Abbeydale

Building Environment Consultants

PHASE 1 DESK STUDY REPORT &

COAL MINING RISK ASSESSMENT

98 Burn Road, Birchencliffe,

Huddersfield, West Yorkshire

Report: 632004DS

Date: March 2023

Client:

Mr & Mrs Cran,
Burn Croft,
98 Burn Road,
Birchencliffe,
Huddersfield,
HD2 2EG

Architect:

Robert Halstead Chartered Surveyors,
Office G of H,
2nd Floor Bridge Mills,
Huddersfield Road,
Holmfirth,
HD9 3TW

Abbeydale Building Environment Consultants Ltd, 4 Neville Street, Wakefield, WF1 5EF,
Tel: 01924 376622 | E-mail: info@abbeydalebec.com | www.abbeydalebec.com
Company Registration No. 06707508 | VAT: 947 1373 08

PHASE 1 DESK STUDY REPORT & COAL MINING RISK ASSESSMENT

98 Burn Road, Birchencliffe, Huddersfield

DOCUMENT VERIFICATION SHEET

	Prepared By:	Checked By:
Name:	Richard Saville	Mike Earle
Qualifications:	BSc CGeol FGS	BSc CGeol FGS
Position:	Director	Geotechnical Consultant
Signature:	R. Saville	

SUMMARY

Grid Ref: 412065(E), 419049(N) **Elevation:** 172m - 175 mAOD **Site Area:** 0.46ha

Development proposals:	No proposals provided; presumed residential housing.
Past site development:	Undeveloped until existing dwelling constructed.
Made Ground:	Anticipated in area of existing and any possible past development.
Natural Soils:	Residual soils weathered down from bedrock.
Bedrock:	Stanningley Rock sandstone indicated.
Groundwater:	Anticipated in underlying bedrock sequence.
Shallow mining:	No recorded or potential unrecorded shallow mining.
Environmental Assessment:	Chemical suitability of existing soils to be assessed.
Ground gases:	No potential sources of significant ground gases noted.
Remediation:	Dependent on chemical suitability of existing soils.
Foundations:	Confirmation of ground conditions recommended.
Drainage:	Soakaways may be suitable.
Further Investigation:	Intrusive ground investigation recommended once proposed layout is known.

PHASE 1 DESK STUDY REPORT & COAL MINING RISK ASSESSMENT

98 Burn Road, Birchencliffe, Huddersfield

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1. INTRODUCTION

On the instruction of Robert Halstead Chartered Surveyors and Town Planners, on behalf of Mr & Mrs Cran, a Phase 1 Desk Study and coal mining risk assessment was carried out by Abbeydale Building Environment Consultants Ltd (Abbeydale BEC) on the site of 98 Burn Road in Birchencliffe, which lies to the north-west of Huddersfield in West Yorkshire.

The site is centred on National Grid Reference 412065 (E), 419049 (N), occupying an area of around 0.46 ha. See Figure 1.

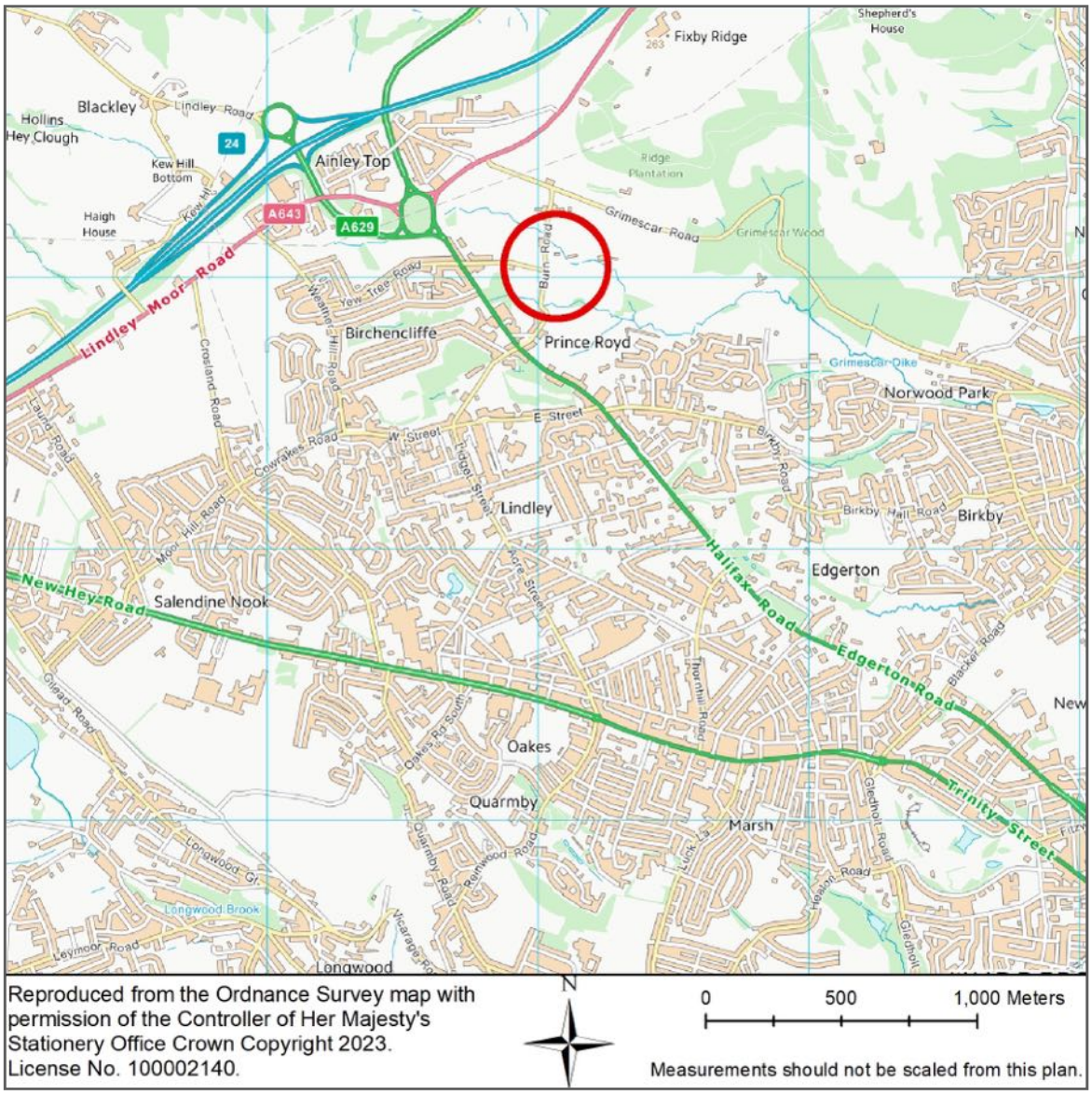

FIGURE 1 - LOCATION PLAN

This report was produced for our client, Mr & Mrs Cran, and their advisors and financiers; it should not be relied upon or transferred to any other parties without the express written authorisation of Abbeydale BEC and our client. If any other unauthorised third party comes into possession of this report they rely on it at their own risk and the authors owe them no duty of care or skill.

The comments and recommendations presented in this Phase 1 Desk Study and coal mining risk assessment report are based on the findings of a review of available information. There may be other conditions prevailing on the site which have not been recorded by the available information and therefore have not been taken into account by this report. Responsibility cannot be accepted for unrecorded information.

When writing this report no proposed layout was available, however it is assumed that future development proposals would be for residential dwellings with private gardens at, or close to, existing ground levels. If there are changes to these proposals then some modification to the comments and recommendations given may be required.

2. OBJECTIVES

This report has been undertaken to evaluate current or former uses of the site and surrounding areas to determine the presence of any potential contaminative sources.

As part of this evaluation the potential impact upon the identified receptors has been made, thus determining if there are any potential significant pollution linkages present. If a potential significant pollutant linkage is identified, the report gives recommendations for further investigations and / or remediation options to mitigate any potential risks to future receptors.

The report also evaluates the current site proposals (where known) with regard to geotechnical and engineering considerations to determine what impact the anticipated ground conditions will have on the integrity of any structures or buildings included in the development proposals. As part of this evaluation the report gives preliminary foundation, floor slab, highway and drainage recommendations.

3. THE SITE

As part of the Phase 1 Desk Study assessment, a site walkover was undertaken on 20 February 2023 to determine the presence of any visually identifiable features that may pose a potential risk to future receptors.

The site is a broadly rectangular parcel of land to the east of Burn Road, from where the site is accessed, which then leads down a tarmac driveway to 98 Burn Road.

Prominent features within the site consist of a tennis court in the approximate centre, which is enclosed by metal chainlink fencing. Soft landscaping areas including semi-mature trees bound the tennis court to the south and west, fronting Yew Tree Road and Burn Road respectively. The current site layout is shown on Figure 2.

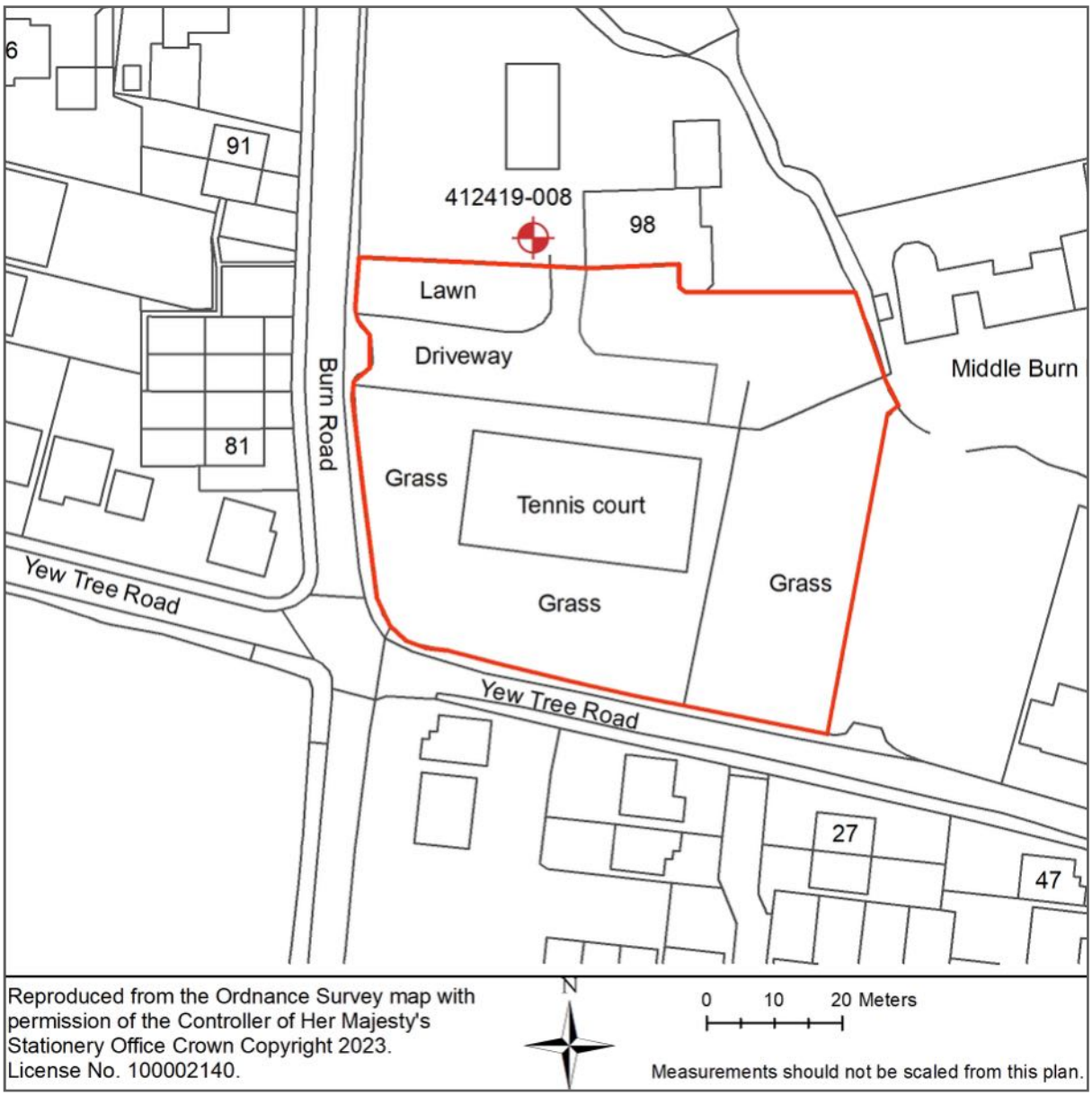

FIGURE 2 - SITE PLAN

A separate garden area, enclosed by conifer hedges, is present to the east of the tennis court, accessed via a gap in the conifer hedges and a short slope which the slopes down to the east, to the level of the grassed garden area.

Immediately north of the site is 98 Burn Road and associated private garden areas. A sandstone capping stone was noted within the raised garden to the west of 98 Burn Road, which Mr Cran indicated is the location of a historical mine shaft, which is reported to be unfilled and therefore remains open. The capping stone was not removed during the site walkover visit.

A rectangular outbuilding which covers a swimming pool is present to the north-west of the existing dwellings, on the raised area, to the north of the capping stone.

4. HISTORY

The historic Ordnance Survey (OS) maps of the site and surrounding area have been obtained from GroundSure, dated 10 February 2023; included in Appendix B. All measurements stated are approximate distances from the site boundaries to the recorded features.

4.1. The Site

The earliest map of 1854 shows the site to comprise undeveloped land with a access track crossing the centre of the site. The map of 1893 shows a second access track crossing the eastern part of the site and garden areas of neighbouring residential properties appear to encroach onto the northern part of the site.

The map of 1961-1963 shows a residential property, named as Burn Croft, is located immediately north of the site and the site appears to comprise undeveloped grounds to the property. Aerial imagery shows the tennis court towards the south of the site to have been present since at least 2000.

No discernible changes are noted on later maps and the site appears to have remained unchanged since.

4.2. Surrounding Area

The earliest map of 1854 shows the site to lie within a largely rural area with Burn Colliery immediately north-east of the site and a sandstone quarry 100m west of the site. Neither of these are shown on the next OS map of 1889, however a brick and tile works is noted 400m south of the site. The next map of 1905 shows a chemical works 500m south-west of the site.

The map of 1966-1969 shows significant residential development within 500m west of the site and two quarries, appearing to relate to the brick and tile works, are shown 500m south and south-west of the site.

Between the maps of 2010 and 2023 a series of new residential houses are constructed on the opposite (west) side of Burn Road to the site, on the site of the former sandstone quarry and further to the west, bounding Oaklands Crescent which is built within the same timeframe.

5. GEOLOGY

The geological survey maps of the area, BGS 1:10,000 scale sheet SE11NW, BGS 1:50,000 scale sheet Sheet 77 (Huddersfield & Halifax)) and Yorkshire County Series Sheet 246NW have been examined, along with the geological memoirs of the area.

The site is shown to be underlain by sandstone of the Stanningley Rock within the Carboniferous Lower Coal Measures sequence. The stratigraphically younger 36 Yard Coal seam is shown to outcrop on a roughly north-west to south-east trending axis to

the north-east of the existing dwelling, 98 Burn Road. From outcrop patterns on the geological map the seam is anticipated to dip to the north, away from the site.

The nearest geological fault is conjectured approximately 60m to the south of the site, trending roughly east to west and downthrowing strata to the north, towards the site.

No superficial drift deposits are shown over the solid bedrock geology; natural soils would therefore be expected in the form of residual soils, formed from weathering down of the parent bedrock.

The geological maps do not indicate any artificial made ground deposits to be present across the site, or within the immediate vicinity. However, some localised areas of made ground would be expected to superficial depths in the vicinity of the existing house, tennis courts and any external areas, to superficial depths. Remnant made ground may also be present in the north of the site, associated with the adjacent mine shaft and adjacent historical Burn Colliery.

6. HYDROGEOLOGY AND HYDROLOGY

Information on the hydrological and hydrogeological setting of the site is included as part of a Groundsure Enviro Insight report obtained for the site, dated 10 February 2023, which is included as Appendix B.

6.1. Hydrogeology

The Environment Agency (EA) classify the solid geology as a Secondary A (formerly minor) aquifer; 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.

No potable drinking water abstractions or groundwater abstraction licenses have been highlighted within 250m of the site and the site is not recorded to be within a groundwater Source Protection Zone (SPZ).

6.2. Hydrology

Grimes Dike is shown to flow along the north-east boundary of the site, originating from Ainley Top roundabout to the north-west of the area, and is culverted under Burn Road.

No surface water abstraction licenses are highlighted within 250m of the site from the Groundsure Enviro Insight report.

6.3. Flood Risk

The Enviro Insight includes information obtained from the Environment Agency regarding the potential for flooding across the area. The site is not shown to lie within an area deemed to be at risk from flooding from rivers and seas and no Flood Zone 2 or Flood Zone 3 areas have been highlighted within 50m of the

site by the Groundsure Enviro Insight report. The risk from flooding by rivers or seas is therefore deemed to be **negligible** based on the available information.

No historical flood events have been highlighted as affecting the site according to the Groundsure Enviro Insight report. Similarly, no areas benefitting from flood defences or flood storage areas are noted within 250m of the site.

Localised areas of surface water flooding are highlighted in the north-east of the site, around the channel of the River Colne for a 1 in 100 year storm event where between 0.30m and 1.00m depth of flood water is anticipated. The overall risk from surface water flooding is deemed to be **low**.

The risk from groundwater flooding is deemed to be **negligible** according to the information contained in the appended Groundsure Enviro Insight report.

7. MINING RISK ASSESSMENT & QUARRYING

The presence of rock and mineral seams, including coal, which may have been mined or quarried in the area has been determined by the published geological maps and memoirs of the area and a Coal Authority Consultants Coal Mining Report included in Appendix B, dated 10 February 2023.

The appended Coal Authority report does not record any past underground mining to have occurred under the site, and does not indicate there is potential for unrecorded shallow mine workings to be present under the site. Similarly the site is not shown to be within the Coal Authority's defined High Risk Development Area.

Published geological records indicate the shallowest named coal seam to be the 0.60m thick Hard Bed Coal seam, in the order of 30m below the base of the Stanningley Rock sandstone unit. The seam would therefore be anticipated to underlie the site at around 35m to 40m depth.

Based on the above information the risk of unrecorded shallow mine workings affecting the site is deemed to be **very low** and no further risk assessment or intrusive investigation for potential shallow mine workings is deemed to be required prior to redevelopment of the site.

A recorded mine shaft is noted just to the north of the site; CA Ref: 412419-008. The location of this mine shaft is within the raised garden area of 98 Burn Road, beyond the north site boundary, and is currently covered with a stone flag. Anecdotal evidence from the client indicates that the shaft is open below the capping stone. The basal depth of the shaft is not known.

No historical quarrying or surface extraction activities have been identified either on the site or within the immediate vicinity. The resultant risk of unrecorded quarrying having affected the site is therefore considered to be **very low**.

8. ANTICIPATED GROUND CONDITIONS

The anticipated ground conditions have been interpreted from the published geological maps of the area. No archive BGS borehole information is available in the vicinity of the site to provide an insight into the likely ground conditions across the site.

From a review of the available published geological maps a mantle of topsoil and localised made ground would be expected from the surface, underlain by residual soils and weathered sandstone bedrock of the Stanningley Rock sandstone unit.

Groundwater would be expected to be confined within the bedrock.

9. GEOTECHNICAL CONSIDERATIONS

9.1. General

An outline plan was not available when completing this report. It has been assumed that future development proposals could be for residential housing with private gardens at, or close to, existing ground levels. The proposed ground loadings were not known but for the purposes of this report are assumed to be less than 100 kN/m. If there are significant changes to these proposals, then some modification to the comments and recommendations given may be required.

9.2. Mining Precautions

The site is not shown to lie within an area of known or probable shallow mine workings and no potentially shallow depth named coal seams are anticipated in the underlying geological sequence. The resultant risk of unrecorded shallow mine workings affecting the site is therefore considered to be **very low** and no further intrusive investigation or risk assessment for this is deemed necessary prior to any redevelopment of the site.

To avoid any potential impacts should the recorded mine shaft to the north of the site boundaries, collapse, a 5m no build zone should be assumed around the location of the mine entry unless the depth to rockhead is confirmed in the locality of the shaft, to determine the potential zone of influence up from rockhead should the shaft collapse. The potential zone of influence would be assumed to be within a line drawn up at 45° from rockhead at the outer edge of the shaft position.

9.3. Foundations

Intrusive Ground Investigation is recommended prior to foundation design to confirm the ground conditions present and determine the depth to a suitable founding stratum.

At this stage consideration can be given to the potential use of strip footings seated at least 250mm into stiff clay residual soils, or weathered sandstone bedrock. Depending on any landscaping proposals consideration may need to be given to the potential for deepening of foundations if within the potential zone of a influence of any existing or proposed trees, in accordance with NHBC Ch.4.2 'Building Near Trees'.

9.4. Floor Slabs

Without knowledge of the ground conditions across the site, at this stage either suspended floors should be considered, or it should be assumed that a granular regulatory layer will be required if ground bearing floors are being considered, subject to confirmation of the volume change potential of the underlying strata. Plasticity Index testing should be undertaken during intrusive ground investigation works to confirm the volume change potential (shrinkability) of the underlying strata.

9.5. Highways & Hardstanding

Highways and hardstanding will need to be constructed on reengineered material. For design purposes a CBR of 2.5% may be assumed provided that the formation is proof rolled and any soft spots are removed.

9.6. Drainage & Excavatability

Some difficulties in excavation of trenches for sewers and foundations in any made ground or in the weathered bedrock should be anticipated. Consideration should be given to providing safe temporary support of excavations within made ground or where greater than 1.20m depth.

Depending on the ground conditions present, soakaways draining into the underlying sandstone bedrock may be suitable for this site. If soakaways are being considered then in situ soakaway tests will need to be carried out at proposed soakaway locations to determine the feasibility of soakaways and to determine the size of soakaway required. Any soakaways would need to be placed at least 5m from any existing or proposed structures.

9.7. Chemical Precautions

Without undertaking chemical analysis of any made ground and natural soils on the site it should be assumed that sulphate resistant concrete is required at this stage, as a precautionary measure. The requirement for leachate resistant water supply pipes should be considered if laid in made ground soils, in lieu of any chemical testing data, as a precautionary measure at this stage.

9.8. Ground Source Heating

Providing space heating and hot water using ground source heating could be considered for this site. If this method of heating is being proposed then a further assessment of the site and its underlying geology would be required to

determine the most efficient ground loop configuration for the required heat load of the proposed building(s).

10. ENVIRONMENTAL SEARCHES

As part of the Phase 1 Desk Study assessment a Groundsure Enviro Insight report was obtained, dated 10 February 2023, to provide environmental search information on potentially contaminative sources and sensitive receptors across the site and surrounding area. The relevant findings of the Enviro Insight report are summarised below; the full report is included in the Appendix C.

10.1. Current Land Uses

Three entries for potentially contaminative current land uses have been identified within 250m of the site. The closest is an electric substation 104m south of the site, with the other two entries relating to Co-Op on Halifax Road some 235m south-west of the site, which is listed as a petrol service station and vehicle cleaning services activities. This service station is also listed as an open petrol station; the only recorded petrol station within 250m of the site.

No high voltage underground electricity cables or high pressure underground gas transmission pipelines are recorded within 500m of the site.

No sites determined as Contaminated Land under Part 2A of the Environmental Protection Act 1990 have been highlighted within 500m of the site.

10.2. Historical Industrial Sites

A former railway sidings is shown to have been present in the north-west corner of the site, with other entries for associated historical features such as a railway station, railway buildings, cutting and a tunnel to the north of the site. All of the railway features are dated to 1891.

Other entries for historical industrial uses within 250m of the site include unspecified pits, quarries and heaps, a garage and an unspecified mill.

No historical tanks, petrol station sites, historical energy features or historical military land have been highlighted within 250m of the site.

10.3. Landfills and Waste Sites

No historical or active landfill sites have been identified within 250m of the site.

No historical or active waste treatment sites or waste disposal sites been identified within 250m of site.

10.4. Potentially Infilled Land

A former railway sidings is shown to have been present in the north-west corner of the site, however given the length of time since this feature was present it is

unlikely to represent a significant potential for ground gas generation. No other areas of potentially infilled land have been highlighted within 250m of the site.

10.5. Environmental Permits, Incidents and Registers

Three pollution incidents are recorded to have occurred within 250m of the site from the Groundsure report, 109m east of the site on 11 September 2007, which had a significant impact to water but not to land or air, 197m east of the site on 1 November 2006; again with a significant impact to water. A third pollution incident is then recorded to have occurred 244m south-east of the site on 18 February 2002, recorded to have had a minor impact to land and water but no impact to air quality.

The Groundsure report identifies three distinct discharge consents within 250m of the site, 97m to the north-west, 134m to the south and 223m to the south-east from the site respectively. The license to the north-west of the site is recorded to have been surrendered on 19 June 2020 and is therefore inactive.

No pollutant releases to surface water or public sewers have been highlighted within 500m of the site by the Groundsure report.

No licensed Integrated Pollution Control (IPC) activities or Control of Major Accident Hazards (COMAH) are recorded by the Groundsure report within 500m of the site.

10.6. Environmentally Sensitive Receptors

No potable drinking water abstractions, surface water abstractions or groundwater abstraction licenses have been highlighted within 500m of the site and the site is not recorded to be within a groundwater Source Protection Zone (SPZ).

Groundwater vulnerability under the site is classified as **high** by the Groundsure report.

The site is shown to abut an area to the north-east designated within the South and West Yorkshire Green Belt, which extends further to the north-east. No other designated environmentally sensitive receptors have been identified within 250m of the site.§

11. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Contaminated Land is defined under Part 2A of the Environmental Protection Act 1990, implemented through Section 57 of the Environment Act 1995. This supports a ‘suitable for use’ based approach to the risk assessment of contaminated land. The evaluation is based on an assessment of plausible pollutant linkages, referred to as the source - pathway - receptor model, based on the current or proposed use of the site.

A pollutant linkage is the relationship between a contaminant, a pathway and a receptor. Unless all three elements are present there is not considered to be a potential pollutant linkage.

However, where a potential pollutant linkage is deemed to be present, the resultant risk is based on the consequence should the event occur, and the probability that the event will occur, as outlined in CIRIA C552. A tabulated summary of the resultant risk matrix is provided below for contextual purposes.

		Consequence (C)			
		Severe	**Medium**	**Mild**	**Minor**
Probability (P)	**High Likelihood**	Very high risk	High risk	Moderate risk	Moderate / low risk
	Likely	High risk	Moderate risk	Moderate / low risk	Low risk
	Low likelihood	Moderate risk	Moderate / low risk	Low risk	Very low risk
	Unlikely	Moderate / low risk	Low risk	Very low risk	Very low risk

RISK MATRIX FOR ENVIRONMENTAL RISK ASSESSMENT (BASED ON CIRIA C552)

Part 2A states that for land to be defined as Contaminated Land by the Local Authority it needs to be in such a condition that:

- Significant harm is being caused, or there is significant possibility of such harm being caused.
- Pollution of controlled waters is being caused, or likely to be caused.

The potential risks associated with historical land uses have been assessed in relation to the tables provided in Appendix D.

11.1. Proposed Site Use

No site proposals are currently available at the time of compiling this Phase 1 Desk Study assessment, however it is assumed that the redevelopment proposals would be for residential housing with private gardens and new access roads at, or close to, existing ground levels. This land use scenario has been assumed for initial environmental risk assessment purposes.

There is also a lesser potential for any construction workers to come into contact with existing soils, and standard precautionary measures should be employed to reduce the potential for dermal contact and/or inhalation of dust or vapours. Good hygiene practises and facilities should also be provided as a standard precautionary measure.

11.2. Potential Pathways

- Dermal contact (indoor and outdoor).
- Ingestion of soil and indoor dust.
- Indirect ingestion (indoor and outdoor).
- Inhalation of dust (indoor and outdoor).
- Inhalation of vapours (indoor and outdoor).
- Leaching to groundwater
- Surface water run-off.
- Director contact with concrete substructures.
- Migration through the ground (vertical and horizontal).

11.3. On Site Contamination

The historic OS maps show the site to have been previously unoccupied until 98 Burn Road was constructed, after which the site has remained within the grounds of the residential dwelling, with a subsequent **low** risk of potential contamination resulting from this usage.

As the Groundsure report notes a former railway line, likely associated with the former Burn Colliery to the north-east, to have passed through the north-west of the site, this area would be considered to have a **low to moderate** potential for resultant contamination from this past land use.

No obvious visual or olfactory signs of potential contamination were identified during the walkover survey undertaken.

As is common with sites in urban areas, there is the potential for contaminants such as heavy metals and Polycyclic Aromatic Hydrocarbons (PAH) to be present in any made ground soils present across the site, and future receptors may come into contact with any such contaminants in proposed gardens or soft landscaping areas. It would be recommended to undertake sampling of the existing soils and carry out an appropriate number and scope of chemical analysis to confirm the suitability of the soils for reuse or retention in any proposed private gardens or soft landscaping areas, depending on the development proposals.

11.4. Off Site Contamination

No significant sources of potential off-site contamination have been identified from the findings of the Phase 1 Desk Study, with a resultant **low** risk to future receptors. However, consideration should be given to undertaking water sampling of the adjacent watercourse and/or leachate testing to assess any potential risks to this watercourse from the existing soils.

11.5. Ground Gases

According to the Enviro Insight report the site is not within a radon affected area as defined by the Health Protection Agency (HPA) and no radon protection

measures are required to be installed in any new buildings in accordance with Building Research Establishment (BRE) document BR211.

No recorded active or historical landfill sites, or any other sources of potentially significant ground gas generation have been identified within 250m of the site. Although a former sandstone quarry is noted on the opposite side of Burn Road to the site, this has recently been developed with residential housing and will therefore not pose a significant risk of ground gas emissions.

Based on the above information the overall risk from ground gases is considered to be **low** at this stage. Unless any significant thicknesses of made ground are encountered during intrusive Phase 2 Ground Investigation works, it is not considered necessary to undertake any further ground gas risk assessment.

11.6. Invasive Species

The vegetation in and around the site has been examined. No obvious signs of potential invasive plant species were noted during the site walkover undertaken. However, not seeing any signs of invasive plants during our brief time on site cannot be a guarantee that they are not present on or around the site.

11.7. Conceptual Site Model

Using the information presented above and the source - pathway - receptor model, a Conceptual Site Model (CSM) has been formulated to determine whether a potentially significant pollutant linkage is perceivable and what potential risks are posed to the identified future receptor from each potential contaminant source.

The CSM is tabulated and shown graphically in Appendix E. Where required the CSM should be updated as further investigation and/or development works progress to reflect the potential risks to future receptors, especially if any previously unidentified ground conditions are encountered.

To further refine the potential risks identified on the initial CSM it would be recommended to carry out intrusive ground investigation and associated laboratory testing and ground gas monitoring. Further details regarding the recommended scope of investigatory works is included in Section 14 (Further Investigation) of this report.

11.8. Imported Soils

If any imported soils are required to be brought to site to facilitate the proposed development, they will need to be validated to confirm their chemical suitability, and that they do not pose a risk to future receptors. The soils should be validated in accordance with Yorkshire And Lincolnshire Pollution Advisory Group (YALPAG) guidance “Verification Requirements for Cover Systems” version 4.1, dated June 2021.

The scope and frequency of analysis required to validate any imported soils will be dependent on the source and/or historical setting of the source site and the volume of soils imported to site.

12. WASTE DISPOSAL

Any waste arising from development of the site, such as excess soil or material deemed unsuitable for retention on site, should be disposed of in accordance with the Duty of Care Regulations. If any soils are being disposed directly to a landfill site Waste Acceptance Criteria (WAC) analysis may be required in addition to basic environmental screen testing to determine the most appropriate disposal facility for the waste, in accordance with the requirements of the current Landfill Directive.

13. REGULATORY APPROVAL

The conclusions and recommendations in this report are based on a review of available information and observations made during the site walkover survey undertaken. The conclusions cannot be guaranteed to gain regulatory approval if this report is required as part of a planning application. If it is required as such it should be passed to the relevant regulatory bodies for their comment and approval.

14. FURTHER INVESTIGATION

Based on the findings of the Phase 1 Desk Study undertaken it would be recommended to carry out a limited geo-environmental Ground Investigation prior to redeveloping the site, both to confirm the ground conditions and geotechnical properties of the soils and weathered bedrock for engineering purposes, and also to assess whether the existing soils are suitable for retention close to the surface in any proposed gardens or soft landscaping areas, or if a cover system is required to protect future receptors in such areas.

The most suitable method of investigation is deemed to be a combination of mechanically excavated trial pits and window sample holes, to confirm the ground conditions present and allow representative samples of the underlying soils and weathered bedrock to be taken for subsequent chemical and geotechnical laboratory testing purposes.

However, if the Phase 2 Ground Investigation is undertaken whilst the house is still occupied it may be preferable to investigate using window sample holes as this will cause less disturbance to the existing soft landscaping areas and overall aesthetics of the site.

As no specific sources of potential geo-environmental concern have been highlighted by the Phase 1 Desk Study information, generally non-targeted exploratory hole locations can be considered to confirm the general ground conditions and suitability of existing soils for reuse as part of the proposed development.

However, some targeted investigation in the north and north-west of the site should be undertaken, in the area of the adjacent mine shaft and former Burn Colliery.

APPENDIX A - HISTORICAL MAPS

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1850
Revised N/A
Edition 1854
Copyright N/A
Levelled 1853

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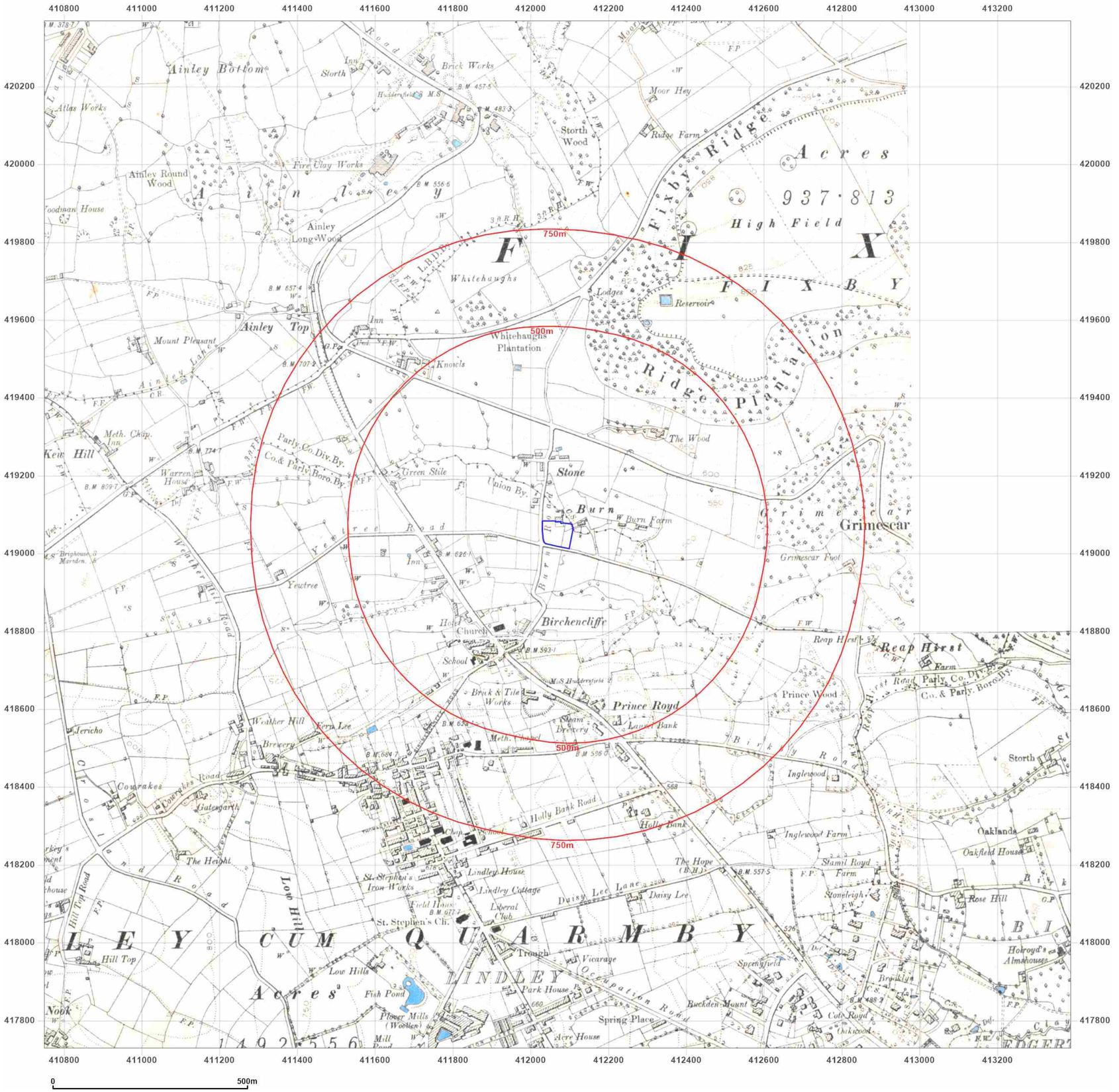

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1889-1892**

Scale: 1:10,560

Printed at: 1:10,560

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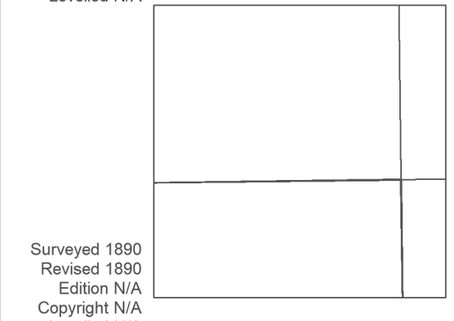
Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

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

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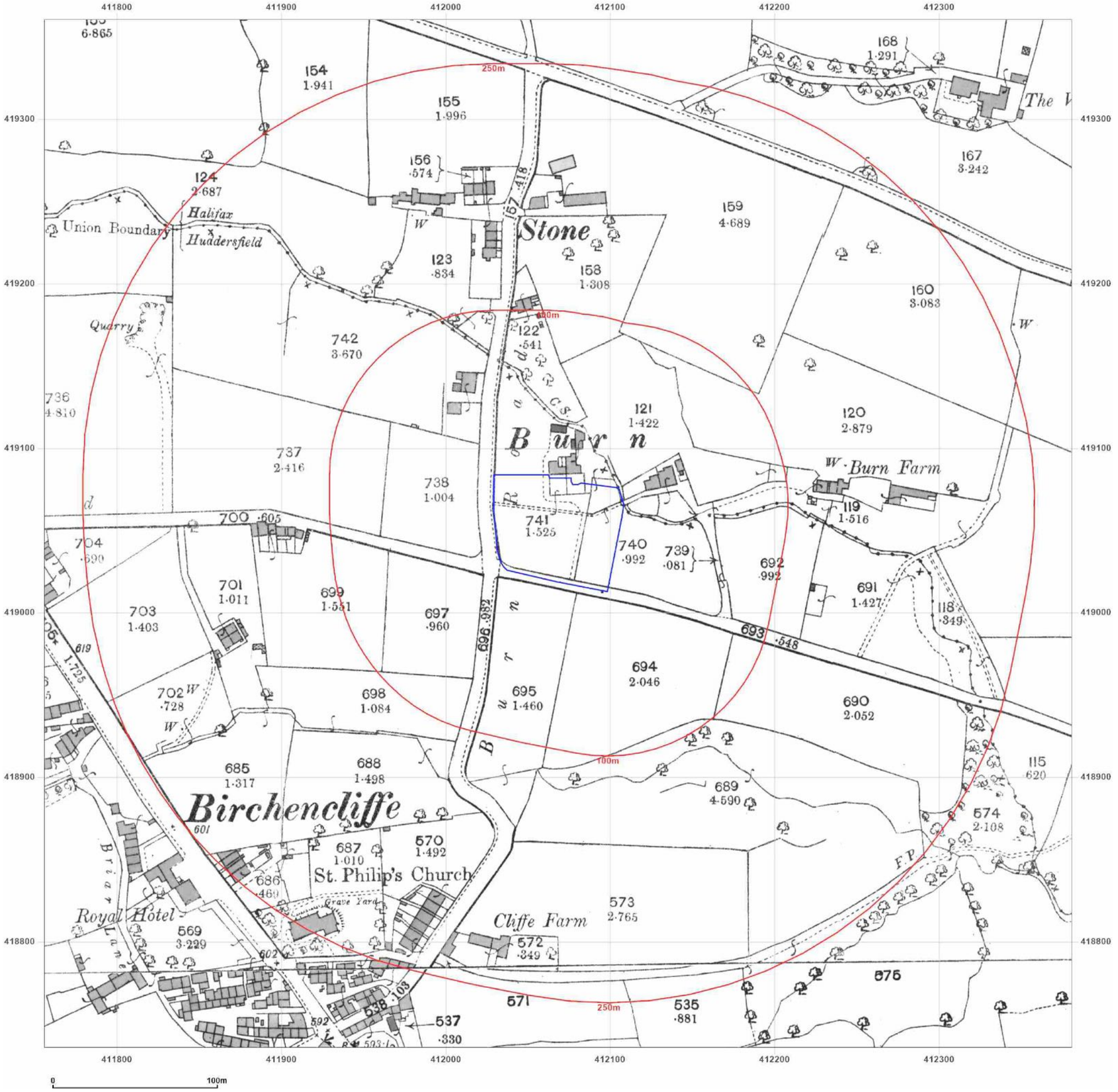

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series
Map date: **1893**
Scale: 1:2,500
Printed at: 1:2,500

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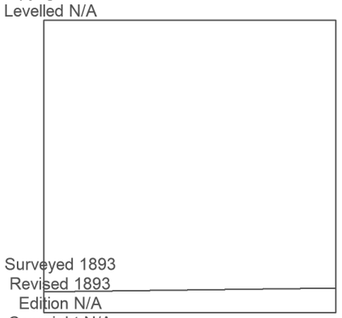
Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A



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

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Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1905**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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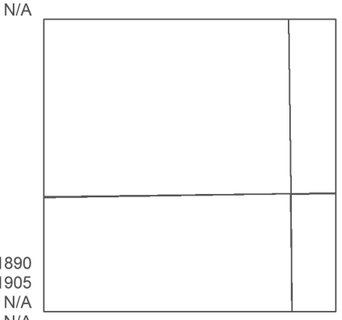
Surveyed 1892
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1890
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

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

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Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1907**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

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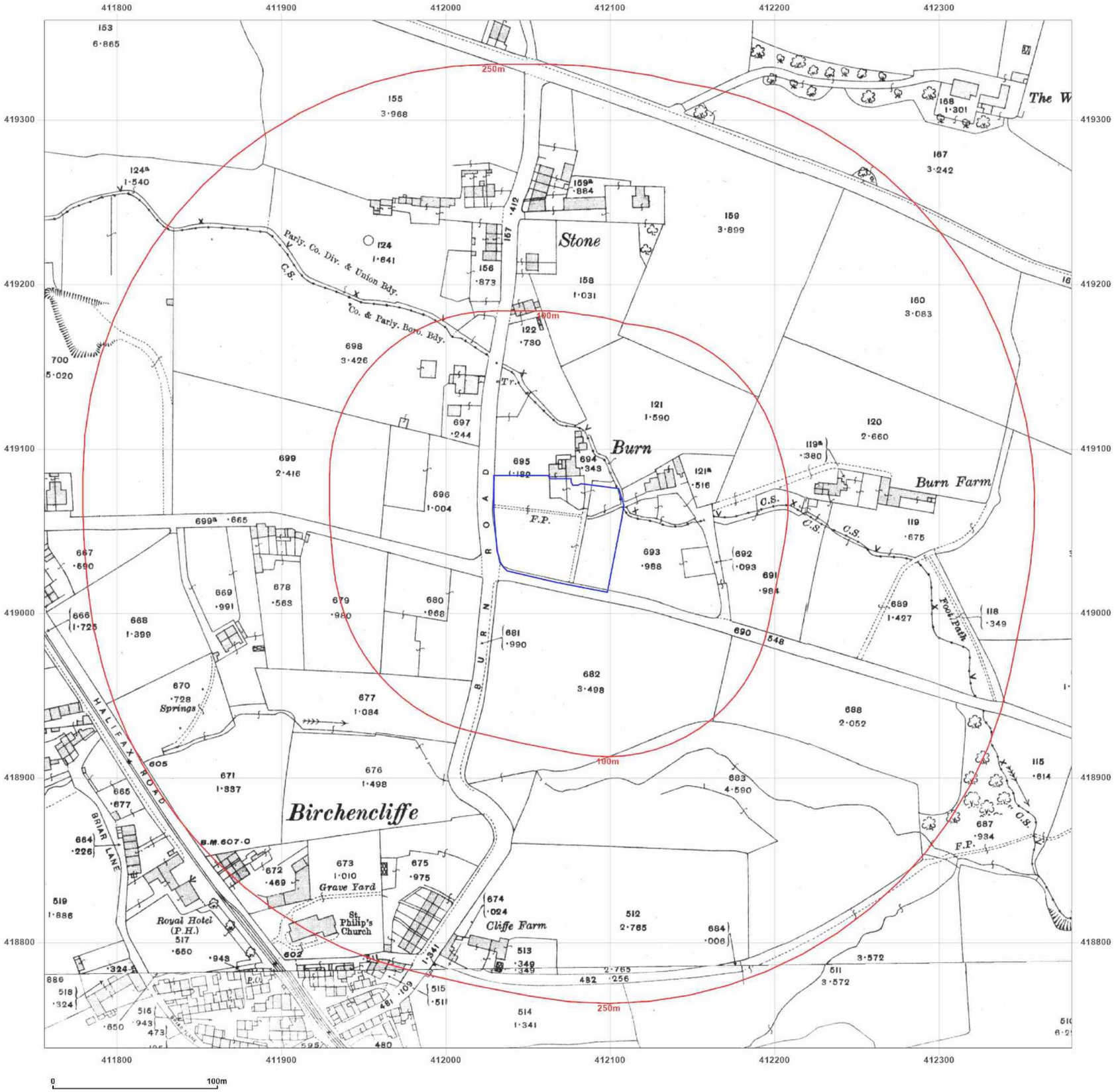

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1918**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1918
Revised 1918
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1918
Revised 1918
Edition N/A
Copyright N/A
Levelled N/A

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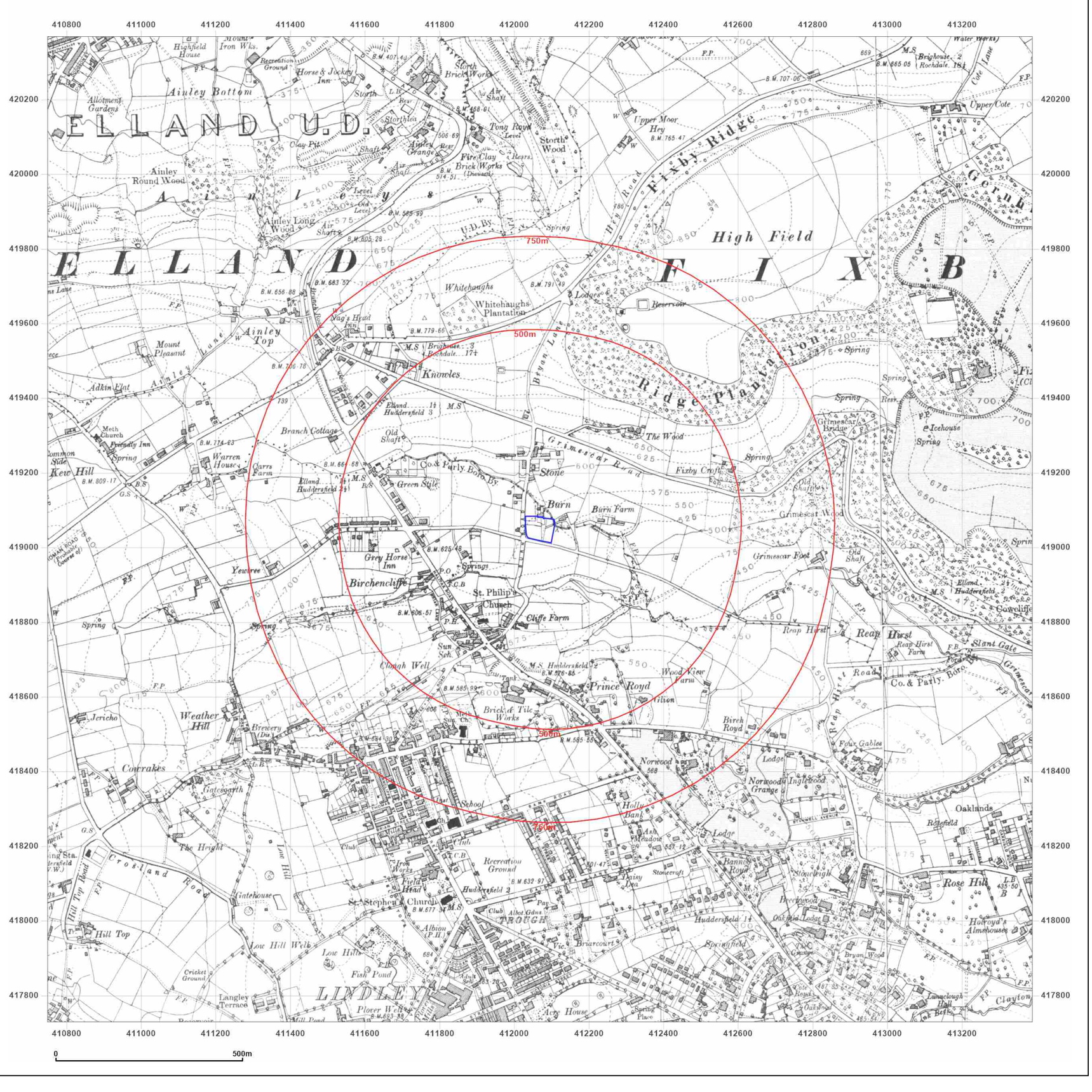

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series
Map date: **1930-1931**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1849
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1850
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1930
Edition 1930
Copyright N/A
Levelled 1931

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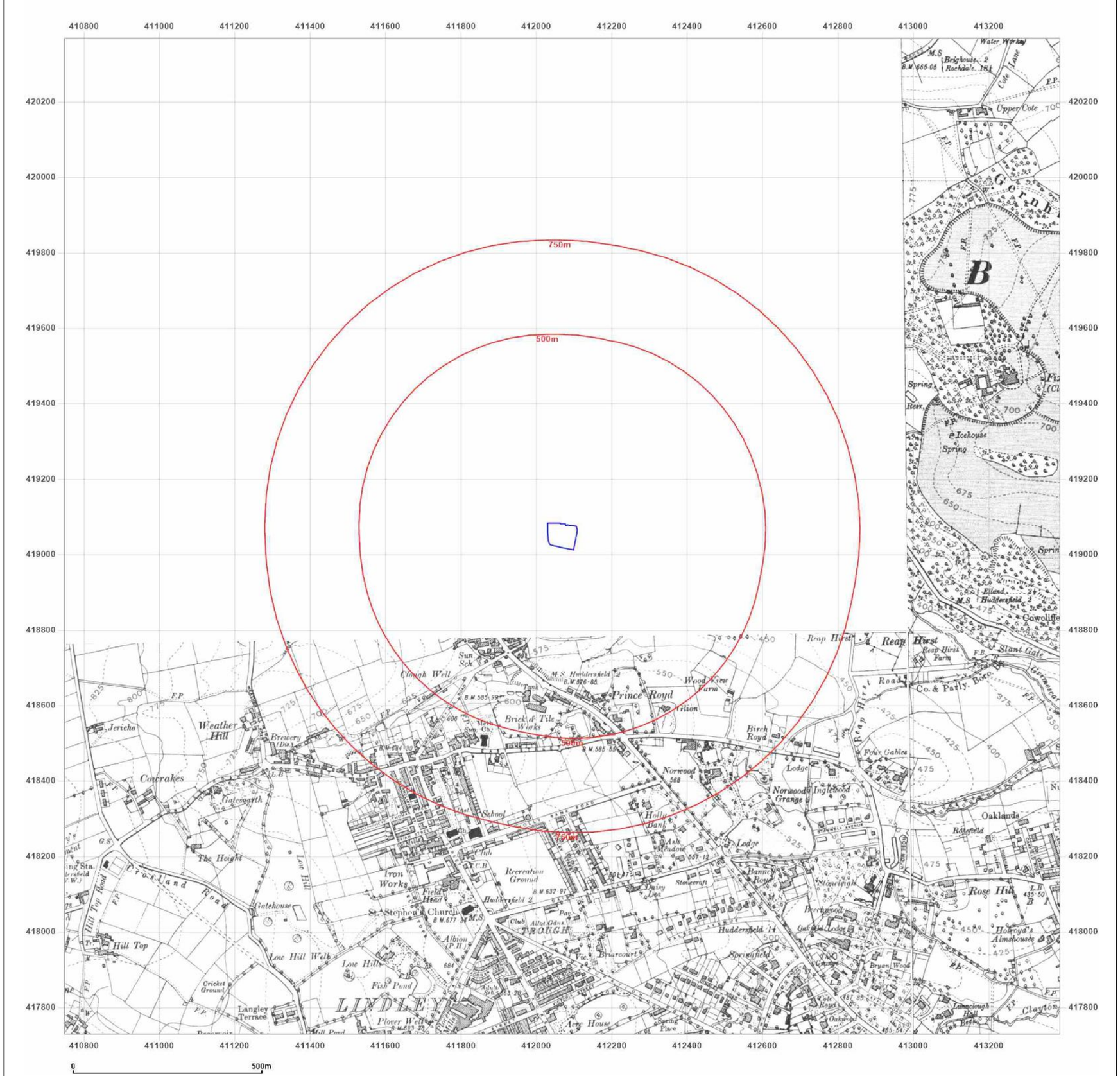

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed 1849
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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

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Site Details:

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BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

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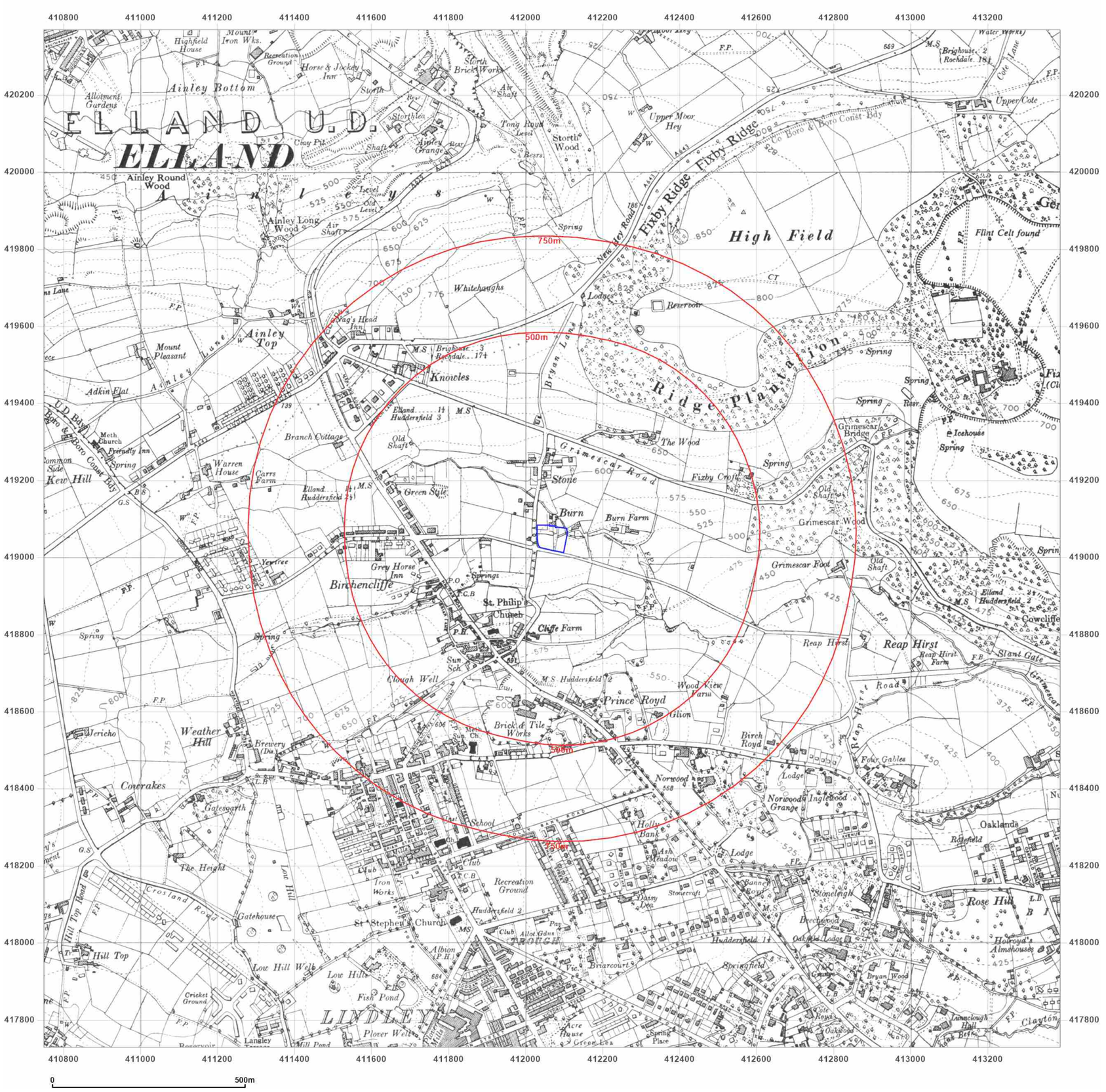

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: Provisional

Map date: **1955-1956**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed 1951
Revised 1951
Edition N/A
Copyright 1956
Levelled N/A

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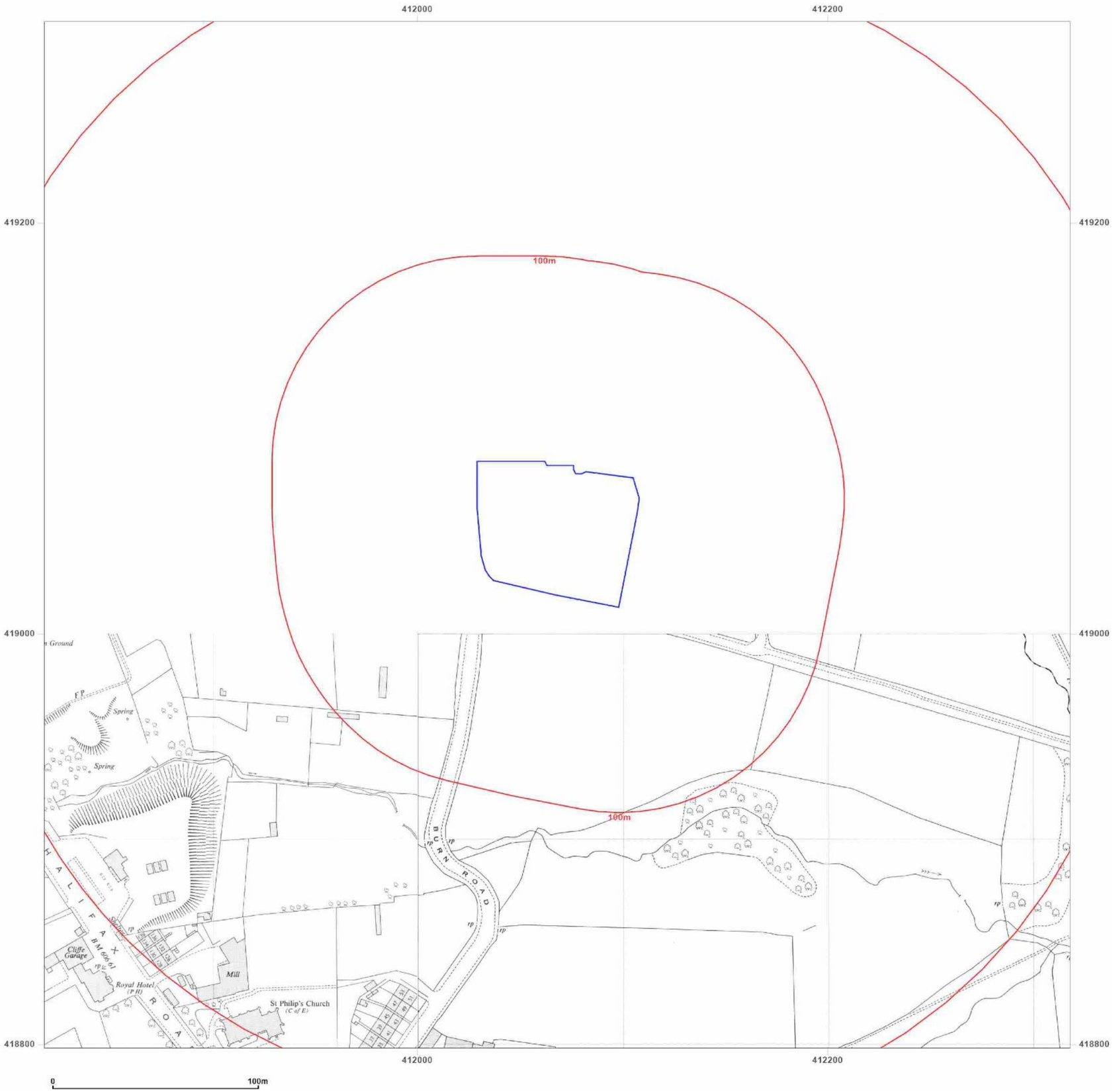

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1960**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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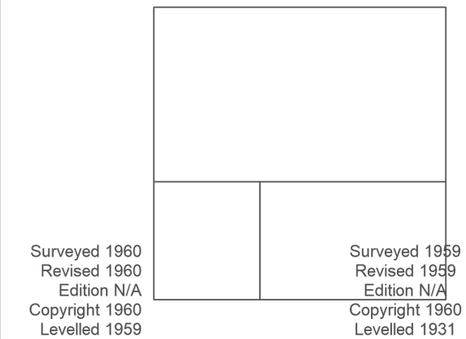

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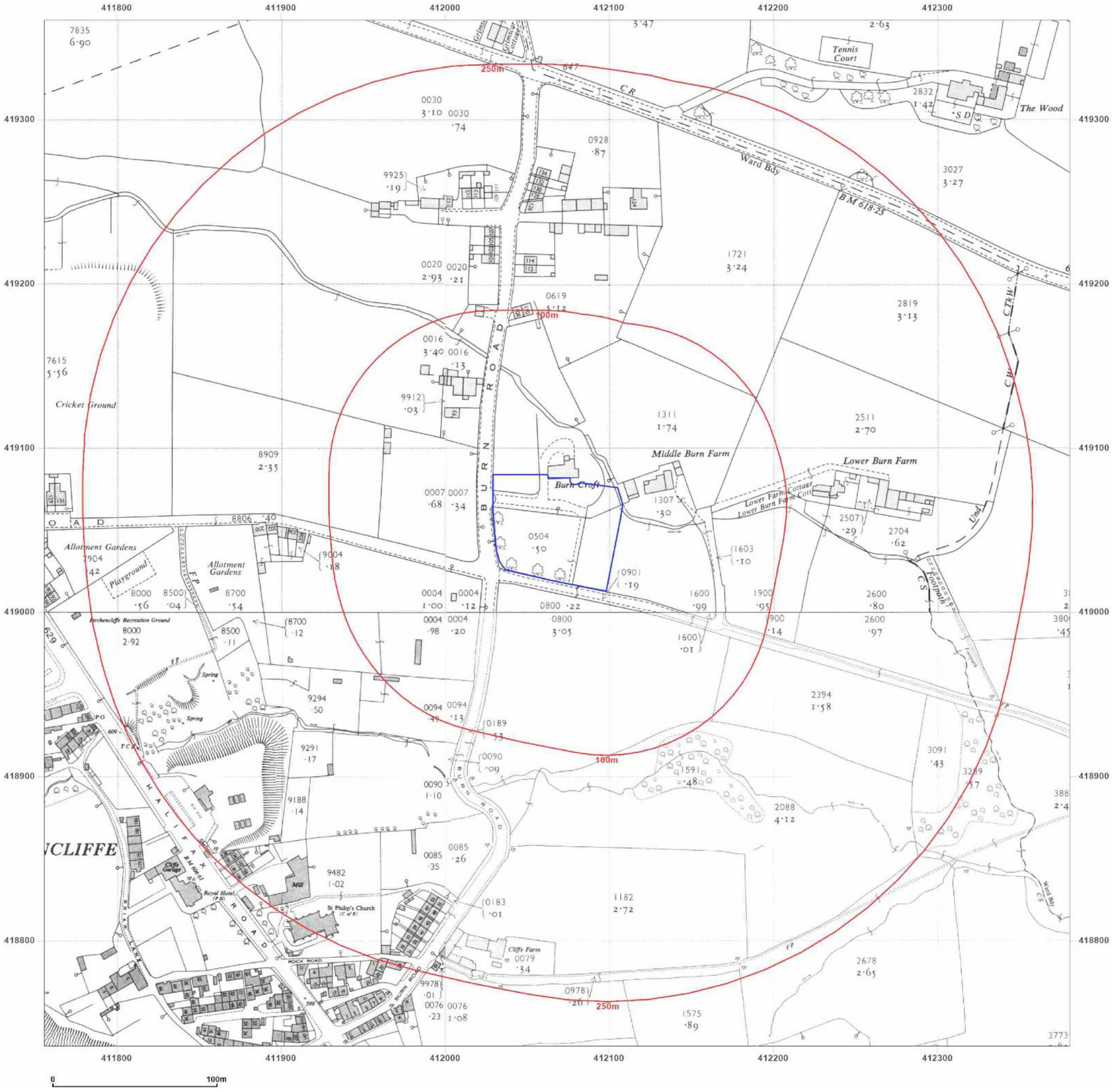

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1961-1963**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1961
Revised 1961
Edition N/A
Copyright 1963
Levelled 1959

Surveyed 1961
Revised 1961
Edition N/A
Copyright 1963
Levelled 1959

Surveyed 1961
Revised 1961
Edition 1963
Copyright 1963
Levelled 1959

Surveyed 1959
Revised 1959
Edition 1961
Copyright 1961
Levelled 1931

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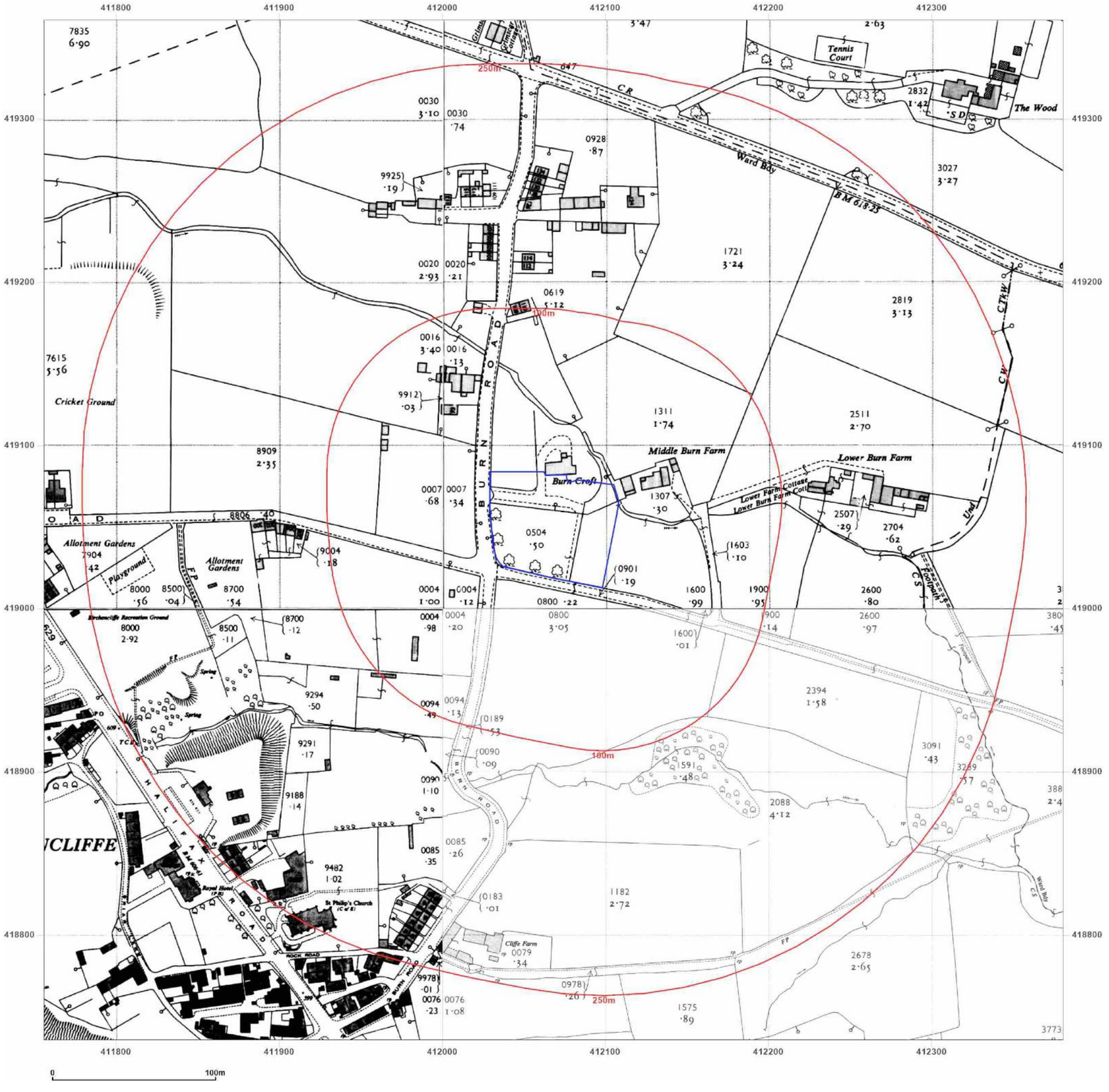

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1961-1963**

Scale: 1:2,500

Printed at: 1:2,500

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

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

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

Surveyed 1959
Revised 1959
Edition 1961
Copyright 1961
Levelled 1931

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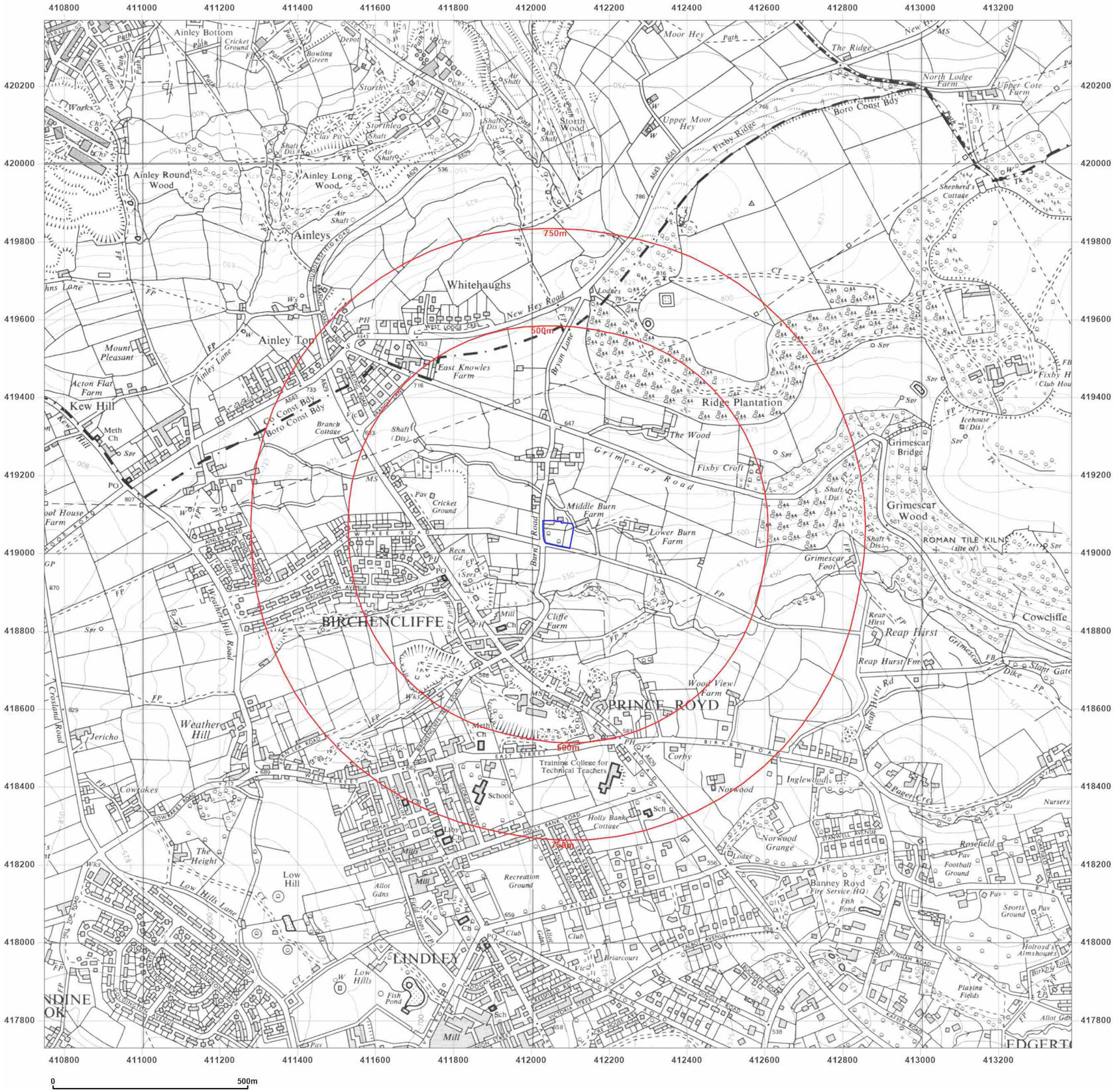

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: Provisional

Map date: **1966-1969**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1969
Revised 1969
Edition N/A
Copyright N/A
Levelled N/A

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

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Groundsure INSIGHTS

Site Details:

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BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid
Map date: **1973-1975**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
Levelled 1959

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

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

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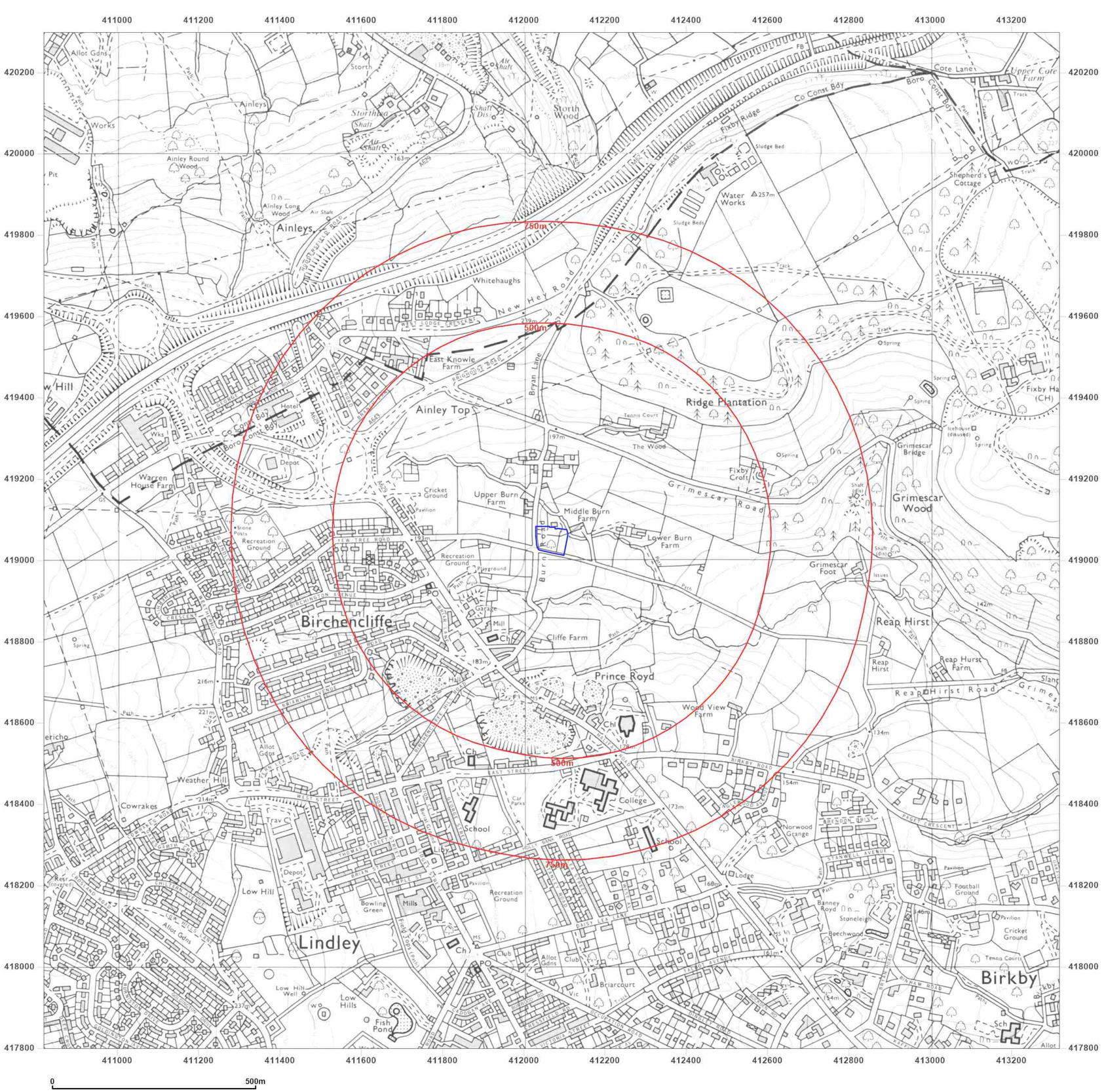

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1975-1976**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1975
Revised 1976
Edition N/A
Copyright N/A
Levelled N/A

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

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Groundsure INSIGHTS

Site Details:

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BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

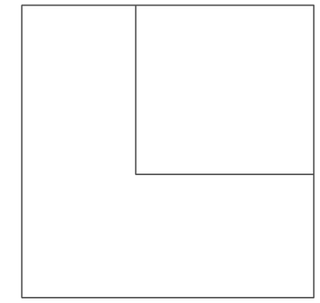
Map date: **1978**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1977
Revised 1977
Edition N/A
Copyright 1978
Levelled 1963



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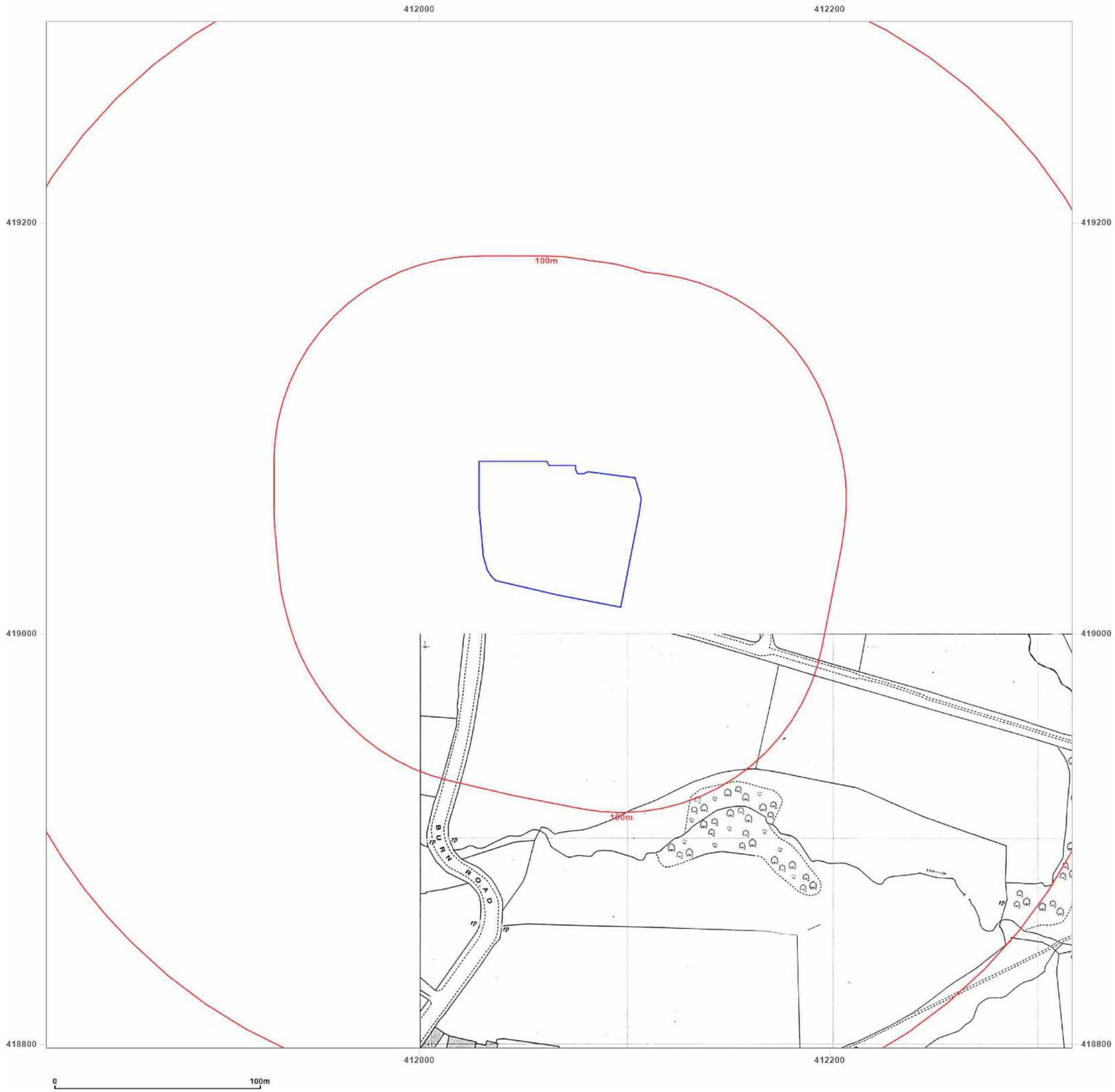


Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

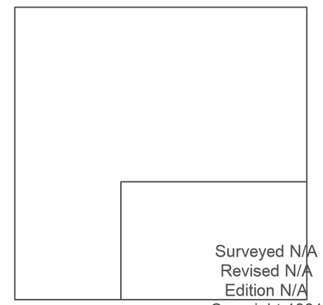
Map Name: National Grid

Map date: **1981**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S



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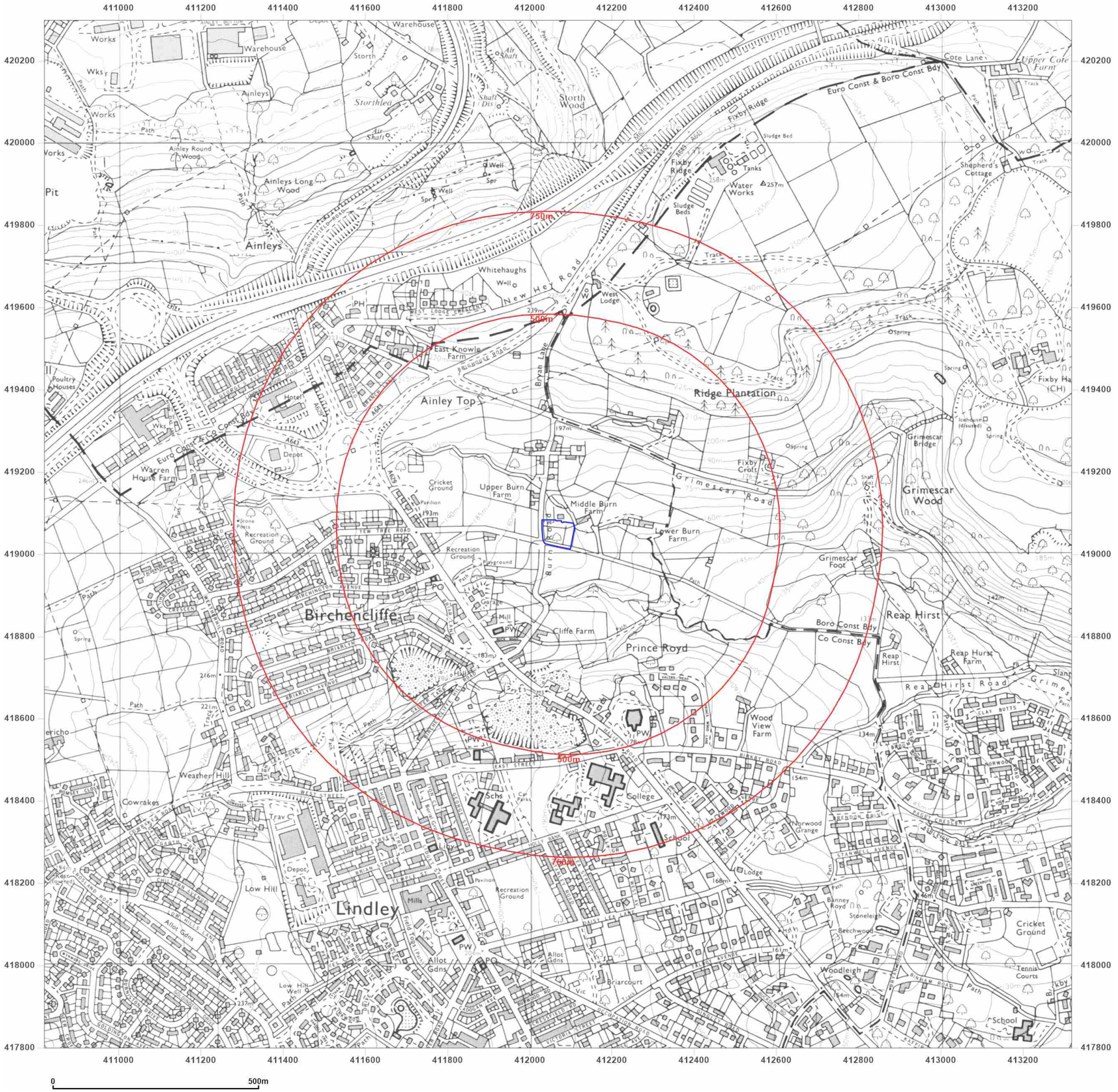

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1981-1985**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

Surveyed 1984
Revised 1985
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

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BIRCHENCLIFFE,
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Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1990-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

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

Surveyed 1959
Revised 1990
Edition N/A
Copyright 1990
Levelled 1959

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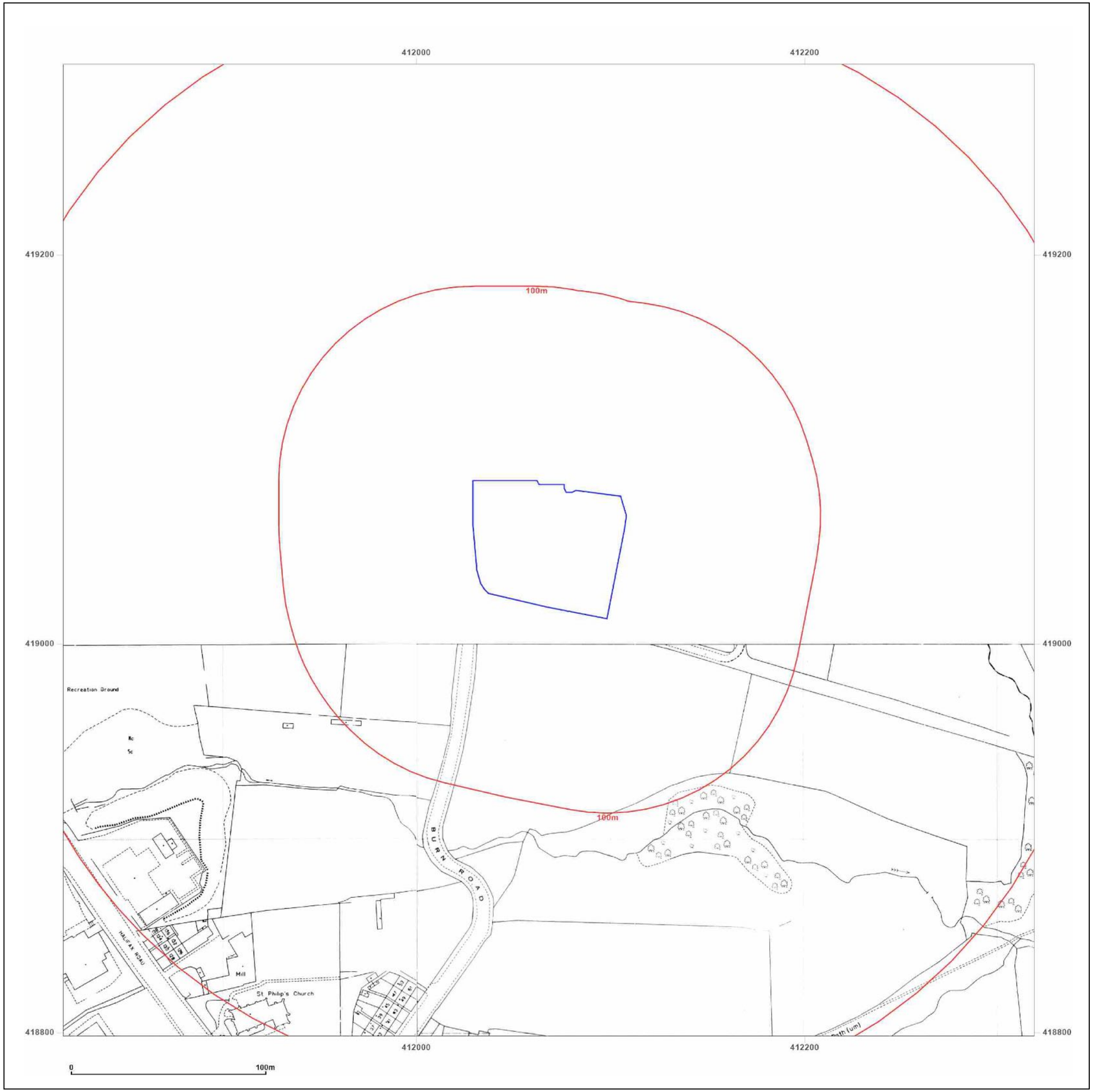

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1990-1993**

Scale: 1:1,250

Printed at: 1:2,000

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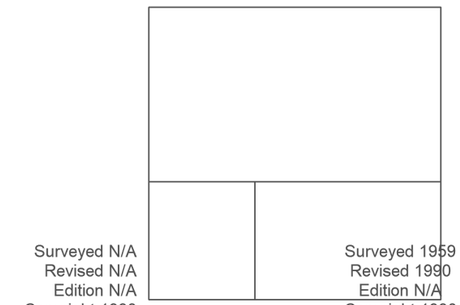

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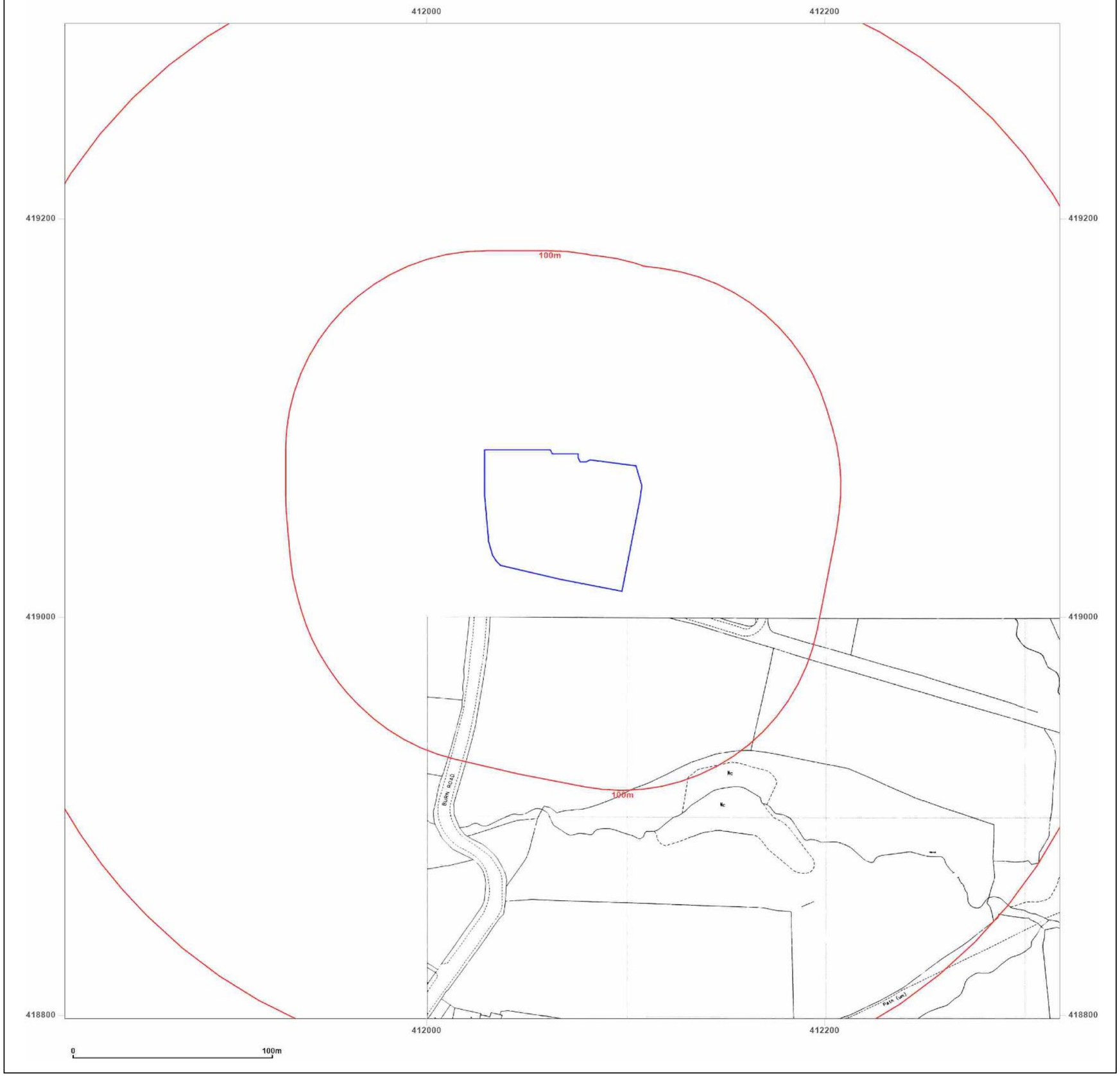

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

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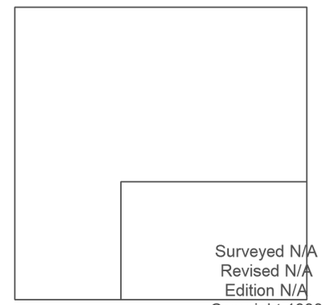

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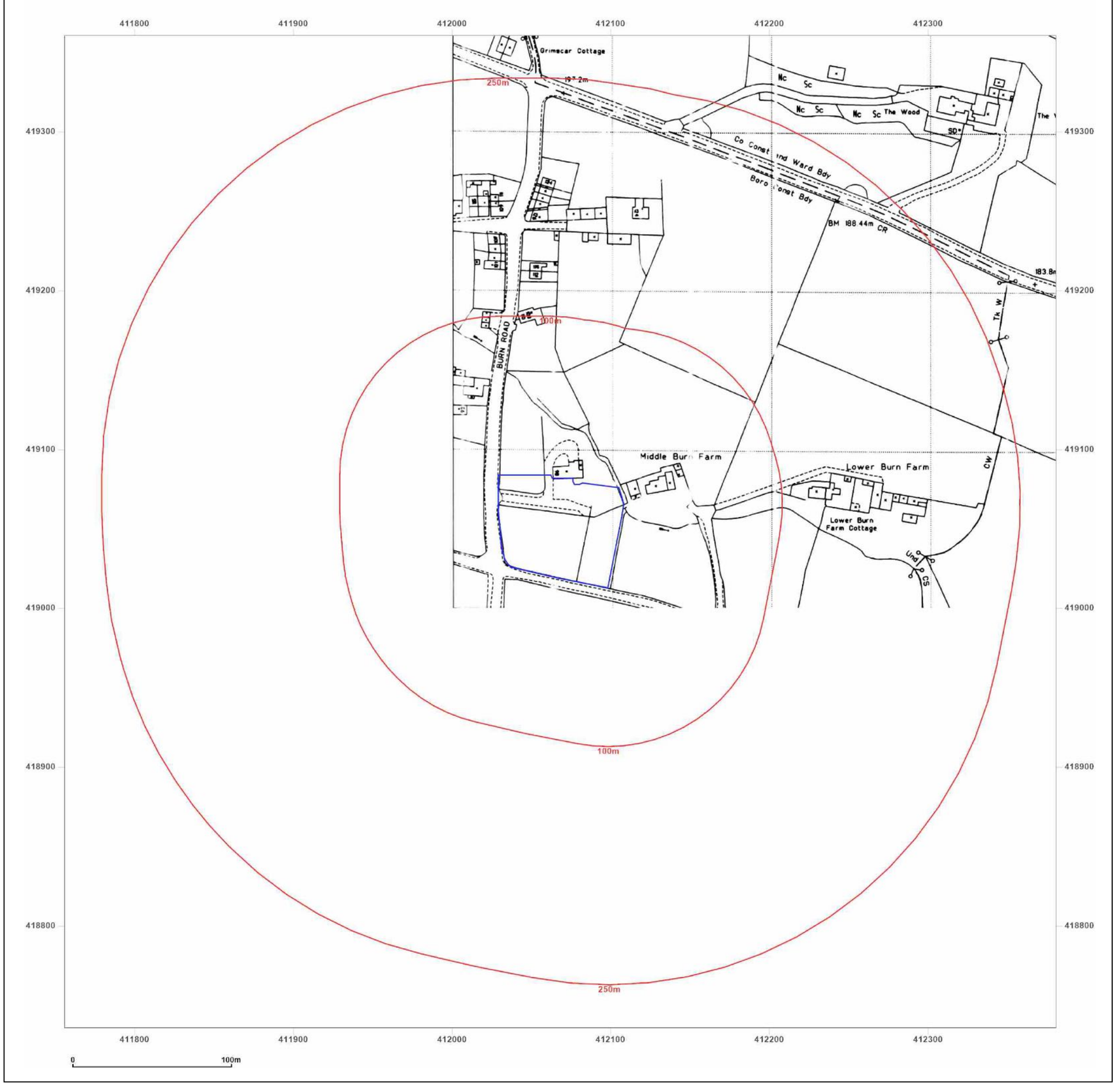

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

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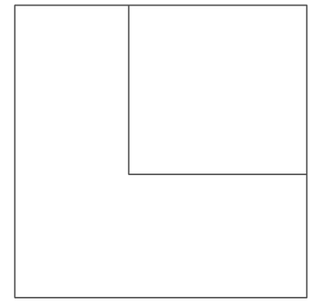
Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A



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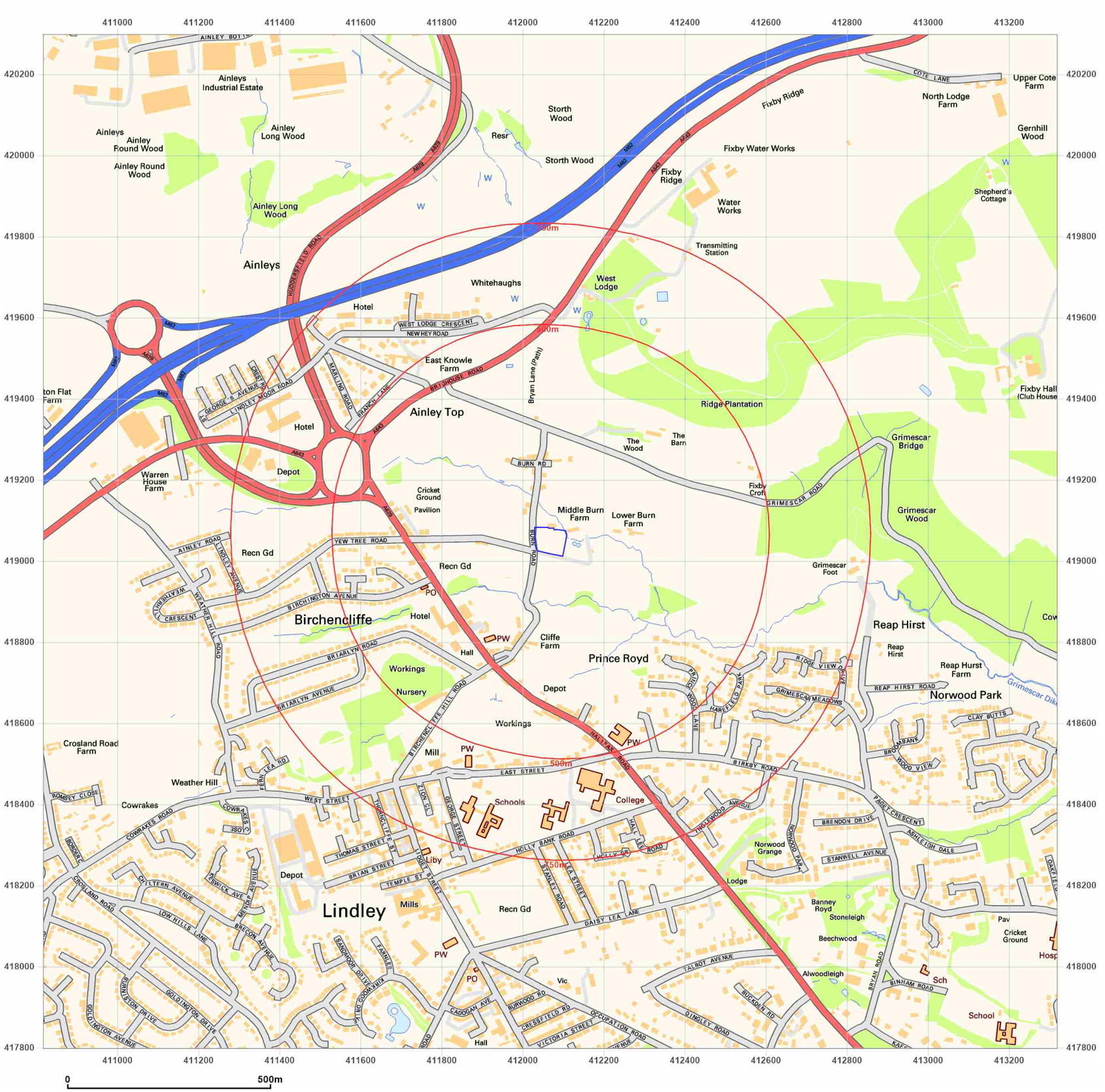

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

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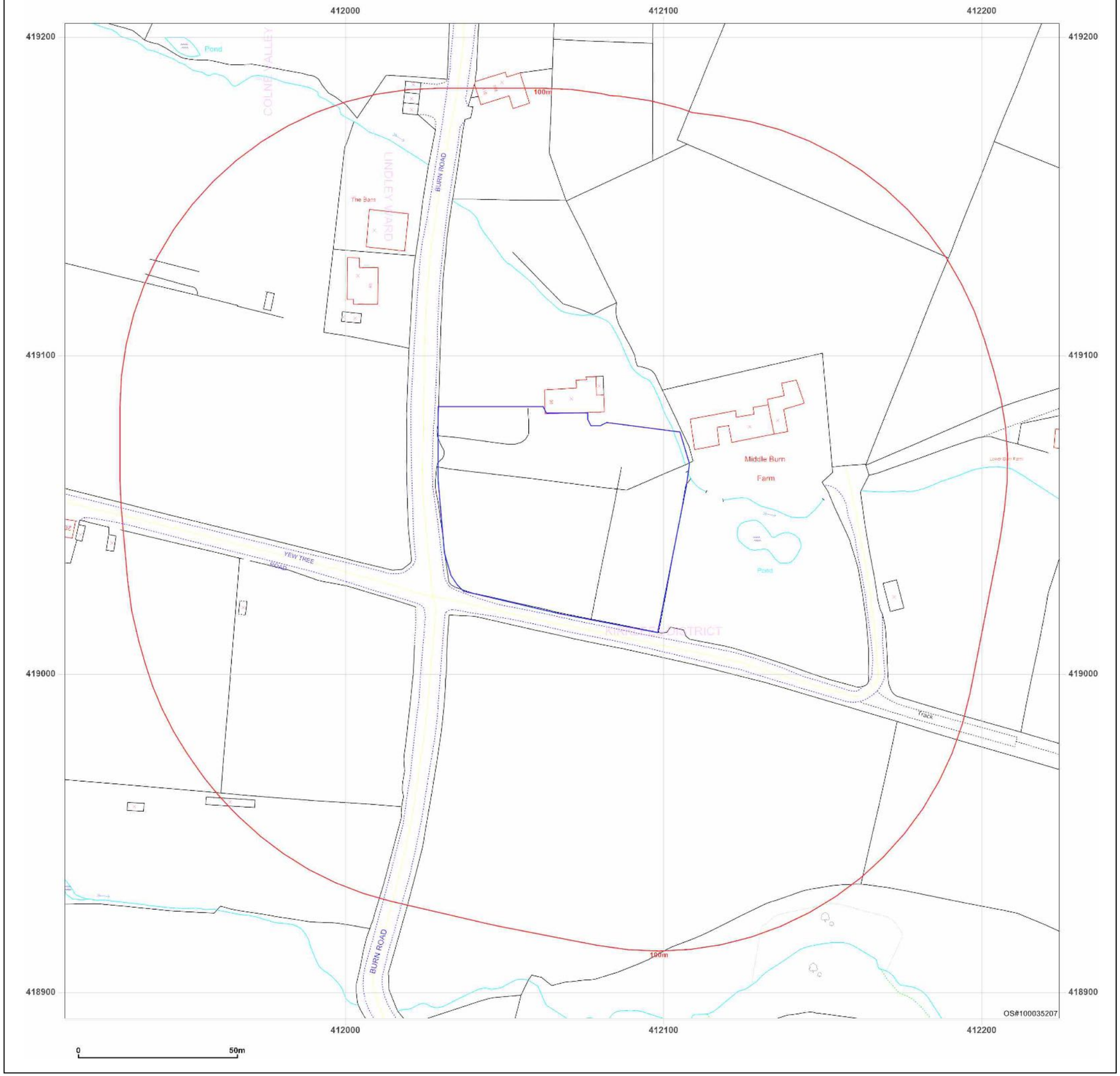

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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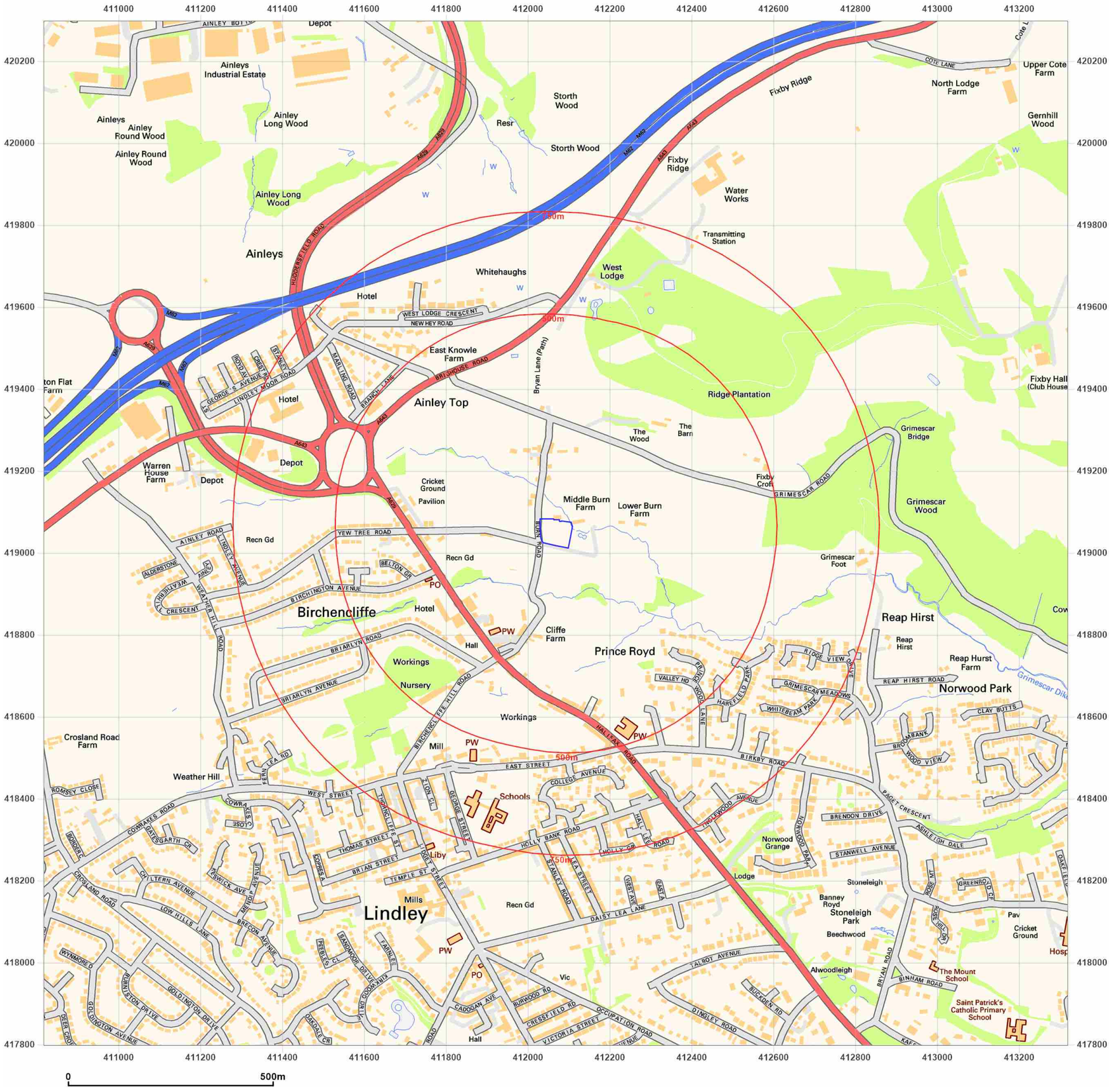

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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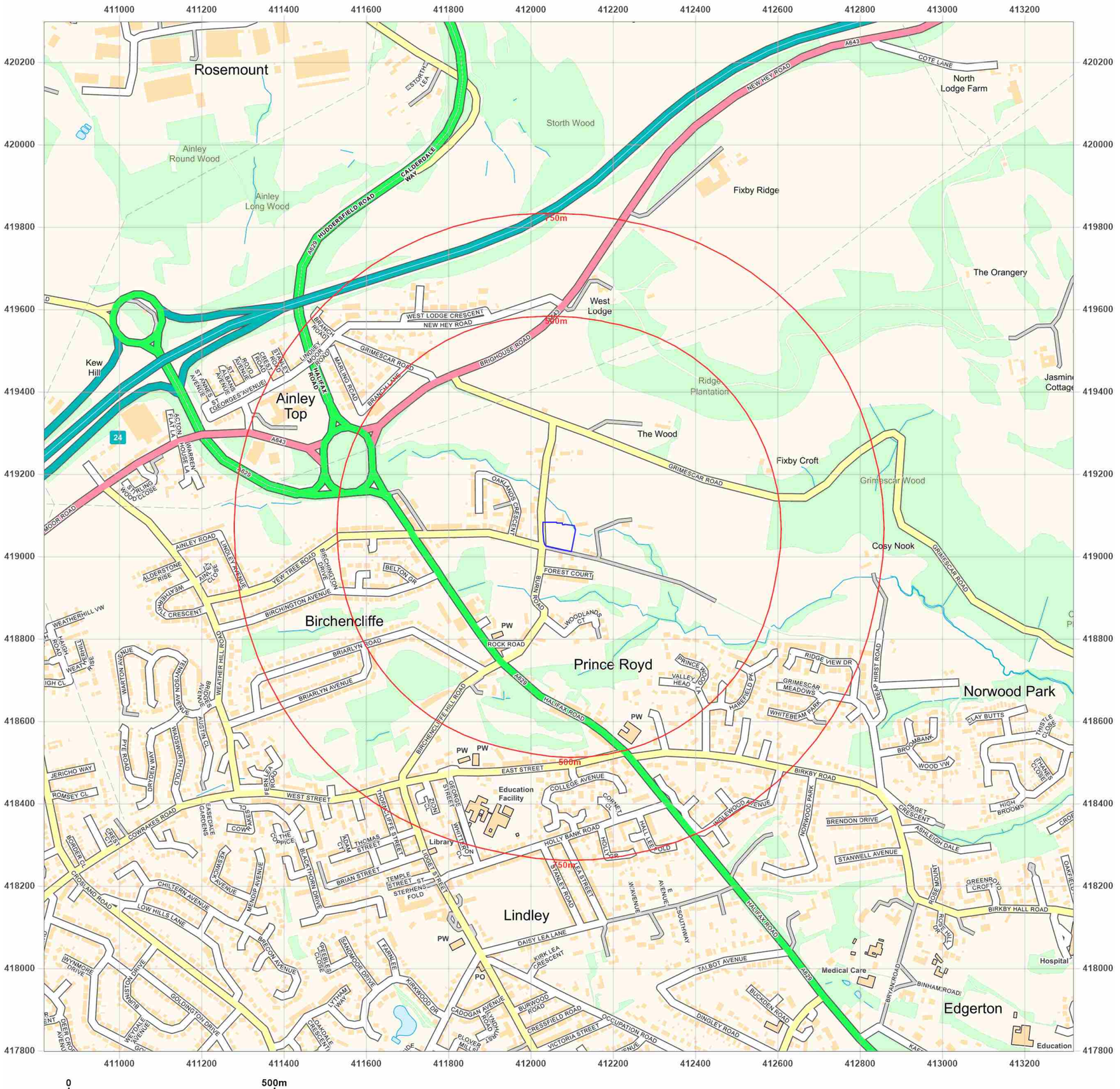

Groundsure INSIGHTS

Site Details:

98 BURN ROAD,
BIRCHENCLIFFE,
HUDDERSFIELD, HD2 2EG

Client Ref: 632004-4100
Report Ref: GS-9350491
Grid Ref: 412068, 419048

Map Name: National Grid

Map date: **2023**

Scale: 1:10,000

Printed at: 1:10,000

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APPENDIX B - COAL AUTHORITY CONSULTANTS COAL MINING REPORT

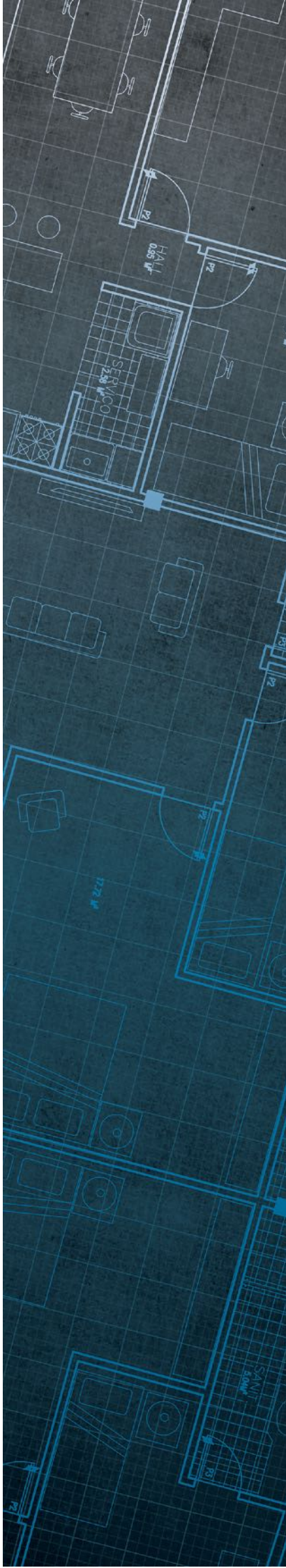
The Coal Authority

Consultants

Coal Mining Report

412065 419049
West Yorkshire

Date of enquiry:	**10 February 2023**
Date enquiry received:	**10 February 2023**
Issue date:	**10 February 2023**
Our reference:	**51003338236001**
Your reference:	**GS-9350492**



Consultants
Coal Mining Report

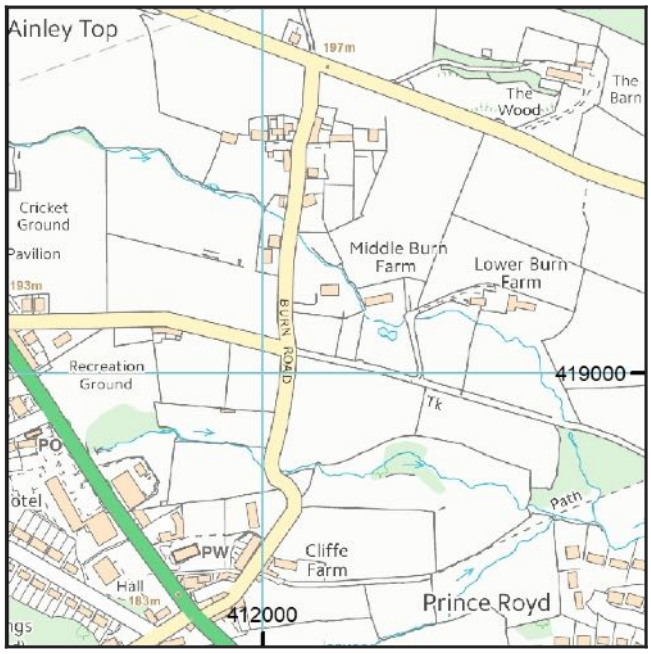
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

412065 419049
West Yorkshire



Approximate position of property

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How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

Section 1 – Mining activity and geology

Past underground mining
No past mining recorded.

Probable unrecorded shallow workings
None.

Spine roadways at shallow depth
No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	412418-002	412022 418983	This mine entry was searched for but not found by Lithos Consulting in 2015	Coal	
Shaft	412419-008	412055 419086		Coal	
Adit	412419-009	412051 419132		Coal	
Shaft	412419-011	412008 419085	This shaft was found and capped at bedrock with a reinforced concrete cap by Lithos in May 2018	Coal	
Shaft	412419-012	412179 419086		Coal	
Shaft	412419-013	412172 419011		Coal	

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

RC6	PO0	

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

Outcrops
No outcrops recorded.

Geological faults, fissures and breaklines
No faults, fissures or breaklines recorded.

Opencast mines
None recorded within 500 metres of the enquiry boundary.

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Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

Distance to site investigation (m)	Direction
7.0	South

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

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

Court orders
None recorded.

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

Withdrawal of support notices
The property is not in an area where a notice to withdraw support has been given.

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

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

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Section 4 – Further information

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

Future development

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

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

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

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

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Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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The Coal Authority

Summary of findings

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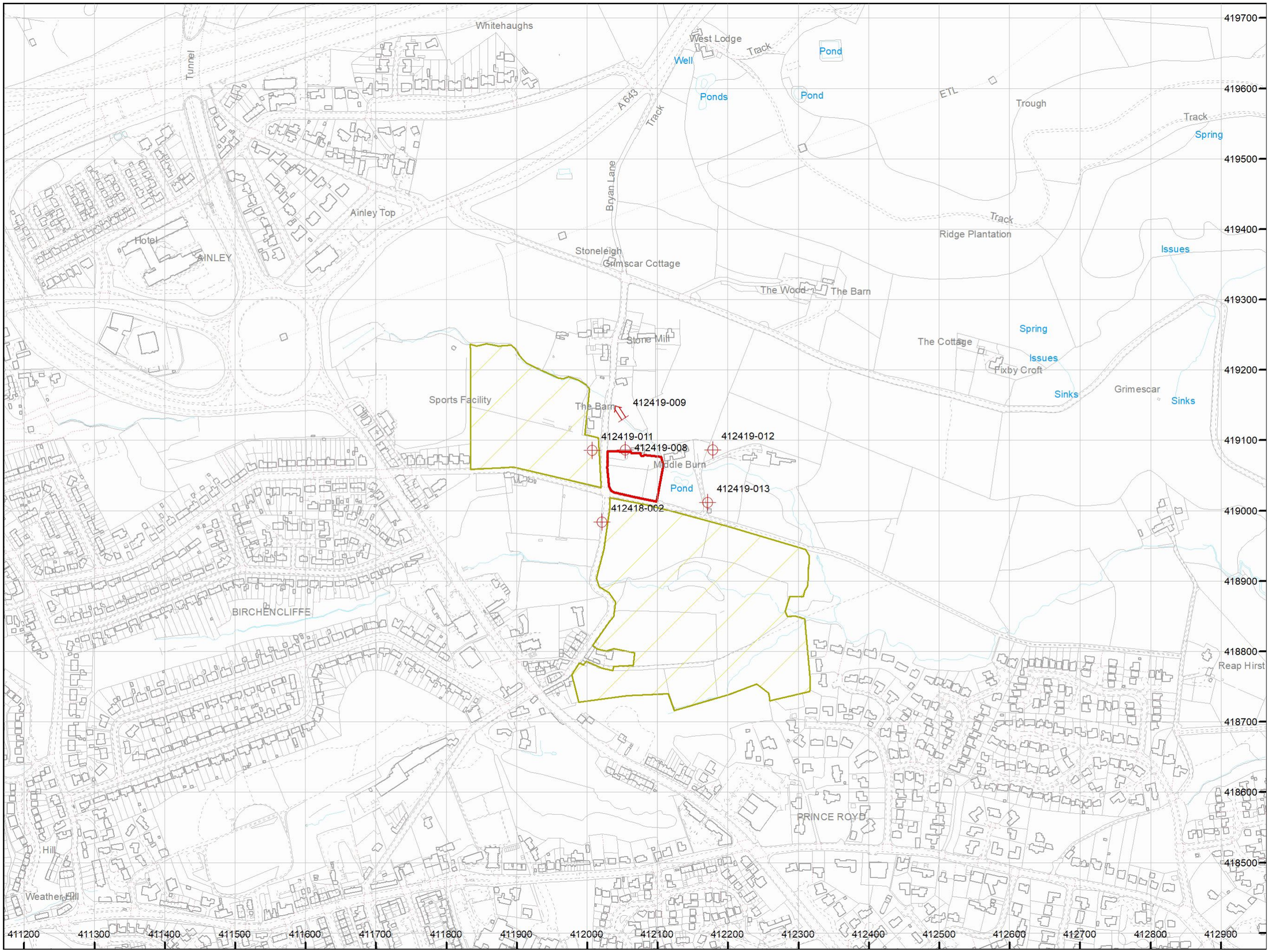
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Disused adit
- Site investigations



How to contact us
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APPENDIX C - GROUNDSURE REPORT

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

98 BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, HD2 2EG

Order Details

Date: 10/02/2023

Your ref: 632004-4100

Our Ref: GS-9350493

Site Details

Location: 412065 419049

Area: 0.46 ha

Authority: Kirklees Council

Summary of findings p. 2

OS MasterMap site plan p.12

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	1	1	13	42	-
16	1.2	Historical tanks	0	0	1	2	-
16	1.3	Historical energy features	0	0	0	2	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	1	4	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	1	1	20	59	-
21	2.2	Historical tanks	0	0	1	2	-
22	2.3	Historical energy features	0	0	0	2	-
22	2.4	Historical petrol stations	0	0	0	0	-
22	2.5	Historical garages	0	0	2	7	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	Active or recent landfill	0	0	0	0	-
24	3.2	Historical landfill (BGS records)	0	0	0	2	-
25	3.3	Historical landfill (LA/mapping records)	0	0	0	6	-
25	3.4	Historical landfill (EA/NRW records)	0	0	0	5	-
27	3.5	Historical waste sites	0	0	0	0	-
27	3.6	Licensed waste sites	0	0	0	0	-
27	3.7	Waste exemptions	0	0	2	5	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
28	4.1	Recent industrial land uses	0	0	3	-	-
29	4.2	Current or recent petrol stations	0	0	1	1	-
29	4.3	Electricity cables	0	0	0	0	-
29	4.4	Gas pipelines	0	0	0	0	-
30	4.5	Sites determined as Contaminated Land	0	0	0	0	-

30	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
30	4.7	Regulated explosive sites	0	0	0	0	-
30	4.8	Hazardous substance storage/usage	0	0	0	0	-
30	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
31	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
31	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	1	1	-
31	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	**4.13**	**Licensed Discharges to controlled waters**	0	0	6	0	-
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	4.17	List 2 Dangerous Substances	0	0	0	0	-
33	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	5	0	-
34	4.19	Pollution inventory substances	0	0	0	0	-
34	4.20	Pollution inventory waste transfers	0	0	0	0	-
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
36	5.1	Superficial aquifer	None (within 500m)				
37	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
38	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
39	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
39	5.5	Groundwater vulnerability- local information	None (within 0m)				
40	**5.6**	**Groundwater abstractions**	0	0	0	0	11
43	5.7	Surface water abstractions	0	0	0	0	0
43	5.8	Potable abstractions	0	0	0	0	0
44	5.9	Source Protection Zones	0	0	0	0	-
44	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
45	**6.1**	**Water Network (OS MasterMap)**	1	0	10	-	-

46	**6.2**	**Surface water features**	1	1	6	-	-
47	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
47	**6.4**	**WFD Surface water bodies**	0	1	0	-	-
48	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
49	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
49	7.2	Historical Flood Events	0	0	0	-	-
49	7.3	Flood Defences	0	0	0	-	-
50	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
50	7.5	Flood Storage Areas	0	0	0	-	-
51	7.6	Flood Zone 2	None (within 50m)				
51	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
52	**8.1**	**Surface water flooding**	1 in 30 year, 0.3m - 1.0m (within 50m)

Page	Section	Groundwater flooding	
54	**9.1**	**Groundwater flooding**	Negligible (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
55	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	0	1
56	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
56	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
56	10.4	Special Protection Areas (SPA)	0	0	0	0	0
56	10.5	National Nature Reserves (NNR)	0	0	0	0	0
57	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
57	**10.7**	**Designated Ancient Woodland**	0	0	0	3	0
57	10.8	Biosphere Reserves	0	0	0	0	0
58	10.9	Forest Parks	0	0	0	0	0
58	10.10	Marine Conservation Zones	0	0	0	0	0
58	**10.11**	**Green Belt**	1	0	0	1	1
58	10.12	Proposed Ramsar sites	0	0	0	0	0

59	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
59	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
59	10.15	Nitrate Sensitive Areas	0	0	0	0	0
59	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
60	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
61	**10.18**	**SSSI Units**	0	0	0	0	1
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
62	11.1	World Heritage Sites	0	0	0	-	-
63	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
63	11.3	National Parks	0	0	0	-	-
63	**11.4**	**Listed Buildings**	0	1	4	-	-
64	11.5	Conservation Areas	0	0	0	-	-
64	11.6	Scheduled Ancient Monuments	0	0	0	-	-
64	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
65	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
66	12.2	Open Access Land	0	0	0	-	-
66	12.3	Tree Felling Licences	0	0	0	-	-
66	12.4	Environmental Stewardship Schemes	0	0	0	-	-
66	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
67	**13.1**	**Priority Habitat Inventory**	0	0	7	-	-
68	13.2	Habitat Networks	0	0	0	-	-
68	13.3	Open Mosaic Habitat	0	0	0	-	-
68	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
69	**14.1**	**10k Availability**	Identified (within 500m)				
70	**14.2**	**Artificial and made ground (10k)**	0	0	1	7	-
72	14.3	Superficial geology (10k)	0	0	0	0	-

72	14.4	Landslip (10k)	0	0	0	0	-
73	14.5	Bedrock geology (10k)	1	2	6	14	-
75	14.6	Bedrock faults and other linear features (10k)	0	2	5	4	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
76	15.1	50k Availability	Identified (within 500m)				
77	15.2	Artificial and made ground (50k)	0	0	0	3	-
78	15.3	Artificial ground permeability (50k)	0	0	-	-	-
79	15.4	Superficial geology (50k)	0	0	0	0	-
79	15.5	Superficial permeability (50k)	None (within 50m)				
79	15.6	Landslip (50k)	0	0	0	0	-
79	15.7	Landslip permeability (50k)	None (within 50m)				
80	15.8	Bedrock geology (50k)	1	2	6	14	-
82	15.9	Bedrock permeability (50k)	Identified (within 50m)				
82	15.10	Bedrock faults and other linear features (50k)	0	2	5	4	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
83	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
84	17.1	Shrink swell clays	Very low (within 50m)				
85	17.2	Running sands	Negligible (within 50m)				
86	17.3	Compressible deposits	Negligible (within 50m)				
87	17.4	Collapsible deposits	Very low (within 50m)				
88	17.5	Landslides	Low (within 50m)				
90	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
91	18.1	Natural cavities	0	0	0	0	-
92	18.2	BritPits	0	2	1	4	-
93	18.3	Surface ground workings	0	0	12	-	-
94	18.4	Underground workings	0	0	0	4	21
95	18.5	Historical Mineral Planning Areas	0	0	0	3	-

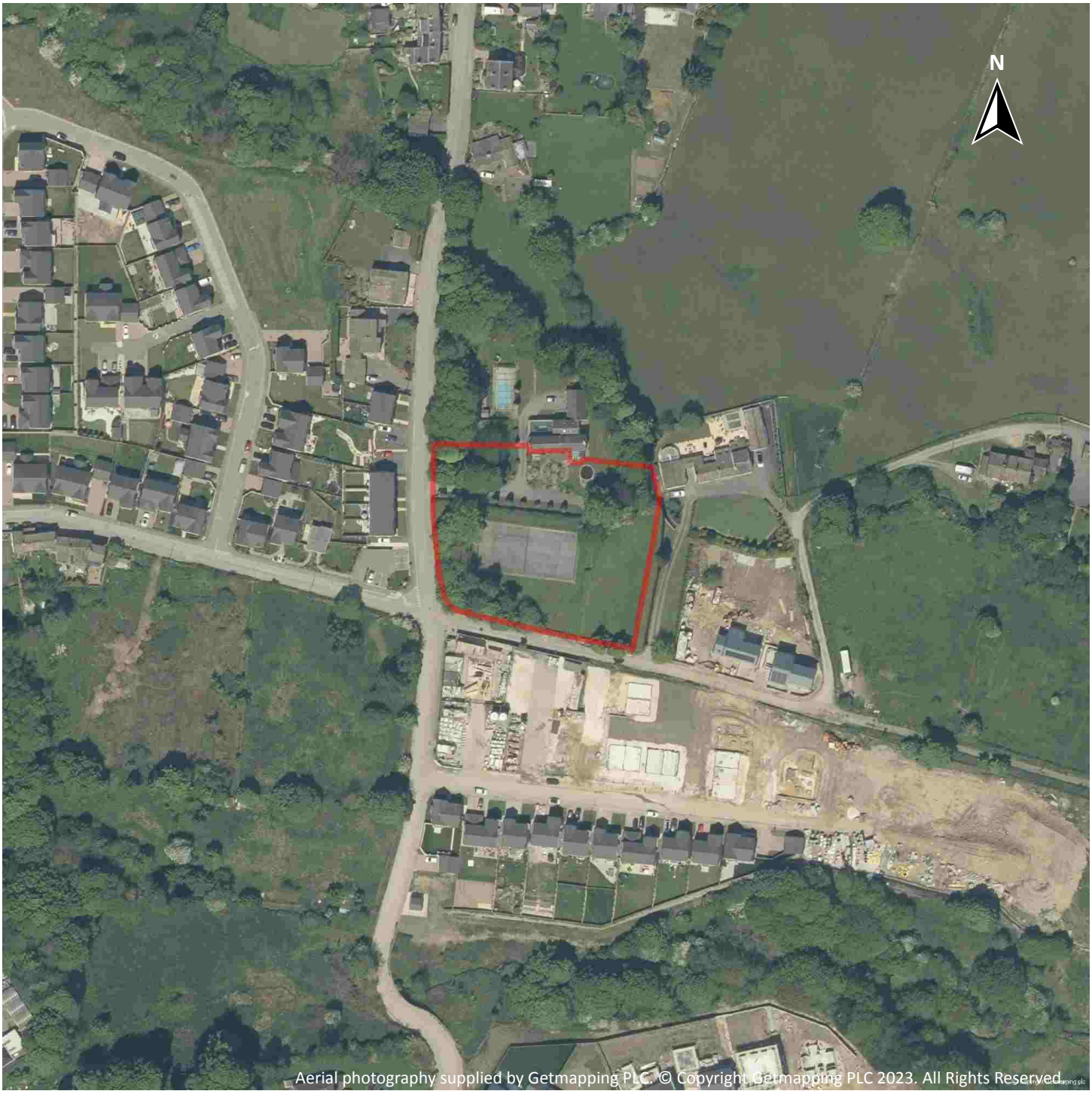
96	**18.6**	**Non-coal mining**	0	1	1	0	3
96	**18.7**	**Mining cavities**	0	0	0	1	5
97	18.8	JPB mining areas	None (within 0m)				
97	**18.9**	**Coal mining**	Identified (within 0m)				
98	18.10	Brine areas	None (within 0m)				
98	18.11	Gypsum areas	None (within 0m)				
98	18.12	Tin mining	None (within 0m)				
98	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
99	**19.1**	**Radon**	Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
101	**20.1**	**BGS Estimated Background Soil Chemistry**	1	7	-	-	-
102	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
102	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
103	21.1	Underground railways (London)	0	0	0	-	-
103	21.2	Underground railways (Non-London)	0	0	0	-	-
104	21.3	Railway tunnels	0	0	0	-	-
104	**21.4**	**Historical railway and tunnel features**	1	0	1	-	-
104	21.5	Royal Mail tunnels	0	0	0	-	-
104	21.6	Historical railways	0	0	0	-	-
105	21.7	Railways	0	0	0	-	-
105	21.8	Crossrail 1	0	0	0	0	-
105	21.9	Crossrail 2	0	0	0	0	-
105	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 30/05/2021

Site Area: 0.46ha

Recent site history - 2018 aerial photograph

Capture Date: 01/07/2018

Site Area: 0.46ha

Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 0.46ha

Recent site history - 2000 aerial photograph

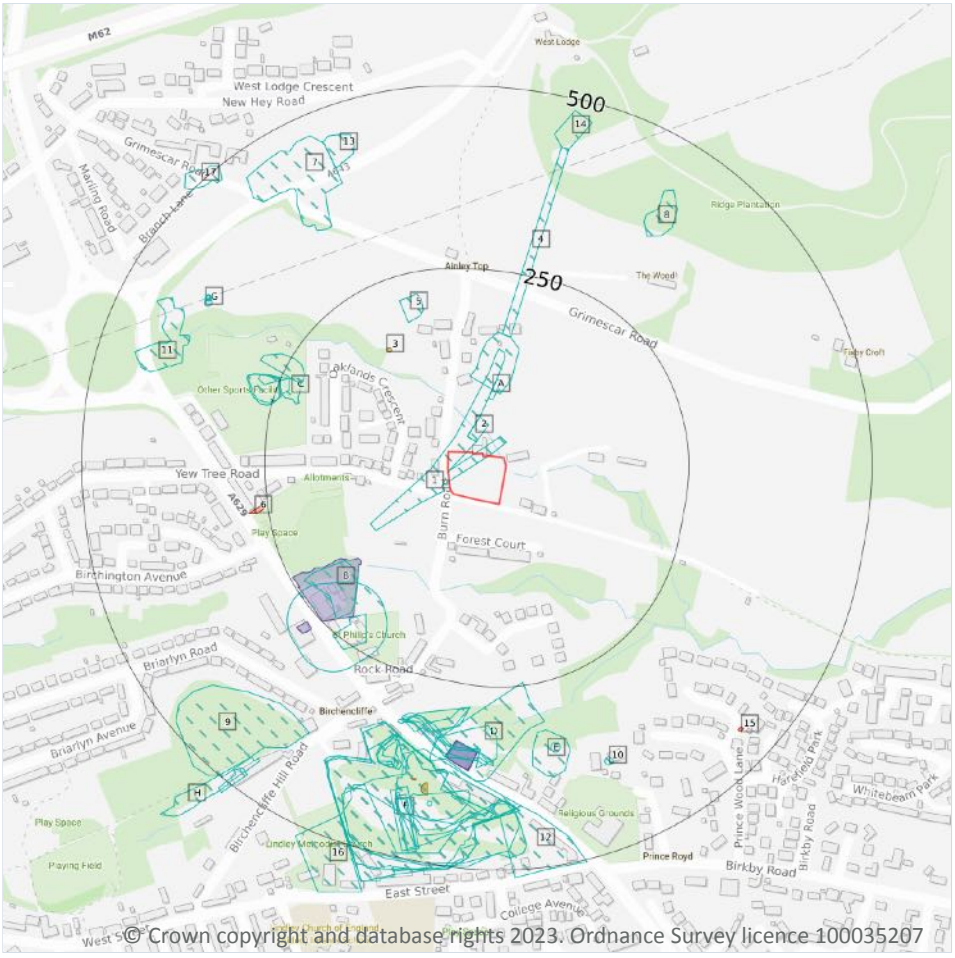
Capture Date: 25/08/2000

Site Area: 0.46ha

OS MasterMap site plan

Site Area: 0.46ha

1 Past land use



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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	57

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Railway Sidings**	**1891**	**1409295**

ID	Location	Land use	Dates present	Group ID
2	15m N	Railway Building	1891	1428995
A	75m N	Railway Station	1891	1432965
A	85m N	Cuttings	1891	1409767
4	163m N	Tunnel	1891	1431486
B	168m SW	Unspecified Heap	1966 - 1985	1499030
B	172m SW	Garage	1975 - 1985	1459272
5	185m NW	Unspecified Pit	1891	1452360
B	203m SW	Unspecified Mill	1966 - 1985	1509040
C	214m W	Unspecified Quarry	1892	1426691
C	221m NW	Unspecified Heap	1966	1415061
C	239m NW	Unspecified Pit	1905	1547161
C	241m W	Unspecified Pit	1948 - 1956	1462100
C	243m W	Unspecified Pit	1930	1477555
D	245m S	Unspecified Mill	1891	1421240
D	281m S	Refuse Heap	1966	1436526
D	281m S	Unspecified Ground Workings	1975 - 1985	1483885
D	303m S	Refuse Heap	1966 - 1985	1545893
D	304m S	Unspecified Ground Workings	1948 - 1956	1520044
D	305m S	Unspecified Ground Workings	1890	1469236
D	309m S	Unspecified Ground Workings	1905	1519601
E	315m S	Refuse Heap	1966 - 1975	1471466
F	324m S	Brick and Tile Works	1948	1544348
F	326m S	Brick and Tile Works	1956	1534020
E	334m S	Unspecified Tank	1891	1433313
F	338m S	Unspecified Heap	1956 - 1985	1516303
F	338m S	Brick and Tile Works	1938	1553823
F	339m S	Unspecified Ground Workings	1948	1412124
F	345m S	Unspecified Heap	1938	1467996

ID	Location	Land use	Dates present	Group ID
7	347m NW	Unspecified Quarries	1891	1450447
F	348m S	Brick and Tile Works	1890 - 1905	1526041
F	349m S	Refuse Heap	1905	1436524
F	356m S	Unspecified Quarry	1975 - 1985	1461668
8	360m NE	Unspecified Quarry	1891	1426690
9	371m SW	Unspecified Quarry	1966 - 1985	1464005
F	375m S	Unspecified Tank	1938 - 1948	1534521
10	376m SE	Unspecified Tank	1985	1433314
G	381m NW	Unspecified Disused Shaft	1966	1424457
11	384m W	Unspecified Quarry	1891	1426678
G	385m NW	Unspecified Old Shaft	1930	1465760
G	386m NW	Unspecified Old Shaft	1948	1546944
G	387m NW	Unspecified Old Shaft	1956	1530695
F	393m S	Unspecified Pit	1890	1451760
F	403m S	Railway Sidings	1948	1462331
F	403m S	Unspecified Quarry	1956	1548569
F	409m S	Unspecified Ground Workings	1905	1412125
F	409m S	Unspecified Quarry	1966	1526015
12	413m S	Brewery	1890 - 1905	1519821
F	414m S	Railway Sidings	1956	1481552
13	416m NW	Unspecified Heap	1891	1415074
F	416m S	Unspecified Shaft	1905	1425050
F	420m S	Railway Sidings	1938	1464499
14	430m N	Cuttings	1891	1409762
H	449m SW	Chemical Works	1905	1443323
16	466m S	Burial Ground	1905	1423508
H	472m SW	Unspecified Works	1966	1438166
17	484m NW	Unspecified Quarries	1891	1450450

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	3

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
3	158m NW	Unspecified Tank	1918	223020
F	390m S	Unspecified Tank	1933	223019
F	393m S	Unspecified Tank	1960	223018

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	2

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
6	257m W	Electricity Substation	1973	128928
15	449m SE	Electricity Substation	1997	128930

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or

succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**5**

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
B	156m SW	Garage	1966 - 1990	46590
B	265m SW	Garage	1960 - 1966	45327
D	328m S	Garage	1959 - 1981	45084
D	328m S	Garage	1959	42771
D	329m S	Garage	1960	42781

This data is sourced from Ordnance Survey / Groundsure.

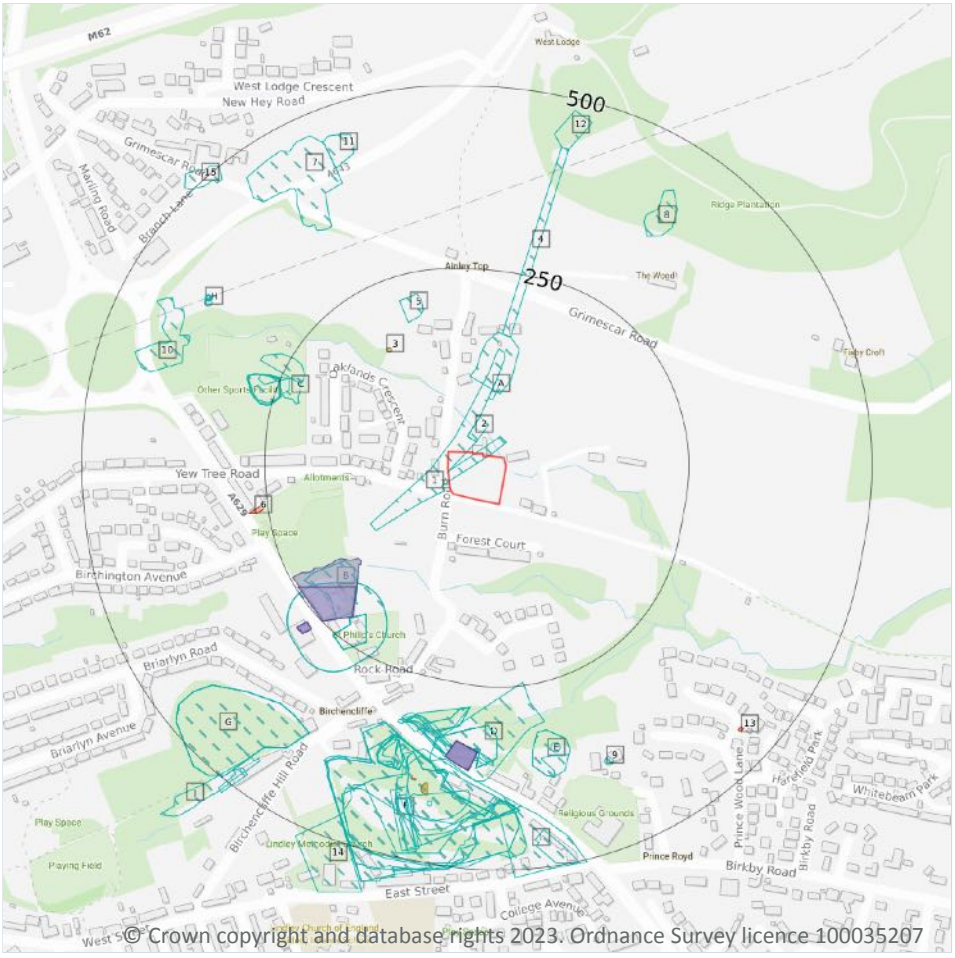
1.6 Historical military land

Records within 500m	**0**

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

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

2 Past land use - un-grouped



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2.1 Historical industrial land uses

Records within 500m	81

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Railway Sidings**	**1891**	**1409295**
2	15m N	Railway Building	1891	1428995
A	75m N	Railway Station	1891	1432965

ID	Location	Land Use	Date	Group ID
A	85m N	Cuttings	1891	1409767
4	163m N	Tunnel	1891	1431486
B	168m SW	Unspecified Heap	1975	1499030
B	168m SW	Unspecified Heap	1985	1499030
B	168m SW	Unspecified Heap	1966	1499030
B	172m SW	Garage	1975	1459272
B	172m SW	Garage	1985	1459272
5	185m NW	Unspecified Pit	1891	1452360
B	203m SW	Unspecified Mill	1975	1509040
B	203m SW	Unspecified Mill	1985	1509040
B	203m SW	Unspecified Mill	1966	1509040
C	214m W	Unspecified Quarry	1892	1426691
C	221m NW	Unspecified Heap	1966	1415061
C	239m NW	Unspecified Pit	1905	1547161
C	241m W	Unspecified Pit	1956	1462100
C	242m W	Unspecified Pit	1948	1462100
C	242m W	Unspecified Pit	1948	1462100
C	243m W	Unspecified Pit	1930	1477555
D	245m S	Unspecified Mill	1891	1421240
D	281m S	Unspecified Ground Workings	1975	1483885
D	281m S	Unspecified Ground Workings	1985	1483885
D	281m S	Refuse Heap	1966	1436526
D	303m S	Refuse Heap	1975	1545893
D	303m S	Refuse Heap	1985	1545893
D	303m S	Refuse Heap	1966	1545893
D	304m S	Unspecified Ground Workings	1948	1520044
D	305m S	Unspecified Ground Workings	1890	1469236
D	306m S	Unspecified Ground Workings	1956	1520044

ID	Location	Land Use	Date	Group ID
D	309m S	Unspecified Ground Workings	1905	1519601
E	315m S	Refuse Heap	1975	1471466
E	315m S	Refuse Heap	1966	1471466
F	324m S	Brick and Tile Works	1948	1544348
F	326m S	Brick and Tile Works	1956	1534020
E	334m S	Unspecified Tank	1891	1433313
F	338m S	Unspecified Heap	1975	1516303
F	338m S	Unspecified Heap	1956	1516303
F	338m S	Unspecified Heap	1985	1516303
F	338m S	Unspecified Heap	1966	1516303
F	338m S	Brick and Tile Works	1938	1553823
F	338m S	Brick and Tile Works	1938	1553823
F	339m S	Unspecified Ground Workings	1948	1412124
F	345m S	Unspecified Heap	1938	1467996
F	345m S	Unspecified Heap	1938	1467996
7	347m NW	Unspecified Quarries	1891	1450447
F	348m S	Brick and Tile Works	1890	1526041
F	349m S	Refuse Heap	1905	1436524
F	356m S	Unspecified Quarry	1975	1461668
F	356m S	Unspecified Quarry	1985	1461668
F	358m S	Brick and Tile Works	1905	1526041
8	360m NE	Unspecified Quarry	1891	1426690
G	371m SW	Unspecified Quarry	1975	1464005
G	371m SW	Unspecified Quarry	1985	1464005
G	371m SW	Unspecified Quarry	1966	1464005
F	375m S	Unspecified Tank	1948	1534521
9	376m SE	Unspecified Tank	1985	1433314
F	379m S	Unspecified Tank	1938	1534521

ID	Location	Land Use	Date	Group ID
H	381m NW	Unspecified Disused Shaft	1966	1424457
10	384m W	Unspecified Quarry	1891	1426678
H	385m NW	Unspecified Old Shaft	1930	1465760
H	386m NW	Unspecified Old Shaft	1948	1546944
H	386m NW	Unspecified Old Shaft	1948	1546944
H	387m NW	Unspecified Old Shaft	1956	1530695
F	393m S	Unspecified Pit	1890	1451760
F	403m S	Railway Sidings	1948	1462331
F	403m S	Unspecified Quarry	1956	1548569
F	409m S	Unspecified Ground Workings	1905	1412125
F	409m S	Unspecified Quarry	1966	1526015
I	413m S	Brewery	1890	1519821
F	414m S	Railway Sidings	1956	1481552
11	416m NW	Unspecified Heap	1891	1415074
F	416m S	Unspecified Shaft	1905	1425050
F	420m S	Railway Sidings	1938	1464499
12	430m N	Cuttings	1891	1409762
I	449m S	Brewery	1905	1519821
J	449m SW	Chemical Works	1905	1443323
14	466m S	Burial Ground	1905	1423508
J	472m SW	Unspecified Works	1966	1438166
15	484m NW	Unspecified Quarries	1891	1450450

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**3**

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
3	158m NW	Unspecified Tank	1918	223020
F	390m S	Unspecified Tank	1933	223019
F	393m S	Unspecified Tank	1960	223018

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**2**

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
6	257m W	Electricity Substation	1973	128928
13	449m SE	Electricity Substation	1997	128930

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**9**

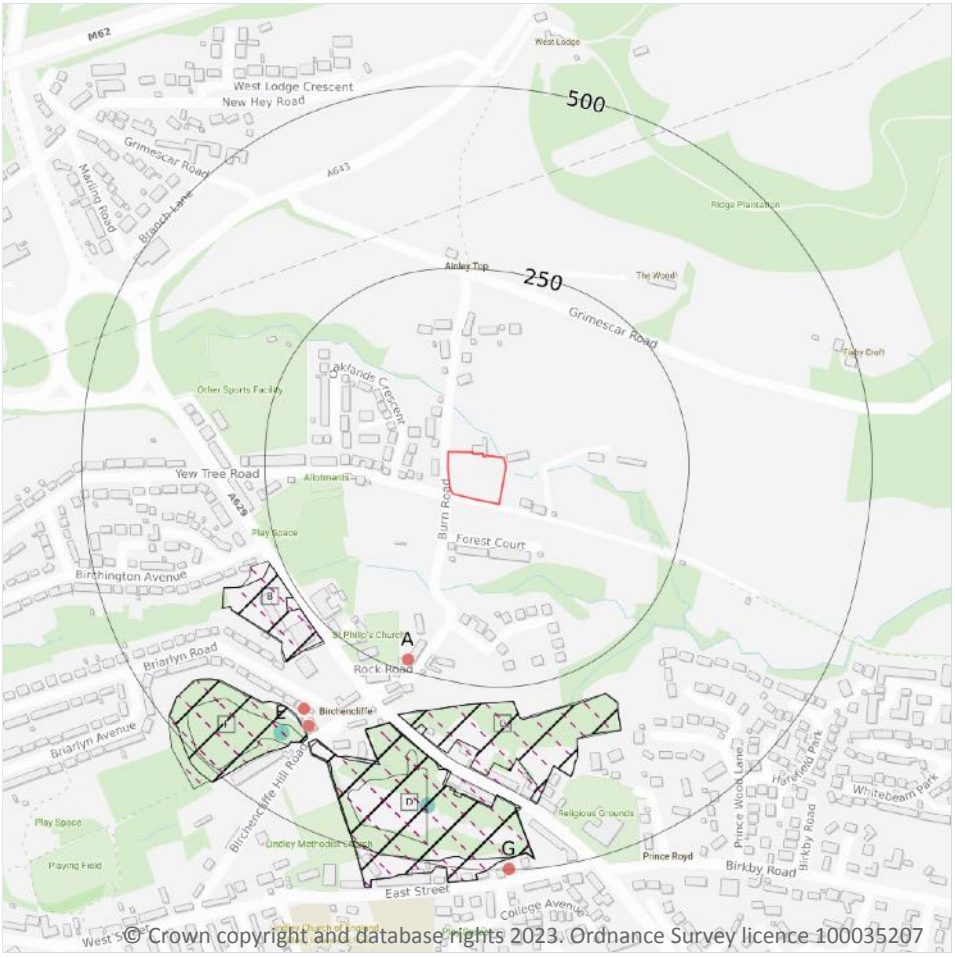
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
B	156m SW	Garage	1966	46590
B	184m SW	Garage	1990	46590
B	265m SW	Garage	1961	45327
B	265m SW	Garage	1966	45327
B	265m SW	Garage	1960	45327
D	328m S	Garage	1981	45084
D	328m S	Garage	1959	42771
D	328m S	Garage	1959	45084
D	329m S	Garage	1960	42781

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical landfill (BGS)

Historical landfill (LA/OS)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	2

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

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Address	BGS Number	Risk	Waste Type
E	403m SW	Birchencliffe Hill Rd, Huddersfield	1035	Risk to minor aquifer	N/A
D	424m S	Birchencliffe Tip, Huddersfield	1462	No risk to aquifer	N/A

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	**6**

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

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Site address	Source	Data type
B	260m SW	Landfill Site 29, Halifax Road, Birchencliffe, Hudersfield, HD3 3NQ	Kirklees Metropolitan Borough Council	Polygon
C	271m S	Landfill Site 281, Halifax Road, Birchencliffe, Hudersfield, HD3 3NQ	Kirklees Metropolitan Borough Council	Polygon
D	325m S	Landfill Site 33, Halifax Road, Birchencliffe, Hudersfield, HD3 3NQ	Kirklees Metropolitan Borough Council	Polygon
D	353m S	Refuse Tip	1965 mapping	Polygon
F	371m SW	Landfill Sites 1, Halifax Road, Birchencliffe, Hudersfield, HD3 3NQ	Kirklees Metropolitan Borough Council	Polygon
F	388m SW	Refuse Tip	1965 mapping	Polygon

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	**5**

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

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Details		
B	260m SW	Site Address: Halifax Road, Birchencliffe, Huddersfield Licence Holder Address: Queens Mill, Queens Mill Road, Lockwood, Huddersfield	Waste Licence: Yes Site Reference: 4700/0293 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 03/12/1981 Licence Surrender: 21/11/1988	Operator: - Licence Holder: M Bevilacqua Limited First Recorded 31/12/1981 Last Recorded: 31/12/1988
C	269m S	Site Address: Prince Royd, Halifax Road, Birchencliffe, Huddersfield Licence Holder Address: 2 Westward Croft, Birchencliffe, Huddersfield	Waste Licence: Yes Site Reference: 4700/0366 Waste Type: Inert, Industrial, Commercial, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 01/08/1983 Licence Surrender: 30/04/1994	Operator: - Licence Holder: Brian Bray Builders Limited First Recorded 31/12/1983 Last Recorded: 31/12/1993
D	323m S	Site Address: Hopkinsons Tip, Halifax Road, Birchencliffe, Huddersfield Licence Holder Address: PO Box 95, Civic Centre, Huddersfield	Waste Licence: Yes Site Reference: 4700/0514, WD/L514 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 03/06/1985 Licence Surrender: 30/04/1994	Operator: - Licence Holder: Kirklees Metropolitan Borough Council First Recorded 31/12/1985 Last Recorded: 31/12/1990
D	324m S	Site Address: Hopkinson's Tip, Huddersfield, West Yorkshire Licence Holder Address: Britannia Works, Birkby, Huddersfield	Waste Licence: Yes Site Reference: 4700/WDL0086 Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 20/12/1978 Licence Surrender: 27/04/1979	Operator: Hopkinsons Limited Licence Holder: Hopkinsons Limited First Recorded 31/12/1942 Last Recorded: 27/04/1979
F	369m SW	Site Address: Birchencliffe Tip, Huddersfield, West Yorkshire Licence Holder Address: -	Waste Licence: - Site Reference: - Waste Type: Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Huddersfield Corp Public Cleansing and Haulage Department Licence Holder: - First Recorded 31/12/1961 Last Recorded: 31/12/1974

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	7

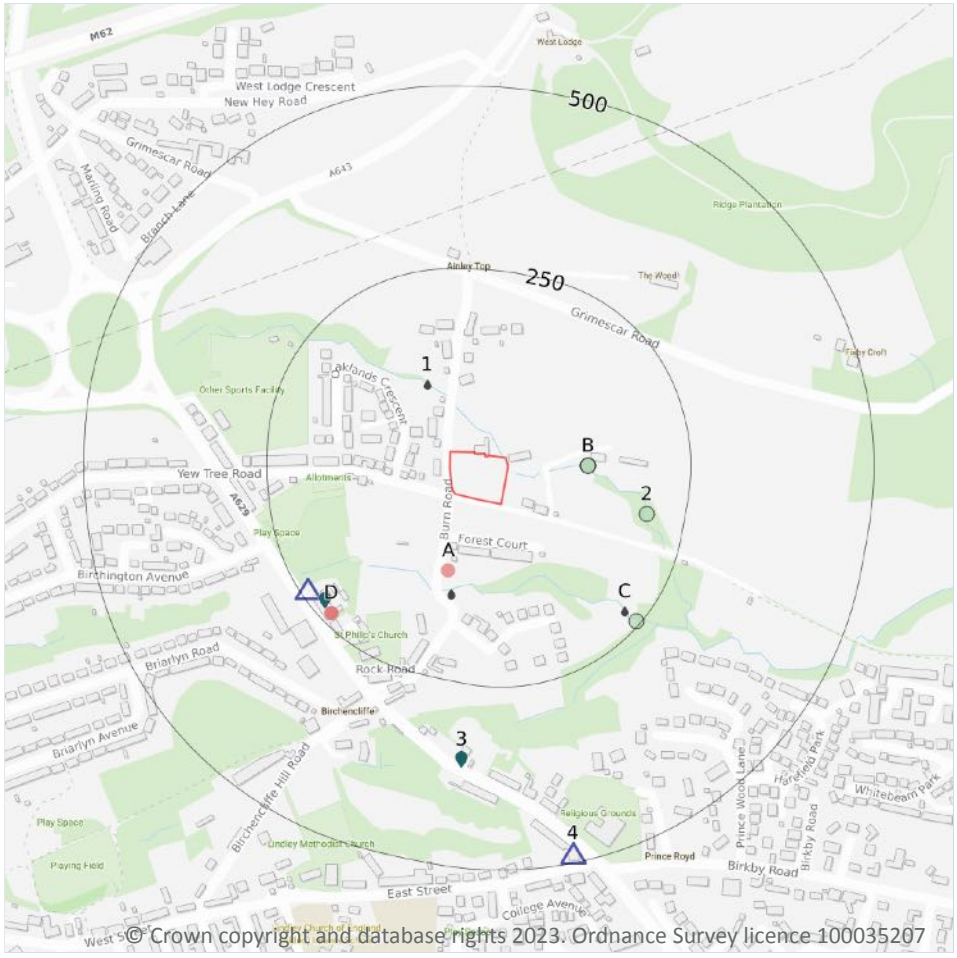
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	235m S	Residential Development off Burn Road, Burn Road, Huddersfield, HD3 3BT	WEX136074	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	235m S	Residential Development off Burn Road, Burn Road, Huddersfield, HD3 3BT	WEX136074	Using waste exemption	Not on a farm	Use of waste in construction
E	359m SW	1, BRIARLYN ROAD, HUDDERSFIELD, HD3 3NL	WEX304652	Treating waste exemption	Not on a Farm	Sorting and de-naturing of controlled drugs for disposal
E	375m SW	1A, BRIARLYN ROAD, HUDDERSFIELD, HD3 3NL	WEX316269	Treating waste exemption	Not on a Farm	Sorting and de-naturing of controlled drugs for disposal
E	375m SW	1A, BRIARLYN ROAD, HUDDERSFIELD, HD3 3NL	WEX187838	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
G	499m S	99, EAST STREET, HUDDERSFIELD, HD3 3NF	WEX309355	Treating waste exemption	Not on a Farm	Sorting and de-naturing of controlled drugs for disposal
G	499m S	99, EAST STREET, HUDDERSFIELD, HD3 3NF	WEX175019	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

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

4 Current industrial land use



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Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

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

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	**3**

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	Activity	Category
A	104m S	Electricity Sub Station	West Yorkshire, HD2	Electrical Features	Infrastructure and Facilities
D	235m SW	Co-Op Halifax Road	Birchencliffe Service Station, Halifax Road, Birchencliffe, Huddersfield, West Yorkshire, HD3 3BX	Petrol and Fuel Stations	Road and Rail

ID	Location	Company	Address	Activity	Category
D	235m SW	Co-Op Halifax Road	Birchencliffe Service Station, Halifax Road, Birchencliffe, Huddersfield, West Yorkshire, HD3 3BX	Vehicle Cleaning Services	Personal, Consumer and Other Services

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**2**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	LPG	Status
D	240m SW	CO-OP	Halifax Road, Birchencliffe, Huddersfield, West Yorkshire, HD3 3BX	Yes	Open
4	487m S	OBSOLETE	Halifax Road, Birchencliffe, Huddersfield, West Yorkshire, HD3 3NQ	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	2

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

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Address	Details	
D	230m SW	Birchencliffe Service Station, 140 Halifax Road, Birchencliffe, Huddersfield, HD3 3BX	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
3	353m S	Monza Service Station, Halifax Rd, Birchencliffe, Huddersfield, HD3 3NQ	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m **6**

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

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Address	Details	
1	97m NW	SITE 1 OAKLANDS HEATH, BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, HD3 3BT	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRHB3496RX Permit Version: 1 Receiving Water: UN-NAMED TRIB OF GRIMESCAR DIK	Status: SURRENDERED UNDER EPR 2010 Issue date: 09/03/2018 Effective Date: 09/03/2018 Revocation Date: 19/06/2020
A	134m S	BURN ROAD CSO, BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, WEST YORKSHIRE, HD3 3DT	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 1896 Permit Version: 1 Receiving Water: GRIMESCAR DIKE	Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 01/05/1965 Effective Date: 01/05/1965 Revocation Date: 09/09/2012
A	134m S	BURN ROAD CSO, BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, WEST YORKSHIRE, HD3 3DT	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 1896 Permit Version: 2 Receiving Water: GRIMESCAR DIKE	Status: VARIED UNDER EPR 2010 Issue date: 10/09/2012 Effective Date: 10/09/2012 Revocation Date: 19/11/2017
A	134m S	BURN ROAD CSO, BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, WEST YORKSHIRE, HD3 3DT	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 1896 Permit Version: 3 Receiving Water: GRIMESCAR DIKE	Status: VARIED UNDER EPR 2010 Issue date: 20/11/2017 Effective Date: 20/11/2017 Revocation Date: -
A	134m S	BURN ROAD CSO, BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, WEST YORKSHIRE, HD3 3DT	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 1896 Permit Version: 3 Receiving Water: GRIMESCAR DIKE	Status: VARIED UNDER EPR 2010 Issue date: 20/11/2017 Effective Date: 20/11/2017 Revocation Date: -
C	223m SE	SITE 2 OAKLANDS HEATH, BURN ROAD, BIRCHENCLIFFE, HUDDERSFIELD, HD3 3BT	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRHB3496NS Permit Version: 1 Receiving Water: UNNAMED TRIB OF GRIMESCAR DIKE	Status: NEW ISSUED UNDER EPR 2010 Issue date: 09/03/2018 Effective Date: 09/03/2018 Revocation Date: -

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	5

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

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Details	
B	109m E	Incident Date: 11/09/2007 Incident Identification: 530479 Pollutant: Contaminated Water Pollutant Description: Suspended Solids	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	109m E	Incident Date: 11/09/2007 Incident Identification: 530479 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	109m E	Incident Date: 11/09/2007 Incident Identification: 530479 Pollutant: Specific Waste Materials Pollutant Description: Inorganic Chemical Wastes	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	197m E	Incident Date: 01/11/2006 Incident Identification: 447600 Pollutant: Contaminated Water Pollutant Description: Backwash Effluent	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
C	244m SE	Incident Date: 18/02/2002 Incident Identification: 59053 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer

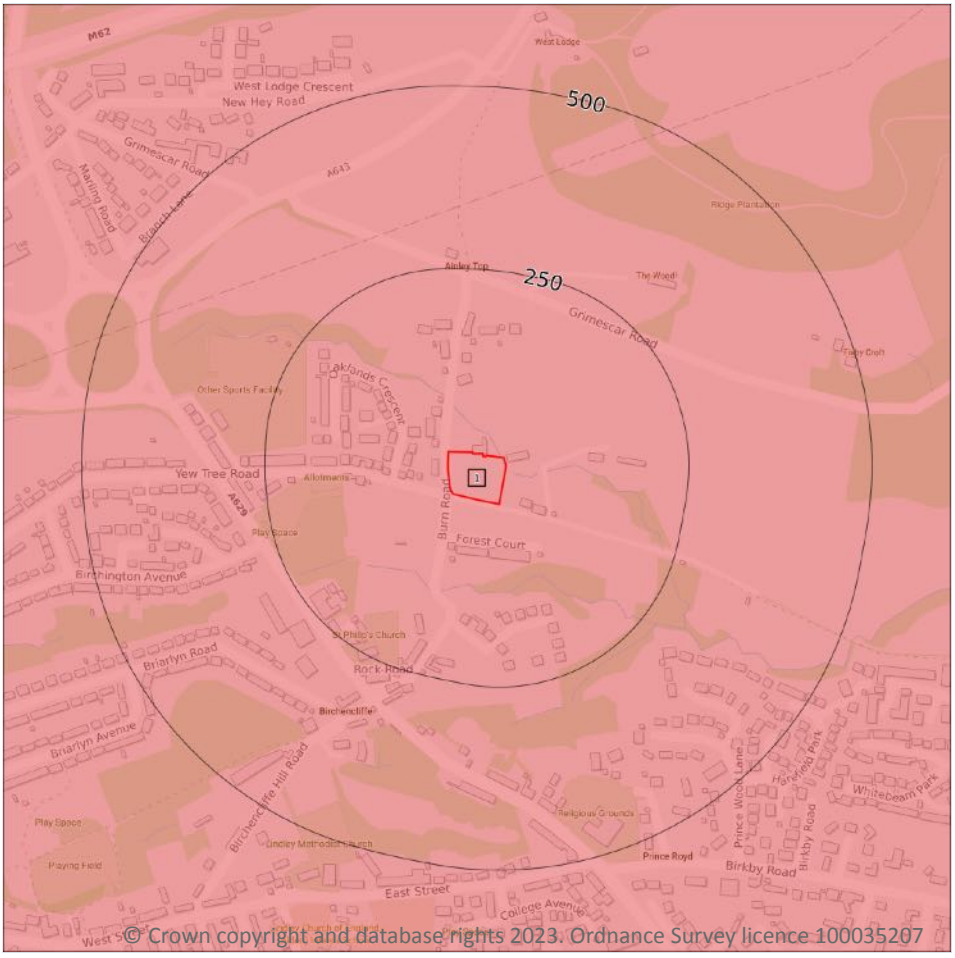
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

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5.2 Bedrock aquifer

Records within 500m	1

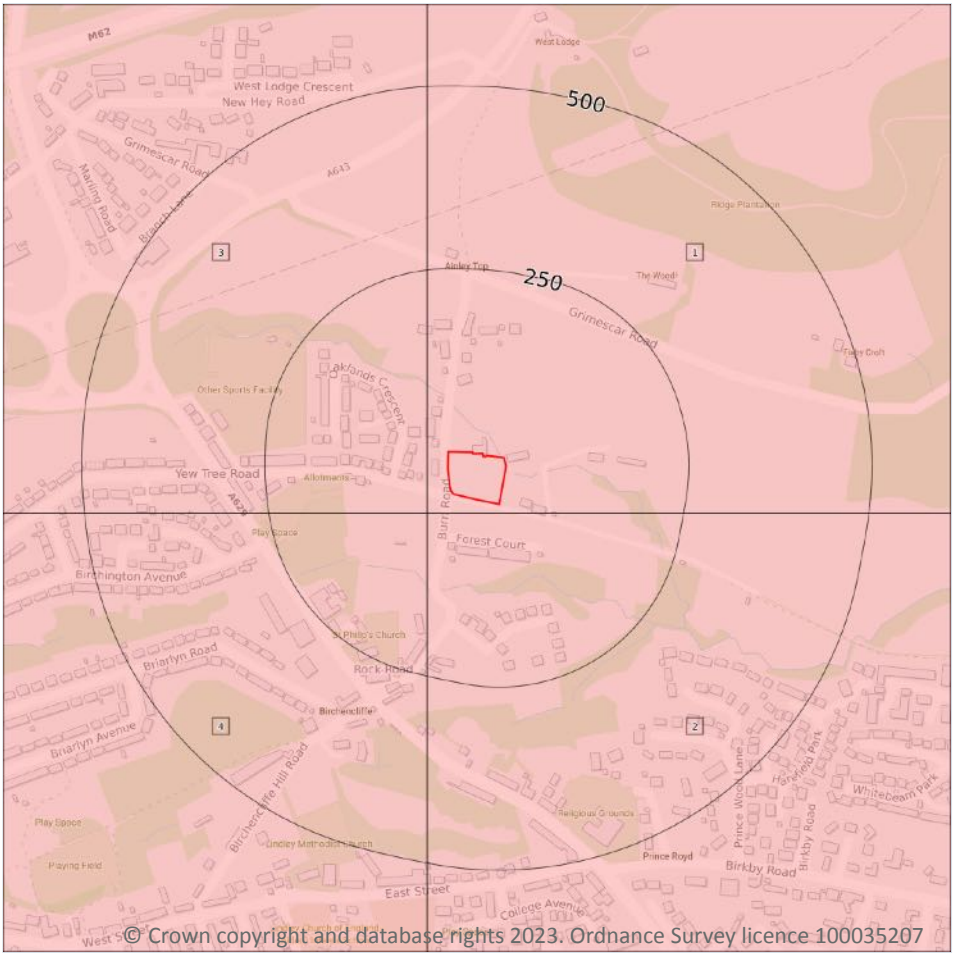
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 37**

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

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

Groundwater vulnerability



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5.3 Groundwater vulnerability

Records within 50m	4

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

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

Features are displayed on the Groundwater vulnerability map on **page 38**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: >550mm/year**	**Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	12m SE	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
3	28m W	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
4	44m SW	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

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

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

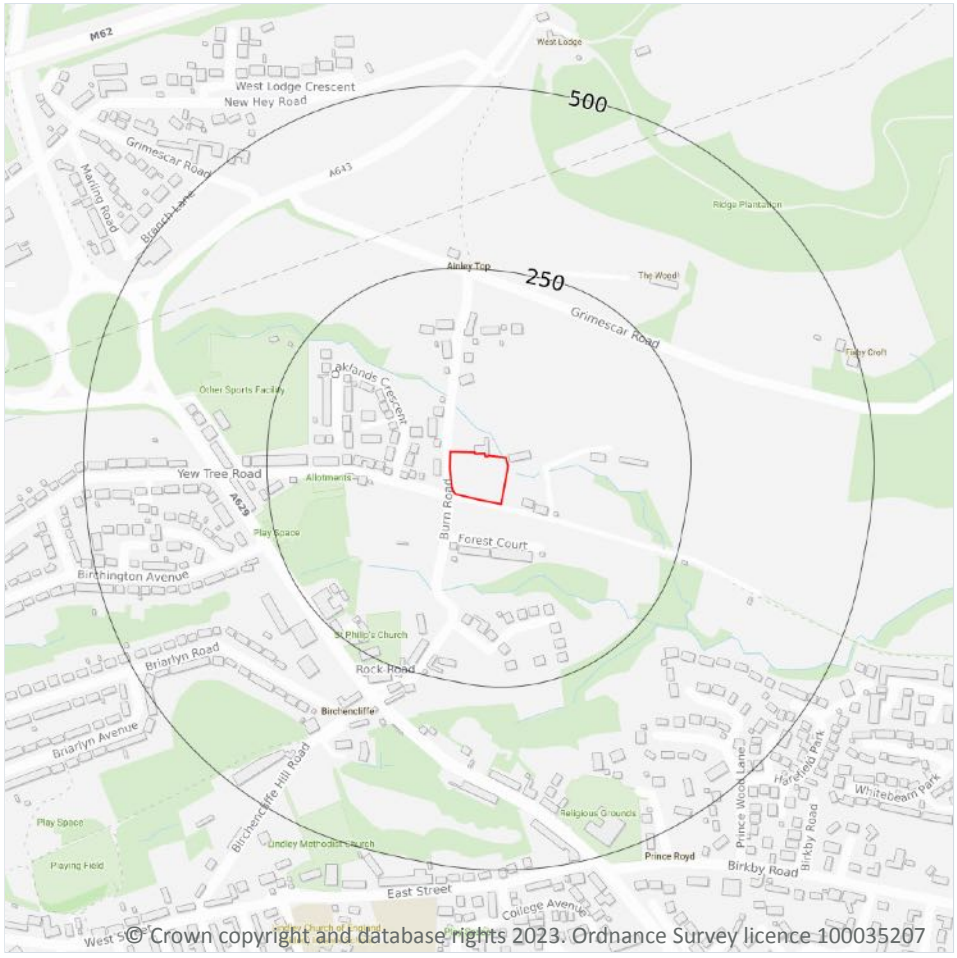
5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



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- Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	11

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 40**

ID	Location	Details	
-	1220m E	Status: Historical Licence No: 2/27/11/159 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE-COAL MEASURES-HUDDERSFIELD GOLF CLUB Data Type: Point Name: HUDDERSFIELD GOLF CLUB LTD Easting: 413260 Northing: 419470	Annual Volume (m^3): 9500 Max Daily Volume (m^3): 60 Original Application No: - Original Start Date: 27/10/1972 Expiry Date: 30/11/2010 Issue No: 102 Version Start Date: 17/01/2005 Version End Date: -
-	1294m SW	Status: Historical Licence No: 2/27/11/058 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: SPRINGCATCHMENT AREA Data Type: Point Name: JOSEPH SYKES BROTHERS Easting: 411400 Northing: 417900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 20/01/1966 Version End Date: -
-	1294m SW	Status: Historical Licence No: 2/27/11/058 Details: Boiler Feed Direct Source: GROUNDWATERS Point: SPRINGCATCHMENT AREA Data Type: Point Name: JOSEPH SYKES BROTHERS Easting: 411400 Northing: 417900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 20/01/1966 Version End Date: -
-	1294m SW	Status: Historical Licence No: 2/27/11/058 Details: Boiler Feed Direct Source: GROUNDWATERS Point: SPRING - LINDLEY Data Type: Point Name: CALDERDALE & HUDDERSFIELD NHS TRUST Easting: 411400 Northing: 417900	Annual Volume (m^3): 24094 Max Daily Volume (m^3): 65.5 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2008 Version End Date: -
-	1294m SW	Status: Historical Licence No: 2/27/11/058 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: SPRING - LINDLEY Data Type: Point Name: CALDERDALE & HUDDERSFIELD NHS TRUST Easting: 411400 Northing: 417900	Annual Volume (m^3): 24094 Max Daily Volume (m^3): 65.5 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2008 Version End Date: -

ID	Location	Details	
-	1308m NE	Status: Historical Licence No: 2/27/11/159 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: HUDDERSFIELD GOLF CLUB LIMITED Easting: 413130 Northing: 419890	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/1972 Expiry Date: - Issue No: 100 Version Start Date: 27/05/1998 Version End Date: -
-	1491m S	Status: Historical Licence No: 2/27/10/120 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: JOHN GLADSTONE & COMPANY LIMITED Easting: 411600 Northing: 417600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/01/1997 Expiry Date: 31/12/2001 Issue No: 100 Version Start Date: 21/01/1997 Version End Date: -
-	1600m S	Status: Historical Licence No: 2/27/11/186 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE-MILLSTONE GRIT-OAKES-HUDDERSFIELD Data Type: Point Name: T E NEWSHOLME LIMITED Easting: 411940 Northing: 417420	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/06/2000 Expiry Date: 31/12/2009 Issue No: 1 Version Start Date: 10/06/2000 Version End Date: -
-	1600m S	Status: Historical Licence No: 2/27/11/186 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - MILLSTONE GRIT- OAKES Data Type: Point Name: T E NEWSHOLME LTD Easting: 411940 Northing: 417420	Annual Volume (m^3): 35000 Max Daily Volume (m^3): 96 Original Application No: - Original Start Date: 10/06/2000 Expiry Date: 31/12/2009 Issue No: 1 Version Start Date: 10/06/2000 Version End Date: -

ID	Location	Details	
-	1788m W	Status: Historical Licence No: 2/27/12/191 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING Data Type: Point Name: BAIRSTOW Easting: 410250 Northing: 418870	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/04/1966 Version End Date: -
-	1788m W	Status: Historical Licence No: 2/27/12/191 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING - HOLYWELL GREEN Data Type: Point Name: BAIRSTOW Easting: 410250 Northing: 418870	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/04/1966 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**0**

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

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

5.8 Potable abstractions

Records within 2000m	**0**

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

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

5.9 Source Protection Zones

Records within 500m	0

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

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

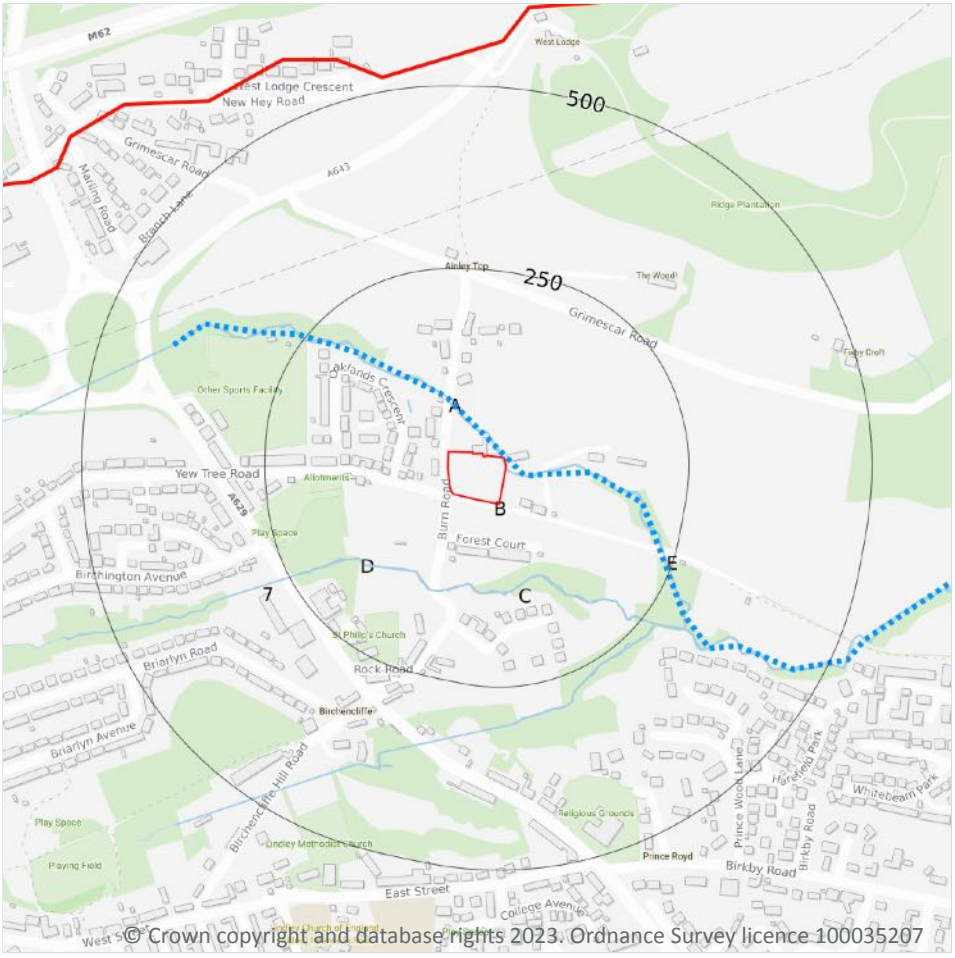
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**11**

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

Features are displayed on the Hydrology map on **page 45**

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

ID	Location	Type of water feature	Ground level	Permanence	Name
A	73m NW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	109m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	152m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	171m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	232m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	238m SW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
E	239m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	240m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	240m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	243m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**8**

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

Features are displayed on the Hydrology map on **page 45**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

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

Features are displayed on the Hydrology map on **page 45**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
B	**On site**	**River**	**Colne from River Holme to River Calder**	**GB104027062550**	**Colne and Holme**	**Aire and Calder**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 45**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	3m NE	River	Colne from River Holme to River Calder	GB104027062550	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site	1

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

Features are displayed on the Hydrology map on **page 45**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
B	**On site**	**Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.**	**GB40402G700400**	**Poor**	**Poor**	**Good**	**2019**

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding

Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 100 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 52**

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

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding

Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

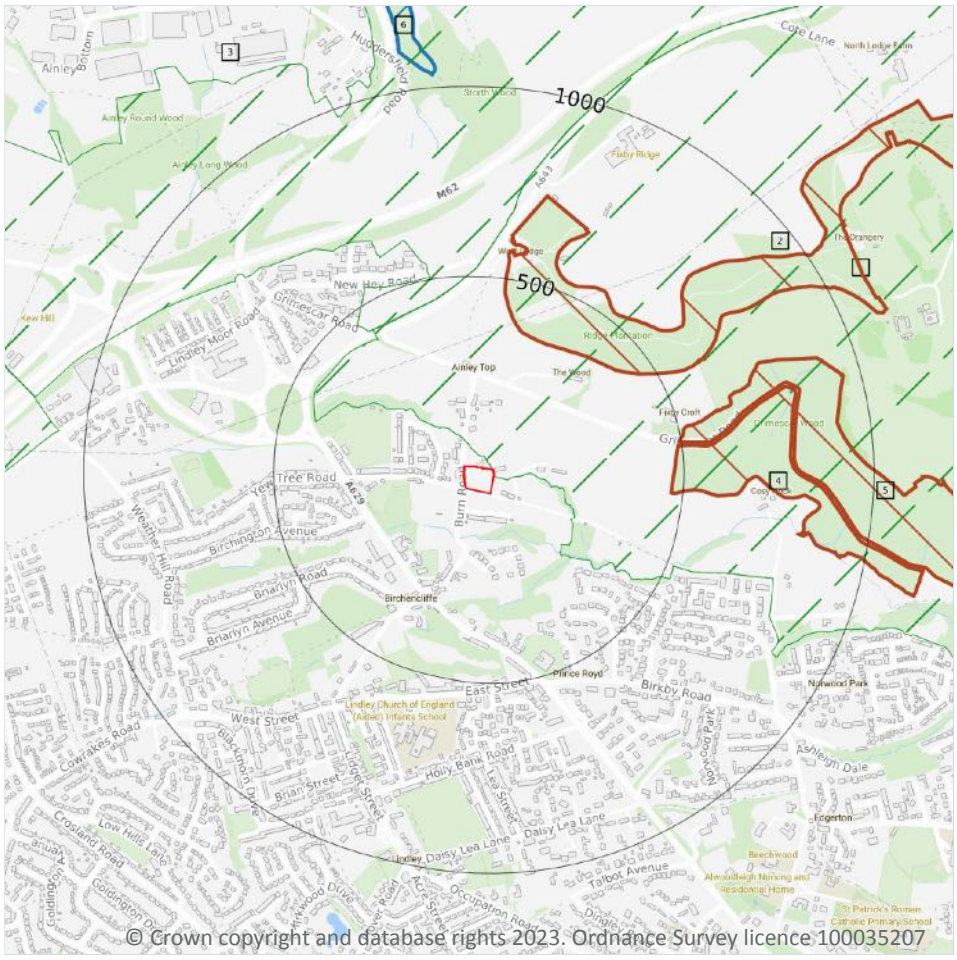
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

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

Features are displayed on the Groundwater flooding map on **page 54**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	1

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

Features are displayed on the Environmental designations map on **page 55**

ID	Location	Name	Data source
6	1035m N	Elland Bypass Cutting	Natural England

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	3

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

Features are displayed on the Environmental designations map on **page 55**

ID	Location	Name	Woodland Type
2	358m NE	Gernhill Wood	Ancient Replanted Woodland
4	469m E	Grimescar Wood	Ancient Replanted Woodland
5	495m E	Grimescar Wood	Ancient Replanted Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	3

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

Features are displayed on the Environmental designations map on **page 55**

ID	Location	Name	Local Authority name
1	**On site**	**South and West Yorkshire**	**Kirklees**
3	429m NW	South and West Yorkshire	Calderdale
7	1070m W	South and West Yorkshire	Kirklees

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

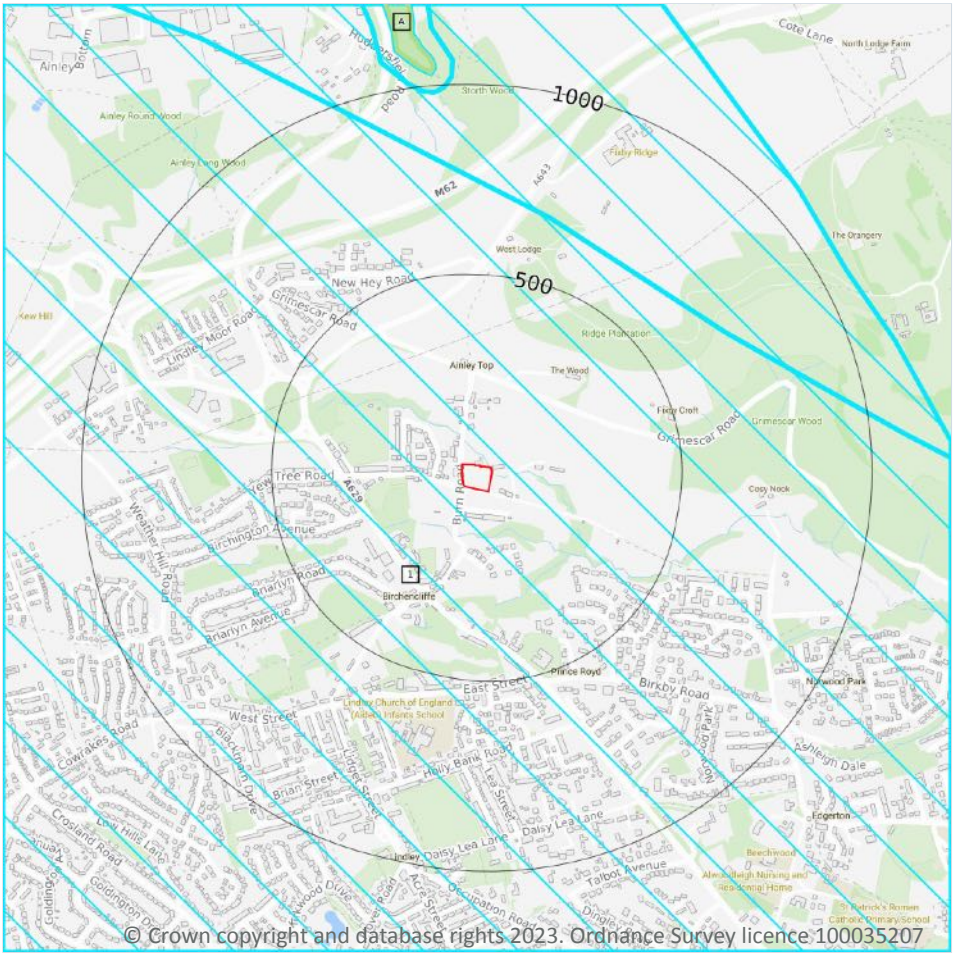
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units



10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 60**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Oil & gas exploration/extraction. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m². Combustion - General combustion processes >50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**1**

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

Features are displayed on the SSSI Impact Zones and Units map on **page 60**

ID: A
Location: 1035m N
SSSI name: Elland Bypass Cutting
Unit name: Elland Bypass Cutting
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
ED - Westphalian	Favourable	11/02/2009

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

11 Visual and cultural designations

Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	5

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

Features are displayed on the Visual and cultural designations map on **page 62**

ID	Location	Name	Grade	Reference Number	Listed date
1	26m NE	Middle Burn Farmhouse, Lindley, Kirklees, HD2	II	1231772	29/09/1978
2	102m N	The Store, Lindley, Kirklees, HD2	II	1134339	29/09/1978
3	121m E	Lower Burn Farmhouse, Lindley, Kirklees, HD2	II	1277420	29/09/1978
4	167m N	Barn To Rear of Briar Mount, Lindley, Kirklees, HD2	II	1134338	29/09/1978
5	245m SW	Church of St Philip The Apostle, Lindley, Kirklees, HD3	II	1231874	29/09/1978

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

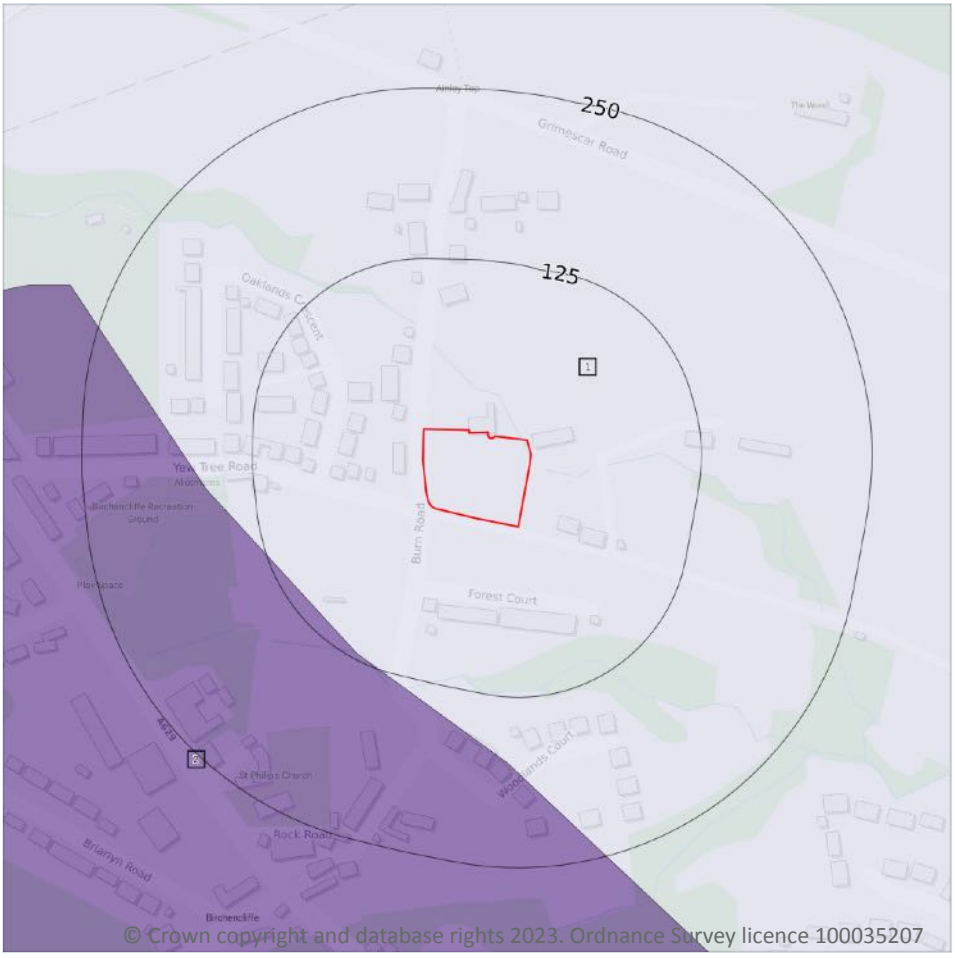
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

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

12.1 Agricultural Land Classification

Records within 250m	2

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

Features are displayed on the Agricultural designations map on **page 65**

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

ID	Location	Classification	Description
2	113m SW	Urban	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

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Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

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

13.1 Priority Habitat Inventory

Records within 250m	7

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

Features are displayed on the Habitat designations map on **page 67**

ID	Location	Main Habitat	Other habitats
1	146m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	155m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	205m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	222m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
4	239m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	240m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	247m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	**0**

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	**0**

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

This data is sourced from Natural England.

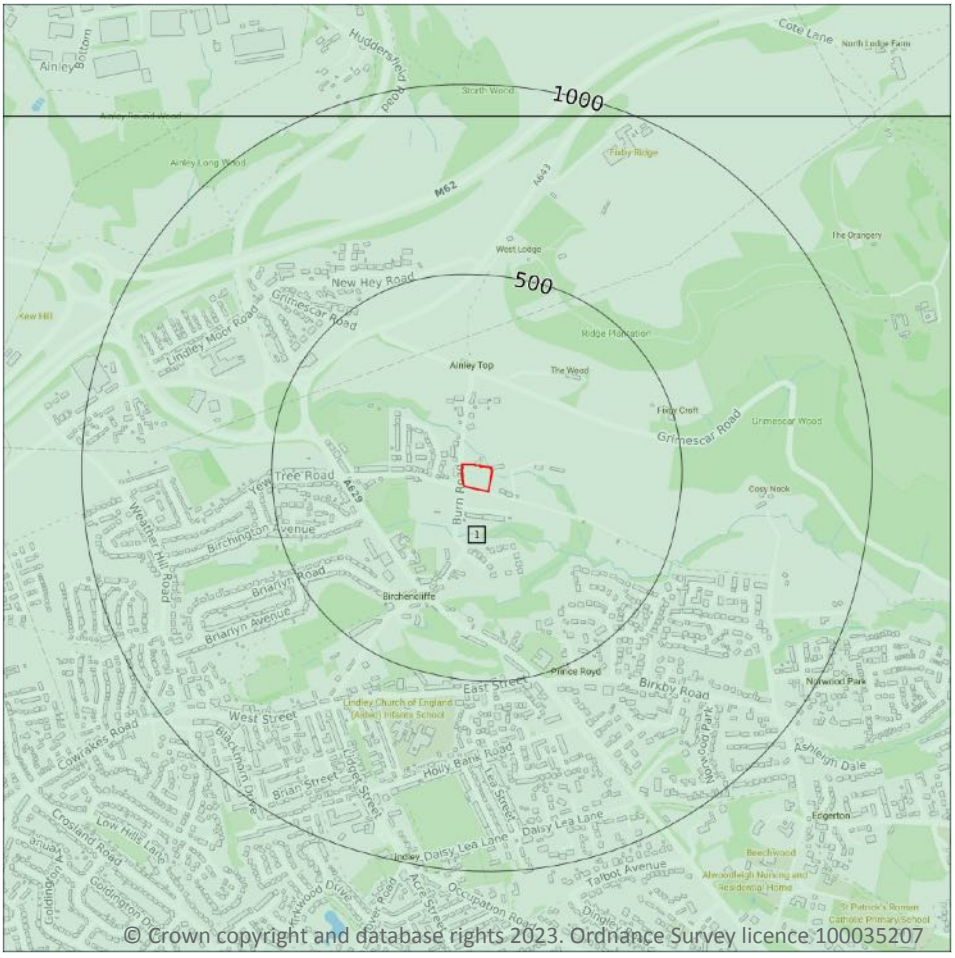
13.4 Limestone Pavement Orders

Records within 250m	**0**

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	1

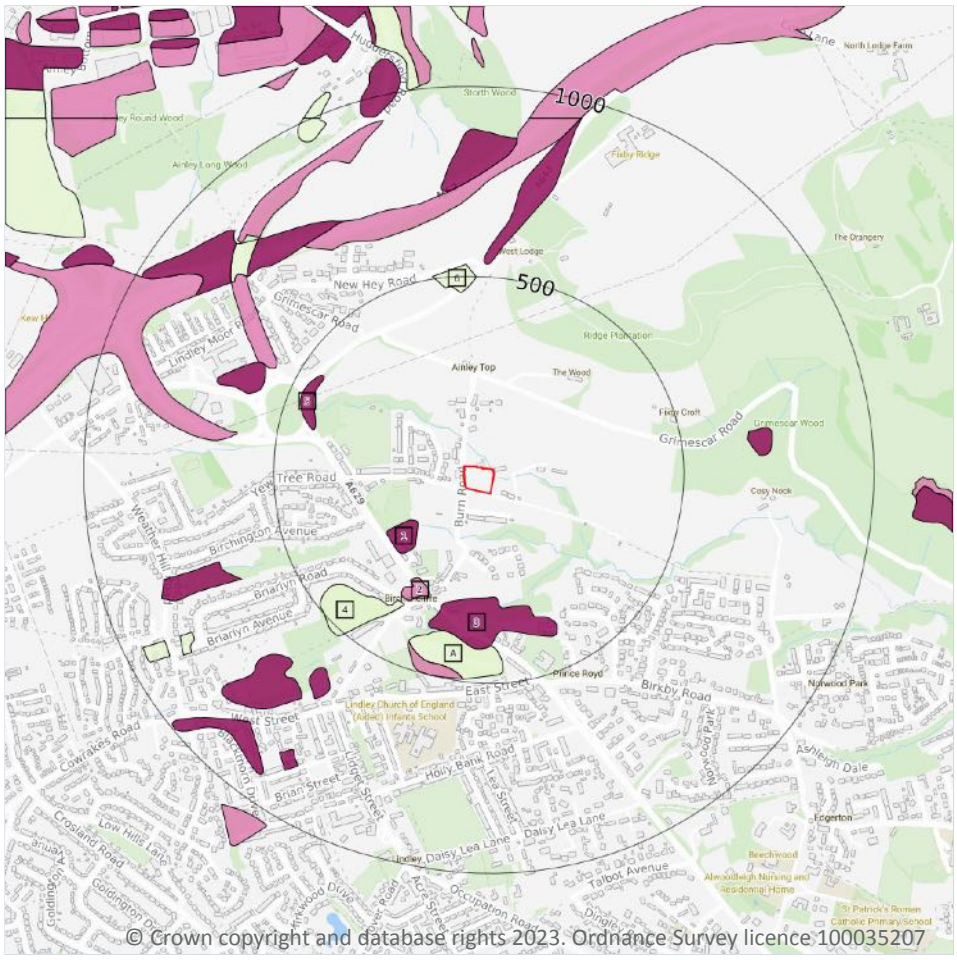
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 69**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE11NW**

This data is sourced from the British Geological Survey.

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



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Site Outline

Search buffers in metres (m)

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

14.2 Artificial and made ground (10k)

Records within 500m **8**

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 70**

ID	Location	LEX Code	Description	Rock description
1	156m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	268m SW	WGR-VOID	Worked Ground (Undivided)	Void
3	273m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	346m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
A	378m S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
5	405m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	431m SW	WGR-VOID	Worked Ground (Undivided)	Void
6	459m N	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

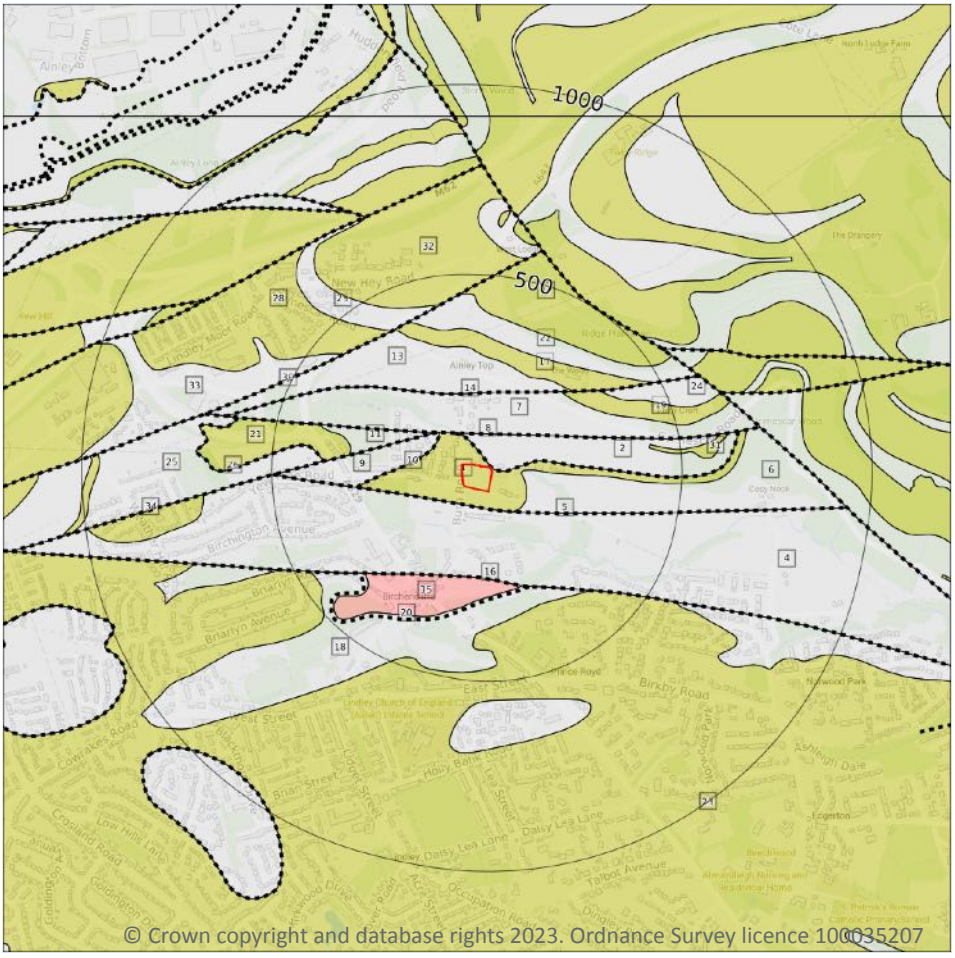
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m **23**

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 73**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**STNR-SDST**	**Stanningley Rock - Sandstone**	**Langsettian Sub-age**
2	1m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
4	46m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
6	78m E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
7	82m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
9	87m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
11	107m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
13	186m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
15	227m S	RR-SDST	Rough Rock - Sandstone	Yeadonian Sub-age
17	259m NE	EYR-SDST	80 Yard Rock - Sandstone	Langsettian Sub-age
18	264m SE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
19	271m NE	EYR-SDST	80 Yard Rock - Sandstone	Langsettian Sub-age
21	296m W	STNR-SDST	Stanningley Rock - Sandstone	Langsettian Sub-age
22	315m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
23	326m SE	SBF-SDST	Soft Bed Flags - Sandstone	Langsettian Sub-age
24	349m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
25	365m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
27	376m NE	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
28	397m NW	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
29	397m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
31	418m E	FEYR-SDST	48 Yard Rock - Sandstone	Langsettian Sub-age
32	424m N	EF-SDST	Elland Flags - Sandstone	Langsettian Sub-age
33	426m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**11**

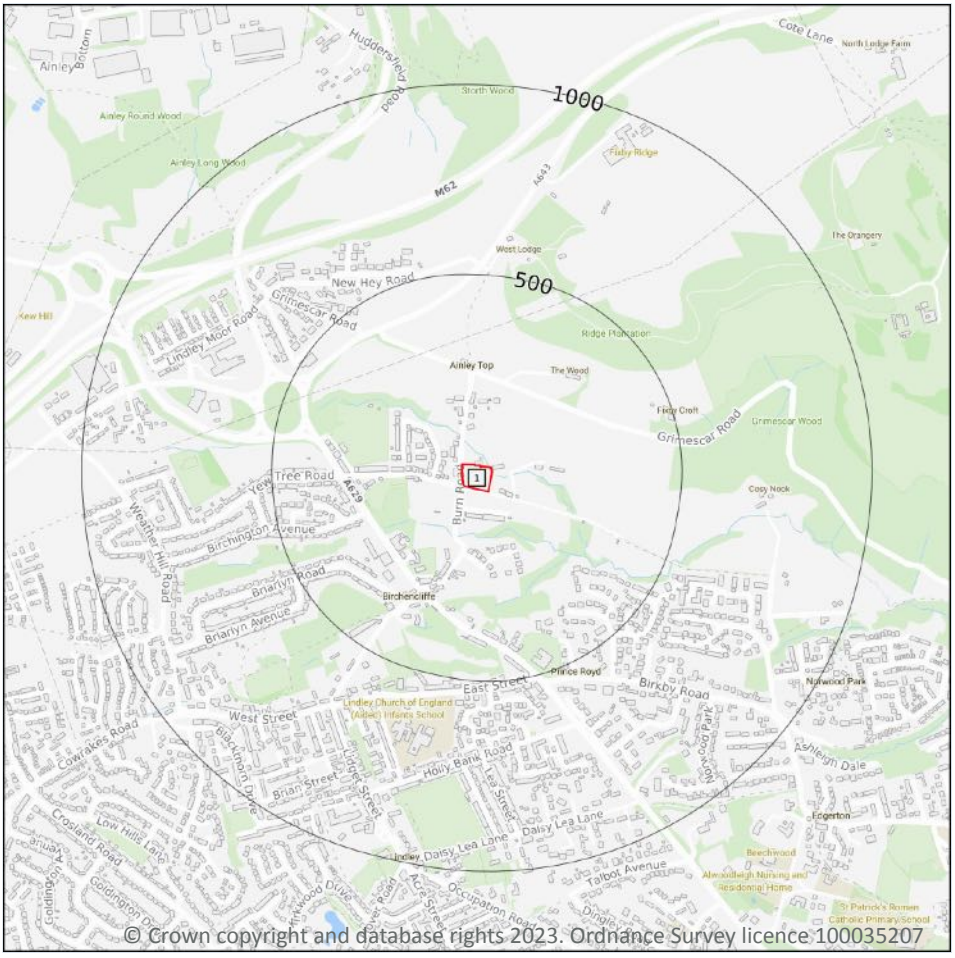
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 73**

ID	Location	Category	Description
3	1m NE	ROCK	Coal seam, inferred
5	46m S	FAULT	Normal fault, inferred; crossmarks on downthrow side
8	82m N	FAULT	Normal fault, inferred; crossmarks on downthrow side
10	87m NW	ROCK	Coal seam, inferred
12	107m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side
14	186m N	FAULT	Normal fault, inferred; crossmarks on downthrow side
16	227m S	FAULT	Normal fault, inferred; crossmarks on downthrow side
20	272m SE	FOSSIL_HORIZON	Fossil horizon, marine band
26	365m W	ROCK	Coal seam, inferred
30	397m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side
34	497m W	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

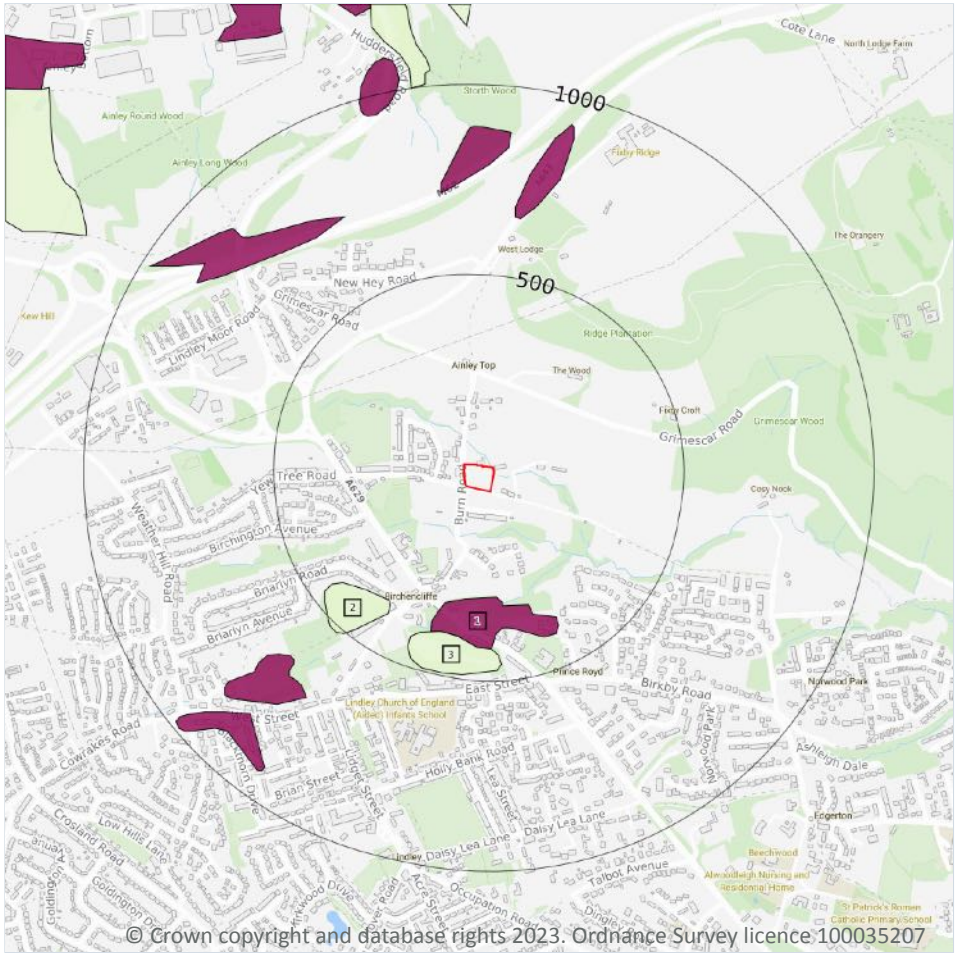
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 76**

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

This data is sourced from the British Geological Survey.

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



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Site Outline

Search buffers in metres (m)

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

15.2 Artificial and made ground (50k)

Records within 500m	3

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 77**

ID	Location	LEX Code	Description	Rock description
1	278m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	363m SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	387m S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

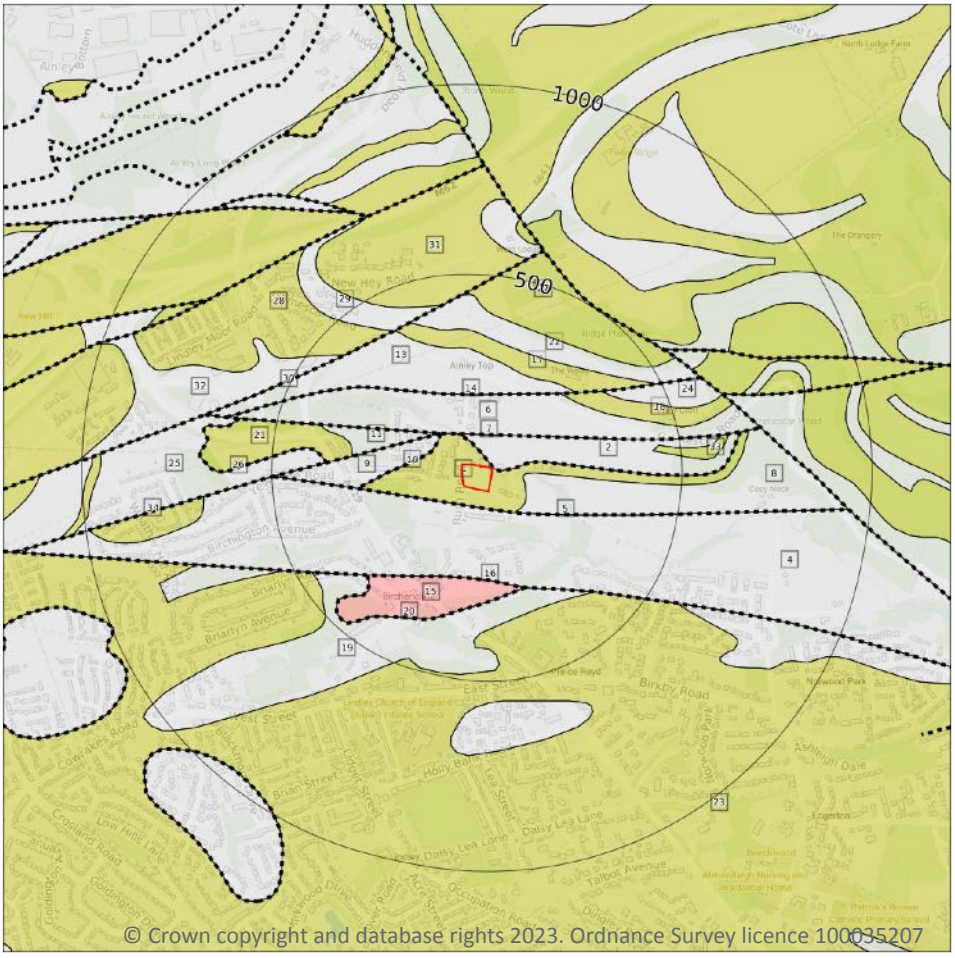
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **23**

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 80**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**STNR-SDST**	**STANNINGLEY ROCK - SANDSTONE**	**WESTPHALIAN**
2	4m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
4	46m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
6	80m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	82m E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	86m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	100m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
13	184m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
15	232m S	RR-SDST	ROUGH ROCK - SANDSTONE	NAMURIAN
17	258m NE	EYR-SDST	80 YARD ROCK - SANDSTONE	WESTPHALIAN
18	267m NE	EYR-SDST	80 YARD ROCK - SANDSTONE	WESTPHALIAN
19	271m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	290m W	STNR-SDST	STANNINGLEY ROCK - SANDSTONE	WESTPHALIAN
22	315m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
23	335m SE	SBF-SDST	SOFT BED FLAGS - SANDSTONE	WESTPHALIAN
24	352m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
25	357m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
27	376m NE	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
28	395m NW	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
29	395m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
31	422m N	EF-SDST	ELLAND FLAGS - SANDSTONE	WESTPHALIAN
32	422m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
33	427m E	FEYR-SDST	48 YARD ROCK - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**High**	**Moderate**
4m NE	Fracture	Moderate	Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	11

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 80**

ID	Location	Category	Description
3	4m NE	ROCK	Coal seam, inferred
5	46m S	FAULT	Fault, inferred
7	80m N	FAULT	Fault, inferred
10	86m NW	ROCK	Coal seam, inferred
12	100m NW	FAULT	Fault, inferred
14	184m N	FAULT	Fault, inferred
16	232m S	FAULT	Fault, inferred
20	271m SE	FOSSIL_HORIZON	Marine band
26	357m W	ROCK	Coal seam, inferred
30	395m NW	FAULT	Fault, inferred
34	497m W	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes

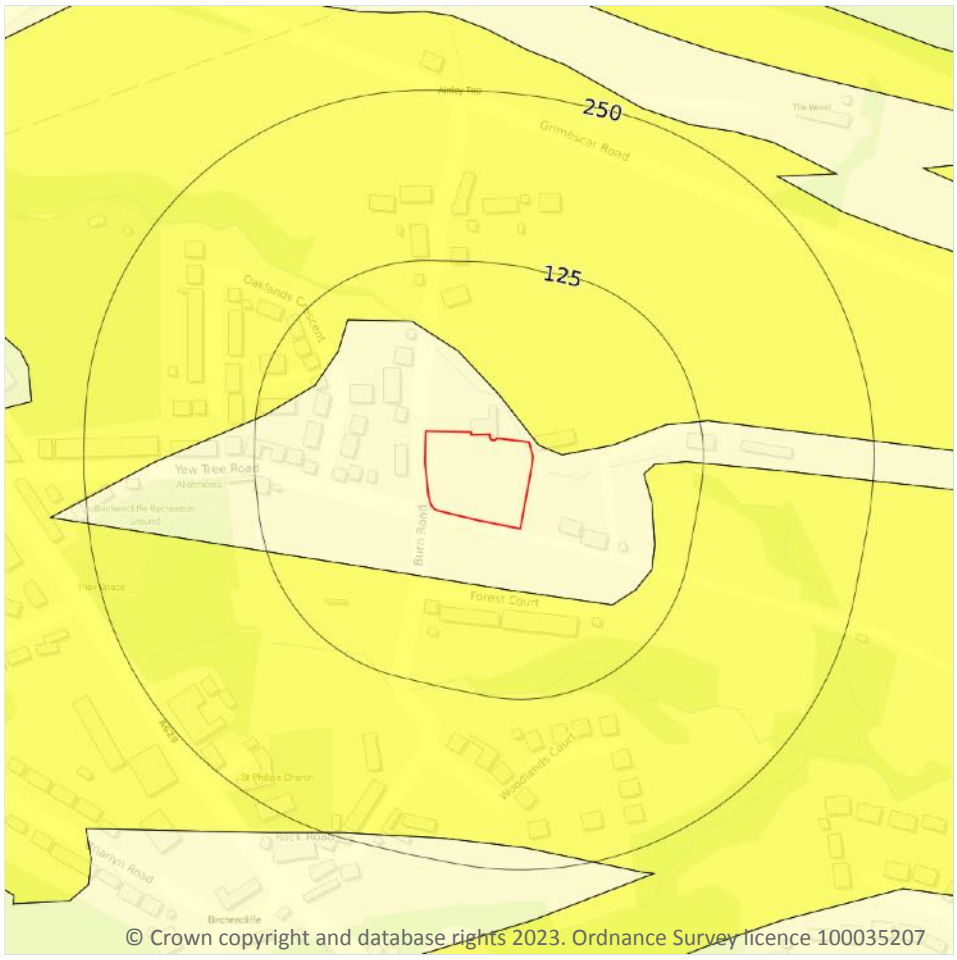
16.1 BGS Boreholes

Records within 250m	0

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

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	2

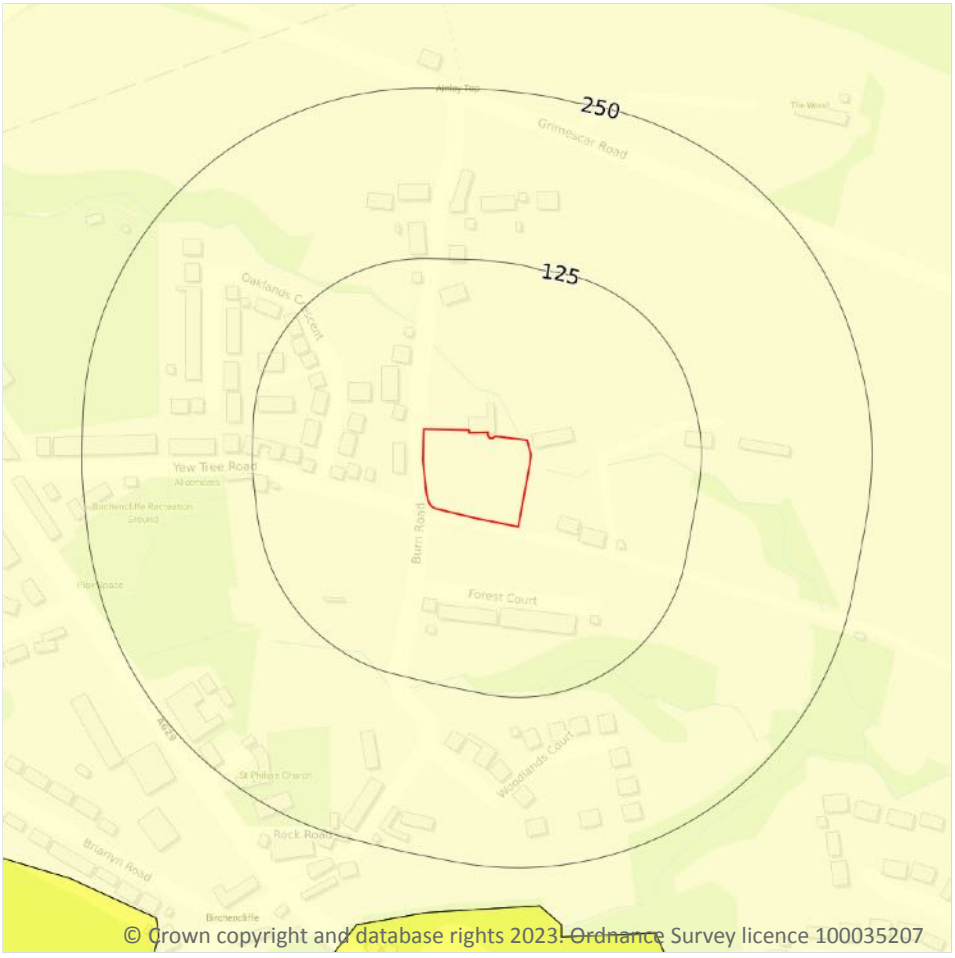
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 84**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
4m NE	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

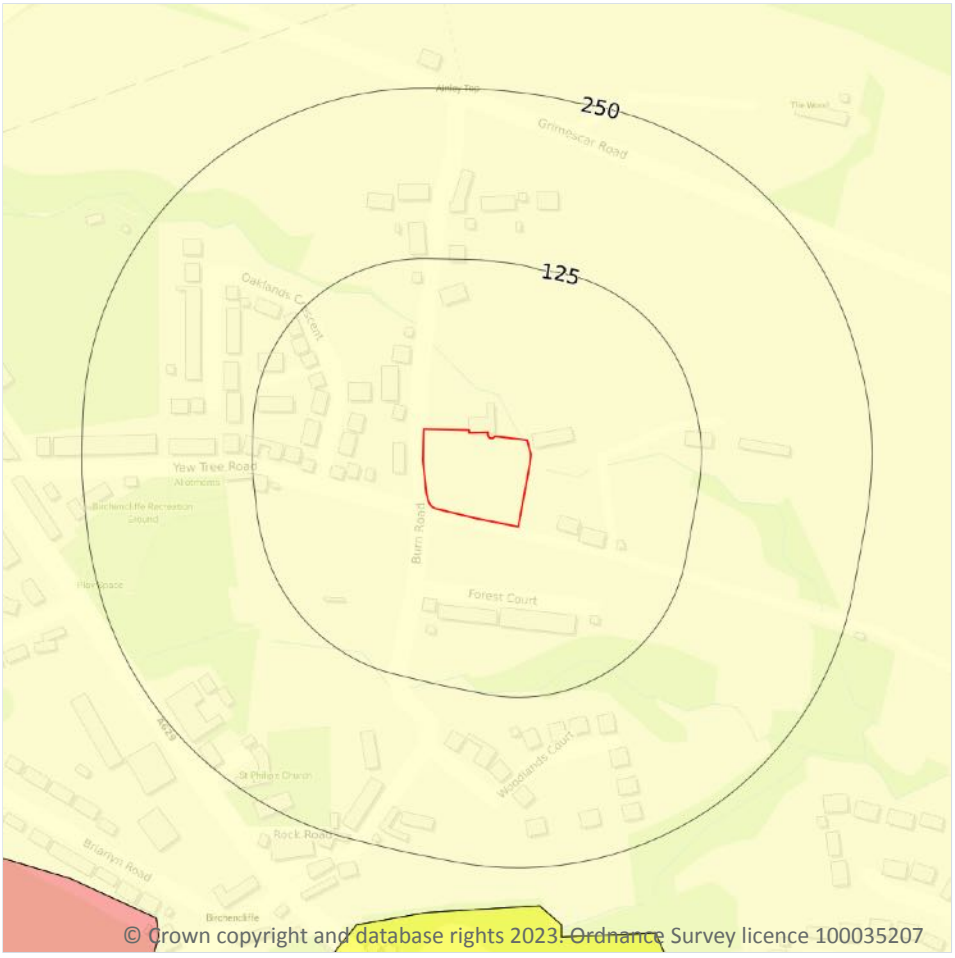
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 85**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

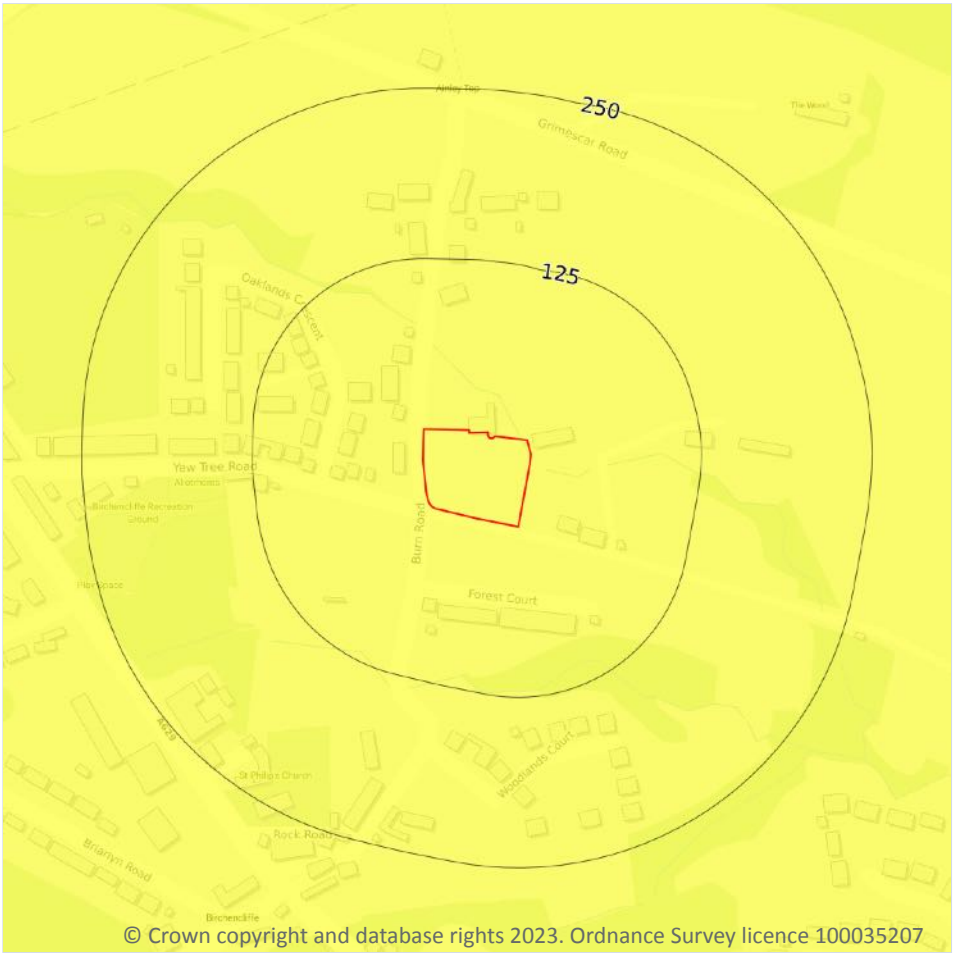
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 86**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

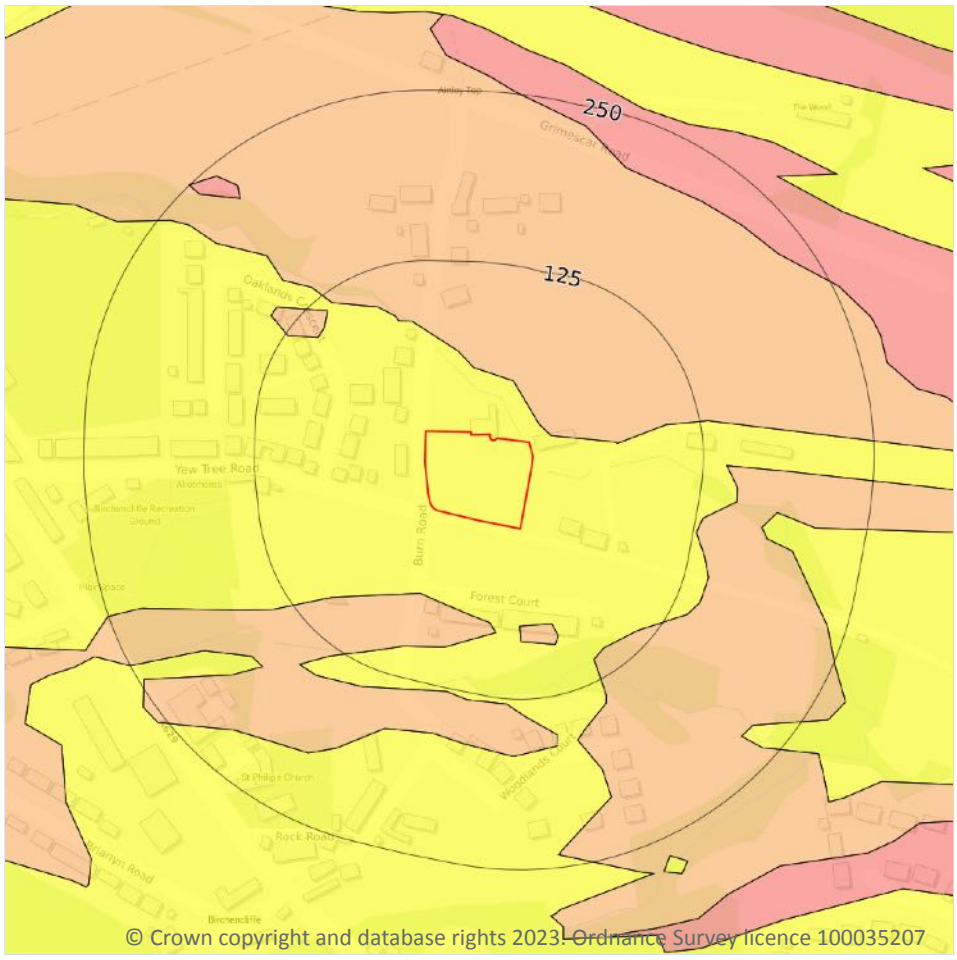
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

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

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	2

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

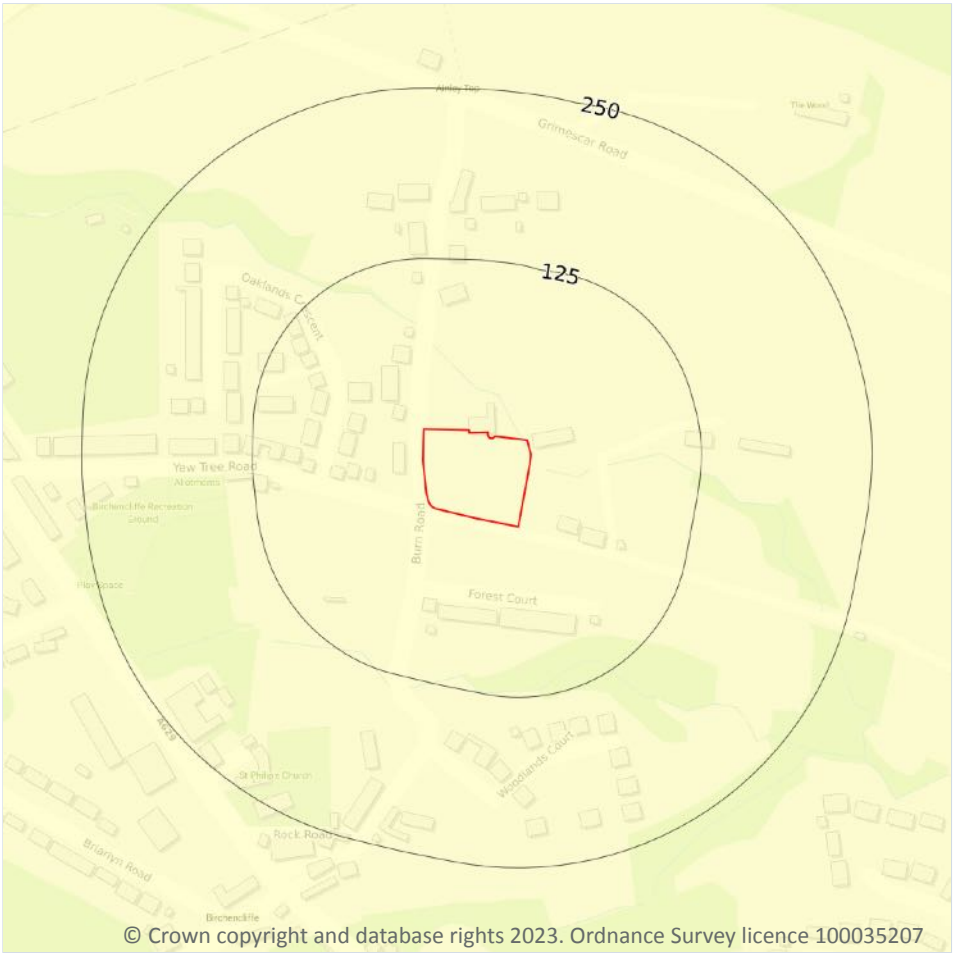
Features are displayed on the Natural ground subsidence - Landslides map on **page 88**

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

Location	Hazard rating	Details
15m NE	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



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Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

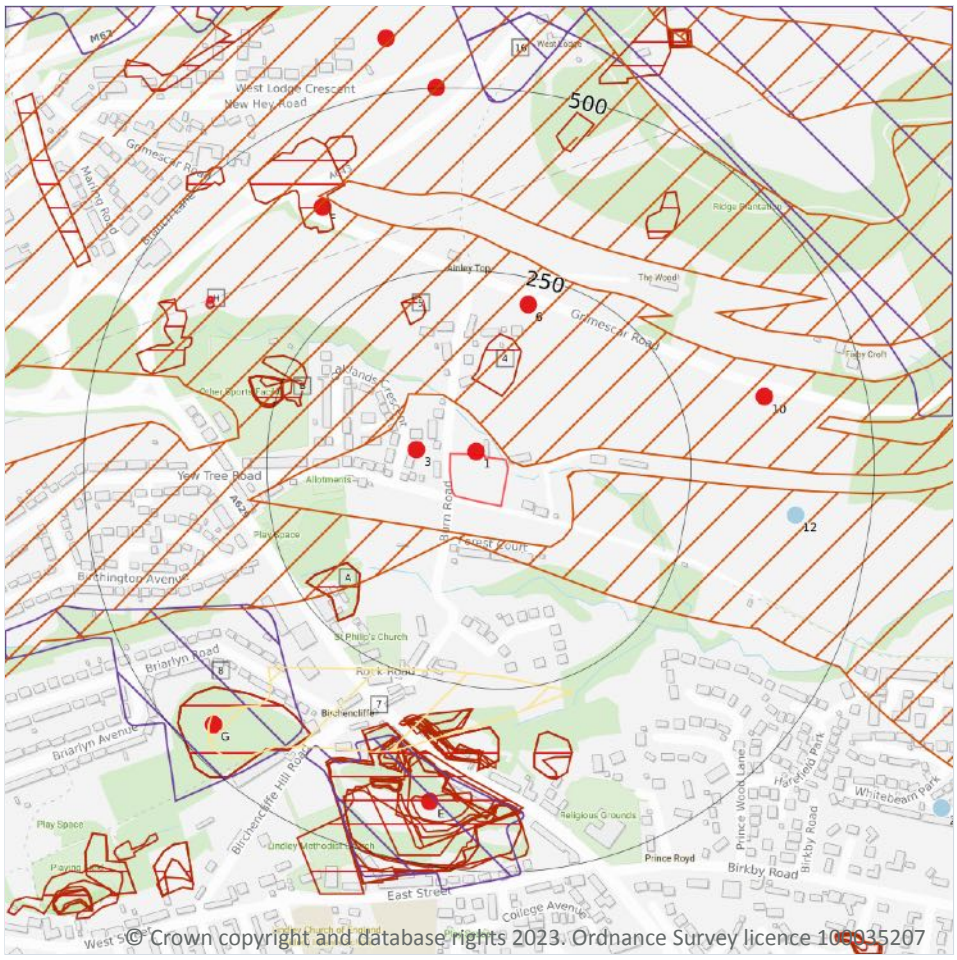
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

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

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

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



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18.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	7

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

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

ID	Location	Details	Description
1	3m N	Name: Burn Colliery Address: Birchencliffe, HUDDERSFIELD, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
3	46m NW	Name: Burn Address: Birchencliffe, HUDDERSFIELD, West Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
6	213m N	Name: Grimescar Road Coal Pit Address: Prince Royd, HUDDERSFIELD, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
10	363m E	Name: Grimescar Coal Pit Address: Reap Hirst, Prince Royd, HUDDERSFIELD, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

ID	Location	Details	Description
F	380m NW	Name: Knowls Coal Pit Address: Prince Royd, HUDDERSFIELD, West Yorkshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
E	415m S	Name: Birchencliffe Brick & Tile Works Address: Birchencliffe, HUDDERSFIELD, West Yorkshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
G	454m SW	Name: Birchencliffe Brick Works Address: Birchencliffe, HUDDERSFIELD, West Yorkshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	**12**

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

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

ID	Location	Land Use	Year of mapping	Mapping scale
4	85m N	Cuttings	1891	1:10560
A	168m SW	Unspecified Heap	1985	1:10000
A	168m SW	Unspecified Heap	1966	1:10560
A	168m SW	Unspecified Heap	1975	1:10000
5	185m NW	Unspecified Pit	1891	1:10560
B	214m W	Unspecified Quarry	1892	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
B	221m NW	Unspecified Heap	1966	1:10560
B	239m NW	Unspecified Pit	1905	1:10560
B	241m W	Unspecified Pit	1956	1:10560
B	242m W	Unspecified Pit	1948	1:10560
B	242m W	Unspecified Pit	1948	1:10560
B	243m W	Unspecified Pit	1930	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	**25**

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

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

ID	Location	Land Use	Year of mapping	Mapping scale
H	381m NW	Unspecified Disused Shaft	1966	1:10560
H	385m NW	Unspecified Old Shaft	1930	1:10560
H	387m NW	Unspecified Old Shaft	1951	1:10560
E	416m S	Unspecified Shaft	1905	1:10560
-	706m E	Unspecified Old Shaft	1951	1:10560
-	706m E	Unspecified Old Shaft	1930	1:10560
-	710m E	Unspecified Disused Shaft	1975	1:10000
-	710m E	Unspecified Disused Shaft	1985	1:10000
-	710m E	Unspecified Disused Shaft	1966	1:10560
-	715m E	Unspecified Shaft	1905	1:10560
-	791m E	Unspecified Old Shaft	1951	1:10560
-	792m E	Unspecified Old Shaft	1930	1:10560
-	798m E	Unspecified Disused Shaft	1975	1:10000
-	798m E	Unspecified Disused Shaft	1966	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
-	861m N	Unspecified Shaft	1905	1:10560
-	907m NW	Air Shaft	1930	1:10560
-	908m NW	Air Shaft	1975	1:10000
-	908m NW	Air Shaft	1951	1:10560
-	908m NW	Air Shaft	1966	1:10560
-	915m NW	Unspecified Old Level	1930	1:10560
-	916m NW	Unspecified Old Level	1951	1:10560
-	940m NW	Unspecified Level	1951	1:10560
-	999m N	Air Shaft	1976	1:10000
-	999m N	Air Shaft	1969	1:10560
-	1000m NW	Unspecified Level	1930	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**3**

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

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

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
8	299m SW	Birchencliffe	Brickearth	Surface mineral working	Valid	11/11/48
E	338m S	Birchencliffe	Brickearth	Surface mineral working	Valid	11/11/48
16	482m N	Storth Fireclay Mine	Fireclay	Working is wholly underground	Valid	25/7/47

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	5

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

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

ID	Location	Name	Commodity	Class	Likelihood
2	4m NE	Elland Flag Mines	Sandstone - Elland Flags	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
7	232m S	Not available	Vein Mineral	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
26	794m NE	Elland Flag Mines	Sandstone - Elland Flags	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	916m N	Elland Flag Mines	Sandstone - Elland Flags	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	996m SW	Elland Flag Mines	Sandstone - Elland Flags	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	6

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

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

ID	Location	Mine Address	Mineral	Data source	Publisher
12	397m E	Fixby Estate, Huddersfield, West Yorkshire	Flagstone	LOCAL MINE PLAN RECORDS CATALOGUE.	UNPUBLISHED
25	730m SE	Birkby, Huddersfield, West Yorkshire	Flagstone	LOCAL MINE PLAN RECORDS CATALOGUE.	UNPUBLISHED
-	826m N	Tong Royd, West Yorkshire	Clay	LISTING OF NEW MINERAL RECORDS OFFICE CATALOGUE.	UNPUBLISHED/ DRAFT
-	847m N	Stoah No.2, West Yorkshire	Clay	LISTING OF NEW MINERAL RECORDS OFFICE CATALOGUE.	UNPUBLISHED/ DRAFT
-	925m N	Underground Mine, Storth Brickworks, West Yorkshire	Fireclay	LOCAL MINE PLAN RECORDS CATALOGUE.	UNPUBLISHED
-	972m NW	Robinsons, West Yorkshire	Clay	LISTING OF NEW MINERAL RECORDS OFFICE CATALOGUE.	UNPUBLISHED/ DRAFT

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	**0**

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	**1**

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

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

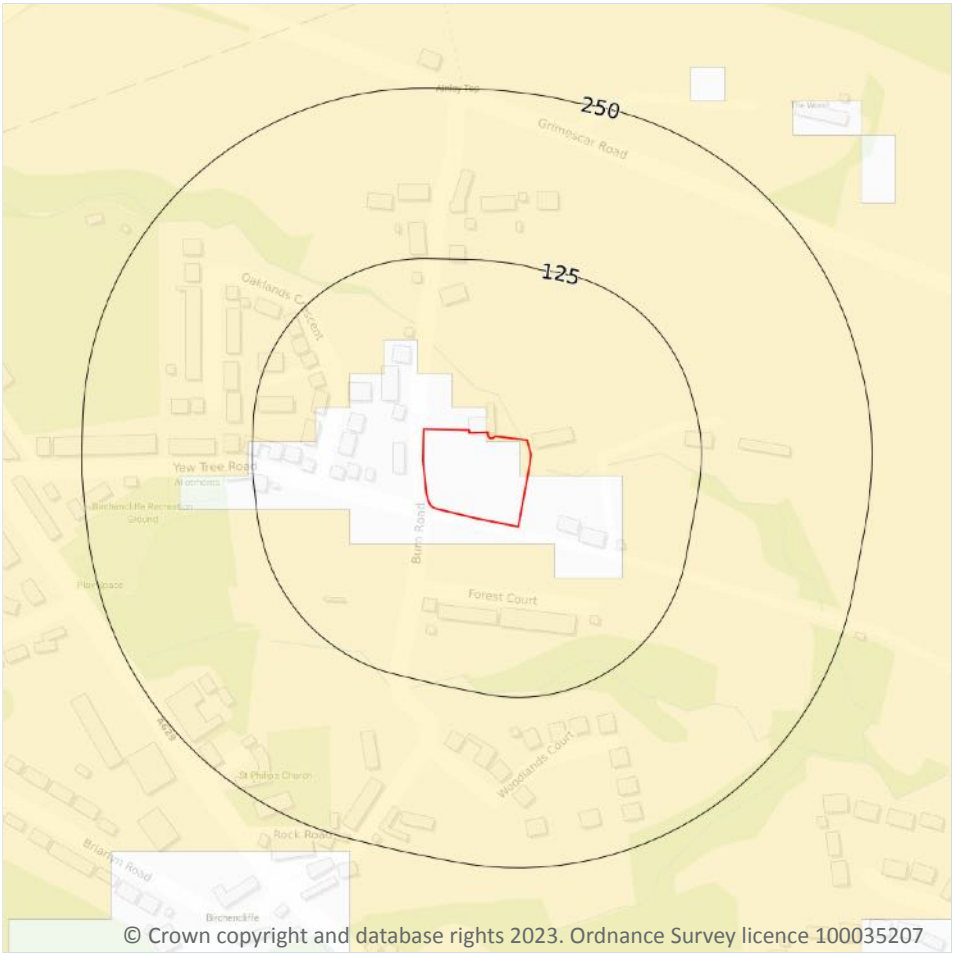
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	2

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

Features are displayed on the Radon map on **page 99**

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

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**None**

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	8

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**25 - 35 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
4m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	>180 mg/kg	30 - 45 mg/kg
13m SE	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
29m W	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
29m W	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
45m SW	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
45m SW	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
46m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	>180 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

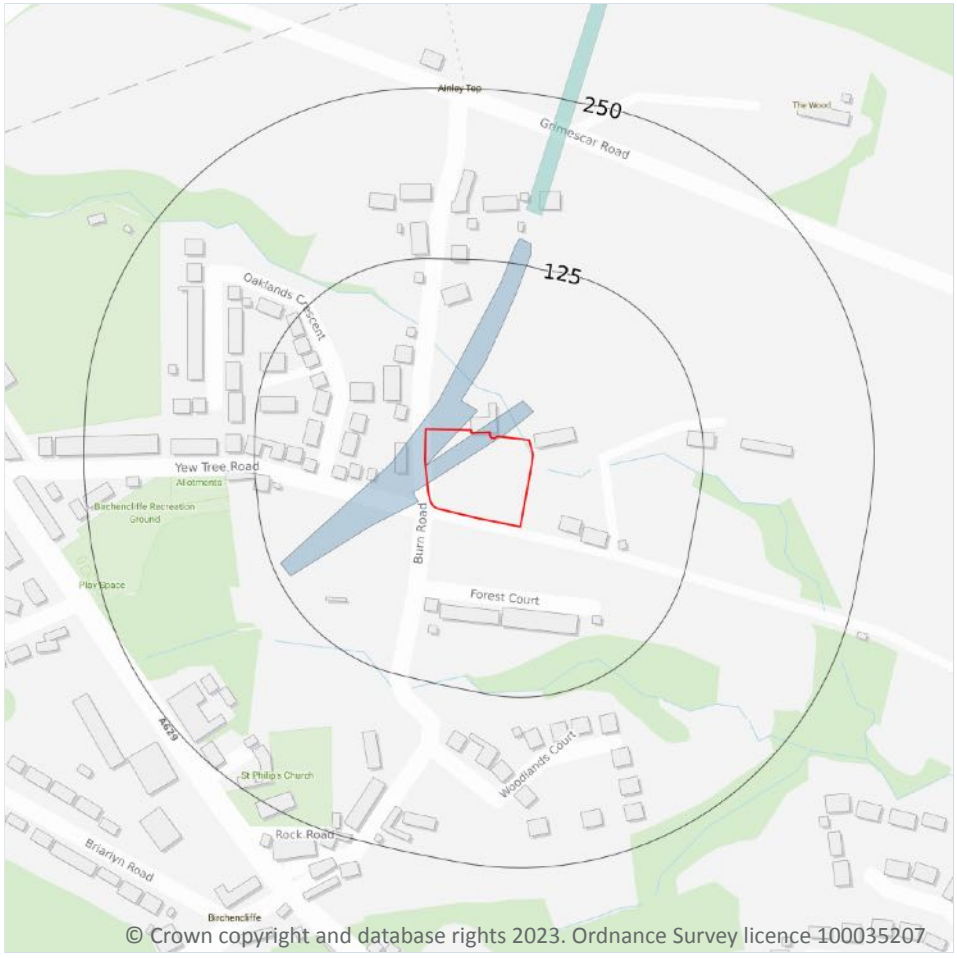
20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	2

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

Features are displayed on the Railway infrastructure and projects map on **page 103**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1891**	**10560**
163m N	Tunnel	1891	10560

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

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

APPENDIX D - HISTORICAL CONTAMINATION RISK ASSESSMENT

Abbeydale
Building Environment Consultants

Desk Study Assessment of Potential Contamination Risk

Land Use Risk Assessment

An assessment has been carried out for a number of common past land uses, indicating the severity of risk rating that should be used. Where little is known about the site a more precautionary approach of the potential risks should be taken to highlight the uncertainty of knowledge regarding the potential risks. Where application recommendation is given to specific chemical testing that should be considered associated with an intrusive Ground Investigation (GI), however the exact scope of testing will be determined on a site-specific basis depending on the ground conditions present after completion of an appropriate intrusive GI.

Depending on the hydrogeology of the area and presence of any water-based receptors, leachate or groundwater testing may also need to be considered to classify the risks to these receptors.

Risk Classification

Based on the risk classification system set out in CIRIA C552, the following risk classifications have been used to define the potential risks to the identified potential future receptors.

Risk Term	Definition
Very High risk	There is a high probability that sever harm could arise to a designated receptor from an identified hazard at the site without appropriate remedial action being taken. Urgent investigation (if not already undertaken) and remediation very likely to be required.
High risk	Harm is likely to arise to a designated receptor for an identified hazard at the site without appropriate remedial action. Urgent investigation (if not already undertaken) and remediation likely to be required.
Moderate risk	It is possible that harm could arise to a designated receptor. It is relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that such harm would be relatively mild. Investigation normally required (if not already undertaken) to clarify risk; remediation may be required in the long-term.
Low risk	It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised, any effects would be mild. Investigation may be required (if not already undertaken) but remediation is unlikely to be required.
Very Low risk	There is a low possibility that harm could arise to a receptor. In the event of such harm occurring it is not likely to be severe. Investigation may be required (if not already undertaken) to confirm.

Potential Risk		Land Use	Contamination Testing			Comments
Risk Term	GI Colour Rating		Basic Screen	TPH CWG	BTEX & PCBs	
Very High	Red	Radioactive site	Specialist assessment required			
		Petrol/chemical plant	X	X		
		Metal works	X	X		Toxic metals
		Landfill site	X			Depending on infill used
		Dye works	X	X	X	
		Coke works	X	X	X	
		Gas works	X	X	X	
		Tannery	X			
		Petrol station	X	X	X	
		Oil depot	X	X	X	
High	Yellow	Infilled ground	X			Depending on infill used
		Heavy industry	X		X	
		Soap works	X		X	
		Power station	X			
		Garage	X	X		
		Timber yard	X			
		Abattoir	X			
		Colliery	X			
Moderate		Fabric mill	X		X	Very High if dye on site
		Foundry	X			
		Hospital	X			
		Food factory	X			
		Sewage works	X		X	
		Brewery	X			
		Coal yard	X			
		Light industry	X			
		Colliery spoil	X			
Low	Green	Offices/commercial	X			
		Storage/warehouse	X			
		Residential	X			
		Quarry	X			Unfilled
		Gardens/park	X			
Very Low		Farm/agricultural	X			Unless chemicals used

APPENDIX E - CONCEPTUAL SITE MODEL

Ref.	Hazard	Source	Pathway	Receptor	Pollutant Linkage ?	Current anticipated risk (1) *	Comment	Action	Residual Risk *^
1	Heavy metals & PAHs	Made Ground	Ingestion of soil & indoor dust	Residents	✅	Low / 100%	Ground investigation required to confirm risk potential	Subject to findings of Ground Investigation	Very Low
2	Asbestos fibres in soils	Made Ground	Inhalation of dust	Residents	✅	Low / 100%	Ground investigation required to confirm risk potential	Subject to findings of Ground Investigation	Very Low
3	TPH	Made Ground	Inhalation of vapour	Residents	✅	Very low / 100%	No potential sources identified. Testing only needed if suspected from ground investigation	Subject to findings of Ground Investigation	Very Low
4	Sulphate	Made Ground	Contact with concrete substructures	Concrete substructures	✅	Low / 100%	Ground investigation required to confirm risk potential	Sulphate resistant concrete recommended as a precaution	Very Low
5	Leachable metals	Made Ground	Leaching to watercourse	Off site surface watercourse	✅	Low / 100%	Ground investigation required to confirm risk potential	Subject to findings of Ground Investigation	Very Low
6	Leachable PAH	Made Ground	Leaching to watercourse	Off site surface watercourse	✅	Low / 100%	Ground investigation required to confirm risk potential	Subject to findings of Ground Investigation	Very Low
7	Ground gases	Made Ground	Inhalation of vapour	Residents	✅	Low / 100%	No potential significant sources identified from Desk Study findings	Monitoring only required if significant thickness of made ground recorded across the site	Very Low
8	Mine gases	Shallow mine workings	Inhalation of vapour	Residents	✅	Very low / 100%	No shallow mine workings or shallow coal seams anticipated	No further action deemed necessary	Very Low
9	Radon	Bedrock	Inhalation of vapour	Residents	✅	Very low / 100%	No risks at levels present	No further action deemed necessary	Very Low
10	Invasive plant species	N/A	Direct contact	On site buildings	✅	Low / 100%	None identified during site walkover survey undertaken	Maintain vigilance during construction	Very Low
11	Trees	On site trees	Changes to soil moisture regime	On site buildings	✅	High / 75%	Plasticity Index testing needed to confirm volume change potential of underlying soils	Subject to findings of Ground Investigation	Very Low
12	Flooding	Adjacent surface watercourse	Over land flow	Residents	✅	Low / 100%	Localised surface water flooding shown in channel of adjacent surface watercourse	No further action deemed necessary	Very Low

Abbeydale
Building Environment Consultants
4 Neville Street WF1 5EF | Tel: 01924 376622 | info@abbeydalebec.com

NOTES:

(1) Anticipated risk over percentage site area.
* Refer to Risk Matrix Table within report text.
^ Anticipated risk after carrying out action

CONCEPTUAL MODEL TABLE

Client : Mr & Mrs Cran
Project : 98 Burn Road, Birchencliffe, Huddersfield
Job No : 632004

Appendix E