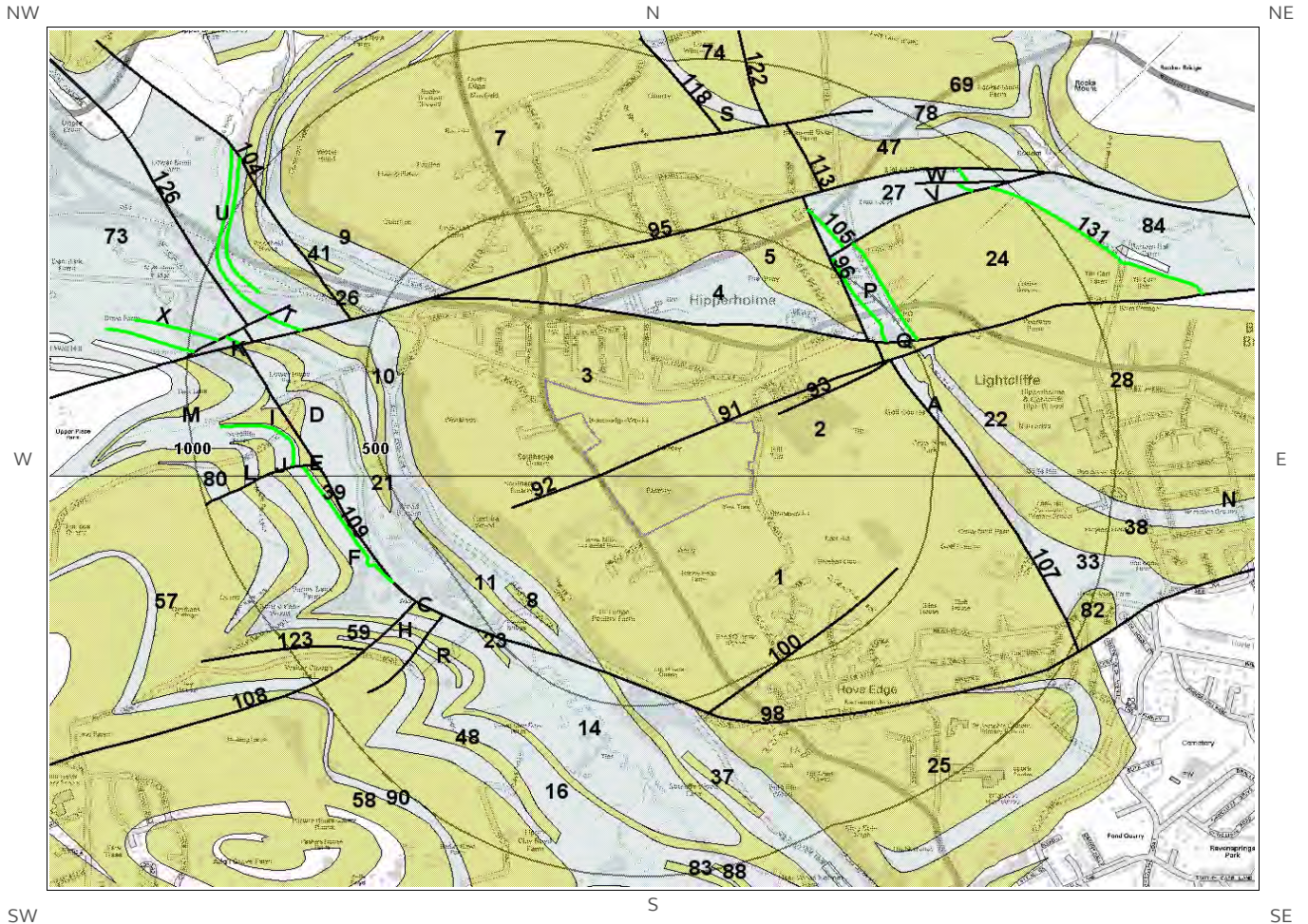
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

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




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

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



Bedrock and linear features Legend

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-  Site Outline
-  500 Search Buffers (m)
-  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	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
2	0.0	On Site	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
3	0.0	On Site	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
4	217.0	N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
5	226.0	N	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
6	307.0	SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
7	326.0	N	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
8	349.0	SW	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
9	362.0	NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
10	398.0	W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
11	400.0	SW	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
12P	402.0	NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
13Q	406.0	NE	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
14	410.0	S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
15	410.0	S	EYR-SDST	80 Yard Rock - Sandstone	Langsettian Sub-age
16	415.0	S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
17A	424.0	NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
18B	451.0	W	EYR-SDST	80 Yard Rock - Sandstone	Langsettian Sub-age
19A	457.0	NE	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
20B	472.0	W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
21	496.0	SW	EYR-SDST	80 Yard Rock - 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

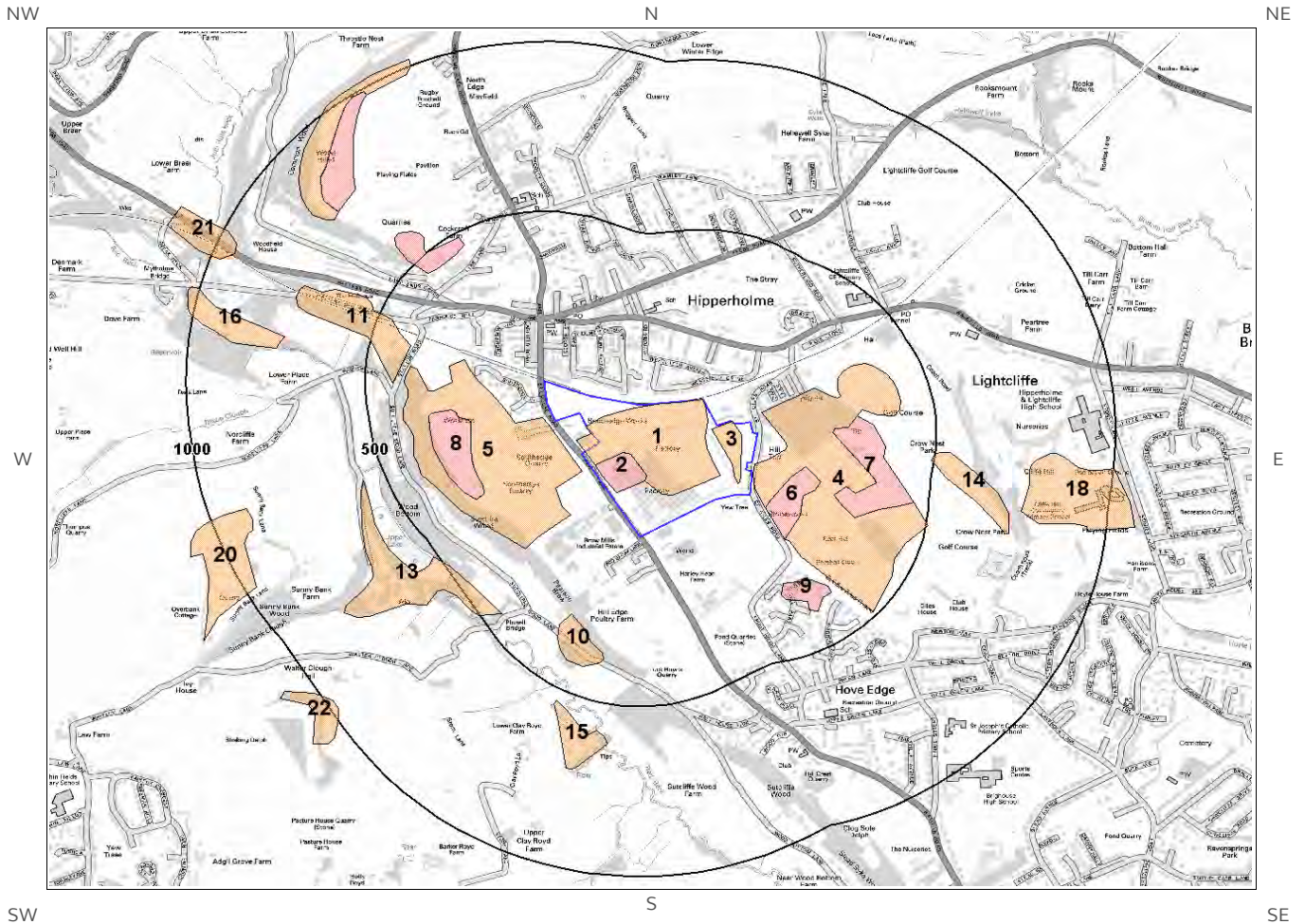
ID	Distance (m)	Direction	Category Description	Feature Description
91	0.0	On Site	FAULT	Normal fault, inferred
92	0.0	On Site	FAULT	Normal fault, inferred; crossmarks on downthrow side
93	76.0	NE	FAULT	Normal fault, inferred
94P	217.0	N	FAULT	Normal fault, inferred
95	325.0	N	FAULT	Normal fault, inferred
96	402.0	NE	FAULT	Normal fault, inferred
97Q	406.0	NE	FAULT	Normal fault, inferred
98	409.0	S	FAULT	Normal fault, inferred; crossmarks on downthrow side
99A	424.0	NE	FAULT	Normal fault, inferred
100	439.0	SE	FAULT	Normal fault, inferred; downthrow not specified
101P	441.0	NE	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



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2. Geology 1:50,000 scale

2.1 Artificial Ground

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

2.1.1 Artificial/ Made Ground

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

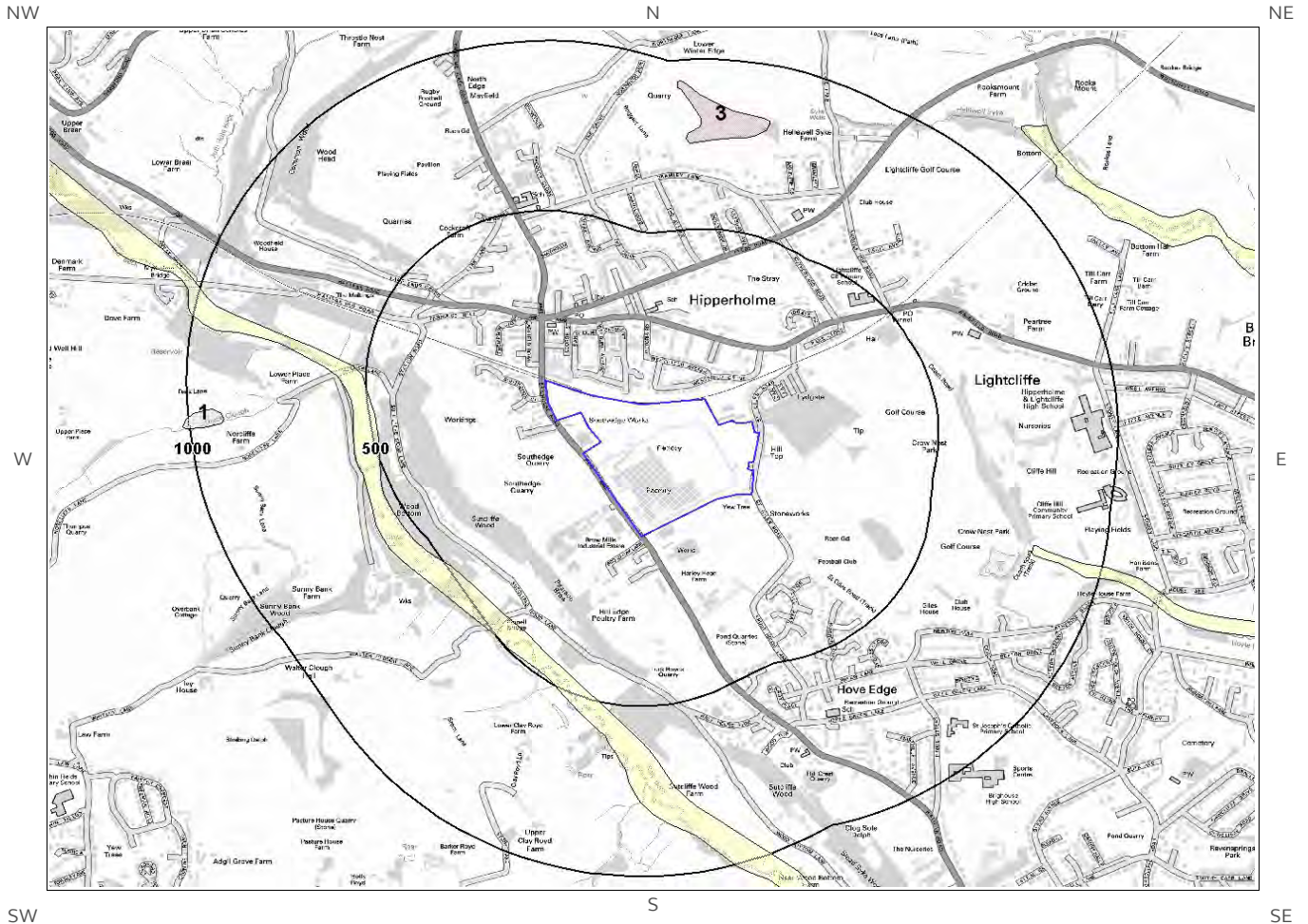
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	0.0	On Site	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	4.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
5	23.0	SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
6	57.0	SE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
7	211.0	E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
8	221.0	W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
9	276.0	S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
10	296.0	SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
11	388.0	W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
12	445.0	NW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
13	447.0	SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
14	492.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

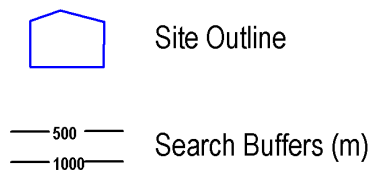
Are there any records relating to permeability of artificial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Very High	Low
0.0	On Site	Mixed	Very High	Low
0.0	On Site	Mixed	Very High	Low
0.0	On Site	Mixed	Very High	Low
0.0	On Site	Mixed	Very High	Low
0.0	On Site	Mixed	Very High	Low
4.0	E	Mixed	Very High	Low
5.0	E	Mixed	Very High	Low
23.0	SW	Mixed	Very High	Low

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



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
2	429.0	SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Database searched and no data found.

2.2.3 Landslip

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

Database searched and no data found.

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

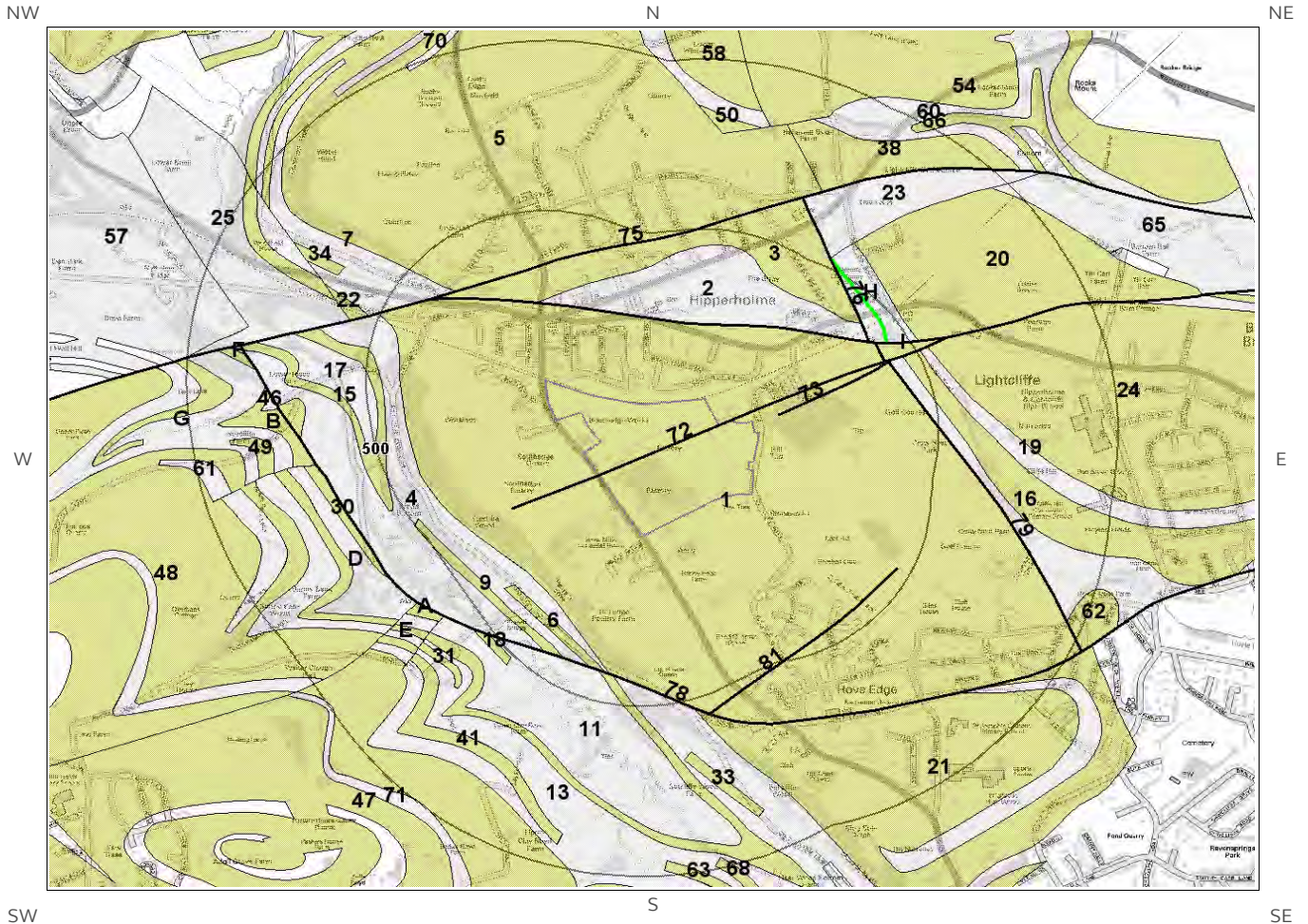
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

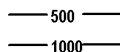
2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline



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
1	0.0	On Site	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
2	219.0	N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
3	231.0	N	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
4	305.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	325.0	N	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
6	348.0	SW	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
7	359.0	NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8H	402.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	404.0	SW	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
10I	407.0	NE	GR-SDST	GRENSIDE SANDSTONE - SANDSTONE	WESTPHALIAN
11	410.0	S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	411.0	S	EYR-SDST	80 YARD ROCK - SANDSTONE	WESTPHALIAN
13	415.0	S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
14	416.0	NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
15	453.0	W	EYR-SDST	80 YARD ROCK - SANDSTONE	WESTPHALIAN
16	460.0	NE	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
17	475.0	W	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	Moderate
0.0	On Site	Fracture	High	Moderate

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
72	0.0	On Site	FAULT	Fault, inferred
73	75.0	NE	FAULT	Fault, inferred, displacement unknown
74H	219.0	N	FAULT	Fault, inferred
75	325.0	N	FAULT	Fault, inferred
76	402.0	NE	FAULT	Fault, inferred
77I	407.0	NE	FAULT	Fault, inferred
78	411.0	S	FAULT	Fault, inferred
79	416.0	NE	FAULT	Fault, inferred
80H	440.0	NE	ROCK	Coal seam, inferred
81	441.0	SE	FAULT	Fault, inferred, displacement unknown

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

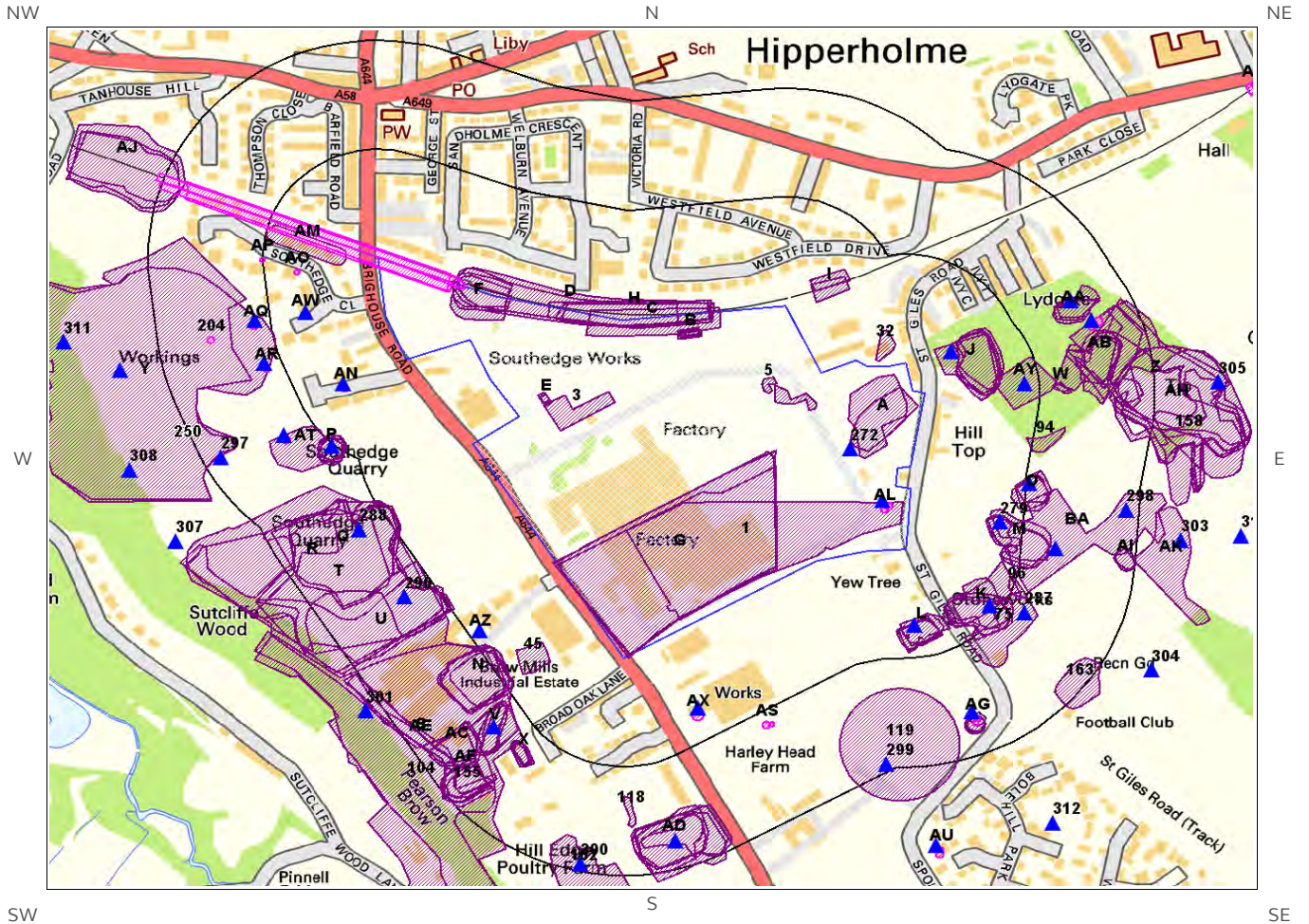
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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





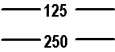
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	412856 424917	Brick Works	1955
2E	0.0	On Site	412654 425117	Reservoirs	1955
3	0.0	On Site	412690 425104	Reservoirs	1948
4A	0.0	On Site	413023 425095	Refuse Heap	1955
5	0.0	On Site	412897 425133	Unspecified Heap	1893
6A	0.0	On Site	413015 425098	Unspecified Quarry	1892
7B	0.0	On Site	412812 425192	Filter Bed	1955
8B	0.0	On Site	412811 425194	Filter Bed	1948
9B	0.0	On Site	412811 425194	Reservoir	1905
10C	0.0	On Site	412771 425206	Cuttings	1893
11C	0.0	On Site	412748 425216	Cuttings	1948
12H	0.0	On Site	412748 425216	Cuttings	1905
13D	0.0	On Site	412621 425234	Cuttings	1955
14D	0.0	On Site	412679 425236	Cuttings	1973
15G	0.0	On Site	412784 424939	Glazed Brick Works	1948
16B	0.0	On Site	412810 425193	Filter Bed	1938
17E	0.0	On Site	412652 425119	Reservoir	1938
18	0.0	On Site	412926 425119	Unspecified Ground Workings	1892
19F	0.0	On Site	412583 425229	Cuttings	1930
20B	0.0	On Site	412810 425195	Filter Bed	1930
21F	0.0	On Site	412585 425243	Cuttings	1948

ID	Distance (m)	Direction	NGR	Use	Date
22G	0.0	On Site	412787 424933	Brick Works	1938
23G	0.0	On Site	412787 424933	Brick Works	1938
24G	0.0	On Site	412784 424941	Brick Works	1930
25D	0.0	On Site	412679 425236	Cuttings	1984
26F	0.0	On Site	412585 425243	Cuttings	1905
27F	0.0	On Site	412585 425243	Cuttings	1892
28F	0.0	On Site	412583 425239	Cuttings	1938
29H	0.0	On Site	412746 425217	Cuttings	1930
30B	0.0	On Site	412810 425193	Filter Bed	1938
31H	0.0	On Site	412754 425214	Cuttings	1938
32	6.0	N	413024 425179	Unspecified Heap	1892
33J	31.0	NE	413111 425153	Unspecified Quarry	1905
34I	32.0	NE	412963 425244	Cuttings	1892
35AM	34.0	W	412393 425295	Unspecified Heap	1930
36I	37.0	NE	412963 425255	Cuttings	1948
37I	37.0	NE	412963 425255	Cuttings	1905
38J	42.0	NE	413113 425161	Unspecified Pit	1948
39J	42.0	NE	413125 425158	Unspecified Pit	1938
40J	42.0	NE	413125 425158	Unspecified Pit	1938
41J	42.0	NE	413125 425158	Unspecified Pit	1931
42J	45.0	NE	413126 425159	Unspecified Pit	1948
43J	45.0	NE	413126 425159	Unspecified Pit	1948
44J	49.0	NE	413129 425164	Unspecified Pit	1955
45	64.0	SW	412641 424821	Unspecified Pit	1969
46K	75.0	SE	413127 424874	Unspecified Disused Quarry	1955
47K	75.0	SE	413122 424886	Unspecified Disused Quarry	1969
48AY	75.0	E	413175 425136	Unspecified Quarry	1892
49K	77.0	SE	413125 424867	Unspecified Disused Quarry	1948
50K	77.0	SE	413123 424867	Unspecified Disused Quarry	1938

ID	Distance (m)	Direction	NGR	Use	Date
51K	77.0	SE	413123 424867	Unspecified Disused Quarry	1931
52K	77.0	SE	413123 424867	Unspecified Disused Quarry	1938
53L	77.0	S	413063 424854	Unspecified Quarry	1955
54K	78.0	SE	413131 424886	Unspecified Disused Quarry	1948
55L	80.0	S	413068 424852	Unspecified Disused Quarry	1969
56L	82.0	S	413061 424848	Unspecified Quarry	1948
57L	83.0	S	413061 424846	Unspecified Quarry	1948
58L	83.0	S	413060 424847	Unspecified Quarry	1938
59L	83.0	S	413060 424847	Unspecified Quarry	1938
60L	83.0	S	413060 424847	Unspecified Quarry	1931
61M	85.0	E	413168 424953	Unspecified Ground Workings	1931
62M	85.0	E	413168 424953	Unspecified Ground Workings	1938
63M	85.0	E	413168 424953	Unspecified Ground Workings	1938
64M	86.0	E	413168 424953	Unspecified Pit	1948
65M	86.0	E	413168 424953	Unspecified Pit	1948
66M	86.0	E	413168 424956	Unspecified Quarry	1905
67M	86.0	E	413168 424956	Unspecified Pit	1948
68M	89.0	E	413171 424962	Unspecified Pit	1955
69N	109.0	SW	412578 424794	Unspecified Pit	1955
70BA	109.0	E	413243 424955	Unspecified Quarry	1892
71N	109.0	SW	412575 424796	Unspecified Pit	1930
72O	109.0	E	413181 425010	Unspecified Quarry	1948
73N	111.0	SW	412577 424796	Unspecified Pit	1938
74N	111.0	SW	412577 424796	Unspecified Pit	1938
75	112.0	SE	413151 424854	Unspecified Quarry	1905
76O	113.0	E	413185 425017	Unspecified Quarry	1955
77N	113.0	SW	412584 424796	Unspecified Heap	1969
78N	113.0	SW	412584 424796	Unspecified Heap	1976
79R	113.0	SW	412410 424923	Unspecified Quarries	1930

ID	Distance (m)	Direction	NGR	Use	Date
80P	113.0	SW	412421 425061	Refuse Heap	1930
81O	114.0	E	413183 425011	Unspecified Quarry	1905
82O	114.0	E	413183 425011	Unspecified Quarry	1948
83P	114.0	SW	412421 425063	Refuse Heap	1938
84P	114.0	SW	412421 425063	Refuse Heap	1938
85P	115.0	SW	412422 425061	Unspecified Quarry	1948
86P	115.0	SW	412421 425057	Refuse Heap	1955
87U	115.0	SW	412477 424854	Unspecified Quarries	1893
88Q	116.0	SW	412425 424941	Unspecified Disused Quarries	1976
89Q	116.0	SW	412425 424941	Unspecified Disused Quarries	1989
90Q	116.0	SW	412425 424941	Unspecified Disused Quarries	1981
91R	116.0	SW	412408 424912	Unspecified Disused Quarries	1955
92T	117.0	SW	412402 424904	Unspecified Disused Quarries	1938
93Q	117.0	SW	412438 424939	Unspecified Disused Quarries	1969
94	118.0	E	413198 425071	Refuse Heap	1892
95AT	118.0	SW	412394 425061	Unspecified Old Quarry	1905
96	119.0	E	413167 424902	Unspecified Disused Quarry	1981
97S	119.0	SW	412530 424631	Unspecified Quarries	1905
98S	119.0	SW	412530 424631	Unspecified Old Quarries	1948
99T	123.0	SW	412443 424905	Unspecified Quarries	1905
100T	123.0	SW	412443 424905	Unspecified Disused Quarries	1948
101Y	124.0	W	412257 425134	Unspecified Quarry	1973
102U	127.0	SW	412440 424856	Refuse Heap	1989
103V	135.0	SW	412598 424741	Refuse Heap	1955
104	135.0	SW	412530 424619	Unspecified Quarries	1893
105V	137.0	SW	412595 424740	Refuse Heap	1930
106V	138.0	SW	412597 424741	Refuse Heap	1938
107V	138.0	SW	412597 424741	Refuse Heap	1938
108W	140.0	E	413215 425130	Refuse Heap	1948

ID	Distance (m)	Direction	NGR	Use	Date
109W	140.0	E	413217 425131	Refuse Heap	1948
110W	140.0	E	413217 425131	Refuse Heap	1948
111Z	142.0	E	413294 425129	Unspecified Quarries	1955
112X	147.0	SW	412631 424709	Unspecified Pit	1955
113X	147.0	SW	412626 424711	Unspecified Pit	1938
114X	147.0	SW	412626 424711	Unspecified Pit	1938
115Y	148.0	W	412257 425134	Unspecified Disused Quarry	1984
116X	148.0	SW	412627 424709	Unspecified Pit	1930
117X	150.0	SW	412627 424710	Unspecified Pit	1948
118	159.0	S	412746 424643	Unspecified Heap	1893
119	160.0	S	413040 424720	Unspecified Quarries	1905
120Z	160.0	E	413296 425104	Refuse Heaps	1938
121Z	160.0	E	413296 425104	Refuse Heaps	1938
122Z	160.0	E	413296 425104	Refuse Heaps	1931
123AB	162.0	E	413250 425163	Unspecified Quarries	1948
124A A	166.0	NE	413232 425218	Unspecified Quarries	1948
125A A	167.0	NE	413231 425221	Unspecified Quarry	1948
126AB	167.0	E	413254 425151	Unspecified Quarry	1905
127AB	170.0	E	413264 425180	Refuse Heap	1892
128A A	171.0	NE	413233 425230	Unspecified Quarry	1955
129AB	177.0	E	413258 425163	Refuse Heap	1948
130AF	181.0	SW	412568 424701	Unspecified Ground Workings	1955
131AC	182.0	SW	412553 424721	Unspecified Heap	1938
132AC	182.0	SW	412553 424721	Unspecified Heap	1938
133AC	183.0	SW	412554 424722	Unspecified Heap	1930
134A D	184.0	S	412792 424612	Unspecified Quarries	1948
135A D	184.0	S	412792 424612	Unspecified Quarries	1905
136A D	189.0	SE	412800 424615	Unspecified Disused Quarries	1938
137A D	190.0	S	412787 424609	Unspecified Disused Quarry	1930

ID	Distance (m)	Direction	NGR	Use	Date
138A D	190.0	S	412804 424615	Unspecified Disused Quarries	1955
139A D	193.0	SE	412803 424603	Unspecified Quarries	1893
140AE	194.0	SW	412507 424733	Unspecified Ground Workings	1981
141AE	194.0	SW	412507 424733	Unspecified Ground Workings	1976
142A D	194.0	S	412792 424614	Unspecified Disused Quarries	1969
143AF	198.0	SW	412566 424680	Unspecified Pit	1938
144AF	198.0	SW	412566 424680	Unspecified Pit	1938
145AB	199.0	E	413288 425180	Unspecified Ground Workings	1984
146A H	200.0	E	413339 425096	Unspecified Quarries	1948
147AE	201.0	SW	412495 424736	Unspecified Ground Workings	1969
148AF	201.0	SW	412570 424681	Unspecified Heap	1989
149AF	202.0	SW	412566 424678	Unspecified Pit	1930
150A G	202.0	S	413125 424750	Unspecified Heap	1955
151Z	203.0	E	413343 425148	Unspecified Quarries	1973
152A G	205.0	S	413121 424744	Unspecified Heap	1938
153A G	205.0	S	413121 424744	Unspecified Heap	1938
154A G	205.0	S	413121 424744	Unspecified Heap	1931
155	205.0	SW	412572 424674	Unspecified Pit	1969
156A G	206.0	S	413122 424744	Unspecified Heap	1948
157A H	207.0	E	413344 425093	Unspecified Quarries	1948
158	207.0	E	413297 425074	Unspecified Quarries	1905
159A G	207.0	S	413123 424744	Unspecified Heap	1948
160A G	207.0	S	413123 424744	Unspecified Heap	1948
161A H	211.0	E	413350 425101	Refuse Heap	1984
162	212.0	S	412746 424496	Unspecified Quarries	1893
163	225.0	SE	413233 424791	Unspecified Pit	1905
164AI	227.0	E	413284 424933	Unspecified Heap	1938
165AI	227.0	E	413284 424933	Unspecified Heap	1931
166AI	227.0	E	413284 424933	Unspecified Heap	1938

ID	Distance (m)	Direction	NGR	Use	Date
167AI	227.0	E	413285 424933	Unspecified Heap	1948
168AI	227.0	E	413285 424933	Unspecified Heap	1948
169AJ	227.0	W	412197 425389	Cuttings	1984
170AJ	227.0	W	412197 425389	Cuttings	1973
171AI	228.0	E	413284 424934	Unspecified Heap	1948
172AJ	230.0	W	412193 425382	Cuttings	1948
173AJ	230.0	W	412193 425382	Cuttings	1905
174AJ	230.0	W	412193 425382	Cuttings	1892
175AJ	230.0	W	412195 425379	Cuttings	1938
176AK	247.0	E	413335 424926	Unspecified Disused Quarry	1976
177AK	247.0	E	413335 424926	Unspecified Disused Quarry	1981

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
178AL	0.0	On Site	413023 424991	Unspecified Old Shaft	1948
179AL	0.0	On Site	413027 424994	Unspecified Disused Shaft	1969
180A M	0.0	On Site	412397 425311	Tunnel	1951
181A M	0.0	On Site	412397 425311	Tunnel	1984
182A M	0.0	On Site	412397 425311	Tunnel	1973
183A M	0.0	On Site	412406 425305	Tunnel	1892
184A M	0.0	On Site	412392 425305	Tunnel	1948
185A M	0.0	On Site	412392 425305	Tunnel	1905
186A N	71.0	SW	412435 425130	Unspecified Shaft	1905

ID	Distance (m)	Direction	NGR	Use	Date
187A N	71.0	SW	412436 425129	Unspecified Old Shaft	1951
188A W	82.0	W	412392 425215	Unspecified Shaft	1905
189A O	86.0	W	412383 425264	Unspecified Old Shafts	1905
190A O	86.0	W	412383 425264	Unspecified Shafts	1892
191A X	91.0	SE	412820 424754	Unspecified Old Shaft	1905
192AZ	112.0	SW	412582 424847	Unspecified Old Shaft	1905
193AP	123.0	W	412346 425278	Unspecified Shafts	1892
194AP	123.0	W	412346 425278	Unspecified Old Shafts	1905
195AS	137.0	SE	412894 424743	Unspecified Old Shaft	1948
196A Q	138.0	W	412338 425202	Unspecified Old Shafts	1948
197A Q	138.0	W	412338 425202	Unspecified Old Shafts	1905
198AR	139.0	SW	412350 425153	Unspecified Old Shafts	1905
199AR	139.0	SW	412350 425153	Unspecified Old Shafts	1948
200AR	139.0	SW	412351 425152	Unspecified Old Shafts	1951
201A Q	140.0	W	412336 425201	Unspecified Old Shafts	1951
202AS	140.0	SE	412900 424744	Unspecified Old Shaft	1951
203AT	155.0	SW	412371 425071	Unspecified Old Shaft	1905
204	189.0	W	412289 425186	Unspecified Old Shafts	1951
205A A	193.0	NE	413249 425200	Unspecified Old Shaft	1948
206A A	199.0	NE	413251 425205	Unspecified Old Shaft	1951
207A A	201.0	NE	413255 425207	Unspecified Disused Shaft	1984
208A A	201.0	NE	413255 425207	Unspecified Disused Shaft	1973
209A G	209.0	S	413125 424749	Unspecified Old Shaft	1951
210A G	211.0	S	413122 424746	Unspecified Old Shaft	1948
211A U	345.0	S	413084 424599	Unspecified Old Shaft	1951
212A U	348.0	S	413083 424595	Unspecified Old Shaft	1948
213A U	348.0	S	413083 424595	Unspecified Old Shaft	1905
Not shown	352.0	SE	412962 424537	Unspecified Old Shaft	1951
Not shown	354.0	SE	412959 424532	Unspecified Old Shaft	1905

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	354.0	SE	412959 424532	Unspecified Old Shaft	1948
Not shown	432.0	S	413128 424518	Unspecified Old Shafts	1951
Not shown	435.0	S	413127 424513	Unspecified Old Shaft	1948
Not shown	435.0	S	413127 424513	Unspecified Old Shaft	1905
Not shown	470.0	S	413200 424498	Unspecified Old Shafts	1951
Not shown	472.0	S	413199 424495	Unspecified Old Shafts	1948
222A V	486.0	NE	413440 425490	Tunnel	1905
223A V	486.0	NE	413440 425490	Tunnel	1948
224A V	493.0	NE	413445 425495	Tunnel	1984
225A V	493.0	NE	413445 425495	Tunnel	1951
226A V	493.0	NE	413445 425495	Tunnel	1973
Not shown	514.0	S	413191 424448	Unspecified Disused Shaft	1969
Not shown	517.0	S	413185 424444	Unspecified Old Shaft	1951
Not shown	518.0	N	412646 425775	Unspecified Old Shaft	1905
Not shown	520.0	S	413186 424440	Unspecified Old Shaft	1948
Not shown	520.0	S	413186 424440	Unspecified Old Shaft	1905
Not shown	567.0	S	412594 424194	Clay and Coal Pit	1976
Not shown	570.0	S	412580 424196	Clay and Coal Pit	1951
Not shown	586.0	S	412576 424187	Clay and Coal Pit	1948
Not shown	588.0	SE	413391 424464	Unspecified Disused Shaft	1969
Not shown	590.0	SE	413390 424461	Unspecified Old Shaft	1951
Not shown	592.0	SE	413389 424457	Unspecified Old Shaft	1948
Not shown	592.0	SE	413389 424457	Unspecified Old Shaft	1905
Not shown	702.0	SW	411982 424681	Unspecified Old Shaft	1948
Not shown	703.0	SW	411983 424681	Unspecified Old Shaft	1951
Not shown	741.0	W	411411 425430	Colliery	1948
Not shown	822.0	SE	413450 424226	Unspecified Old Shafts	1951
Not shown	825.0	SE	413451 424222	Unspecified Old Shafts	1948
Not shown	825.0	SE	413451 424222	Unspecified Shafts	1905

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	827.0	SE	413527 424269	Unspecified Old Shaft	1951
Not shown	830.0	SE	413528 424265	Unspecified Old Shafts	1948
Not shown	830.0	SE	413528 424265	Unspecified Shafts	1905
Not shown	864.0	SW	411720 424786	Unspecified Disused Shaft	1969
Not shown	864.0	SW	411720 424786	Unspecified Disused Shaft	1981
Not shown	864.0	SW	411720 424786	Unspecified Disused Shaft	1976
Not shown	868.0	SW	411717 424780	Air Shaft	1989
Not shown	869.0	SW	411719 424776	Air Shaft	1981
Not shown	869.0	SW	411719 424776	Air Shaft	1969
Not shown	869.0	SW	411719 424776	Air Shaft	1976
Not shown	874.0	SW	411710 424789	Unspecified Old Shaft	1951
Not shown	874.0	SW	411709 424788	Unspecified Old Shaft	1948
Not shown	874.0	SW	411710 424777	Air Shaft	1948
Not shown	875.0	SE	413533 424215	Unspecified Old Shafts	1951
Not shown	875.0	SW	411710 424778	Air Shaft	1951
Not shown	878.0	SE	413535 424212	Unspecified Old Shafts	1948
Not shown	878.0	SE	413535 424212	Unspecified Shafts	1905
Not shown	901.0	SE	413478 424151	Unspecified Old Shafts	1951
Not shown	905.0	SE	413479 424146	Unspecified Old Shafts	1948
Not shown	932.0	SE	413530 424146	Unspecified Old Shafts	1951
Not shown	935.0	SE	413530 424140	Unspecified Old Shafts	1948
Not shown	965.0	W	411561 425617	Air Shaft	1973
Not shown	965.0	W	411561 425617	Air Shaft	1984
Not shown	976.0	S	413407 424033	Unspecified Disused Shaft	1969
Not shown	976.0	SE	413537 424099	Unspecified Old Shafts	1951
Not shown	979.0	SE	413536 424093	Unspecified Old Shafts	1948
Not shown	982.0	S	413402 424027	Unspecified Shaft	1948

4.3 Current Ground Workings

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

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
272	0.0	On Site	412985 425060	Fireclay	Halifax Fireclay Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
273AL	0.0	On Site	413020 425001	Sandstone	Silex Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
274J	51.0	E	413095 425172	Sandstone	Gaubert Hall Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
275AN	74.0	SW	412433 425135	Sandstone	South Edge Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
276AW	87.0	W	412392 425217	Sandstone	South Edge Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
277L	88.0	S	413055 424858	Sandstone	Yew Tree	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
278AX	89.0	SE	412819 424762	Sandstone	Harley Head Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
279	99.0	E	413148 424976	Sandstone	Hill Top Mine	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
280AY	109.0	E	413175 425135	Sandstone	Gauber Hall	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
281K	112.0	SE	413137 424880	Sandstone	Yew Tree	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
282AZ	114.0	SW	412581 424851	Sandstone	Stubbins Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
283P	128.0	SW	412421 425063	Sandstone	South Edge	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
284O	129.0	E	413180 425020	Sandstone	Hill Top Quarry	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
285AQ	142.0	W	412337 425208	Sandstone	South Edge Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
286AR	144.0	W	412347 425159	Sandstone	South Edge Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
287	148.0	SE	413175 424872	Sandstone	Rough Heys	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
288	159.0	SW	412450 424967	Sandstone	Stubbins Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
289AT	159.0	SW	412368 425076	Sandstone	South Edge Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
290	160.0	SW	412500 424890	Sandstone	Stubbins Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
291BA	162.0	E	413208 424946	Sandstone	Hill Top	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
292V	162.0	SW	412597 424741	Sandstone	Stubbins Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
293AA	190.0	NE	413225 425230	Sandstone	Park Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
294AA	199.0	NE	413247 425208	Sandstone	Gaubert Hall Mine	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
295AG	200.0	S	413117 424758	Sandstone	Yew Tree Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
296AD	218.0	S	412795 424610	Sandstone	Broad Oak Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
297	231.0	SW	412300 425050	Sandstone	Silex	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
298	235.0	E	413285 424990	Sandstone	Hill Top Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
299	242.0	SE	413024 424698	Sandstone	Harley Head	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
300	242.0	S	412691 424583	Sandstone	Broad Oak Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
301	268.0	SW	412458 424759	Sandstone	Stubbins Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
302Y	296.0	W	412190 425151	Sandstone	South Edge Quarries	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
303	298.0	E	413345 424955	Sandstone	Park Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
304	301.0	SE	413313 424806	Sandstone	Rough Heys	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
305	319.0	E	413386 425137	Sandstone	Park Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	321.0	S	412629 424519	Sandstone	Sutcliffe Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
307	326.0	SW	412251 424954	Sandstone	South Edge Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
308	327.0	SW	412200 425036	Sandstone	South Edge Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
309AU	342.0	S	413078 424605	Sandstone	Pond Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	351.0	SE	412960 424540	Sandstone	Pond Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
311	352.0	W	412129 425183	Sandstone	South Edge	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
312	353.0	SE	413205 424630	Sandstone	Harley Head	Working is partly surface and partly underground, working the same bodies for the same commodities	Ceased
313	362.0	E	413410 424960	Sandstone	Crownest Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	365.0	SE	412994 424542	Sandstone	Pond Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	366.0	S	412755 424455	Sandstone	Tuck Royd	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	391.0	SE	412955 424492	Sandstone	Pond Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	405.0	SE	413000 424500	Sandstone	Pond Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Active
Not shown	406.0	SE	413040 424521	Sandstone	Pond Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	424.0	E	413455 424835	Sandstone	Crows Nest Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Active
Not shown	426.0	S	413122 424526	Sandstone	Pond Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	436.0	S	412900 424415	Sandstone	Tuck Royds	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	437.0	SE	413013 424471	Sandstone	Pond Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	456.0	NW	412235 425670	Sandstone	Kirk Lane Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	473.0	S	413166 424488	Sandstone	Spout House Lane Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	476.0	NW	412160 425640	Sandstone	Kirk Lane Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	503.0	NE	413356 425555	Coal, Deep	Knowl Top	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	512.0	S	413180 424451	Sandstone	Pinfold Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	549.0	NW	412090 425675	Sandstone	Kirk Lane Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	564.0	N	413254 425683	Coal, Deep	Bramley Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	584.0	SE	413385 424470	Sandstone	Lower Green Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	634.0	SE	413035 424260	Sandstone	Half House Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	666.0	S	412555 424180	Fireclay	Walterclough Fireclay Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	676.0	NW	412005 425770	Sandstone	Woodside	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	702.0	NW	411950 425750	Sandstone	Common Wood Head Delf	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	714.0	SW	411981 424670	Fireclay	Allen's Fire Clay Works	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	736.0	SE	413360 424280	Sandstone	Hove Edge	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	759.0	S	413270 424220	Sandstone	Hove Edge	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	778.0	N	412772 425999	Sandstone	Hipperholme	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	781.0	NW	411801 425682	Sandstone	Stony Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	794.0	NW	411880 425810	Sandstone	Common Wood Head Delf	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	824.0	SE	413453 424229	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	828.0	SE	413530 424273	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	833.0	N	412817 426053	Sandstone	Hipperholme	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	859.0	NW	411838 425860	Sandstone	Common Wood Head	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	862.0	SE	413220 424100	Sandstone	Hill Crest	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	873.0	SW	411717 424780	Coal, Deep	Sunny Bank 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	876.0	SE	413536 424219	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	885.0	NW	411870 425930	Sandstone	Common Head Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	904.0	SE	413482 424153	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	910.0	NW	411915 426000	Sandstone	Common Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	912.0	NE	413859 425576	Coal, Deep	New House	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	934.0	SE	413534 424149	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	939.0	S	413385 424070	Sandstone	Hove Edge Delph	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	960.0	W	411522 425422	Coal, Deep	Dove House	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	960.0	NW	411925 426070	Sandstone	Common Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	967.0	SE	413491 424087	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	969.0	S	413411 424048	Sandstone	Clogsole Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	971.0	SW	411651 424694	Sandstone	Sunny Bank Quarries	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	977.0	W	411515 425480	Fireclay	Hipperholme Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	978.0	SE	413539 424101	Sandstone	Premier Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	981.0	S	413325 424005	Sandstone	Clog Sole Delph	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	983.0	NW	411701 425891	Sandstone	Common Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	985.0	NW	411870 426060	Sandstone	Common Wood Head Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	990.0	NW	411718 425923	Coal, Deep	Common Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	994.0	SE	413445 424035	Sandstone	Hove Edge Delph	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased