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GEO-ENVIRONMENTAL CONSULTING ENGINEERS

bEk Enviro Ltd
Suite One | No 3 Mitton Road Business Park
Mitton Road | Whalley | Lancashire | BB7 9YE
01254 377622
mbuckley@bekenviro.co.uk | bekenviro.co.uk

PRELIMINARY RISK ASSESSMENT

LAND TO SOUTH OF ACCRINGTON ROAD WHALLEY, CLITHEROE

Report Ref BEK-19545-1 (Rev C) December 2022

Report Prepared for

Oakmere®
CREATING QUALITY HOMES

Project Quality Assurance Information Sheet

PRELIMINARY RISK ASSESSMENT

Land to South of Accrington Road, Whalley

Report Status	Final
Report No	BEK-19545-1 (Rev C)
Date	December 2022
Prepared For	**OAKMERE HOMES (NORTHWEST) LIMITED** Helm Bank Natland Kendal Cumbria LA9 7PS
Prepared By	**BEK ENVIRO LIMITED** Suite One No 3 Mitton Road Business Park Mitton Road Whalley Lancashire BB7 9YE
Author	**David Emmott** BSc (Hons) MSc MIE
Checked By	**Michael Buckley** BSc (Hons) MSc MIE
Contact	mbuckley Office:

Revision Status / History

Rev	Date	Iss
Rev A	14 October 2021	Ne
Rev B	22 November 2021	Ne
Rev C	14 December 2022	Ne

BEK Enviro Limited (BEK) has prepared this report fo[illegible] the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and BEK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by BEK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

 Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Appointment

1.1.1 BEK Enviro Limited (BEK) have been commissioned by Oakmere Homes (Northwest) Limited to prepare a Preliminary Risk Assessment for an area of land located to the south of Accrington Road, Whalley, Lancashire (hereafter referred to as 'the site'). The assessment has been carried out to identify potential risks associated with contamination and ground gas with respect to the development of the site for residential use.

1.1.2 The site location and site layout are presented on BEK Drawing No 19545-1 and BEK Drawing No 19545-2, respectively. Copies of these drawing are presented in Appendix F.

1.2 Proposed Development

1.2.1 This report has been prepared to support a planning application for the construction of residential houses and apartments with associated gardens, access and infrastructure.

1.2.2 The 'Proposed Site Layout' is presented on Drawing No 015/R-OAK/01 Revision G, dated November 2022, a copy of which is presented in Appendix F.

1.3 Objective & Scope of Work

1.3.1 This report provides the details of the works undertaken by BEK to assess the potential risks from contamination considering the change of use to residential.

1.3.2 To achieve the objective BEK will undertake the following:

- Carry out a site inspection and take photographs
- Review the available relevant background information for the site, including:
  - Recent Ordnance Survey Map
  - BGS Web Page
  - Site Specific GroundSure Reports
  - Site Specific Historical Maps
- Develop a preliminary conceptual site model in accordance with guidance to identify potentially significant pollutant linkages specific to the proposed development
- Establish areas of potential concern based on identified risks and/or potential risks
- Identify any actions required to assess or reduce the risks identified

1.4 Limitations

1.4.1 The conclusions and recommendations presented in this report are the result of our professional interpretation of the information currently available. BEK reserves the right to amend the conclusions and recommendations if further information becomes available.

1.4.2 However, it should be noted that much of the information has been derived from reports written by others and BEK takes no responsibility for the accuracy of that information. Notwithstanding the above, the reports reviewed have all been written by professional environmental consultants with a duty of care to provide relevant and accurate information.

2. SITE DESCRIPTION

2.1 Site Location

2.1.1 The site is located to the south of Accrington Road, Whalley and to the north of the River Calder approximately 5.5 km south of Clitheroe town centre.

2.1.2 The National Grid Reference for the centre of the site is 373597, 436020. The site location is shown on BEK Drawing No 19545-1, a copy of which is presented in Appendix F.

2.2 Site Layout & Description

2.2.1 The site occupies some 2.84 hectares (28,400 m^2) and is roughly square in shape, comprising undeveloped open land covered by medium to large grass and shrubs. There is an embankment in the north east corner and a marsh/boggy area in the northern centre of the site.

2.2.2 An engineer from BEK visited the site in April 2019 to carry out a site walkover/inspection. At the time of the walkover, access to the site was via the north-eastern corner of the site from Accrington Road.

2.2.3 The entrance to the site is formed by a relatively steep 'ramp' from Accrington Road with the majority of the site generally flat with a slight fall towards the south and the River Calder. The entrance 'ramp' appears to be formed from crushed building material and is vegetated with grasses and there is a second entrance 'ramp' partially constructed in the centre north of the site which is not vegetated.

2.2.4 The site is occupied by grass and shrubs with an area of brambles located towards the centre of the site. The site is generally bound by trees, hedgerows and fences with access gate in the south-east and another in the south-west of the site. A locked borehole was identified towards the south-east of the site during the site walkover.

2.2.5 Stockpiles of topsoil were identified close to the 'access ramp' in the centre north of the site. A land drain flowed from the centre of the eastern boundary of the site towards the south.

2.2.6 A selection of photographs illustrating the current site layout are presented within Appendix E.

2.3 Surrounding Land Use

2.3.1 The site is delineated by Accrington Road to the north with residential dwellings located to the north of Accrington Road. Further residential properties are located to the west with industrial buildings located to the east. The River Calder is located immediately south of the site.

3. SITE HISTORY

3.1 The history of the site has been established using historical OS maps supplied by Groundsure. A selection of the maps reviewed is presented in Appendix A.

1912

3.2 The earliest available maps show the site to be occupied by vacant undeveloped land (likely agricultural use). An embankment is located along the northern boundary of the site adjacent to Accrington Road and a fence is located along the centre of the site. A footpath is located along the southern and eastern boundaries of the site. A sand pit is located some 10 m east of the site and a cistern is located some 15 m north-east of the site. There are a number of residential dwellings located west of the site. The River Calder is located to the south of the site with a weir located some 30 m south-west of the site. A tank is located some 125 m south-west of the site.

1932

3.3 The 1932 map shows the site remains unchanged. The sand pit located some 10 m east of the site appears to have been extended and a building, possibly associated with the sand pit workings, is located some 95 m to the east. A circular feature (potential gasholder) is located some 20 m north of the site within Archbishops Wood. An area marked as 'Pleasure Ground' is located some 80 m south-west of the site adjacent to the River Calder. An internet search indicates that the Pleasure Ground was used as a speedway track for motorbikes. A tank is located some 130 m south of the site.

1938

3.4 The 1938 map shows that the site remains unchanged. The area surrounding the site remains relatively unchanged although the 'Pleasure Ground' is absent. New residential development has occurred some 75 m north of the site and the building located some 95 m east of the site associated with the sand pits is no longer visible.

1966

3.5 The 1966 map shows that the south-east of the site is now occupied by numerous buildings marked as Poultry Houses with a track from the east of the site to the west. A drain is located along the east of the site. The north of the site remains undeveloped with the embankment located along the northern edge of the site. The circular feature some 20 m north of the site is now labelled Gasholder and a smaller gas holder is located some 15 m north of the site. An Agricultural Engineering Works is located to the west of the gasholders some 20 m north of the site. A Garage is located some 25 m west of the site and more Poultry Houses are located some 60 m south-west of the site.

1974

3.6 These maps show the site remains unchanged. However, more Poultry Houses are locwted some 30 m east of the site.

1975

3.7 The 1975 map shows that the site and the surrounding area remain relatively unchanged

1992

3.8 The 1992 map shows that he site remains unchanged. The gasholders and Agricultural Engineering Works located some 20 m north of the site have been replaced by residential dwellings.

1994

3.9 The 1994 maps are incomplete, although they do show that poultry houses on site are absent and the site is vacant with the exception of a footpath through the centre south of the site.

2002-2010-2014

3.10 There are no significant changes to the site or the surrounding area.

3.11 However, the site walkover confirms that two 'access ramps' have been developed from Accrington Road in the north-east and centre north of the site.

4. ENVIRONMENTAL SETTING

4.0.1 GeoInsight and EnviroInsight Reports have been obtained from Groundsure and information provided in this report has been used within this section. Copies of these report are presented in Appendix B and C, respectively.

4.1 Geology

4.1.1 The site geology is illustrated in the GeoInsight Report which has sourced data from several sources including British Geological Society (BGS), BRITPITS database and the Coal Authority. A copy of the GeoInsight Report is presented in Appendix B.

4.1.2 In addition, BEK has sought site investigation information from the BGS website. There are six BGS borehole located within 250 m of the site. The boreholes are labelled as SD73NW101 to SD73NW106 'Southview Whalley' located some 90 m north-west of the site with all six boreholes proving peat overlaying sands & gravels and clay.

Made Ground

4.1.3 According to the GeoInsight report there is no artificial ground (made ground) present beneath the site.

Superficial Geology

4.1.4 The GeoInsight Report states that the underlying superficial geology comprises three different deposits including glacio-fluvial deposits (sand & gravel), alluvium (clay, silt, sand & gravel) and Glacial Till (Boulder Clay).

Bedrock

4.1.5 The underlying solid geology comprises of the Bowland Shale formation in the north-western corner of the site and the Pendle Grit Member in the south-east of the site.

Linear Features

4.1.6 There are no faults located within 250 m of the site.

4.2 Mining & Ground Stability

4.2.1 Information in the GeoInsight Report indicates that the site is located in an area that is unlikely to have been affected by coal mining. According to the Coal Authority interactive map, the site is not located within a coal mining reporting area.

4.2.2 The GeoInsight Report indicates the presence of a number (total of 16) of historical surface ground workings within 250 m of the site.

4.2.3 Six are located within 28 m of the site and are described as unspecified pit located 5 m south-east, sand pits located 6 m south-east and 13 m south-east, unspecified heaps located 11 m north-east of the site and unspecified ground workings located 28 m south-east. These date from 1846 to 1933.

4.2.4 There are no historical underground workings within 250 m of the site. However, the GeoInsight Reports that there are two non-coal mining reports on the site described as Vein Mineral. The report states that 'potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered'.

4.2.5 The GeoInsight Report provides hazard ratings associated with natural ground subsidence at the site, as summarised below:

Shrink-Swell Clay:	Negligible/Very Low
Landslides:	Very Low/Low
Ground Dissolution of Soluble Rocks:	Negligible
Compressible Deposits:	Negligible/ Moderate
Collapsible Deposits:	Negligible/Very Low
Running Sands:	Very Low/Low

4.2.6 It can be seen from the above that the site is unlikely to be affected by natural ground instability. However, consideration should be given with respect to the moderate classification for compressible deposits.

4.3 Hydrogeology

4.3.1 The north of the site is classified by the Environment Agency as a 'Secondary Aquifer (Undifferentiated)'. These formations are 'assigned where it is not possible to attribute either Category A or B to a rock type.' The majority of the site is designated as 'Secondary 'A' Aquifer which are described as 'permeable layers capable of supporting water supplies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers'.

4.3.2 The underlying bedrock in the north-west of the site (Bowland Shale Formation) is described as 'Secondary Aquifer (undifferentiated)' and the Pendle Grit Member (Sandstone) located in the south-east of the site is classified as a 'Secondary A Aquifer'.

4.3.3 The EnviroInsight Report indicates the site is not located within a groundwater Source Protection Zone and there are no groundwater abstraction licenses within 250 m of the site.

4.4 Hydrology

4.4.1 The EnviroInsight Report indicates that the River Calder is located immediately south of the site.

4.4.2 However there are no licensed discharge consents located within 250 m of the site and there is one surface water abstraction license located within 250 m of the site. This relates to an active licence located some 34 m south of the site which expires March 2028 and is associated with Hydroelectric Power Generation.

4.5 Contaminated Land & Landfill Activities

4.5.1 Information provided in the EnviroInsight Report indicates that there are no current, historic landfill or waste management sites located within 250 m of the site.

4.5.2 There is one EA recorded pollution incident located within 250 m of the site. The incident dates from May 2008 located some 204 m west of the site. There are no details on the type or description of the pollutant however it had a significant (Category 2) impact on water and no impact on land or air.

4.5.3 There are no Part A(2), Part B or IPPC Authorised Activities located within 250 m of the site.

4.5.4 According to the EnviroInsight Report there are 40 potentially contaminative industrial sites located within 250 m of the site, the closest of which is located 5 m south-east of the site and refers to an unspecified pit dated 1892. These are unlikely to have impacted upon the site.

4.6 Sensitive Land Uses

4.6.1 The site is not affected by any of the ecological systems identified as a statutory receptor in the DETR Circular 01/2006.

4.7 Radon

4.7.1 Groundsure reports that the property is located in a Radon Affected Area, as 'between 1 and 3% of properties are above the Action Level'.

4.7.2 However, no radon protection measures are required.

5. POTENTIAL POLLUTANT LINKAGES

5.1 General

5.1.1 This section identifies the potential contaminants of concern, sources, pathways and receptors that may be associated with the site based on its known history and the current condition and with respect to the re-development of the site for residential use.

5.1.2 This information is used to develop a conceptual model which is a qualitative description of potential sources of environmental pollutants, the pathways by which they are transported and the receptors:

i) Potential sources of contamination: these include any actual or potentially contaminating materials and activities, located either on or in the vicinity of the site

ii) Potential pathways for contamination migration: these comprise the routes or mechanisms by which contaminants may migrate from the source to the receptor including environmental migration pathways and human health exposure pathways

iii) Potential receptors of contamination: these include future land users, ecological systems, water resources and property.

5.2 Potential Contaminants of Concern

5.2.1 Based on the available historical maps the site has been occupied by agricultural fields from 1912 until circa 1967. Eleven poultry houses were developed on site circa 1967 until circa 1994. Based on available background information, the risks from significant contamination being present at the site due to on-site activities is considered to be low. However, the history of development (particularly towards the south-east of the site) indicates that some degree of made ground is likely to be present in this area. The nature and extent of made ground is unknown and it could contain contaminants of concern.

5.2.2 In addition, there are potential sources of contamination from off-site sources, primarily the Gasworks site (two gas holders) located some 15 m to the north of the site.

5.2.2 The potential contaminants of concern that may be present at the site are summarised below:

Contaminants Associated with Made Ground	
Arsenic	Zinc
Cadmium	Sulphate
Chromium	Cyanide
Copper	Phenols
Lead	Polycyclic Aromatic Hydrocarbons (PAHs)
Mercury	Asbestos
Nickel	pH
Selenium	
Contaminants Associated with Gas Works	
Volatile Organic Compounds	Polycyclic Aromatic Hydrocarbons (PAHs)
Semi-Volatile Organic Compounds	Total Petroleum Hydrocarbons

Table 1: *Potential Contaminants of Concern*

5.2.3 It should be noted that the above list represents a broad range of potential contaminants of concern. Additional contaminants of concern should be considered if ground conditions differ from those anticipated.

5.2.4 In addition to the above consideration has been given to the potential risks from ground gas. Potentially significant on-site sources of gas include organic rich alluvium deposits and peat (peat encountered in nearby BGS boreholes). Potential off-site sources include the partially infilled sand pits located some 20 m east of the site as well as organic contamination/made ground associated with the former gasworks site some 5 m to the north.

5.3 Potential Pathways

5.3.1 The pathways through which contaminants may reach receptors are in part dependent by the nature and behaviour of the contaminant and the intended end use of the site.

5.3.2 The following potential pathways have been identified with respect to the existing site condition, the environmental setting and the re-development of the site to residential with gardens; all of which are assessed in the conceptual model:

- Ingestion of contaminated soil/home grown vegetables
- Inhalation of contaminative dust including asbestos fibres
- Inhalation of ground gas/organic vapours
- Dermal contact
- Dissolution or suspension (leaching) of contaminants into pore waters affecting plant growth

- Dissolution or suspension (leaching) of contaminants from site soils leading to lateral migration within perched waters to off-site receptors. Potential significant pathways include more permeable layers within the made ground/natural strata, underground services and piles/foundations
- Contamination affecting the integrity of service pipelines by direct contact
- Buildings affected by direct contact with elevated concentrations of sulphate and/or extreme pH

5.4 Receptors

5.4.1 Potential site specific receptors that may be affected by contamination at the site are listed below:

Future Site Users

5.4.2 Future occupants of the site could be at risk from contamination present at the site.

5.4.3 Potential risks are associated with ingestion of soil as well as inhalation of contaminated dust (including asbestos) and dermal contact with contaminants of concern. These risks are all associated with the garden areas of the new development.

5.4.4 Risks from the indoor inhalation of ground gas and/or organic vapours have also been identified

Construction Workers

5.4.5 The primary risks to construction workers are associated with shallow excavations as asbestos could be present. Asbestos fibres (if present) can be released into the atmosphere during earthworks.

5.4.6 Standard personal protective equipment and site specific risk assessments and method statements should reduce risks associated with other contaminants of concern due to short exposure duration.

Off Site Receptors

5.4.7 Off site receptors include nearby home owners. Human health could be at risk if asbestos fibres are released during the development

Flora

5.4.8 Heavy metals can be phytotoxic and if present can represent a potential risk to flora in garden/landscaped areas.

Buildings & Services

5.4.9 Concrete used for the construction of buildings can be affected by high levels of sulphate and extreme pH.

5.4.10 The integrity of service pipes can be affected by concentrations of organic contamination.

Controlled waters

5.4.11 Land drain in the east of the site and the River Calder which runs along the south of the development site and represents a potential receptor.

5.4.12 The superficial strata is generally classified as a secondary A Aquifer for the majority of the site (with the exception of an area across the north of the site and with exception to the Boulder Clay (unproductive strata).

5.4.13 The underlying bedrock beneath the south-east of the site is also classified as a Secondary A Aquifer.

5.4.14 The site is not located within a source protection zone (SPZ) and there are no groundwater abstractions located within the 250 m of the site.

5.5 Preliminary Conceptual Model

5.5.1 The identified potential sources of contaminants, pathways and receptors have been assessed to establish plausible pollutant linkages. All potentially significant pollutant linkages are detailed in Table B, in Appendix D.

5.6 Potentially Significant Pollutant Linkages

5.6.1 A number of possible 'significant pollutant linkages' have been identified associated with the site.

5.6.2 Potential risks relating to the potential harm to the health of humans and/or domestic pets both on and off site due to the potential for direct contact with contaminants in the made ground and the ingestion of contaminated soil/dust **(Link 1)**.

5.6.3 There is also the possibility of windblown particulates being inhaled by people/animals both on site and off site **(Link 2)**.

5.6.4 Home grown produce could be affected by ground contamination **(Link 3)**.

5.6.5 Human health can also be affected by indoor inhalation of ground gas and/or organic vapours **(Link 4 & 5).**

5.6.6 Human health could be affected by ingestion of home grown produce due to uptake of contaminants of concern **(Link 6).**

5.6.7 Dissolution or suspension (leaching) of contaminants from site soils leading to lateral migration within perched permeable layers within the made ground/natural strata affecting underground services and piles/foundations **(Link 7)**.

5.6.8 Dissolution or suspension (leaching) of contaminants from site soils leading to impact on controlled waters **(Link 8)**.

5.6.9 Site investigation is required to identify site specific conditions and assess the risks associated with each identified plausible pollutant linkage.

6. RECOMMENDATIONS

6.1 Based on the findings of the risk assessment herein, a number of potential risks associated with contamination have been identified with respect to the proposed change of use to residential.

6.2 To further assess the potential risks associated with contamination and to characterise the shallow ground conditions, BEK recommends that the following works should be undertaken:

Site Investigation

6.3 In order to chraracterise the shallow ground conditions it will be necessary to carry out site investigation works. The site investigation should comprise the excavation of a series of trial pits and/or drilling of boreholes to prove nature and thickness of any made ground present and characterise the natural strata.

6.4 The site investigation should be supervised by an experienced engineer who will be responsible for recording ground conditions encountered.

6.5 The engineer will recover representative samples for chemical and geotechnical testing. All samples will be collected in appropriate sampling vessels, stored in a precooled cool box and dispatched to the laboratory within 24 hours.

6.6 Gas monitoring probes will need to be installed in several boreholes to facilitate a ground gas risk assessment.

Chemical Testing

6.7 Following a review of ground conditions encountered, a selection of samples will be tested for the contaminants of concern listed in Table 1 of this report. If visual or olfactory evidence of contamination is encountered (including any made ground) during the site investigation then it may be necessary to undertake additional testing.

6.8 All testing will be carried out by a UKAS accredited laboratory to MCERTS standard (where applicable).

Environmental Monitoring

6.9 The ground gas probes will need to be monitored for gas flow rates and CO^2, CH^4 and O^2 concentrations as well as water levels. Monitoring should be carried out during periods of low or falling barometric pressure.

6.10 To comply with CIRIA 665 guidance, monitoring should be carried out on 6 occasions over a 3 month period. However, this may be reduced depending on initial readings and assessment.

Risk Assessment

6.11 The investigation findings will be assessed as part of a quantitative risk assessment to amend the conceptual site model and identify any potential significant pollutant linkages.

6.12 The assessment will be undertaken in accordance with current UK guidance and policy.

Reporting

6.13 The investigation findings should be assessed in accordance with current UK policy and guidance to identify any potential significant pollutant linkages and determine the requirements for mitigation and/or remediation.

6.14 The works undertaken will be detailed in a Site Investigation Contamination Assessment report along with full justifications for the assessment and the conclusions/recommendations.

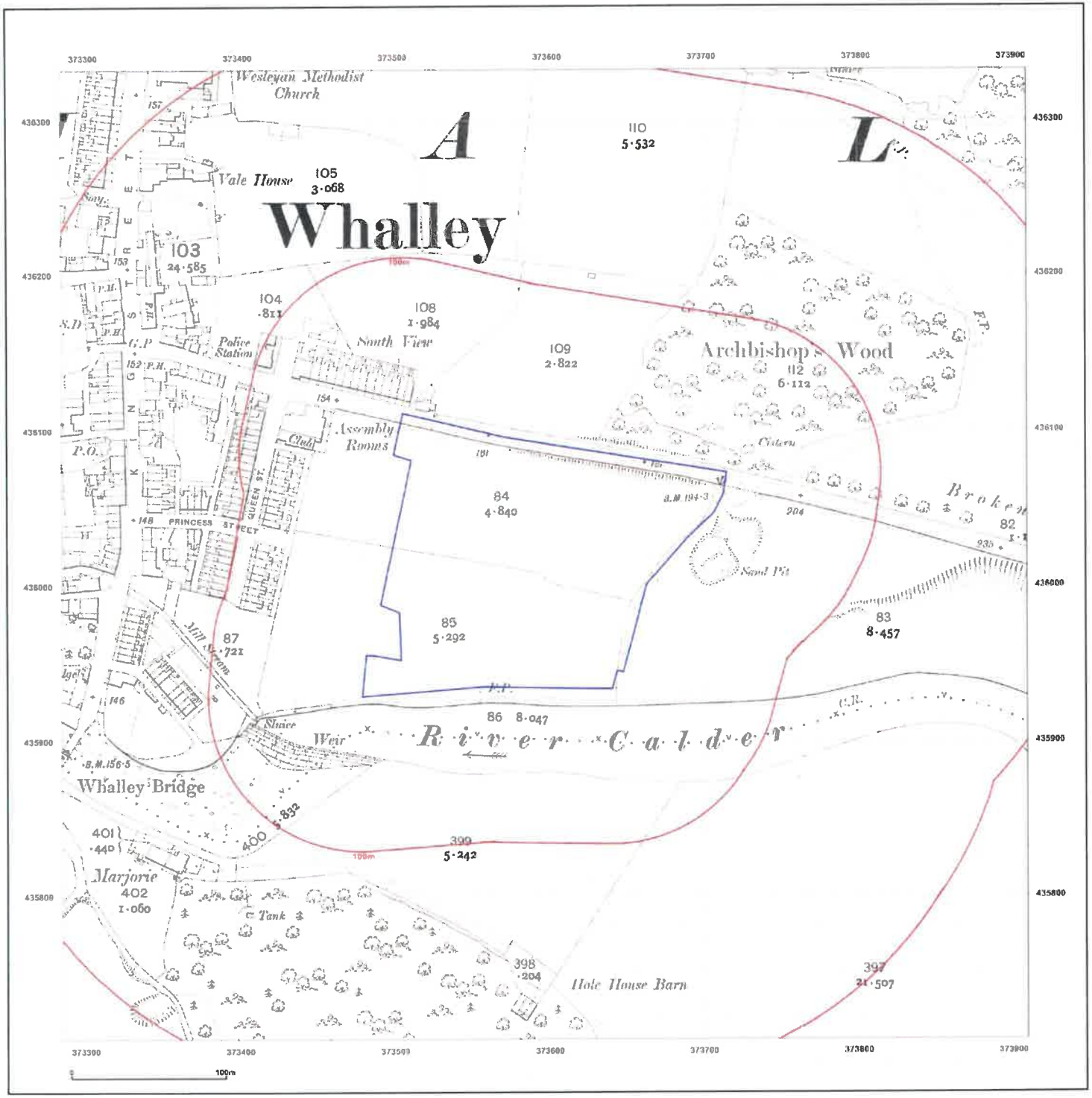
Other Considerations

6.15 In addition to the assessment of the shallow ground conditions with respect to contamination, the site investigation will characterise the shallow ground to facilitate a geotechnical assessment for foundation design. This will include taking strength test (shear vane and/or SPTs) where natural cohesive strata is encountered and recovering samples for geotechnical testing.

6.16 We would also recommend that consideration is given to the requirements of the water supply service provider and the completion of the UKWIR risk assessment for water pipe selection.

APPENDIX A

Historical OS Maps



CENTRE MAPS LIVE.

Site Details:

Whalley (Lancashire)

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Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1912
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

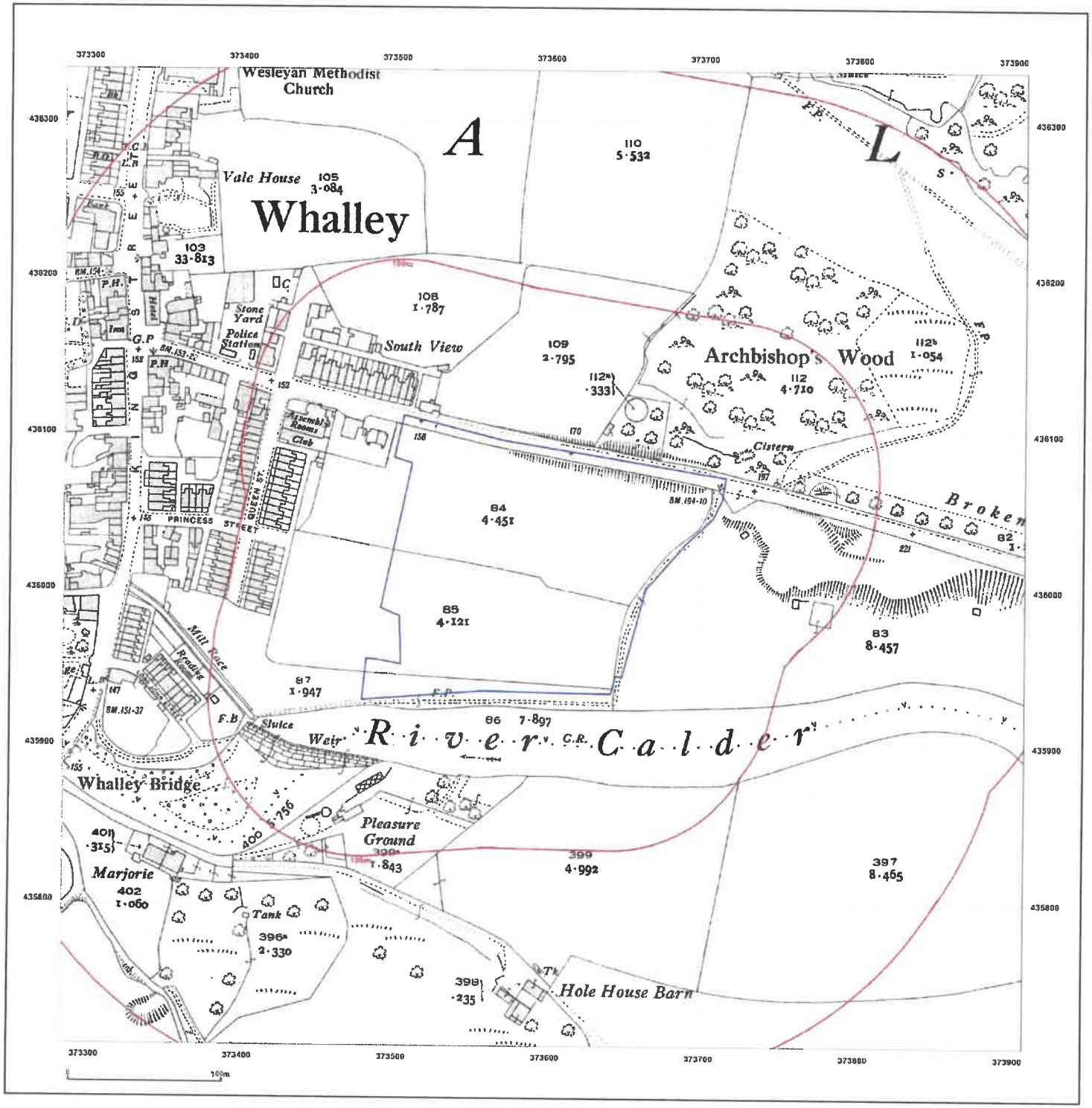
Groundsure

Produced by
Groundsure Insights
www.groundsure.com

Supplied by:
www.centremapslive.com
groundsure@centremaps.com

Production date: 05 April 2019

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



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Groundsure Insights

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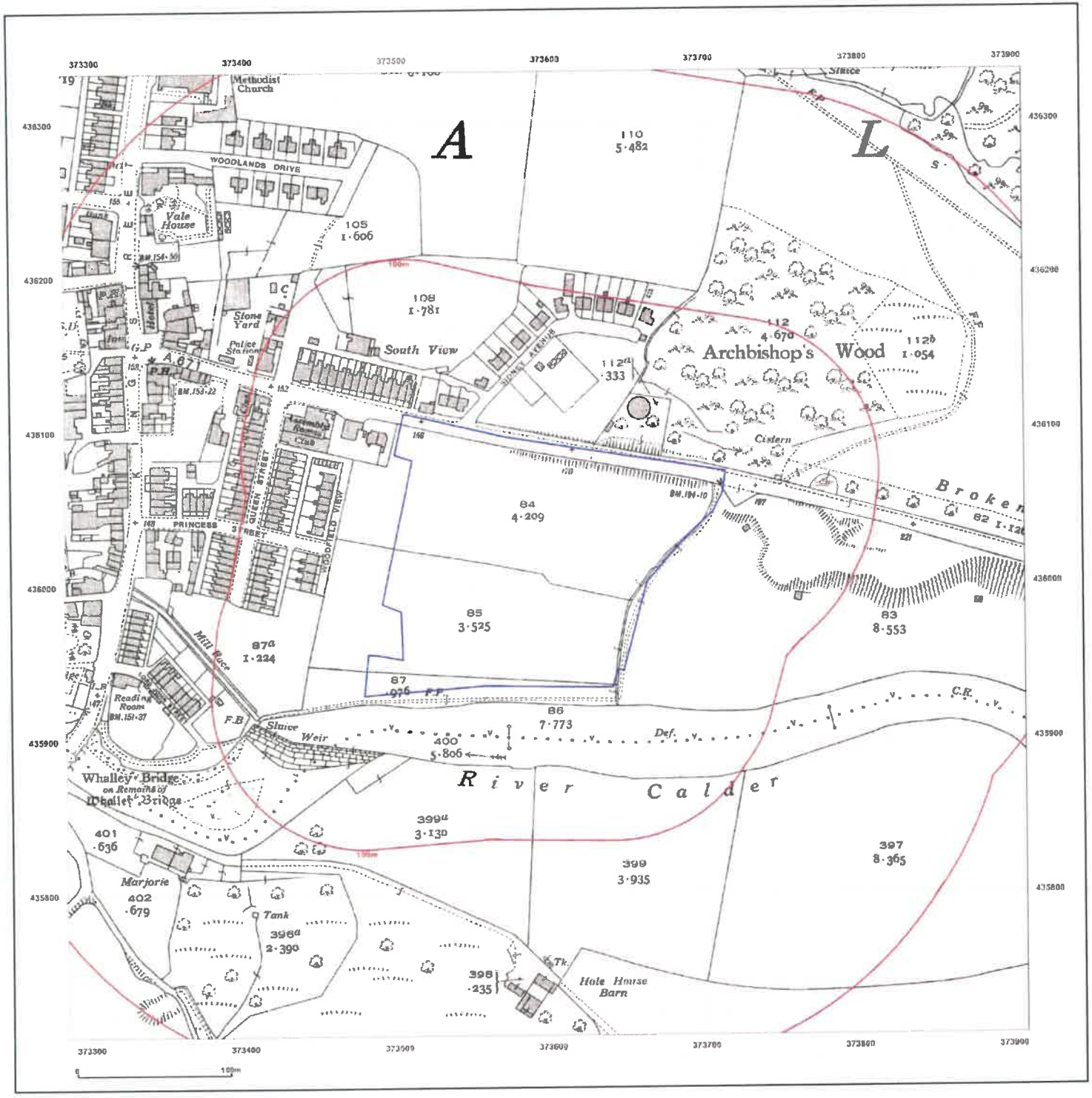

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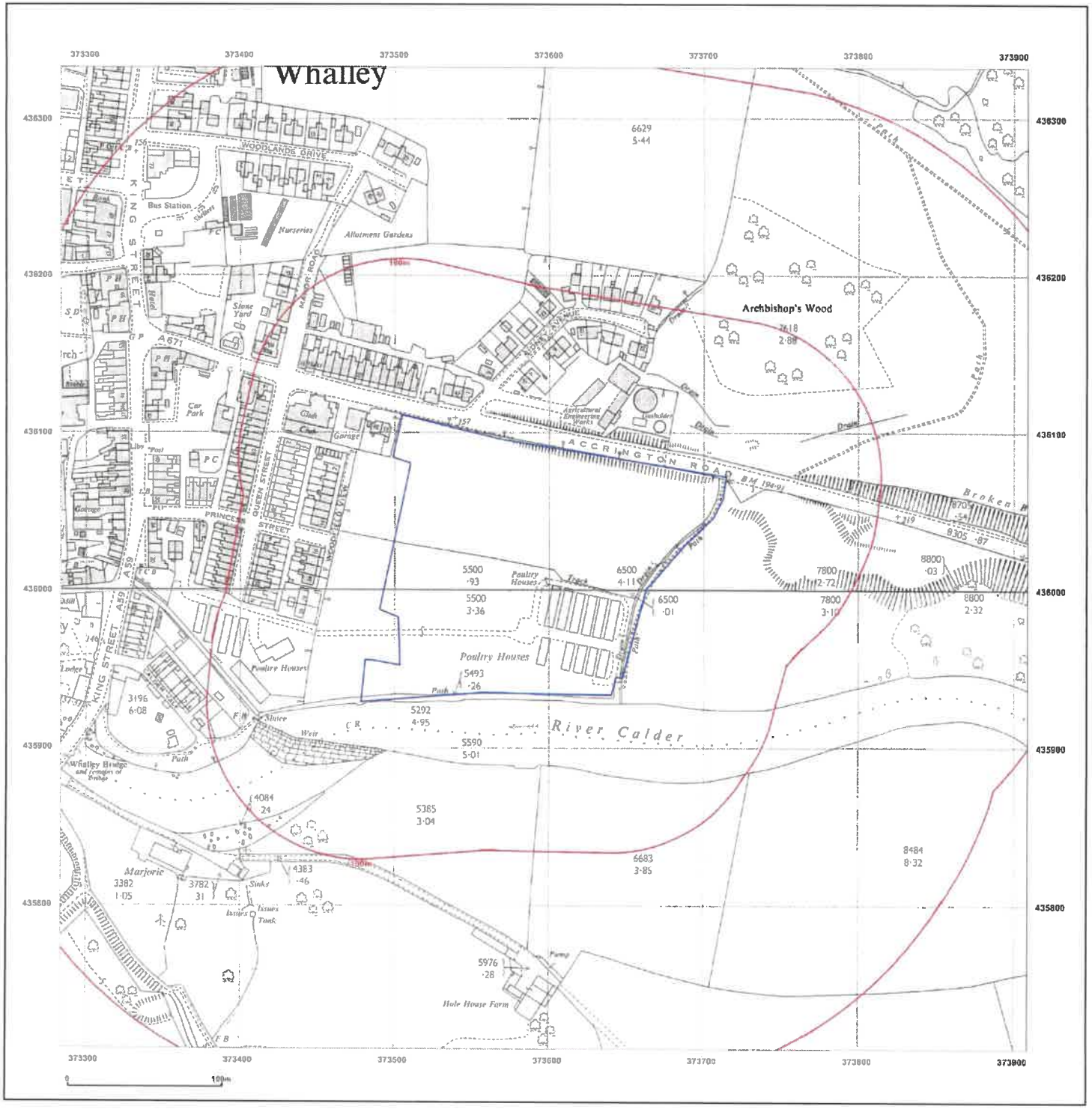

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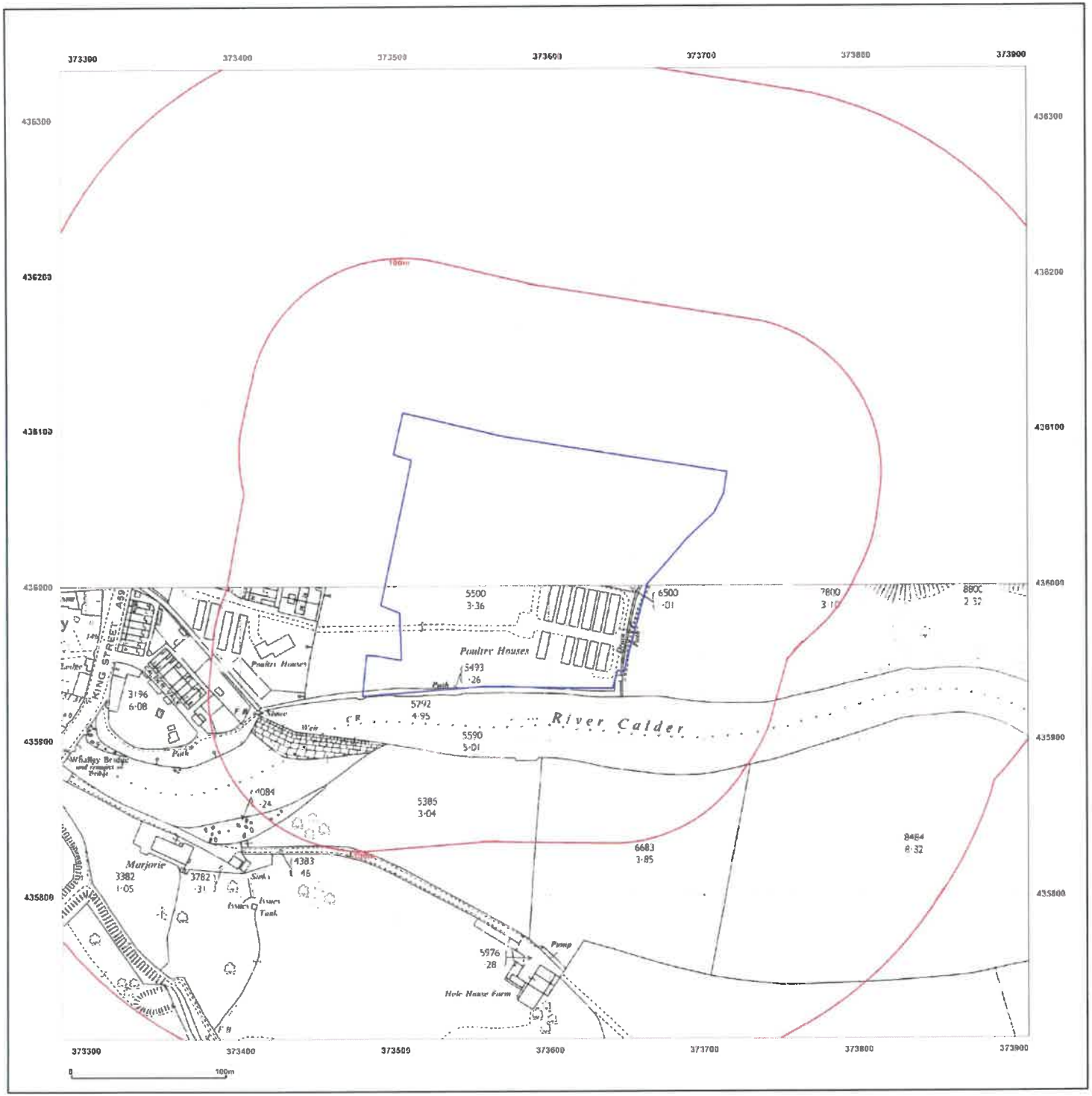

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Revised N/A
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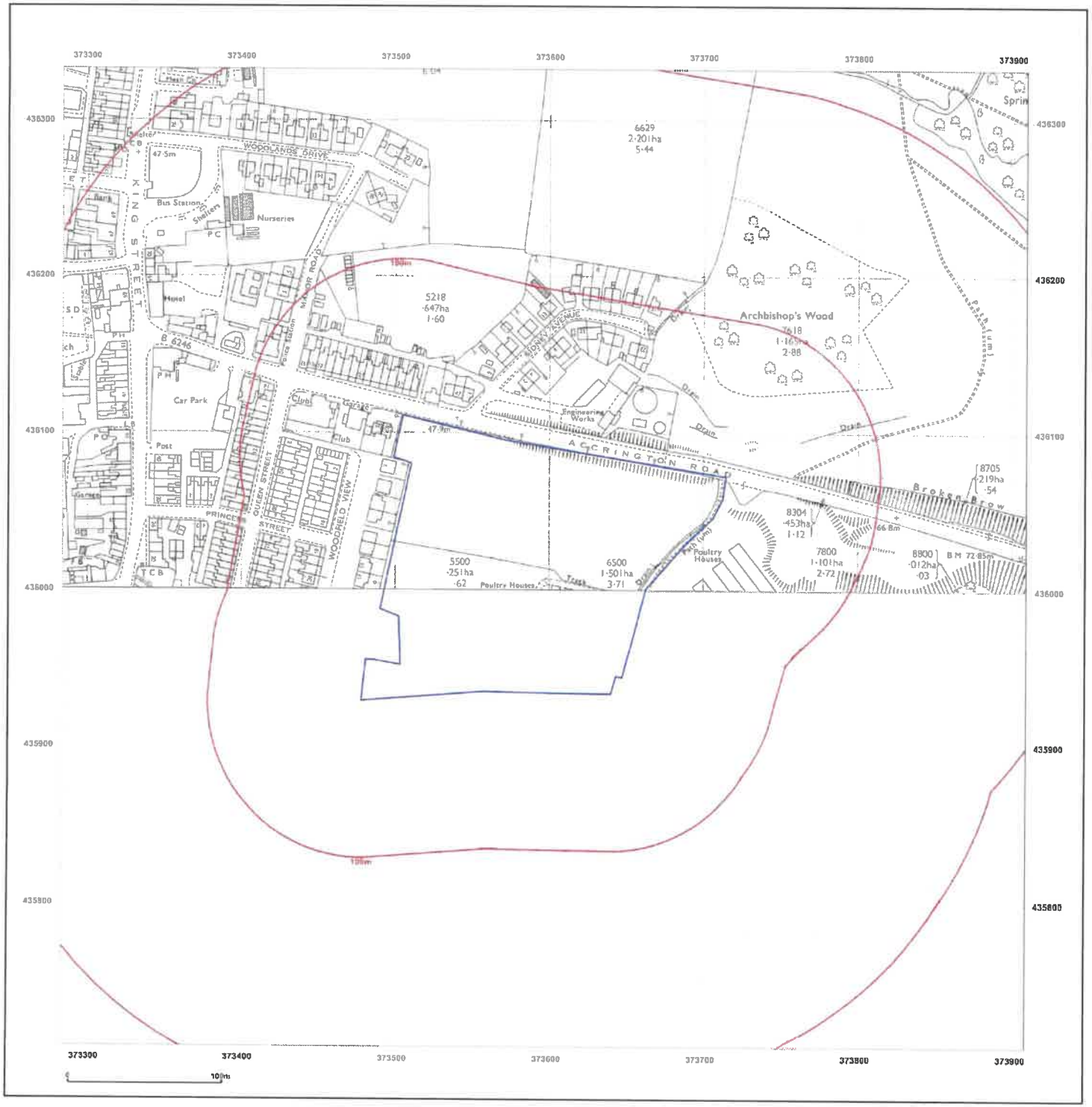

CENTRE MAPS LIVE

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1974
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1974
Revised 1974
Edition N/A
Copyright 1975
Levelled 1962

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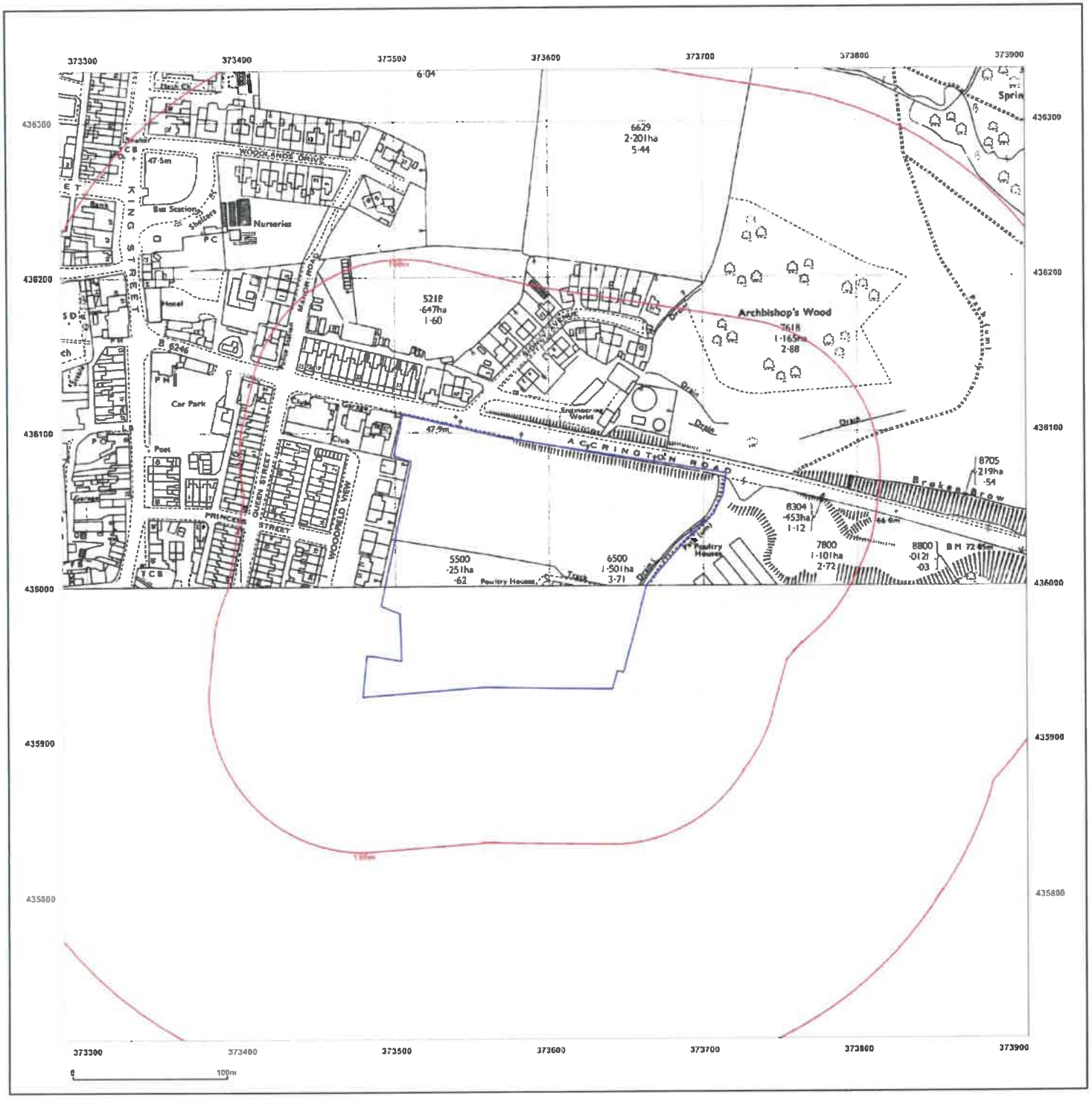

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1975
Scale: 1:2,500
Printed at: 1:2,500

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

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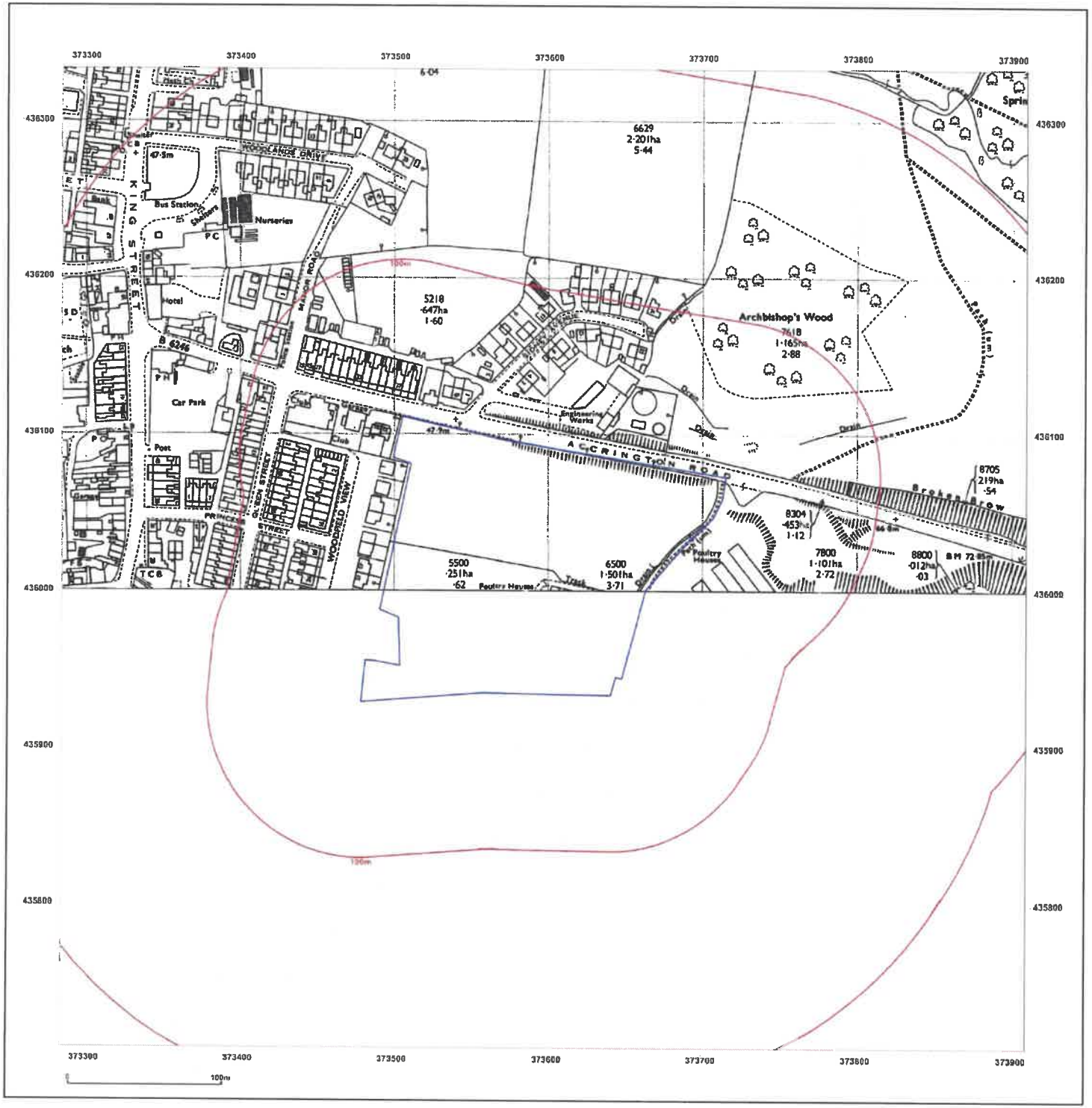

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Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1975
Scale: 1:2,500
Printed at: 1:2,500

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

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Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1992
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1992
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Edition N/A
Copyright 1992
Levelled N/A

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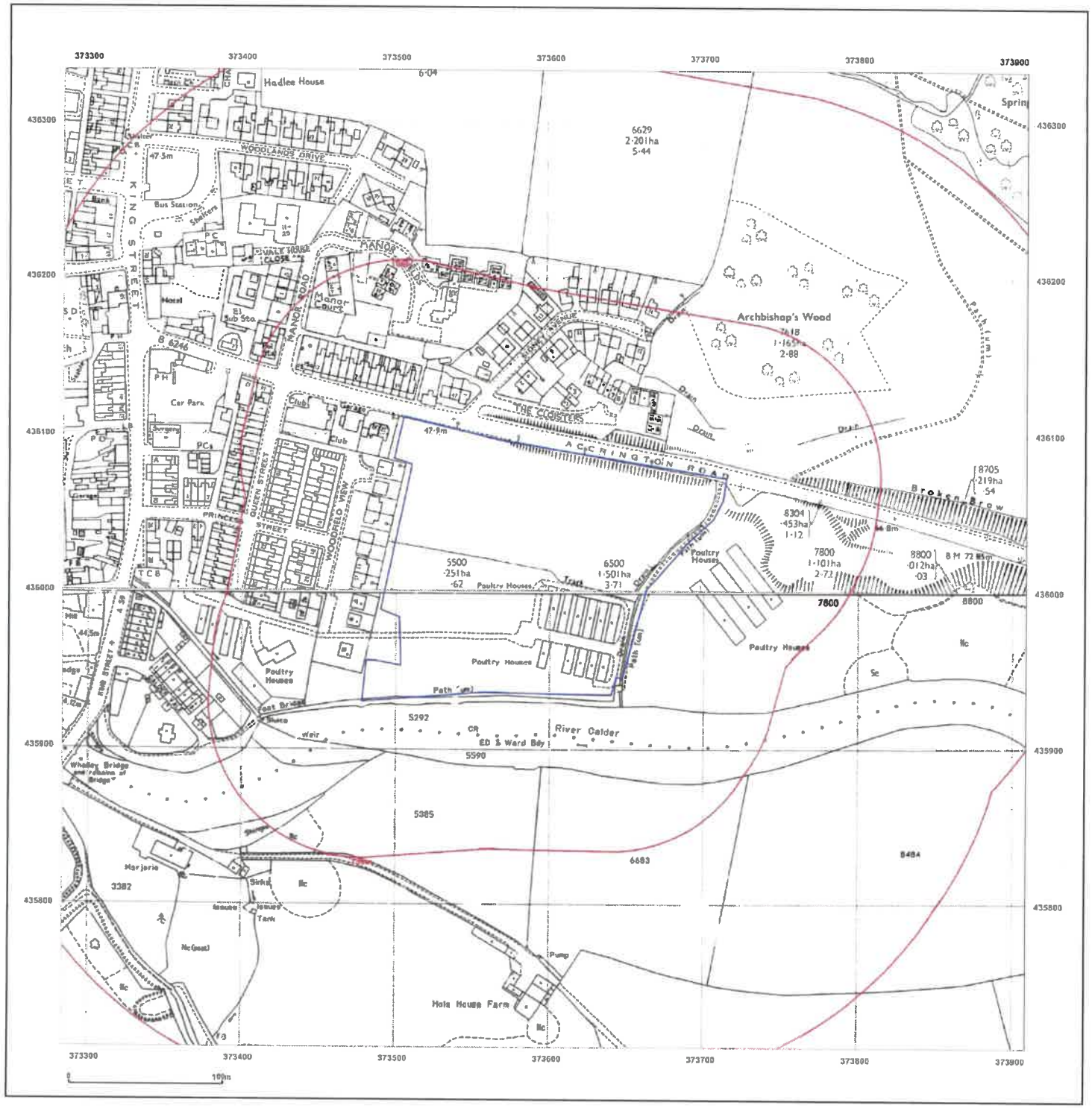

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Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1989-1992
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1962
Revised 1989
Edition N/A
Copyright 1989
Levelled 1962

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

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Site Details:

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Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1994
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1994
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

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Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1994
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

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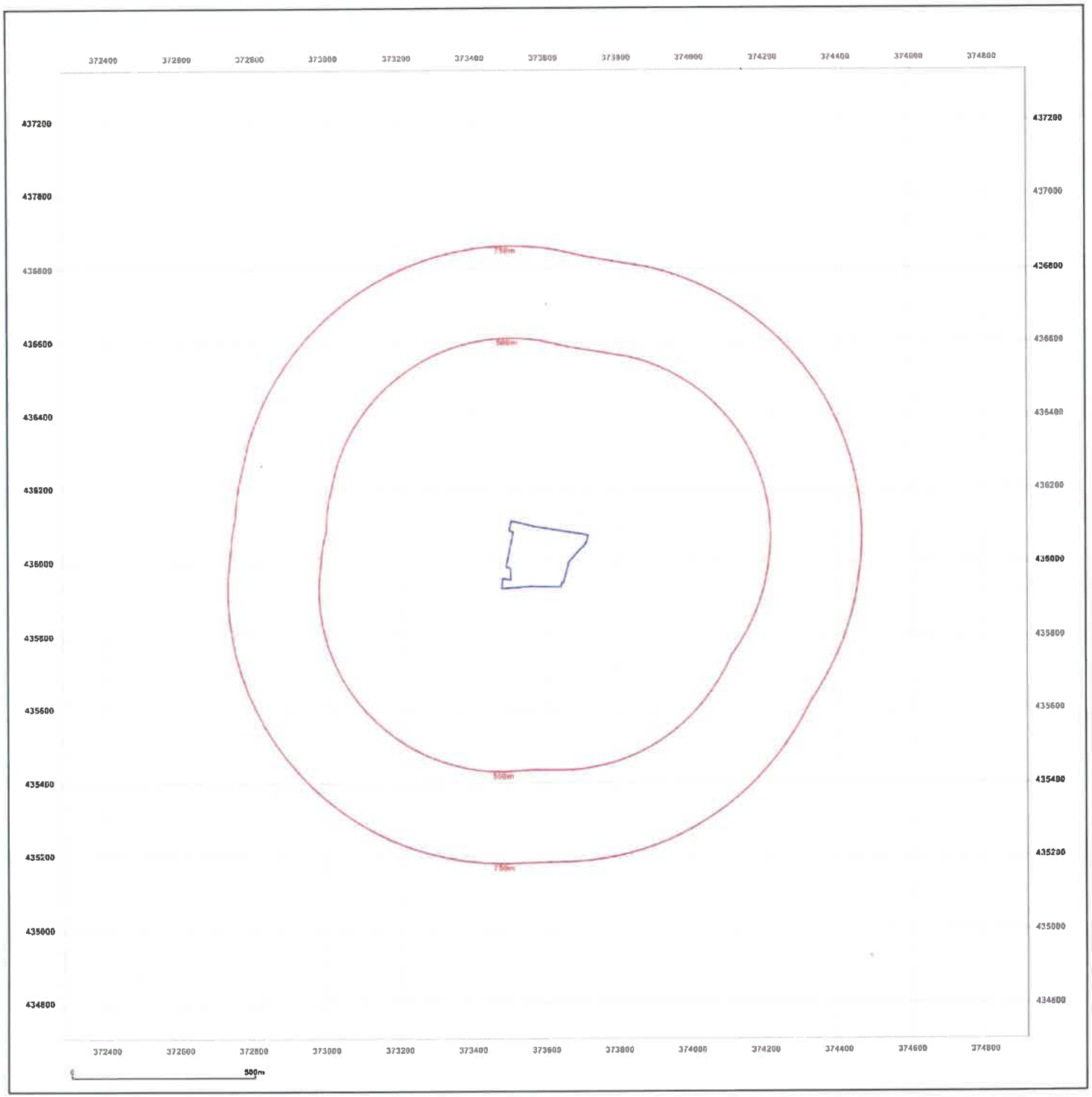

CENTRE MAPS LIVE.

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1848
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1847
Revised N/A
Edition 1848
Copyright N/A
Levelled N/A

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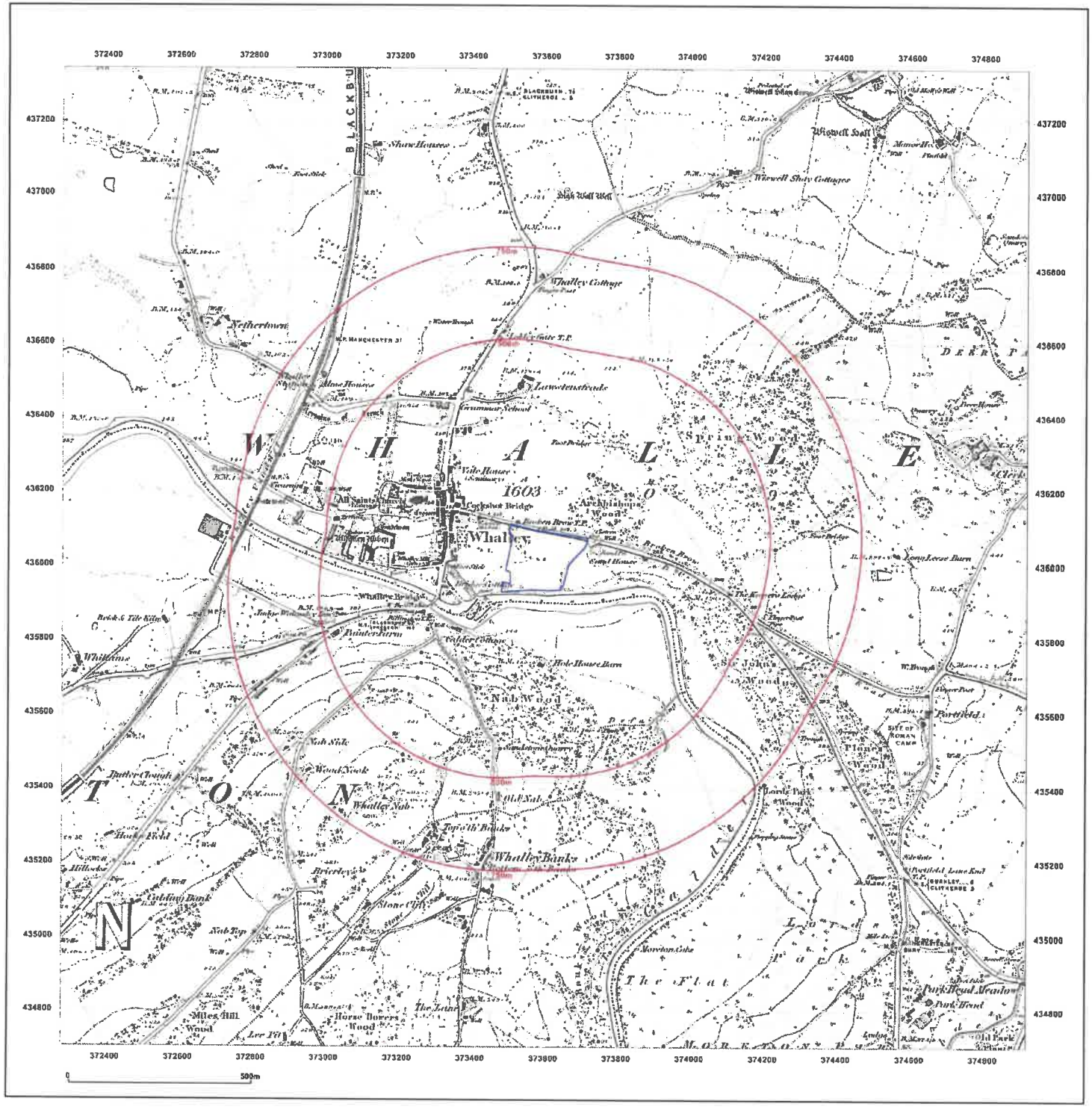

CENTRE MAPS LIVE.

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1848
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised N/A
Edition 1848
Copyright N/A
Levelled N/A

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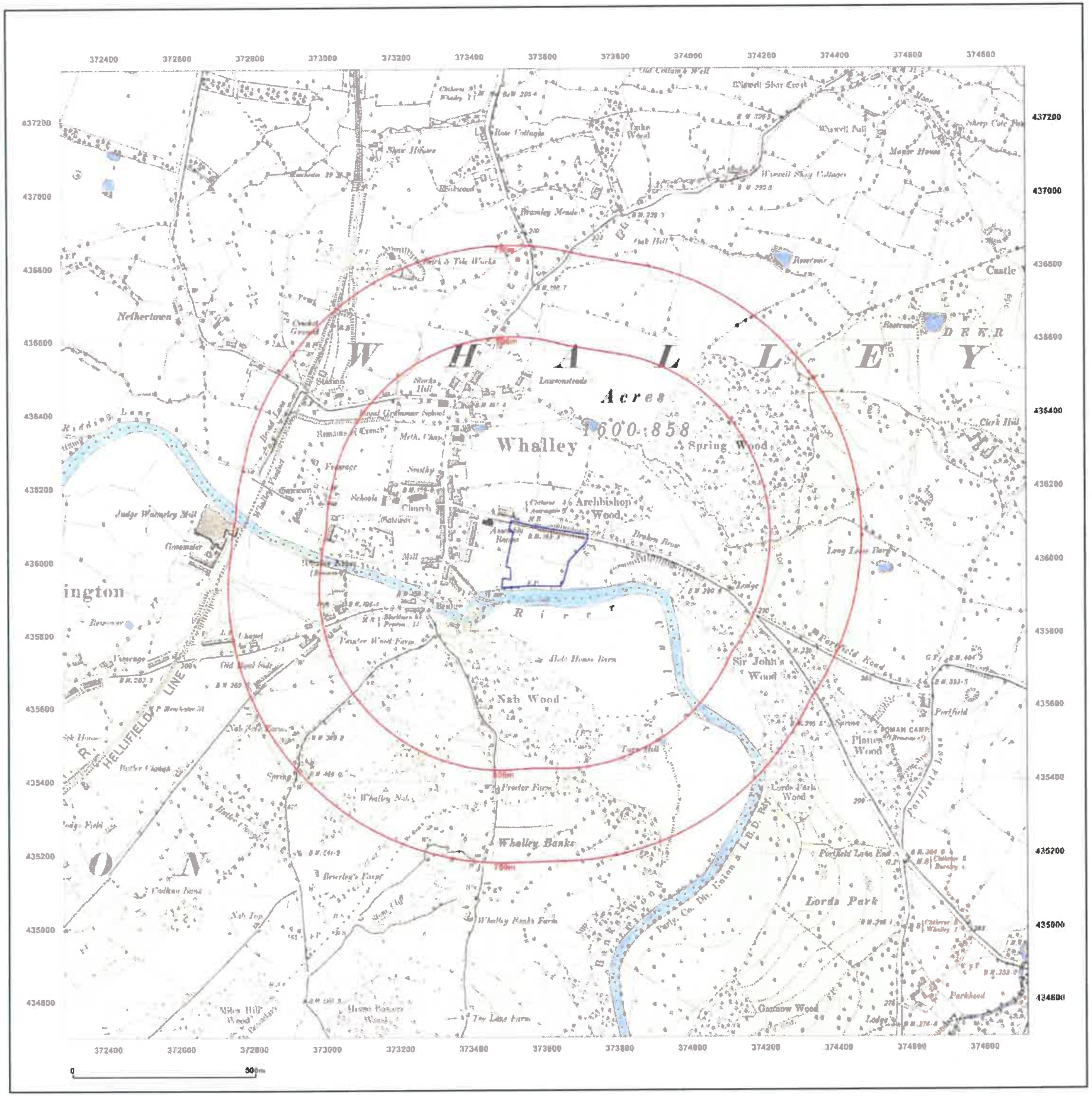

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1892
Scale: 1:10,560
Printed at: 1:10,560

N W E S

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

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

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Production date: 05 April 2019

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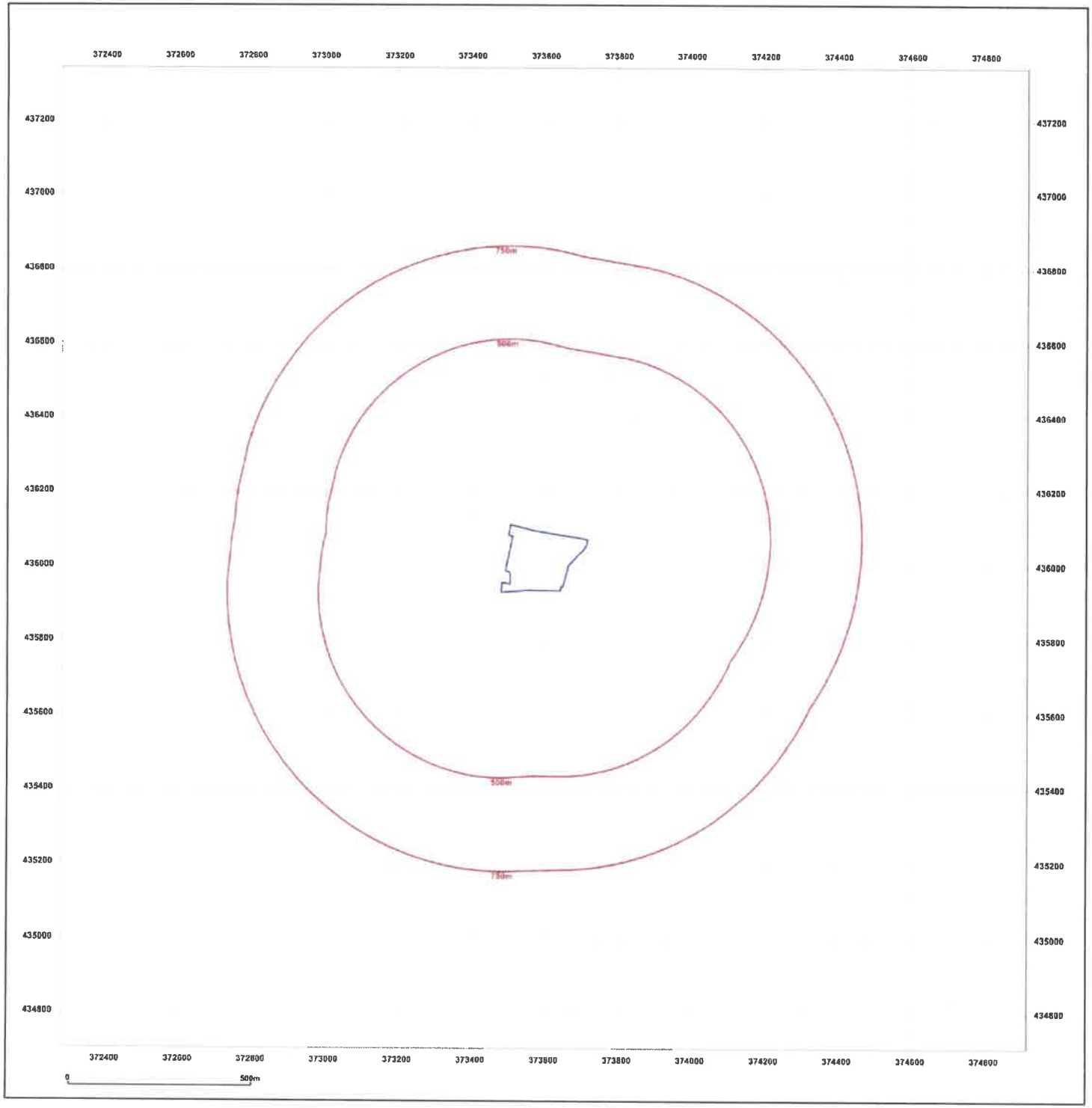

CENTRE MAPS LIVE.

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1896
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1847
Revised 1892
Edition 1896
Copyright N/A
Levelled N/A

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Production date: 05 April 2019

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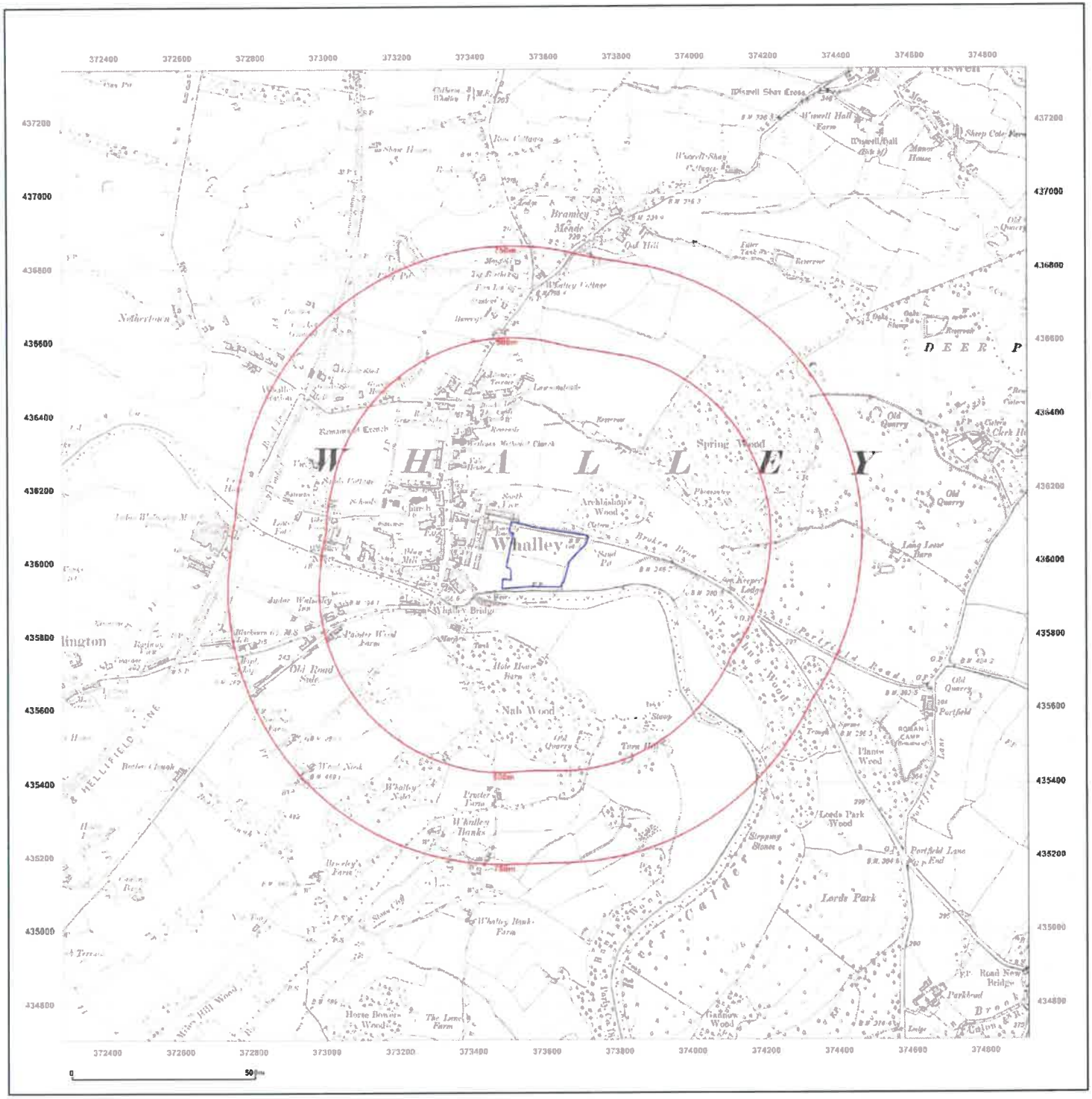

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1910
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

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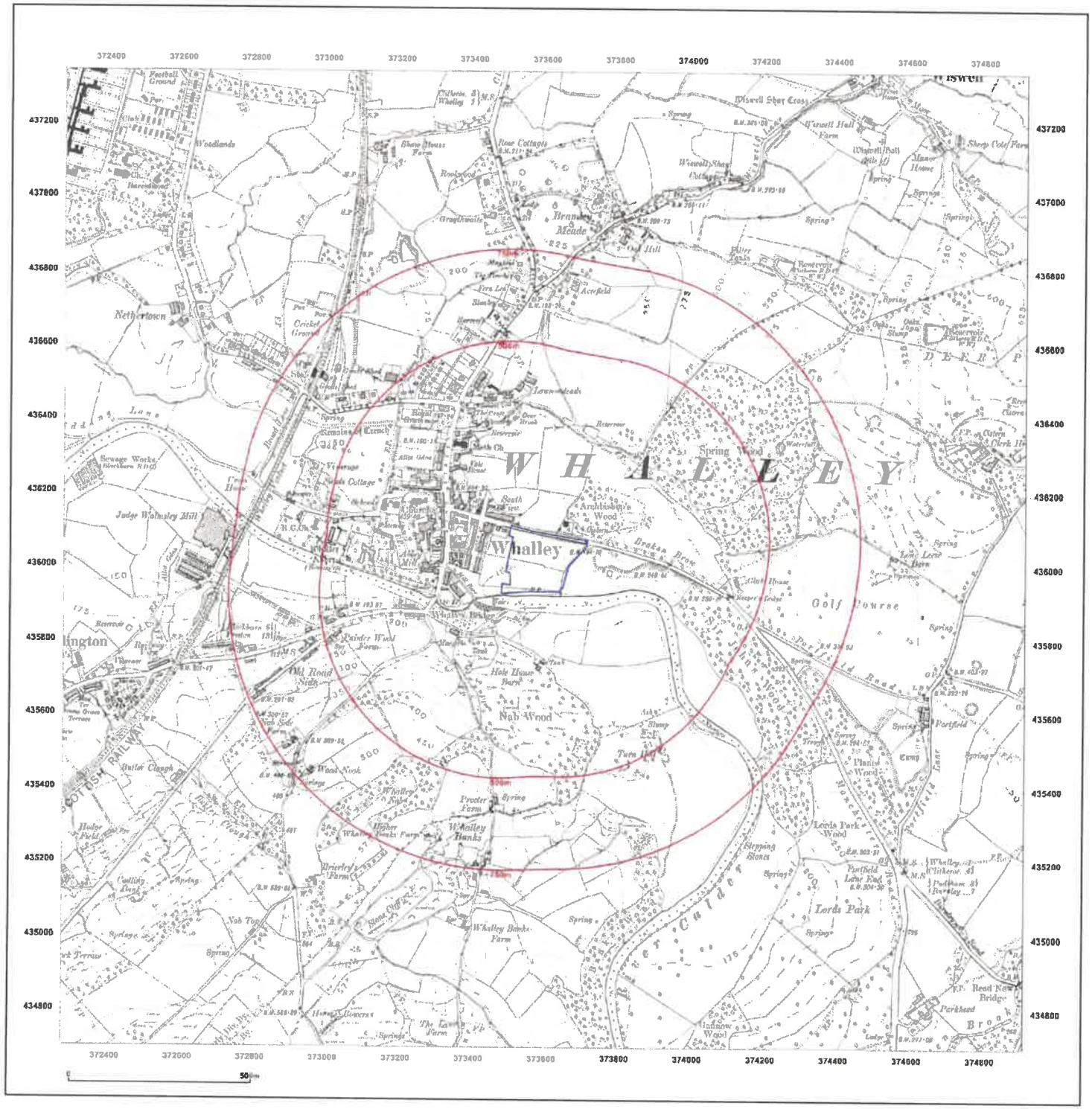

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: County Series
Map date: 1932-1933
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:
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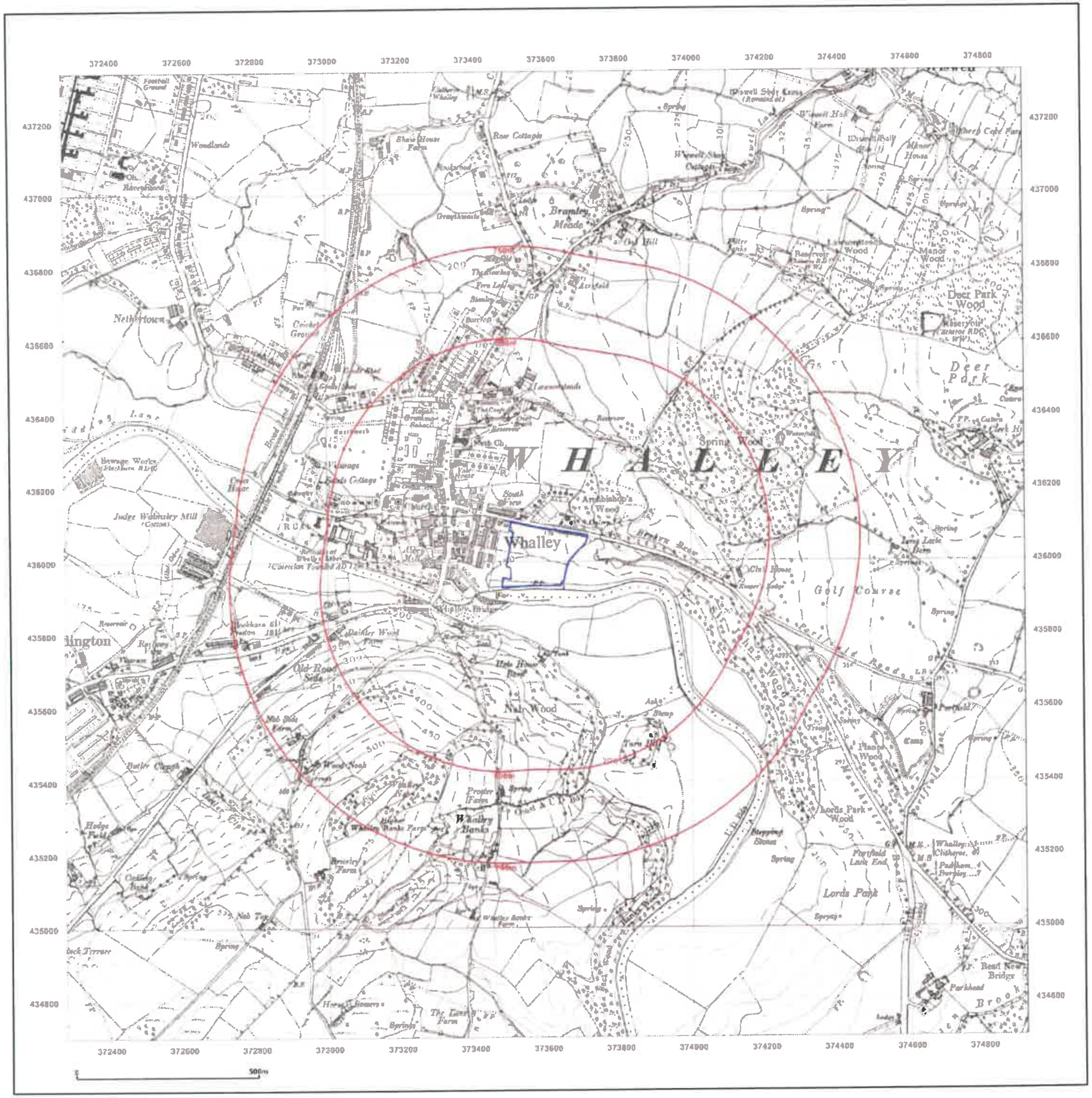

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: Provisional

Map date: 1950

Scale: 1:10,560

Printed at: 1:10,560

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
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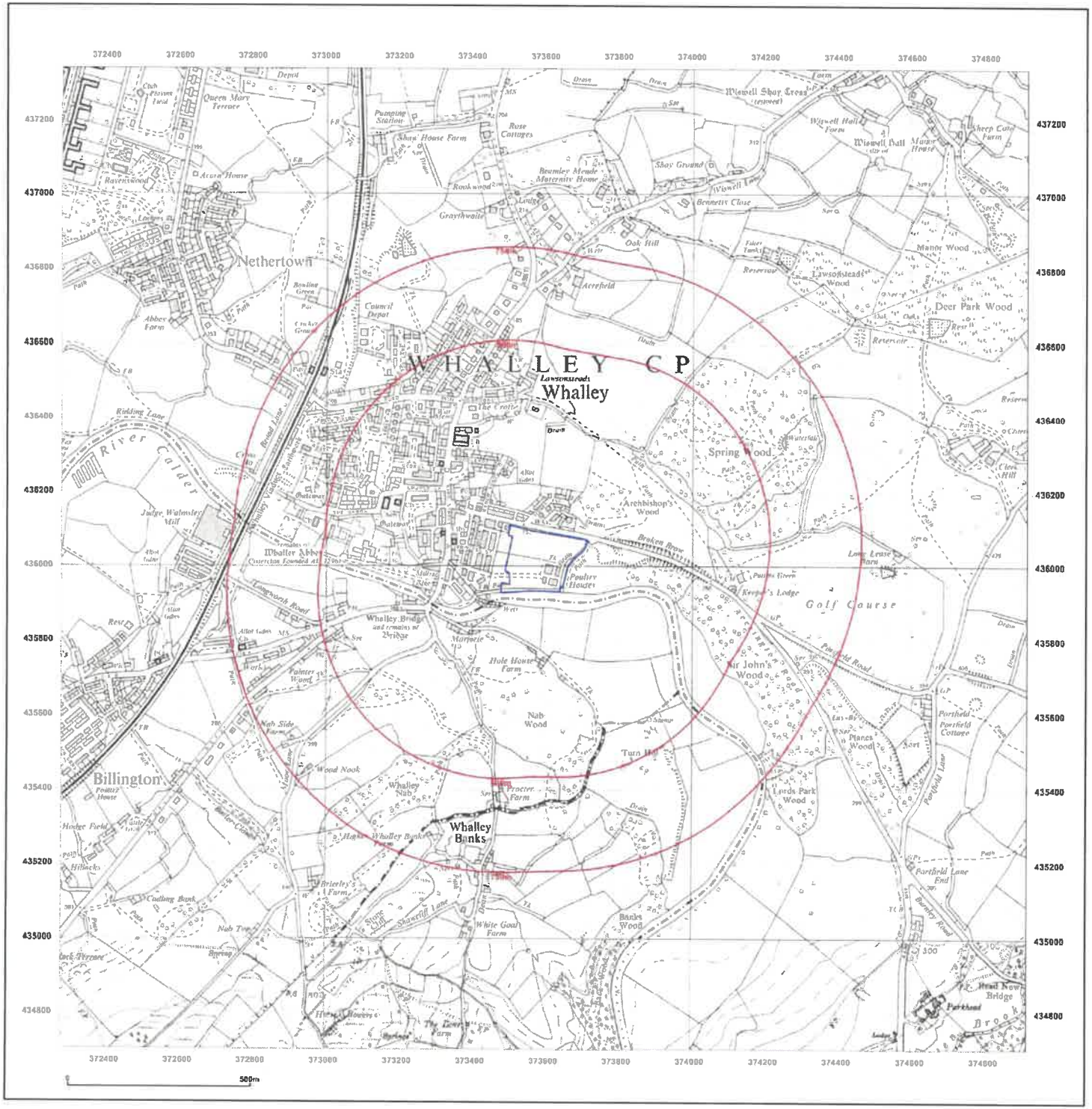

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

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 N/A
Revised 1966
Edition 1955
Copyright N/A
Levelled N/A

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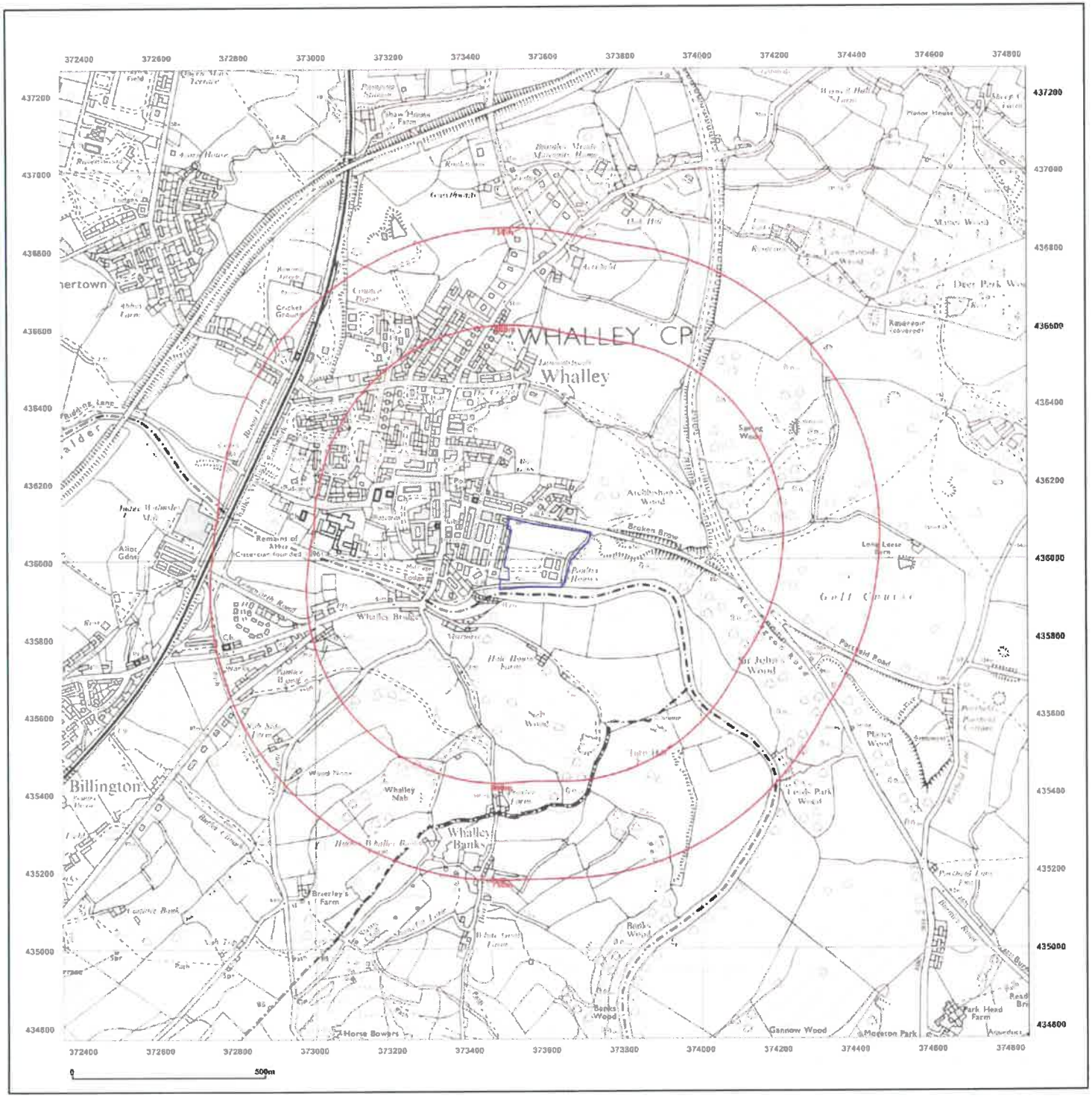

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 1973
Scale: 1:10,000
Printed at: 1:10,000

N
W E
S

Surveyed 1972
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

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

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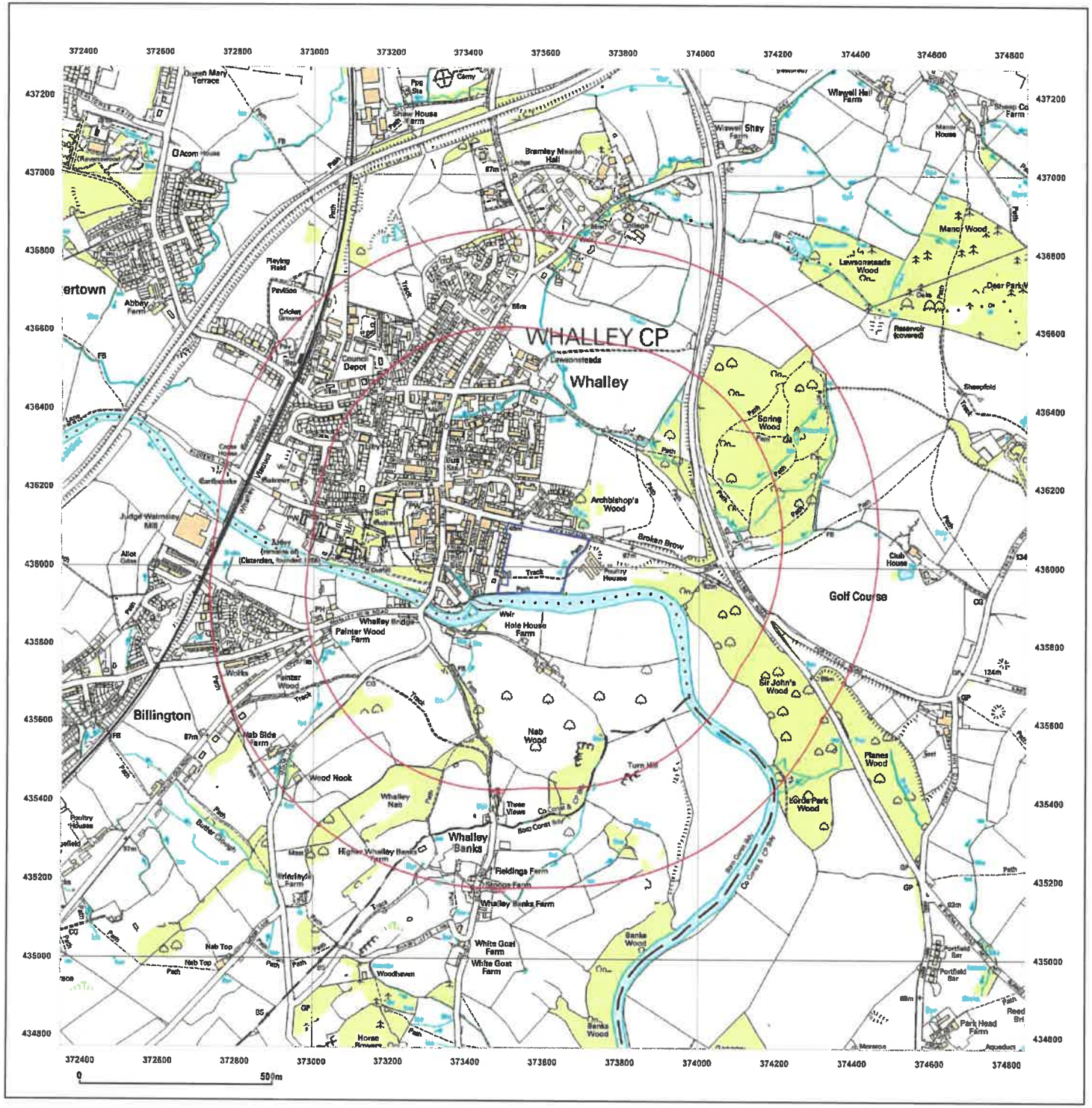

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: 1:10,000 Raster
Map date: 2002
Scale: 1:10,000
Printed at: 1:10,000

N
W E
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2002

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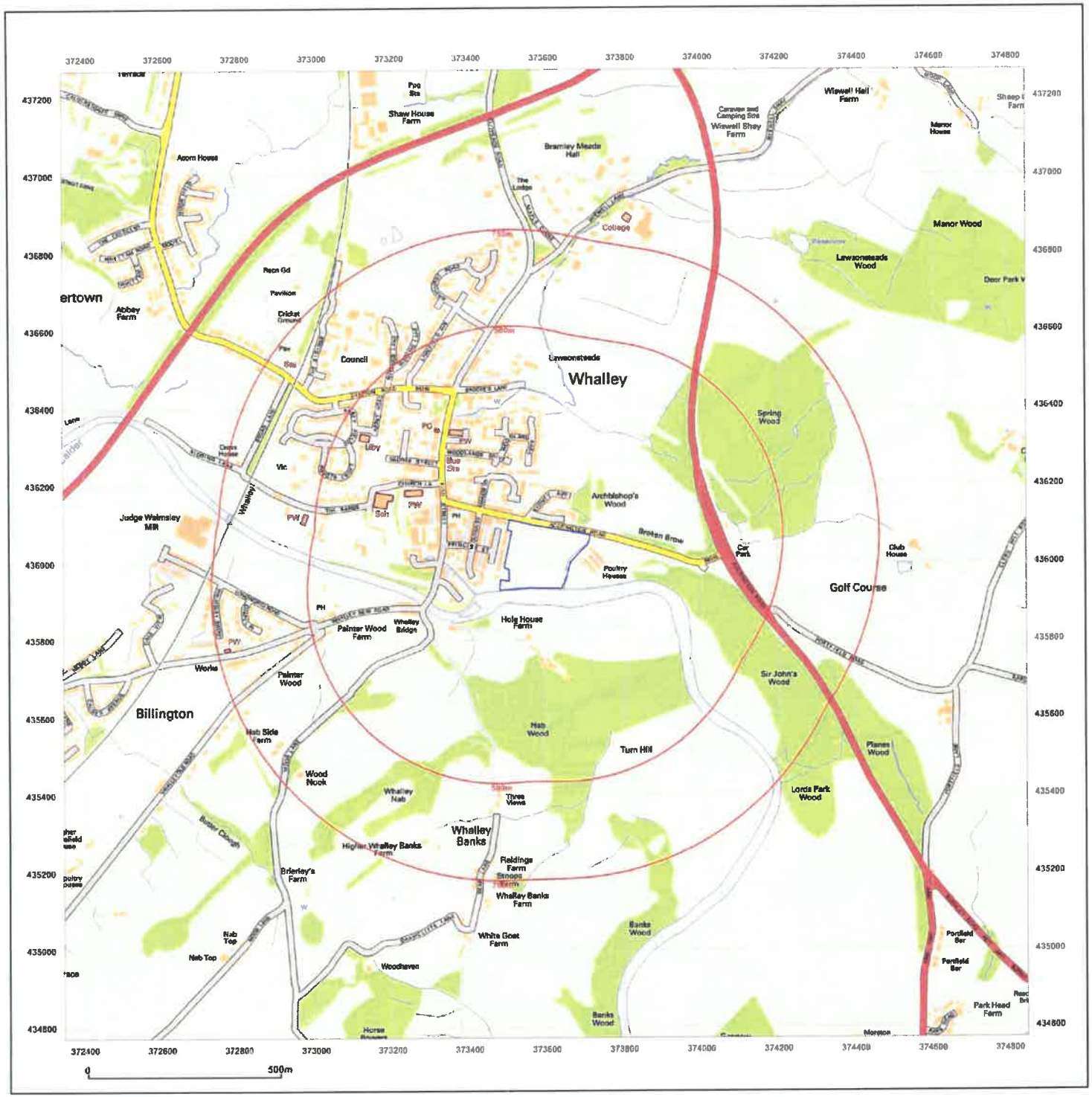

CENTRE MAPS LIVE.

Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000

N
W E
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2010

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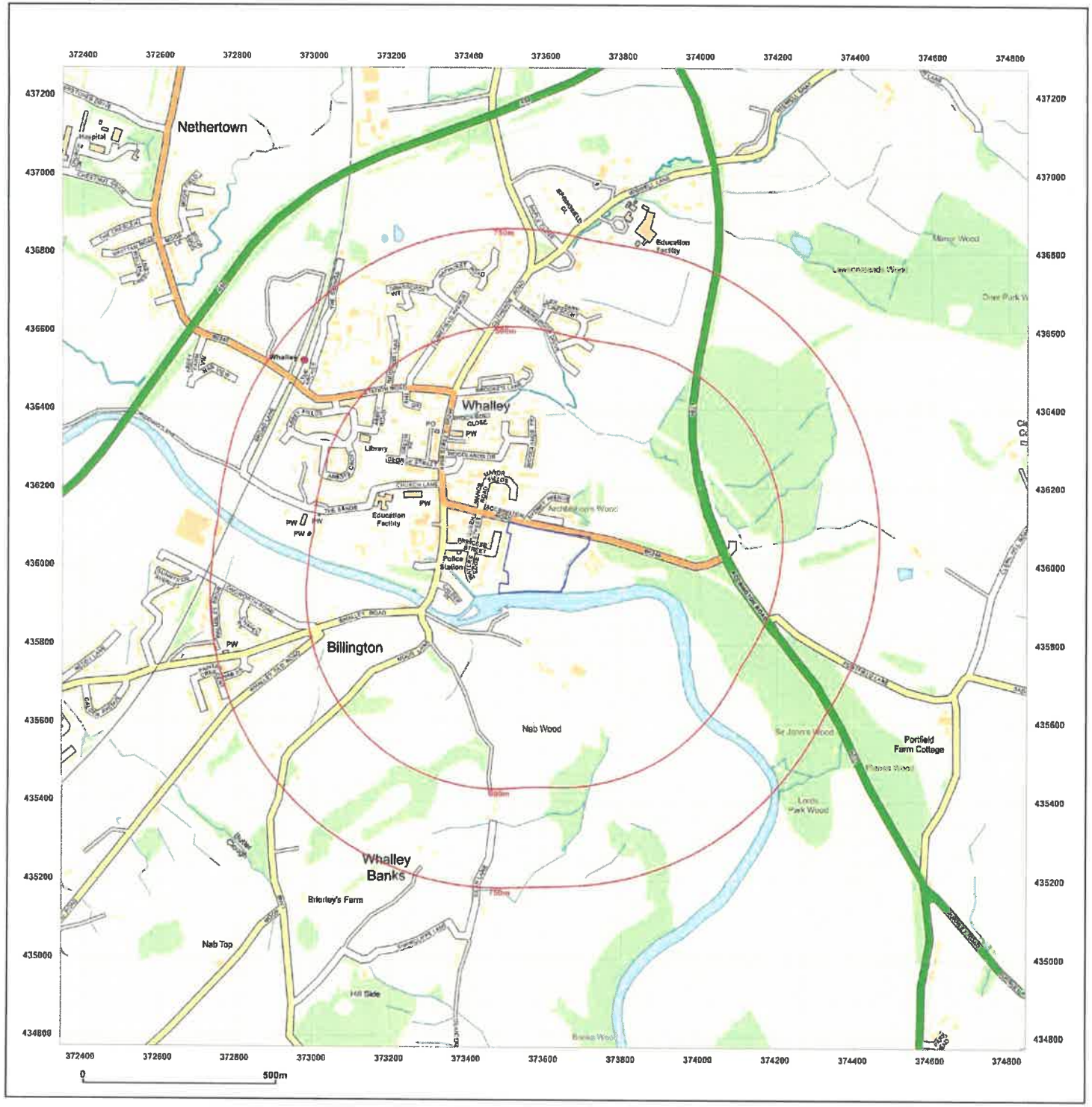

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Site Details:

Whalley (Lancashire)

Client Ref: 29721
Report Ref: CMAPS-CM-791048-29721-050419HIS
Grid Ref: 373597, 436020

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

N
W E
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2014

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GEO-ENVIRONMENTAL CONSULTING ENGINEERS

APPENDIX B

GeoInsight Report

Groundsure
LOCATION INTELLIGENCE

Geo Insight

Address:	**Whalley Lancashire,**
Date:	**5 Apr 2019**
Reference:	**CMAPS-CM-791048-29721-050419GEO**
Client:	**CENTREMAPS**

NW N NE

W E

SW S SE

Aerial Photograph Capture date: 03-Apr-2017
Grid Reference: 373597,436020
Site Size: 2.8418ha

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

Contents Page

Groundsure
LOCATION INTELLIGENCE

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Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

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

Section 2: Geology 1:50,000 Scale

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

Groundsure
LOCATION INTELLIGENCE

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Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	6	10	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	1	0	1	4

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

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

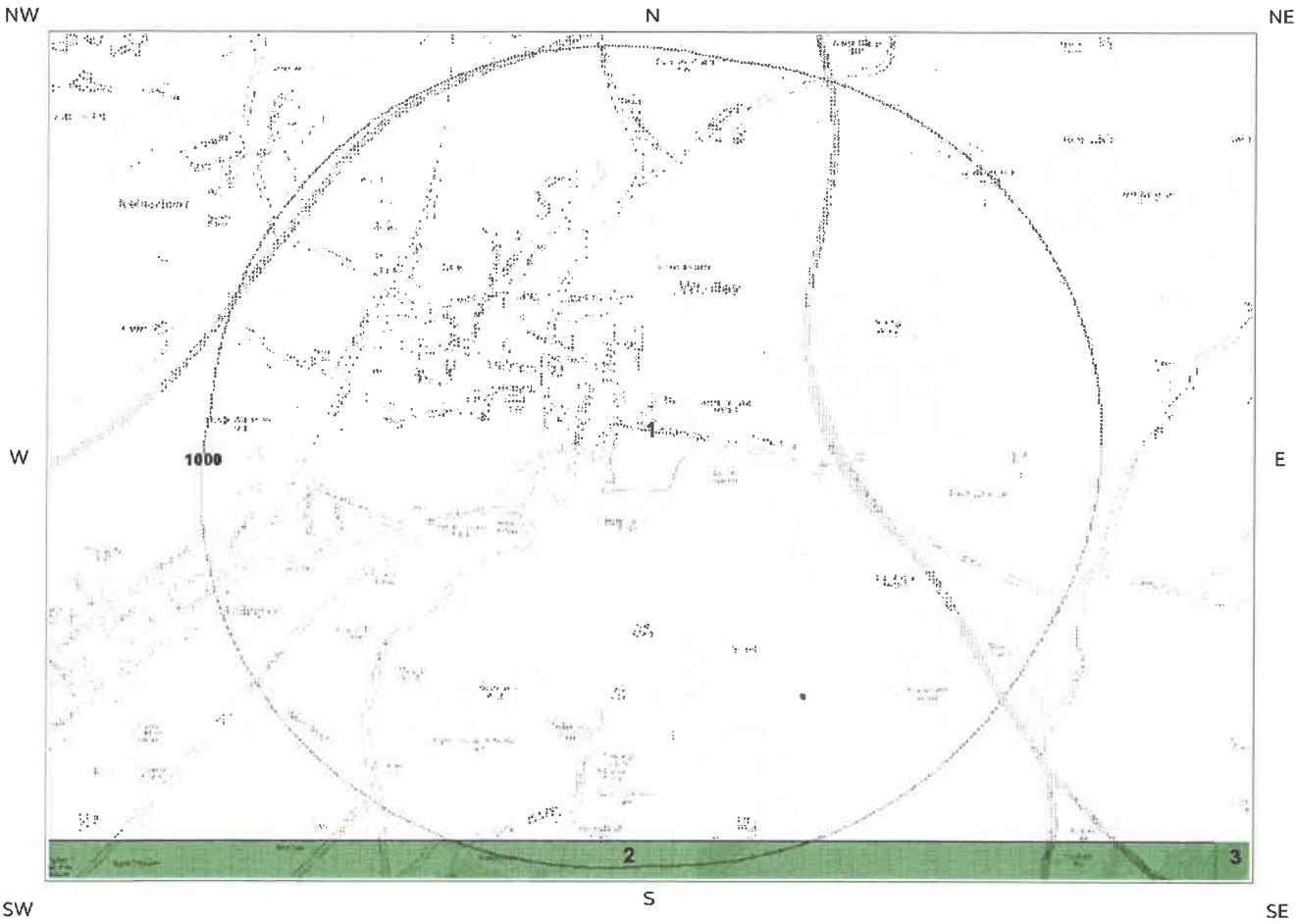
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Very Low
6.2 Landslides	Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	6

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	13	1	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	2	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

Site Outline

Full Coverage

Partial Coverage

No Coverage

50
250
Search Buffers (m)

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	No coverage	No coverage	No coverage
2	929.0	Some deposits are mapped	Full	Full	Some deposits are mapped
3	1649.0	Some deposits are mapped	Full	Full	No coverage

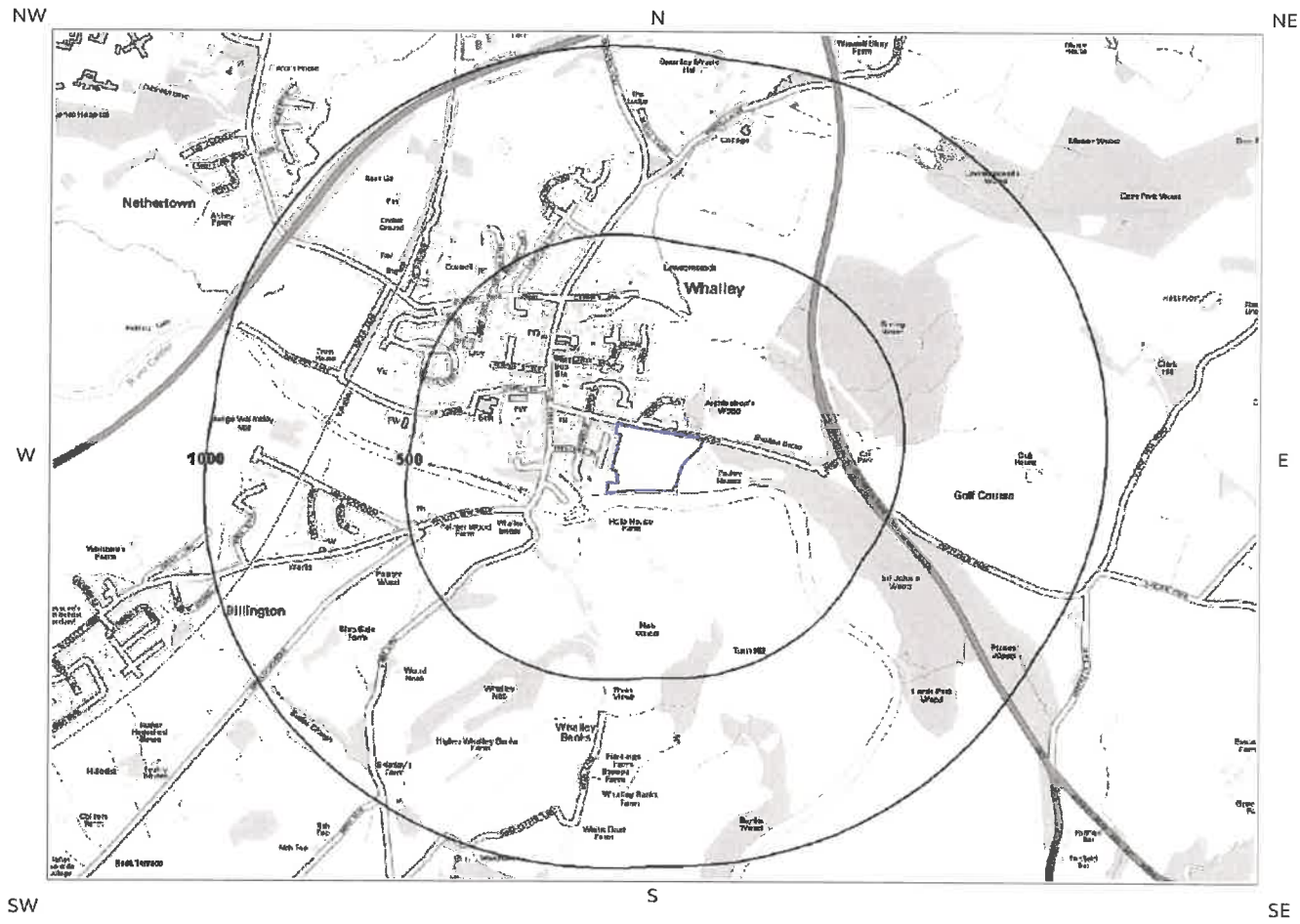
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

1. Geology 1:10,000 scale

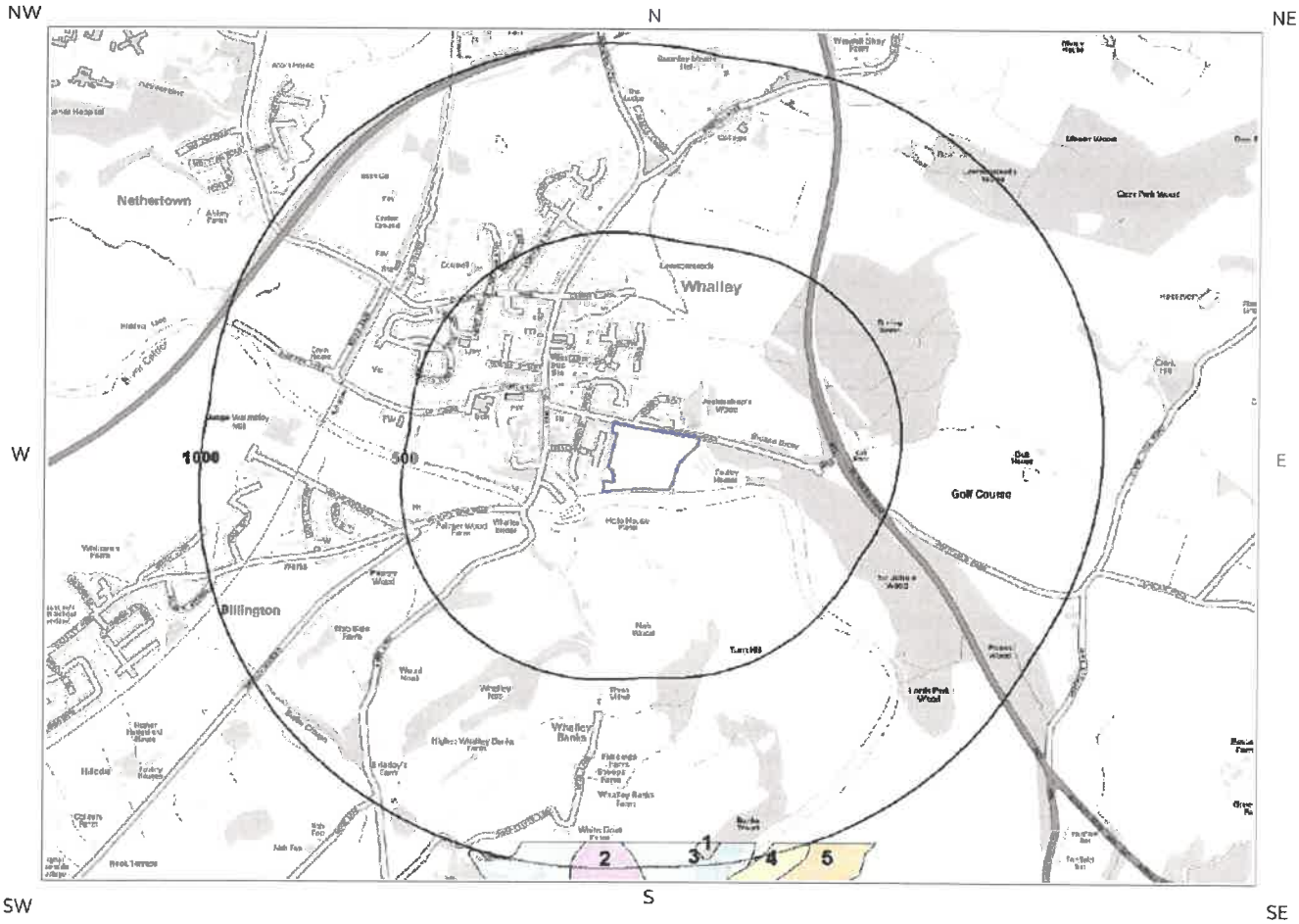
1.1 Artificial Ground

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

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

Database searched and no data found.

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



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2.2 Landslip

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

No

Database searched and no data found.

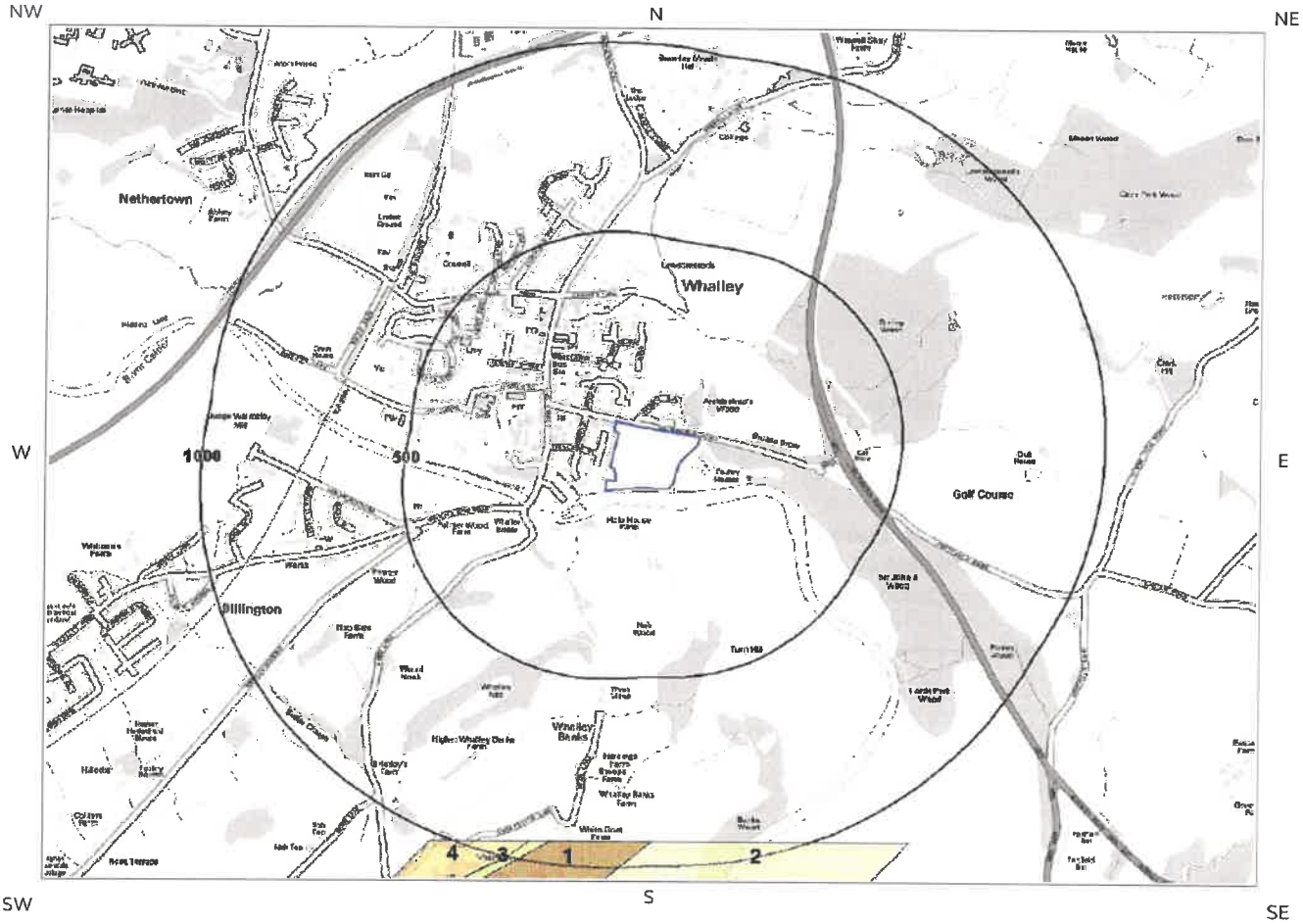
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

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

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

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



Bedrock and linear features Legend

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

Database searched and no data found at this scale.

1.3.2 Linear features

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

Database searched and no data found at this scale.

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

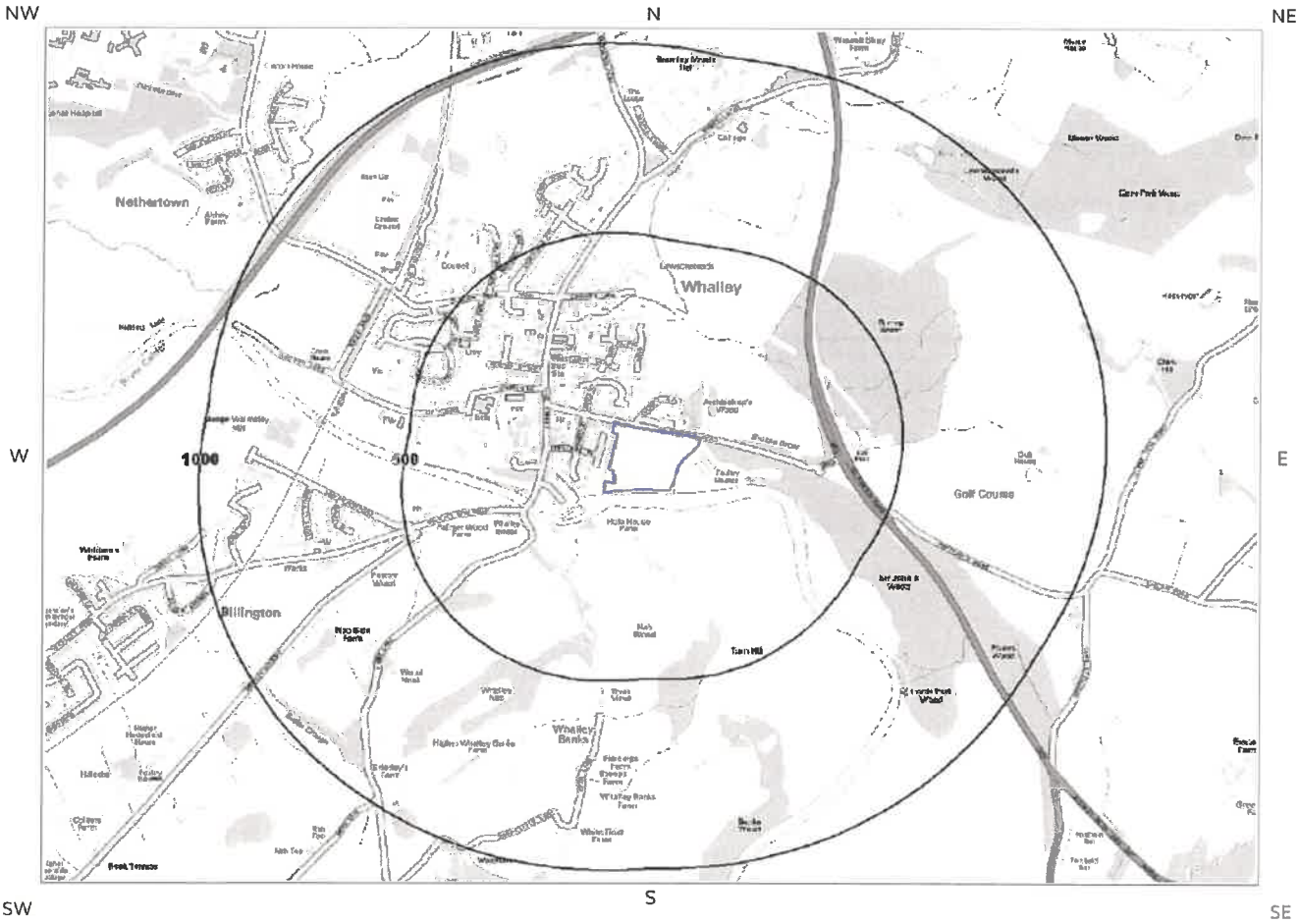
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 068

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

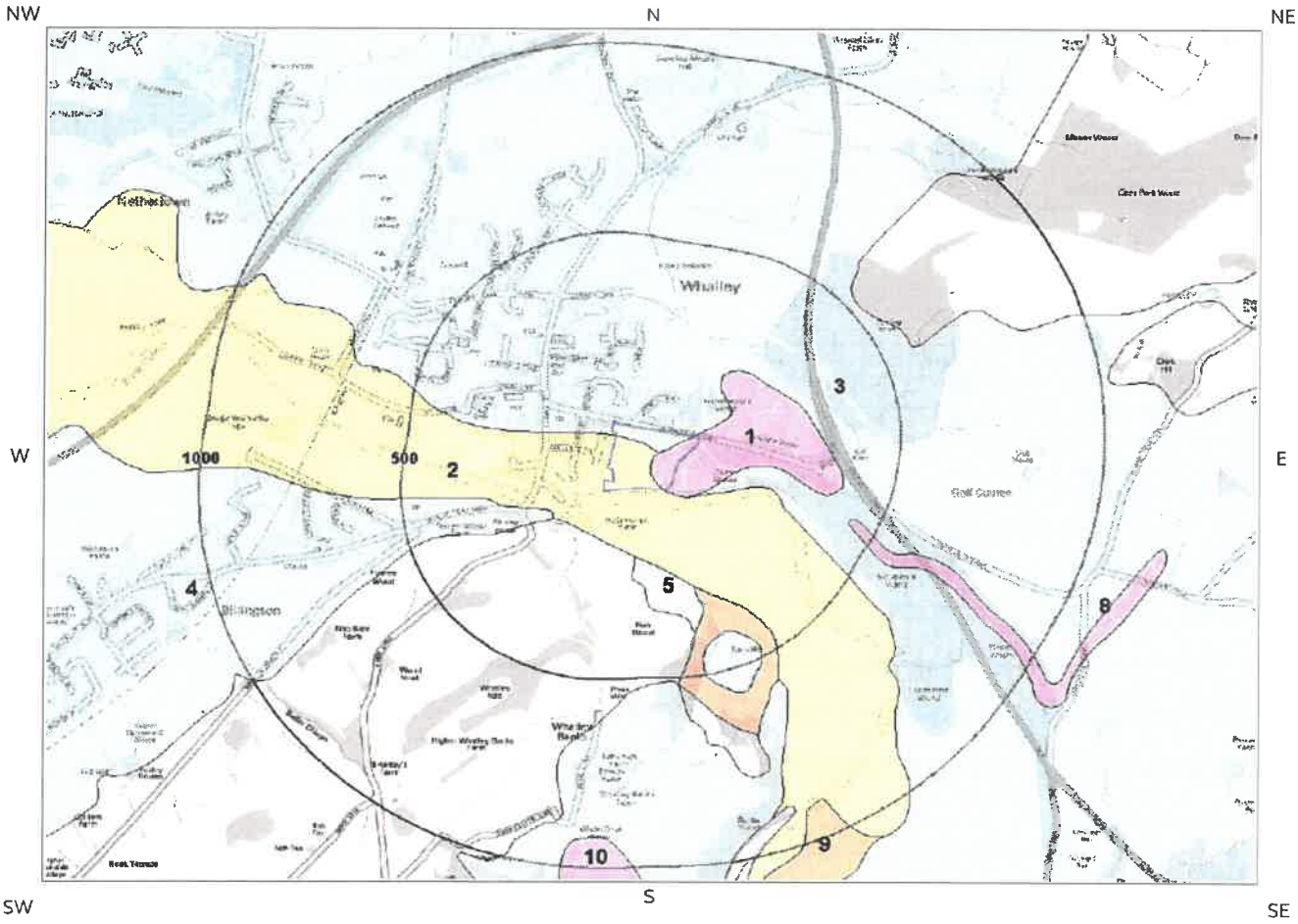
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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



Site Outline

500
1000
Search Buffers (m)

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	0.0	On Site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
4	137.0	SW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
5	179.0	S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
6A	264.0	S	RTD2-XSV	RIVER TERRACE DEPOSITS, 2	SAND AND GRAVEL
7A	400.0	S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
8	428.0	SE	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Low
0.0	On Site	Intergranular	Very High	High
0.0	On Site	Intergranular	High	Very Low

2.2.3 Landslip

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

Database searched and no data found.

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

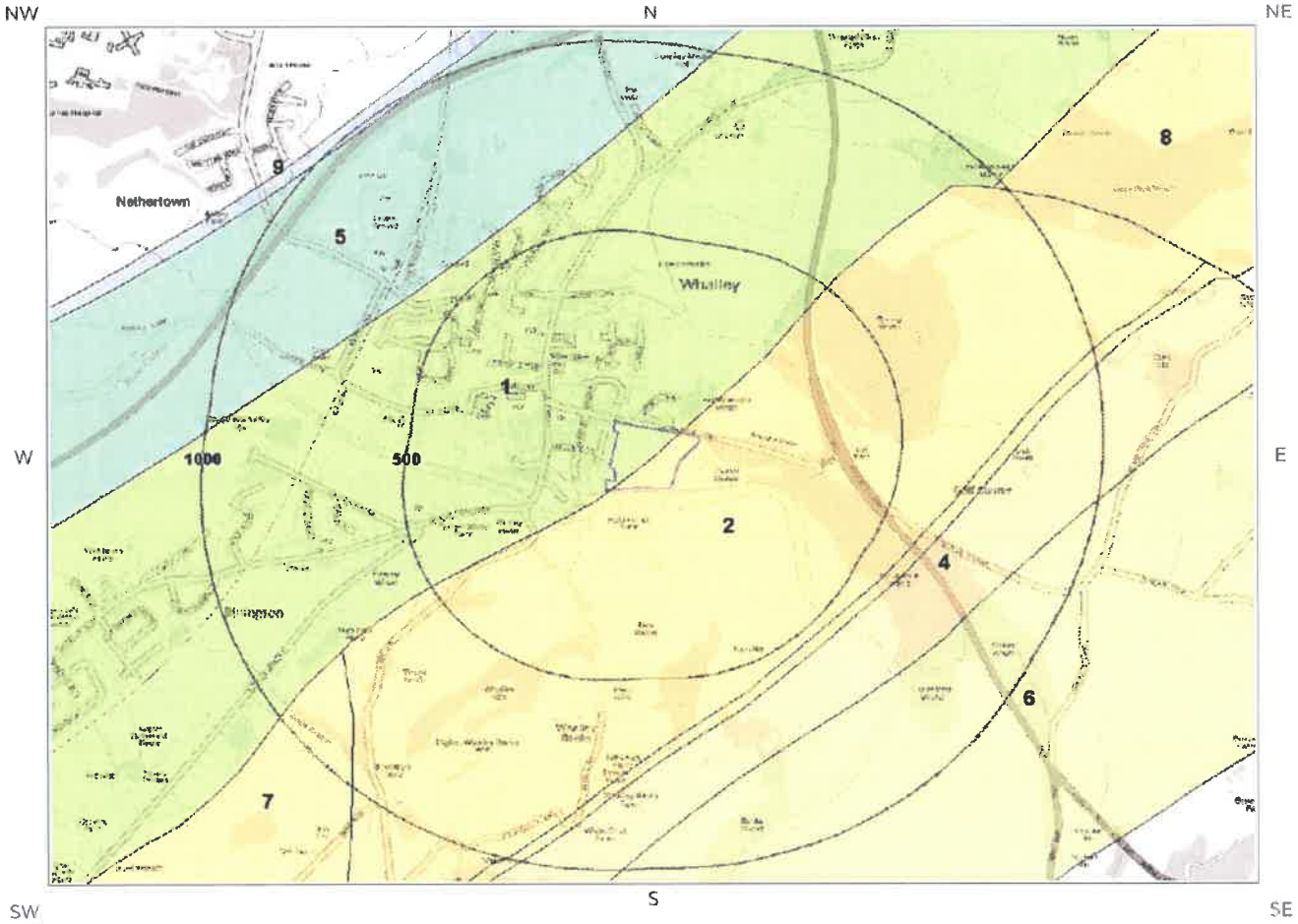
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

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



Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 068

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	BSG-MDST	BOWLAND SHALE FORMATION - MUDSTONE	VISEAN
2	0.0	On Site	PG-SDST	PENDLE GRIT MEMBER - SANDSTONE	NAMURIAN

2.3.2 Permeability of Bedrock Ground

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

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

2.3.3 Linear features

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

Database searched and no data found.

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

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

3 Radon Data

3.1 Radon Affected Areas

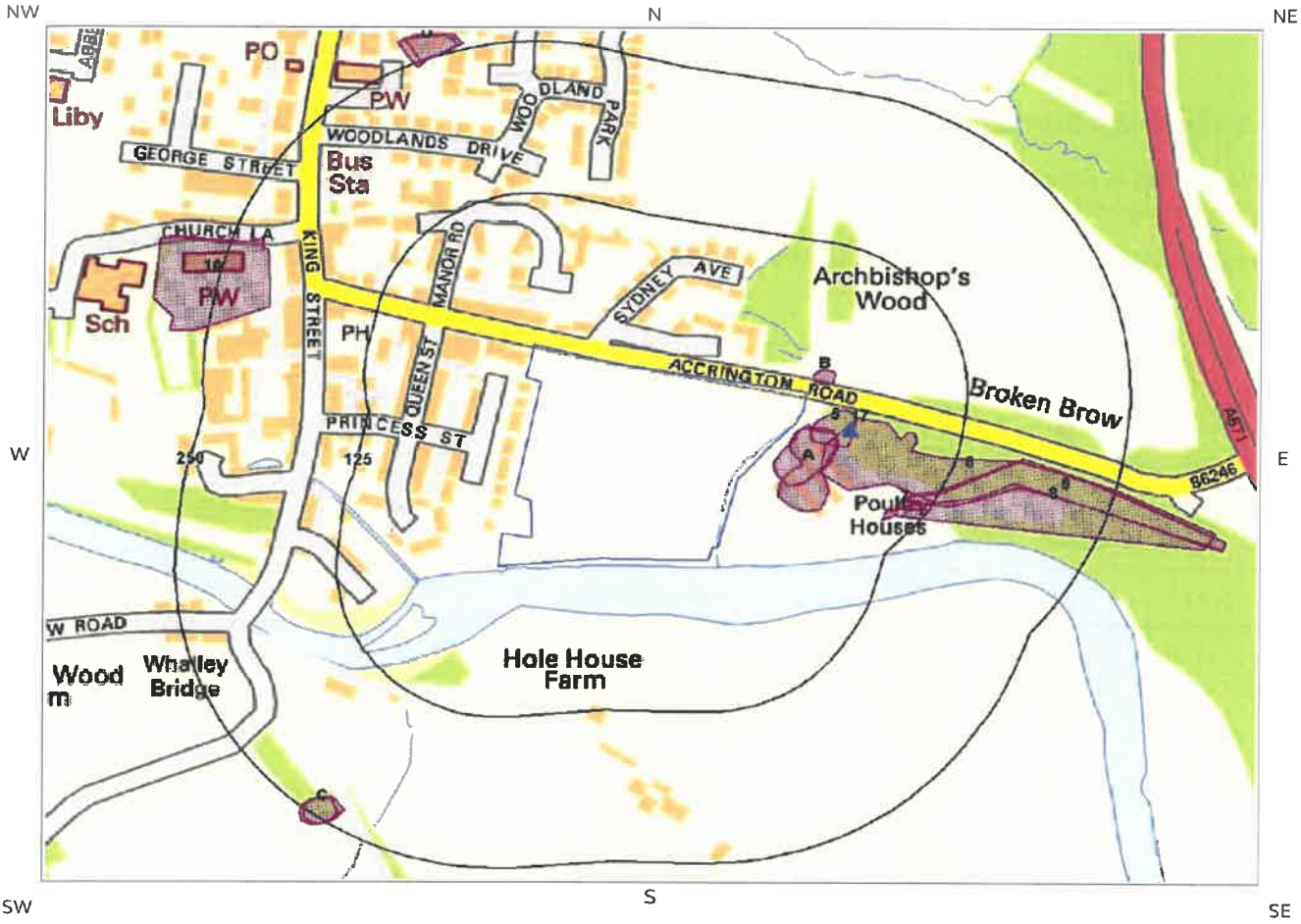
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

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

3.2 Radon Protection

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

4 Ground Workings map



Ground Workings Legend

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1A	5.0	SE	373716 436011	Unspecified Pit	1892
2A	6.0	SE	373707 436020	Sand Pit	1910
3B	11.0	NE	373729 436086	Unspecified Heap	1933
4B	11.0	NE	373729 436086	Unspecified Heap	1910
5	13.0	SE	373736 436043	Sand Pit	1846
6	28.0	SE	373883 435998	Unspecified Ground Workings	1933
7	100.0	SE	373792 435975	Sand Pit	1910
8	103.0	SE	373908 435982	Unspecified Pit	1892
9	105.0	SE	373956 435979	Unspecified Ground Workings	1910
10	206.0	W	373256 436162	Grave Yard	1846
11C	230.0	SW	373345 435727	Unspecified Pit	1950
12C	232.0	SW	373341 435727	Unspecified Pit	1933
13C	232.0	SW	373341 435727	Unspecified Pit	1910
14D	246.0	N	373421 436353	Reservoir	1910
15D	246.0	N	373421 436353	Reservoir	1933
16D	249.0	N	373426 436356	Reservoir	1950

4.2 Historical Underground Working Features derived from Historical Mapping

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

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

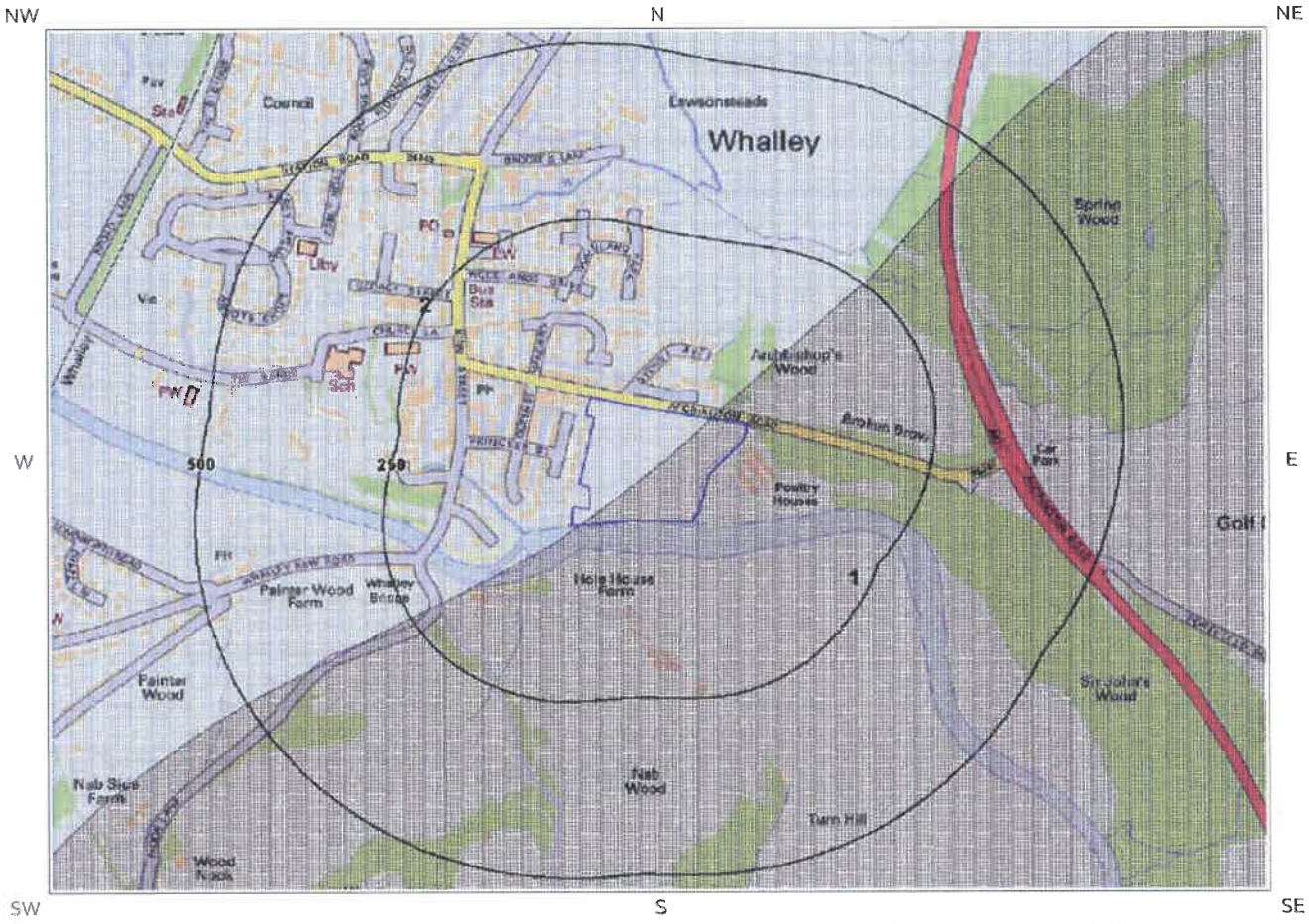
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
17	40.0	SE	373749 436042	Sand	Sand House Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	442.0	S	373718 435499	Sandstone	Nab Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	757.0	N	373235 436819	Clay & Shale	Whalley Brick & Tile Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	860.0	NE	374506 436410	Sandstone	Clerk Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	935.0	E	374644 436174	Sandstone	Long Leese Barn	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	961.0	E	374618 436402	Sandstone	Clerk Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

Site Outline

Search Buffers (m)

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

Database searched and no data found.

5.2 Coal Mining

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

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

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

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

5.3 Johnson Poole and Bloomer

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

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

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

5.4 Non-Coal Mining

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

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

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Vein Mineral	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
2	0.0	On Site	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	929.0	S	Not available	Vein Mineral	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

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

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

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Tin Mining

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

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

Database searched and no data found.

5.10 Clay Mining

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

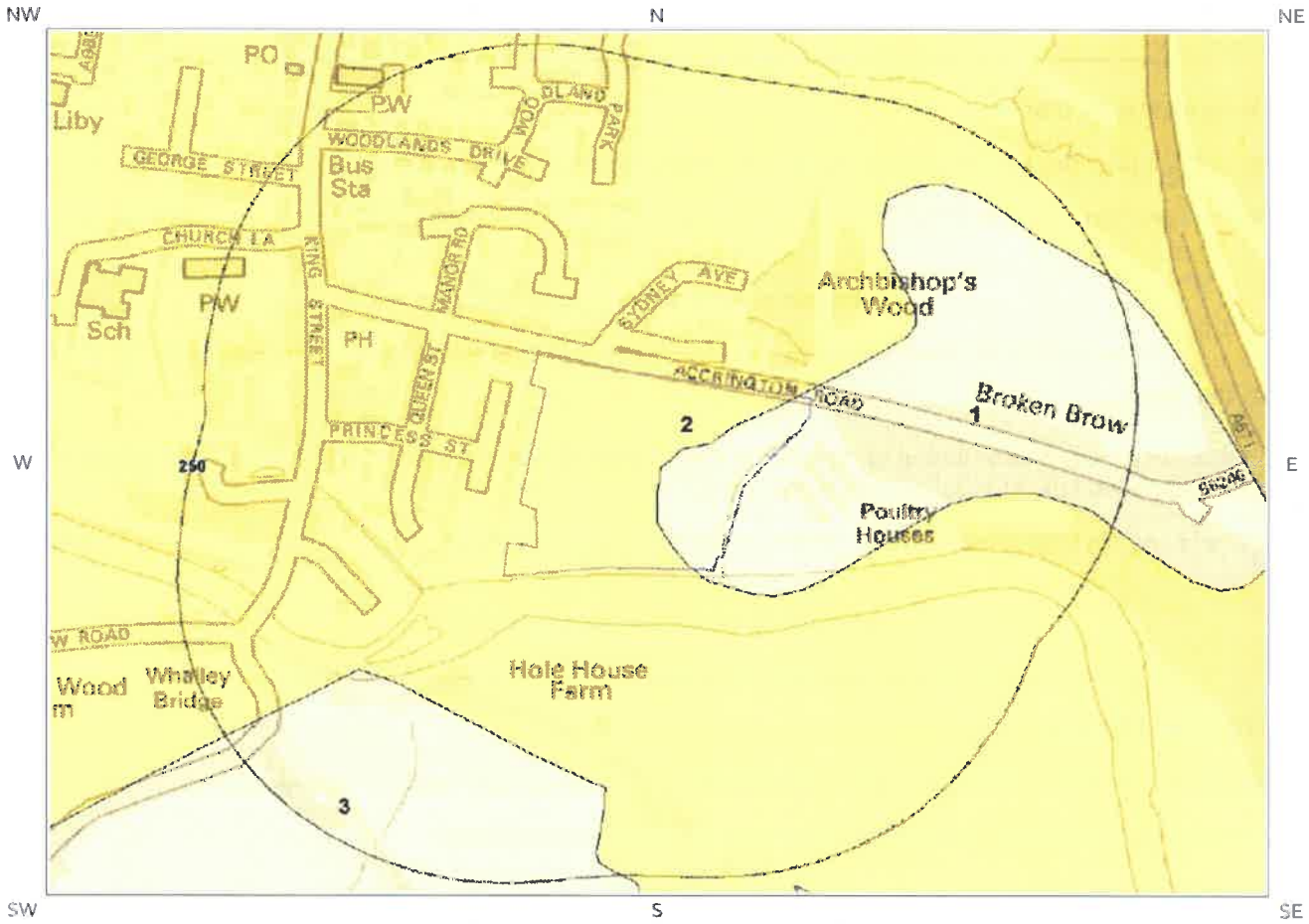
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



Shrink Swell Clay Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null

Negligible

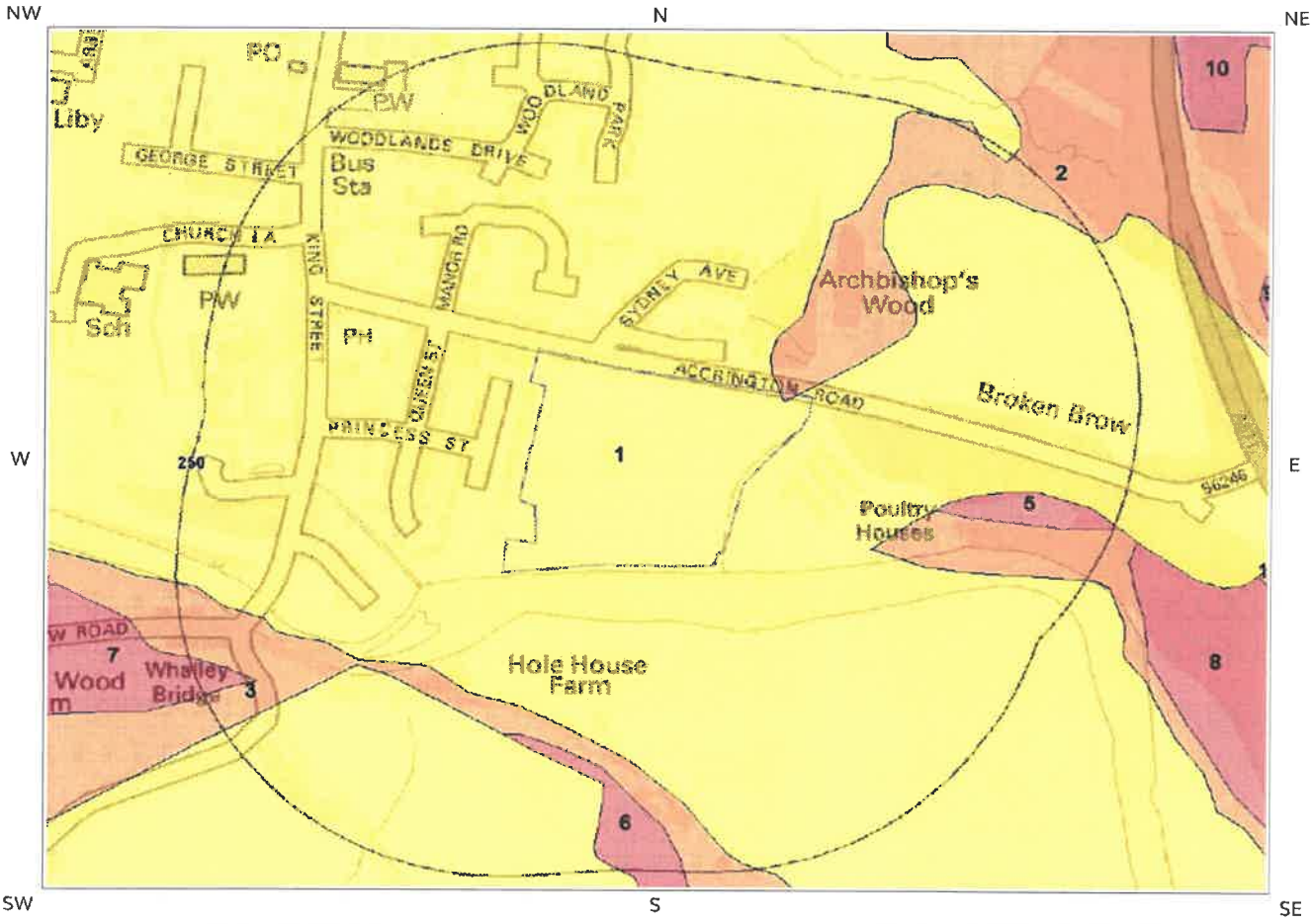
Very Low

Low

Moderate

High

6.2 Landslides map



Landslides Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null

Negligible

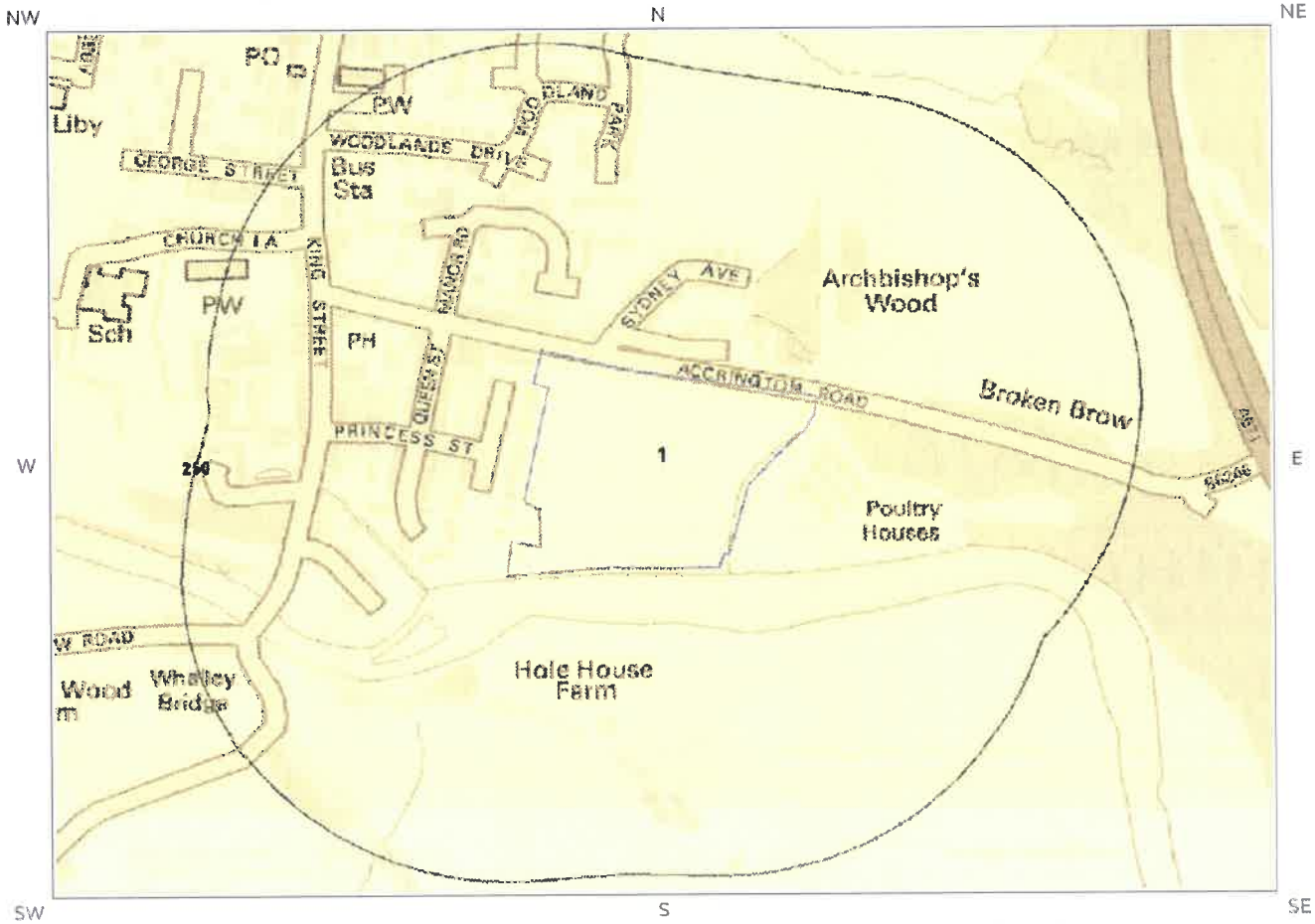
Very Low

Low

Moderate

High

6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null

Negligible

Very Low

Low

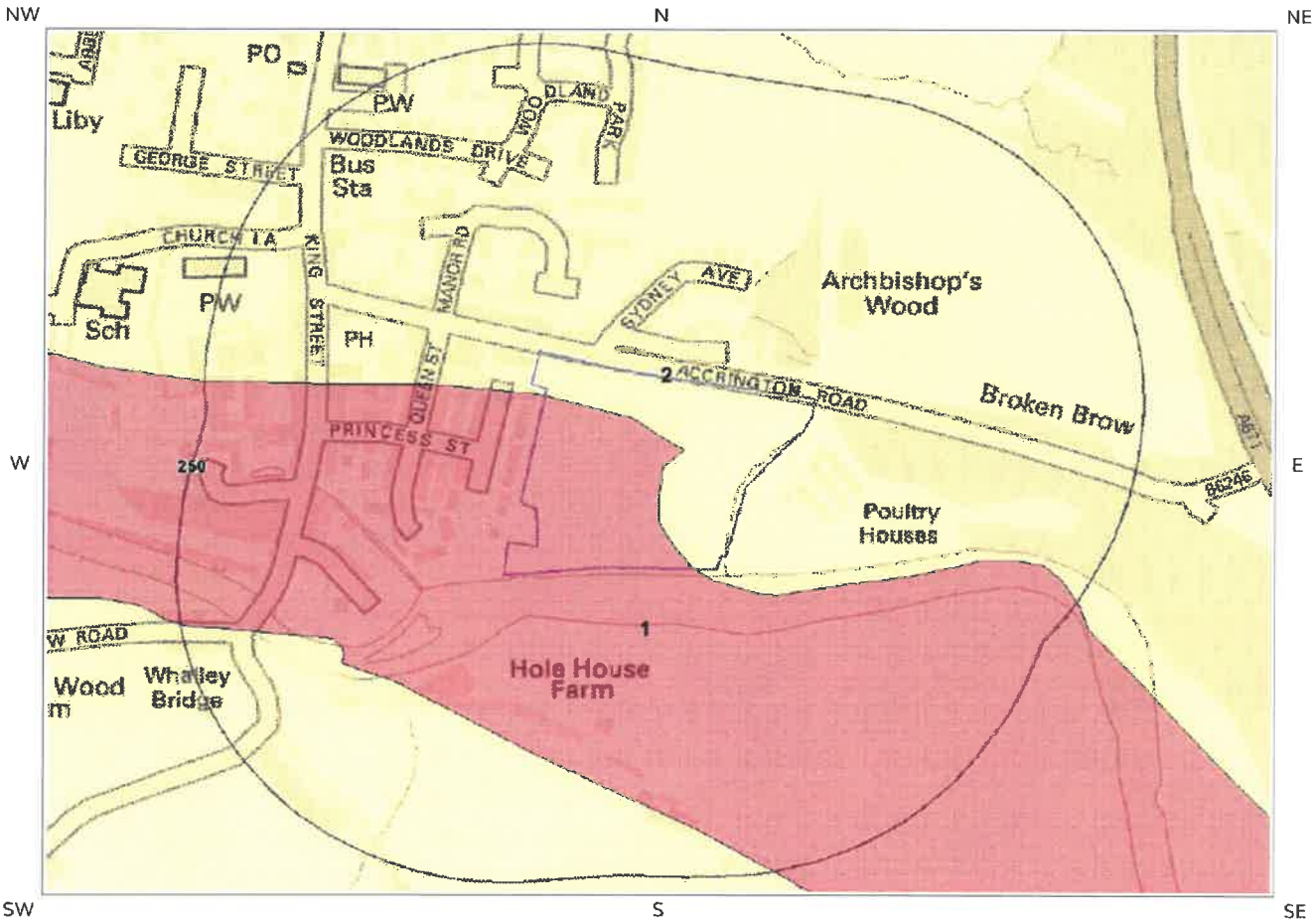
Moderate

High

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

6.4 Compressible Deposits map



Compressible Deposits Legend

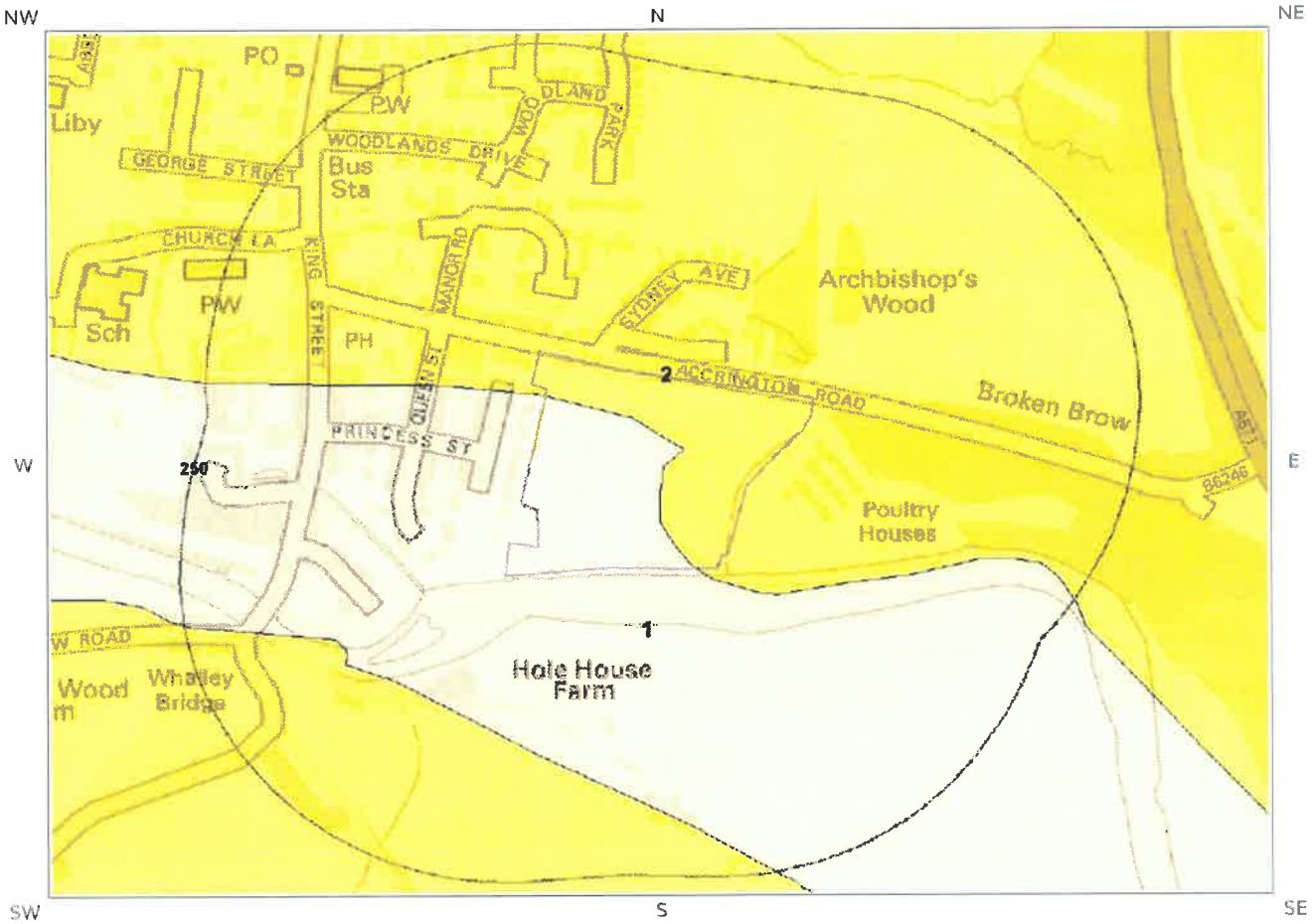
Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

6.5 Collapsible Deposits map



Collapsible Deposits Legend

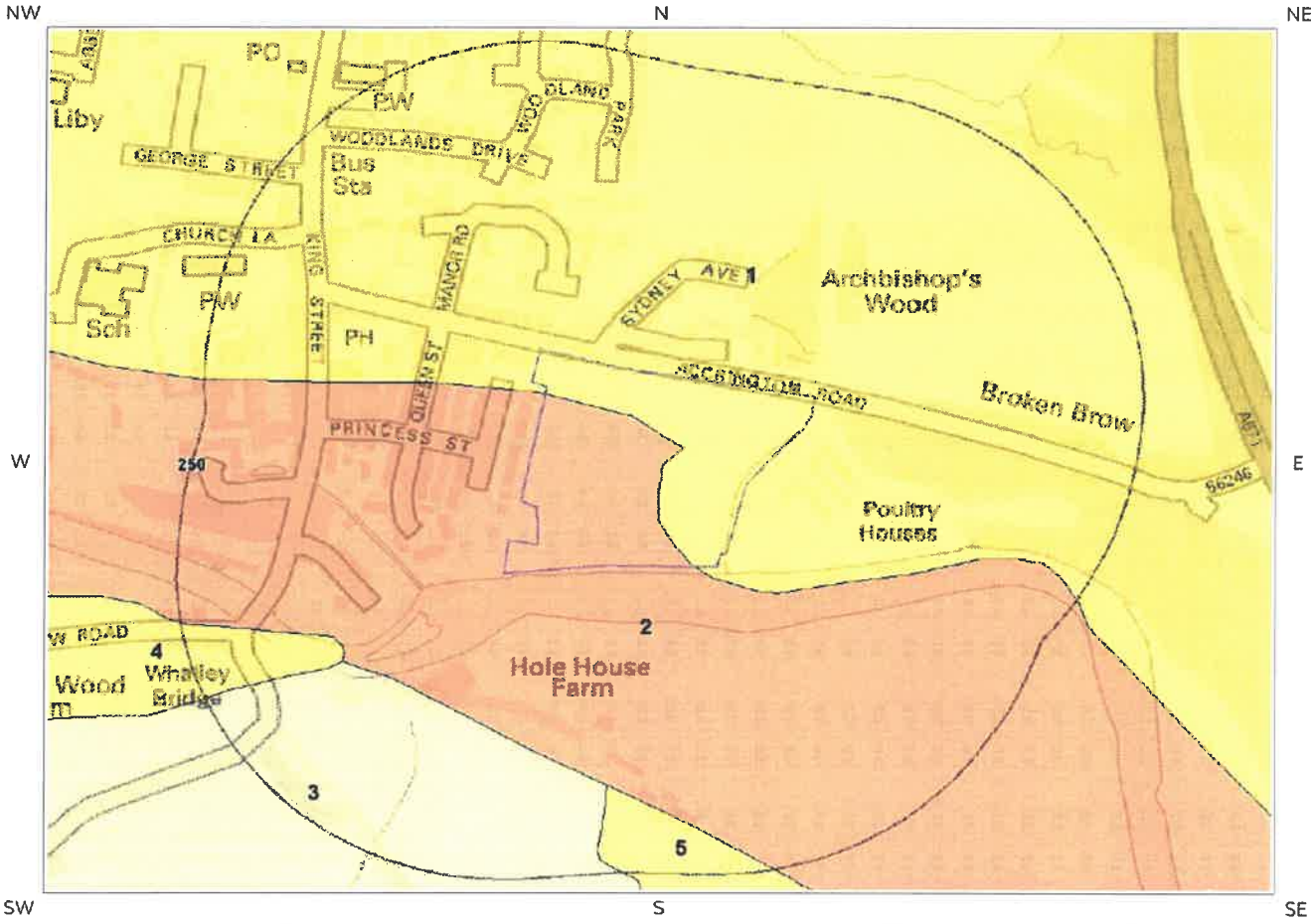
Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

6.6 Running Sand map



Running Sand Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

6 Natural Ground Subsidence

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

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

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

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

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

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
2	0.0	On Site	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

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

6.3 Ground Dissolution of Soluble Rocks

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

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

6.4 Compressible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
2	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

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

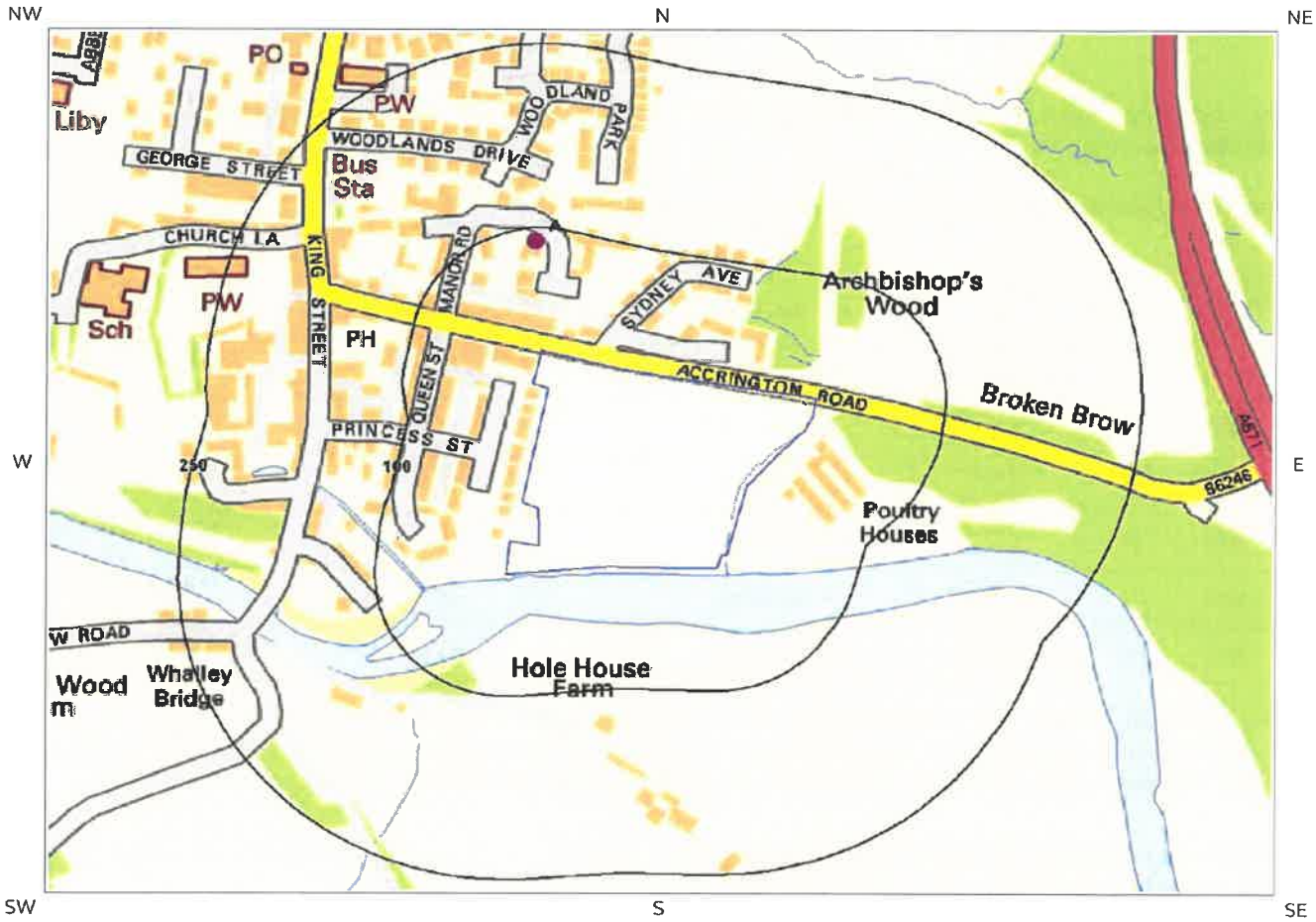
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

7 Borehole Records map



Borehole Records Legend

Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

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

Records of boreholes within 250m of the study site boundary: 6

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1A	89.0	N	373500 436200	SD73NW104	15.0	SOUTHVIEW WHALLEY BH4
2A	89.0	N	373500 436200	SD73NW103	11.0	SOUTHVIEW WHALLEY BH3
3A	89.0	N	373500 436200	SD73NW102	12.0	SOUTHVIEW WHALLEY BH2
4A	89.0	N	373500 436200	SD73NW101	10.0	SOUTHVIEW WHALLEY BH1
5A	89.0	N	373500 436200	SD73NW105	13.5	SOUTHVIEW WHALLEY BH4
6A	89.0	N	373500 436200	SD73NW106	12.0	SOUTHVIEW WHALLEY BH6

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

#1A: scans.bgs.ac.uk/sobi_scans/boreholes/25601
#2A: scans.bgs.ac.uk/sobi_scans/boreholes/25600
#3A: scans.bgs.ac.uk/sobi_scans/boreholes/25599
#4A: scans.bgs.ac.uk/sobi_scans/boreholes/25598
#5A: scans.bgs.ac.uk/sobi_scans/boreholes/25602
#6A: scans.bgs.ac.uk/sobi_scans/boreholes/25603

8 Estimated Background Soil Chemistry

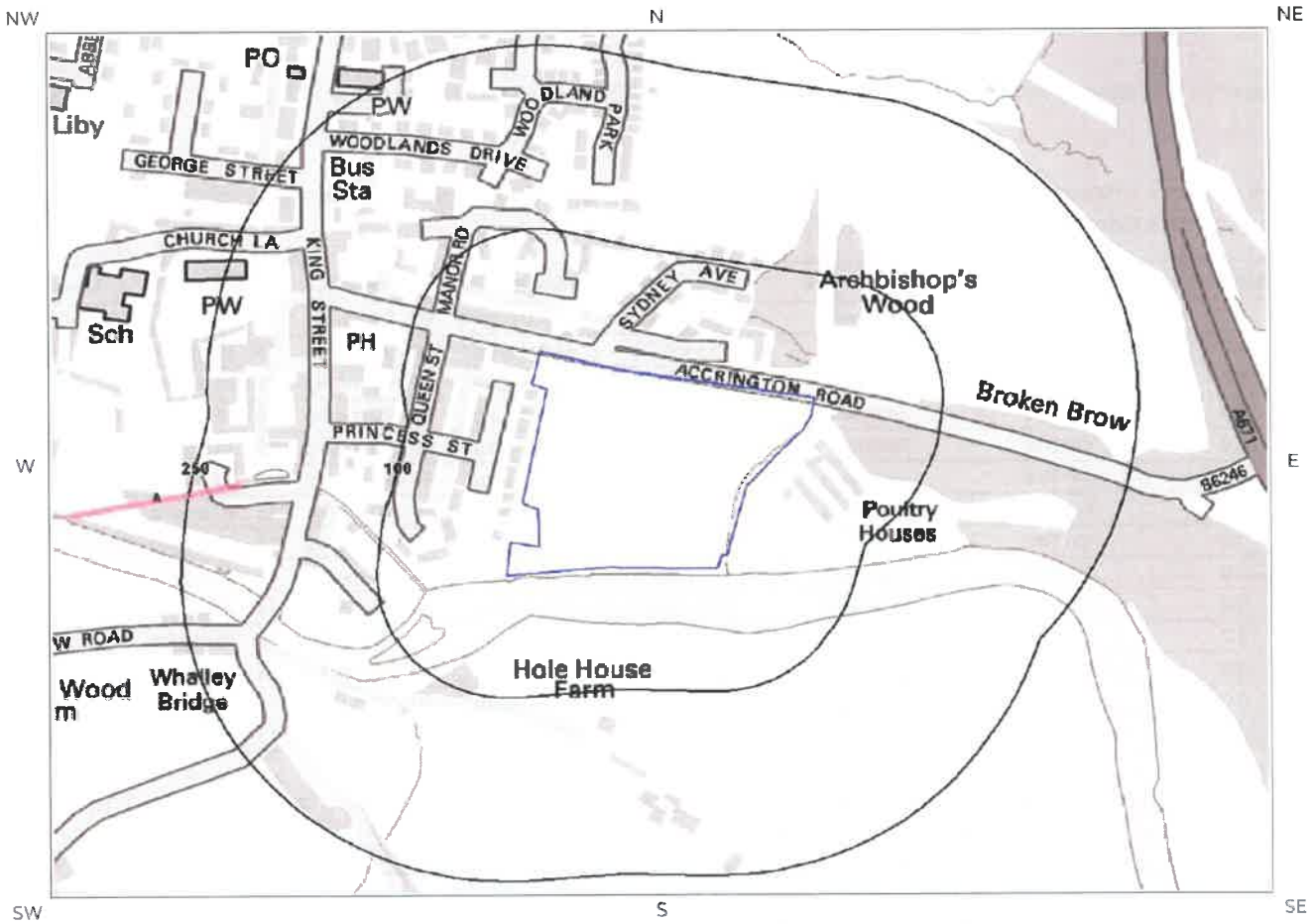
Records of background estimated soil chemistry within 250m of the study site boundary: 14

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
50.0	SE	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg

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

9 Railways and Tunnels map



Railways and Tunnels Legend

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

9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

Have any historical railway or tunnel features been identified within the study site boundary? No

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

ID	Distance (m)	Direction	NGR	Details	Date
1A	212	W	373206 435992	Tunnel	1846
2A	212	W	373206 435992	Tunnel	1846

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

9.3 Historical Railways

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

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

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

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

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

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

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

Is the study site within 5km of the route of the High Speed 2 rail project?	No
Is the study site within 500m of the route of the Crossrail 1 rail project?	No

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

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

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

Groundsure
LOCATION INTELLIGENCE

Contact Details

CENTREMAPS

Telephone: 01886 832972
Groundsure@centremaps.co.uk
Open Space, Upper Interfields, Malvern, Worcester, WR14 1UT

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

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

Public Health England

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

Johnson Poole & Bloomer Limited

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

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

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

Getmapping PLC

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

Peter Brett Associates

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

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-feb11-2019

APPENDIX C

EnvironInsight Report

Groundsure
LOCATION INTELLIGENCE

Enviro Insight

Address:	**Whalley Lancashire,**
Date:	**5 Apr 2019**
Reference:	**CMAPS-CM-791048-29721-050419EDR**
Client:	**CENTREMAPS**

NW N NE

W E

SW S SE

Aerial Photograph Capture date: 03-Apr-2017
Grid Reference: 373597,436020
Site Size: 2.8418ha

Report Reference: CMAPS-CM-791048-29721-050419EDR
Client Reference: 29721

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

Contents Page

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Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	12	28	8
1.2 Additional Information – Historical Tank Database	0	6	8	0
1.3 Additional Information – Historical Energy Features Database	0	1	2	5
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	5	9	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	6	11	16

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

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

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	3	9	Not searched
4.2 Records of Petrol and Fuel Sites	0	1	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology

5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	3	6
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	1	0	0	0	4
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	3	2
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	1	0	0	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
			0-500m			
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	Yes	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	8	18	34	58	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	High
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Moderate

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	3	3	6
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

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

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

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

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

Note: Maps

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

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

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

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

1. Historical Land Use

Site Outline

250
500
Search Buffers (m)

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

Industrial Land Use

Potentially Infilled Land

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

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 48

ID	Distance [m]	Direction	Use	Date
1A	5	SE	Unspecified Pit	1892
2A	6	SE	Sand Pit	1910
3B	11	NE	Unspecified Heap	1910
4B	11	NE	Unspecified Heap	1933
5Q	13	SE	Sand Pit	1846
6C	16	N	Unspecified Works	1969
7C	16	N	Unspecified Works	1973
8C	23	N	Unspecified Tank	1933
9D	26	N	Unspecified Tank	1950
10R	28	SE	Unspecified Ground Workings	1933
11D	33	N	Unspecified Tank	1973
12D	33	N	Unspecified Tank	1969
13	83	W	Weighing Machine	1846
14E	88	W	Police Station	1910
15E	88	W	Police Station	1933
16E	89	W	Police Station	1969
17E	89	W	Police Station	1973
18E	89	W	Police Station	1950
19S	100	SE	Sand Pit	1910
20F	103	SE	Unspecified Pit	1892
21F	105	SE	Unspecified Ground Workings	1910
22G	148	W	Unspecified Mill	1969
23G	148	W	Unspecified Mill	1973
24H	151	SW	Unspecified Tank	1950
25H	154	SW	Unspecified Tank	1910
26H	154	SW	Unspecified Tank	1933
27G	171	W	Unspecified Mill	1950
28G	172	W	Corn Mill	1910
29G	172	W	Unspecified Mill	1933
30G	172	W	Unspecified Mill	1892
31G	172	W	Corn Mill	1846
32I	178	S	Unspecified Tank	1950
33I	181	S	Unspecified Tank	1933

34T	206	W	Grave Yard	1846
35U	212	W	Tunnel	1846
36	213	NW	Smithy	1892
37	228	NW	Rope Walk	1846
38J	230	SW	Unspecified Pit	1950
39J	232	SW	Unspecified Pit	1933
40J	232	SW	Unspecified Pit	1910
41	385	S	Pipe	1846
42K	394	S	Unspecified Quarry	1892
43K	395	S	Unspecified Quarry	1950
44K	395	S	Unspecified Quarry	1973
45K	395	S	Unspecified Quarry	1969
46K	397	S	Unspecified Quarry	1933
47K	397	S	Unspecified Old Quarry	1910
48K	406	S	Sandstone Quarry	1846

1.2 Additional Information – Historical Tank Database

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

Records of historical tanks within 500m of the search boundary: 14

ID	Distance (m)	Direction	Use	Date
49D	20	N	Unspecified Tank	1966
50D	20	N	Unspecified Tank	1974
51D	23	N	Unspecified Tank	1932
52D	23	N	Unspecified Tank	1938
53D	32	N	Gasholder	1966
54D	32	N	Unspecified Tank	1974
55	72	S	Unspecified Tank	1932
56H	150	SW	Unspecified Tank	1992
57H	150	SW	Unspecified Tank	1966
58H	157	SW	Unspecified Tank	1938
59H	157	SW	Unspecified Tank	1932
60H	157	SW	Unspecified Tank	1912
61I	179	S	Unspecified Tank	1938
62I	179	S	Unspecified Tank	1932

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary: 8

ID	Distance (m)	Direction	Use	Date
63C	32	N	Gasholder	1966
64	112	W	Electricity Substation	1994
65E	116	NW	Electricity Substation	1989
66L	370	N	Electricity Substation	1989
67L	372	N	Electricity Substation	1994
68M	494	NW	Electricity Substation	1989
69M	494	NW	Electricity Substation	1974
70M	494	NW	Electricity Substation	1994

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 14

ID	Distance (m)	Direction	Use	Date
71	11	N	Agricultural Engineering Works	1966
72N	21	W	Garage	1994
73N	23	W	Garage	1966
74N	23	W	Garage	1974
75N	23	W	Garage	1989
76	92	NW	Garage	1994
77O	171	W	Garage	1994
78O	174	W	Garage	1966
79O	174	W	Garage	1974
80P	174	W	Garage	1989
81O	183	W	Garage	1989
82P	196	W	Garage	1912

83P	200	W	Garage	1974
84P	200	W	Garage	1966

1.6 Historical military sites

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

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

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 33

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

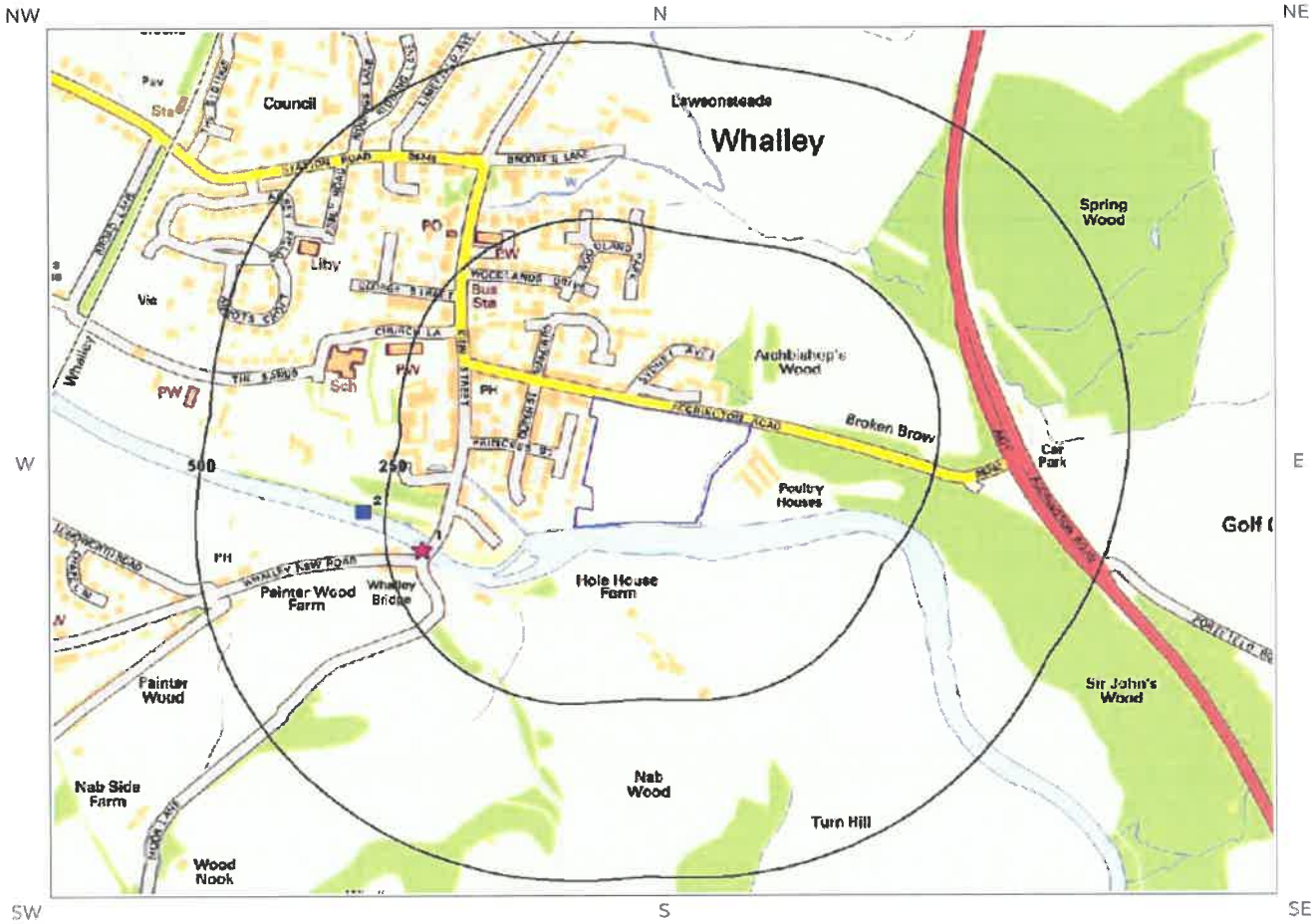
ID	Distance(m)	Direction	Use	Date
85A	5	SE	Unspecified Pit	1892
86A	6	SE	Sand Pit	1910
87B	11	NE	Unspecified Heap	1910
88B	11	NE	Unspecified Heap	1933
89Q	13	SE	Sand Pit	1846
90R	28	SE	Unspecified Ground Workings	1933
91S	100	SE	Sand Pit	1910
92F	103	SE	Unspecified Pit	1892
93F	105	SE	Unspecified Ground Workings	1910
94T	206	W	Grave Yard	1846
95U	212	W	Tunnel	1846
96J	230	SW	Unspecified Pit	1950
97J	232	SW	Unspecified Pit	1910
98J	232	SW	Unspecified Pit	1933
99V	246	N	Reservoir	1933
100V	246	N	Reservoir	1910
101V	249	N	Reservoir	1950
102V	251	N	Pond	1892
103W	273	N	Reservoir	1910
104W	273	N	Reservoir	1933
105W	273	N	Pond	1846
106W	276	N	Reservoir	1950
107W	277	N	Pond	1892

108K	394	S	Unspecified Quarry	1892
109K	395	S	Unspecified Quarry	1950
110K	395	S	Unspecified Quarry	1969
111K	395	S	Unspecified Quarry	1973
112K	397	S	Unspecified Old Quarry	1910
113K	397	S	Unspecified Quarry	1933
114K	406	S	Sandstone Quarry	1846
115	454	SE	Pond	1846
116X	478	SE	Pond	1933
117X	479	SE	Pond	1892

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

2. Environmental Permits, Incidents and Registers Map



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

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Details	
2	279	W	373200 435950	Address: WHALLEY OUTFALL SEWER, RIBBLE VALLEY, LANCASHIRE Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - NOT WATER COMPANY Permit Number: 01LA0027 Permit Version: 1	Receiving Water: RIVER CALDER Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 13-Jan-1953 Revocation Date: 13/01/1953

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

1

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

ID	Distance (m)	Direction	NGR	Details	
1	204	W	373277.0 435897.0	Incident Date: 08-May-2003 Incident Identification: 156944.0 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

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

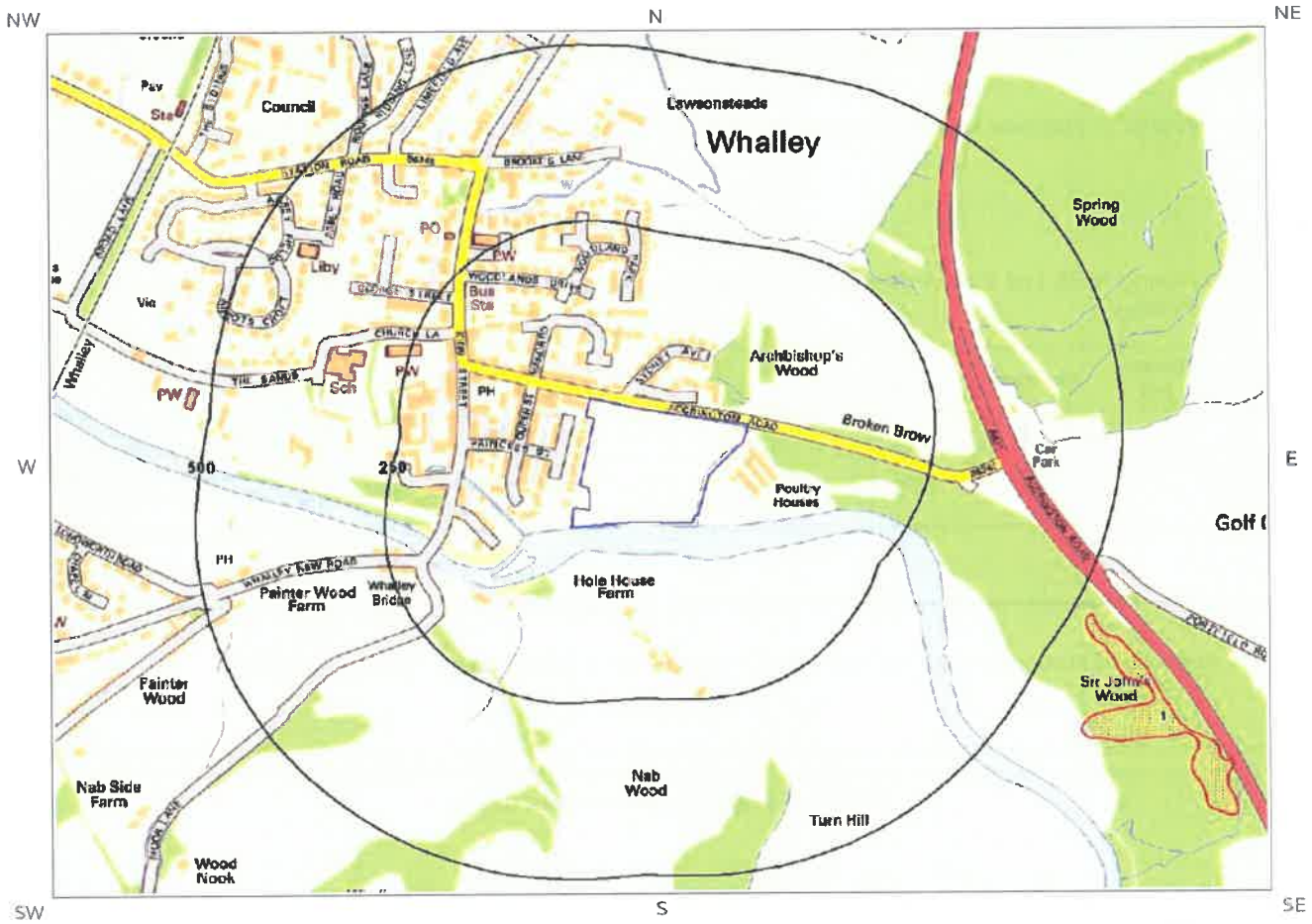
Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

3. Landfill and Other Waste Sites Map



Site Outline

250 / 500 Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NGR	Details	
1	523	SE		Site Address: Sir John's Wood, Near Accrington Road, Whalley, Lancashire Waste Licence: - Site Reference: K1/03/035 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Mr Green First Recorded: 31-Dec-1983 Last Recorded: 31-Dec-1986
Not shown	1222	W		Site Address: Whalley Sewage Works, Riding Lane, Whalley, Blackburn, Lancashire Waste Licence: - Site Reference: K1/03/022 Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1973

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1222	W	372229 436277	Refuse Tip	1974 mapping	Polygon
Not shown	1222	W	372229 436277	Refuse Tip	1966 mapping	Polygon

3.2 Other Waste Sites

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

0

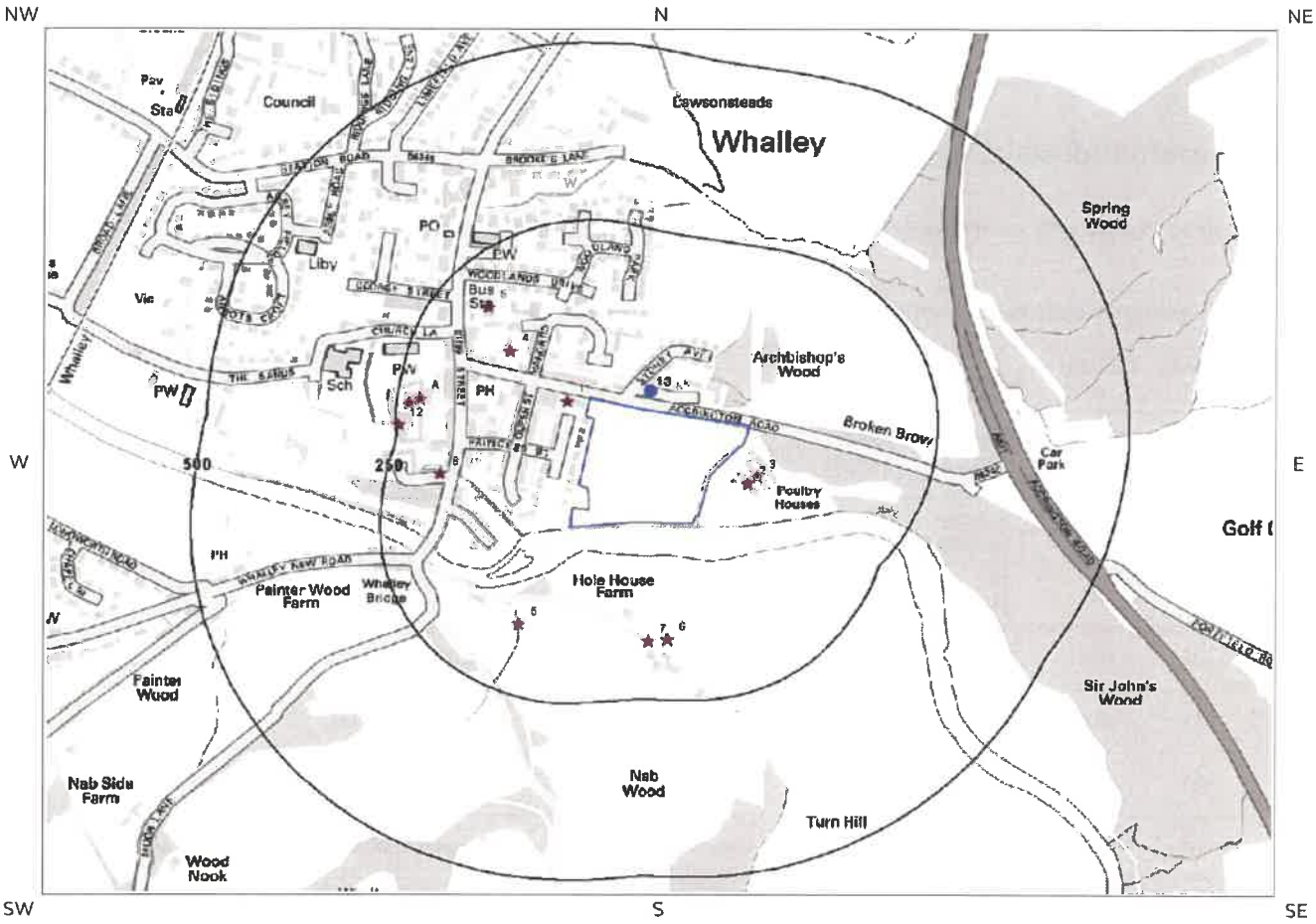
Database searched and no data found.

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

0

Database searched and no data found.

4. Current Land Use Map



Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

Groundsure
LOCATION INTELLIGENCE

CENTRE MAPS LIVE.

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 12

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	29	W	Whalley Motors	373474 436107	Accrington Road, Whalley, Clitheroe, Lancashire, BB7 9TD	Vehicle Repair, Testing and Servicing	Repair and Servicing
2	43	SE	Poultry Houses	373713 435992	Lancashire, BB7	Poultry Farming, Equipment and Supplies	Farming
3	46	SE	Poultry Houses	373726 436002	Lancashire, BB7	Poultry Farming, Equipment and Supplies	Farming
4	126	NW	Electricity Sub Station	373398 436178	Lancashire, BB7	Electrical Features	Infrastructure and Facilities
5	153	SW	Tank	373411 435792	Lancashire, BB7	Tanks (Generic)	Industrial Features
6	163	S	Pump	373607 435771	Lancashire, BB7	Water Pumping Stations	Industrial Features
7	167	S	Hopper	373582 435768	Lancashire, BB7	Hoppers and Silos	Farming
8	180	W	Beez Tyres & Car Valeting	373308 436005	Unit 5 Back King Street, Whalley, Clitheroe, Lancashire, BB7 9SP	Vehicle Parts and Accessories	Motoring
9	186	NW	Bus Station	373371 436240	Lancashire, BB7	Bus and Coach Stations, Depots and Companies	Public Transport, Stations and Infrastructure
10A	220	W	Creative Branding	373281 436111	Abbey Works, Back King Street, Whalley, Clitheroe, Lancashire, BB7 9SP	Textiles, Fabrics, Silk and Machinery	Industrial Products
11A	234	W	Works	373266 436104	Lancashire, BB7	Unspecified Works Or Factories	Industrial Features
12	247	W	Works	373252 436074	Lancashire, BB7	Unspecified Works Or Factories	Industrial Features

4.2 Petrol and Fuel Sites

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

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

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
13	27	N	373584	OBSOLETE	Accrington Road,	Not Applicable	Obsolete

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
			436121		Whalley, Clitheroe, Lancashire, BB7 9TD		

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

5.3 Bedrock and Solid Geology

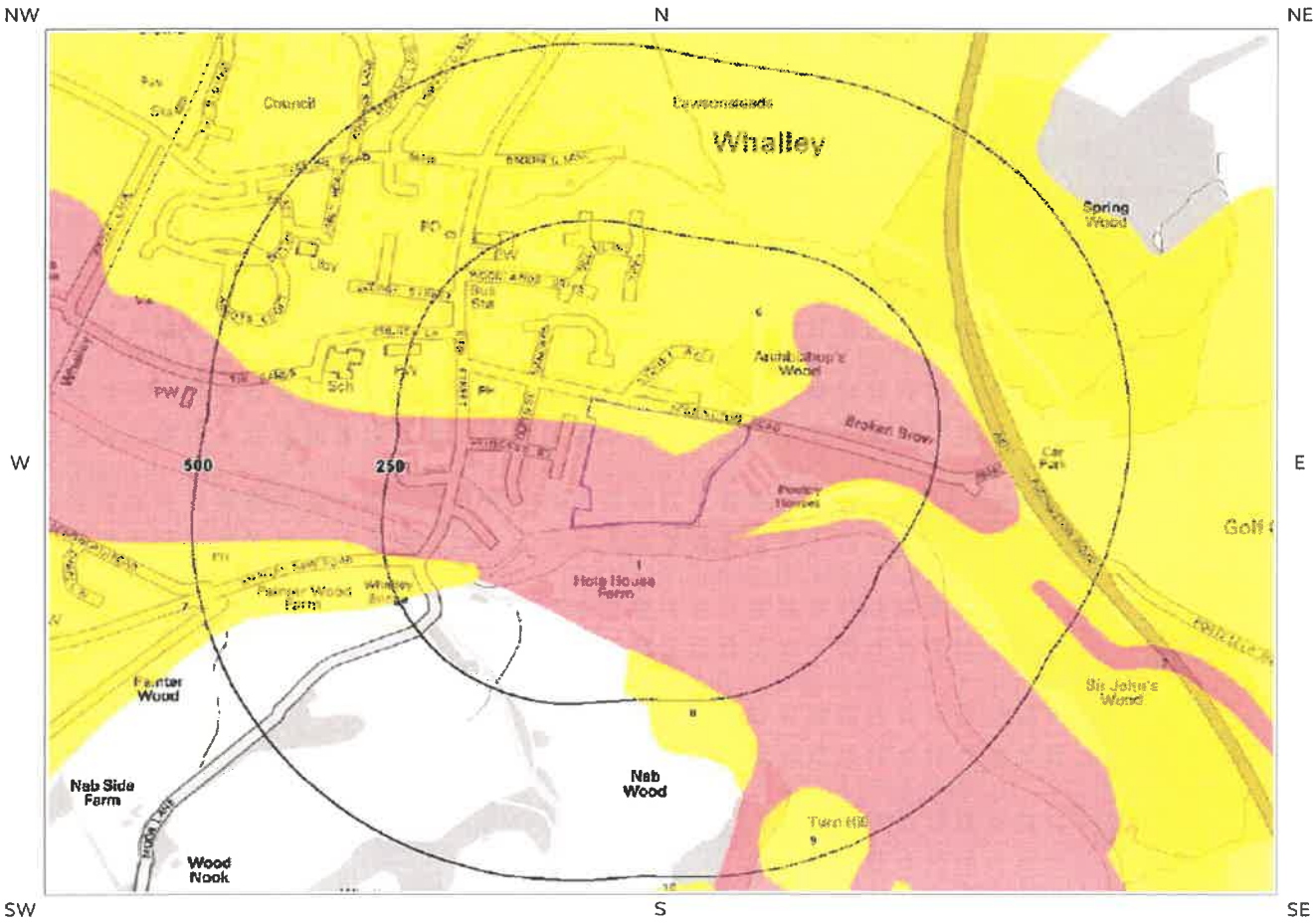
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
BSG-MDST	BOWLAND SHALE FORMATION	MUDSTONE
PG-SDST	PENDLE GRIT MEMBER	SANDSTONE

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



Site Outline

250 Search Buffers (m)
500

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

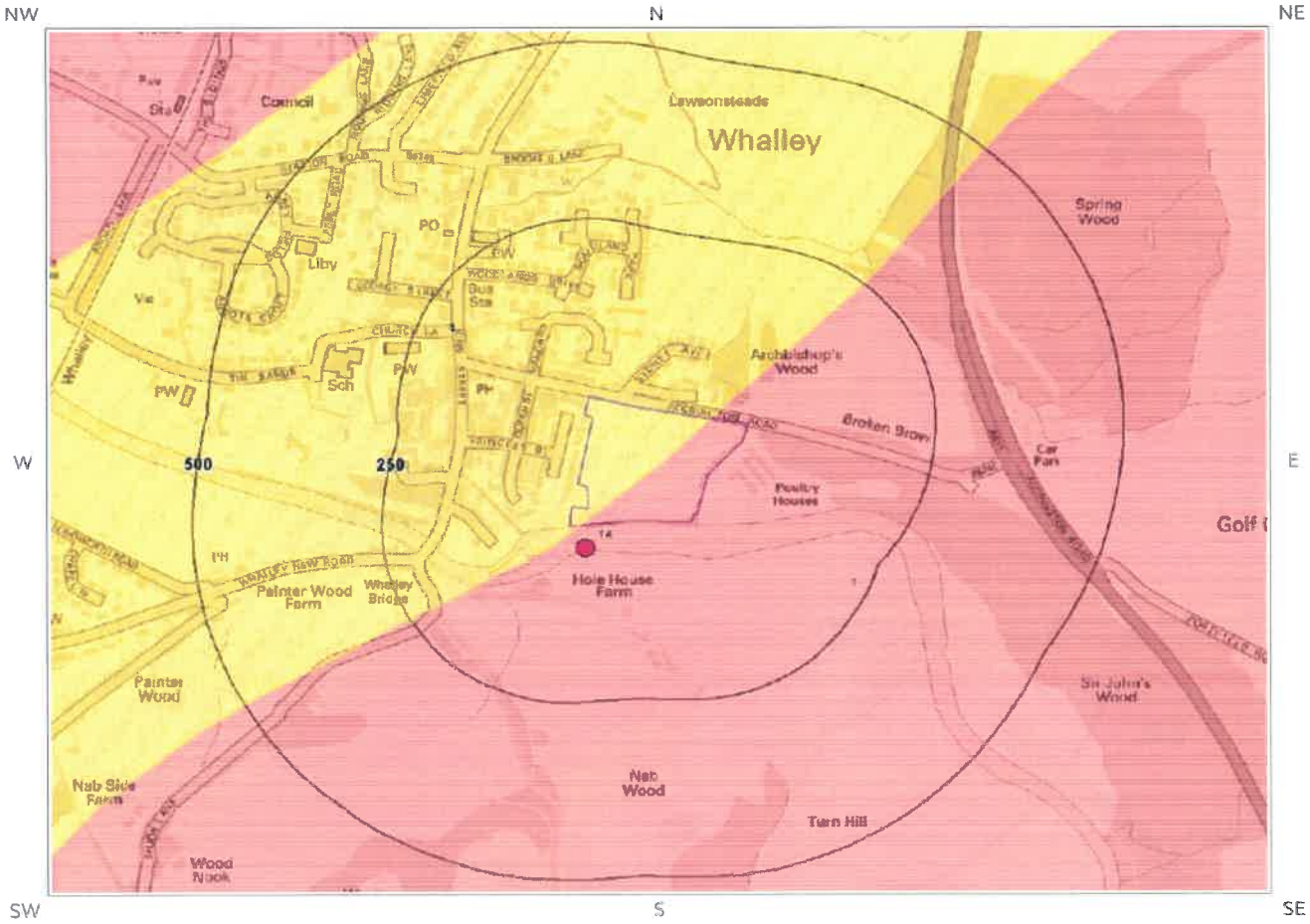
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

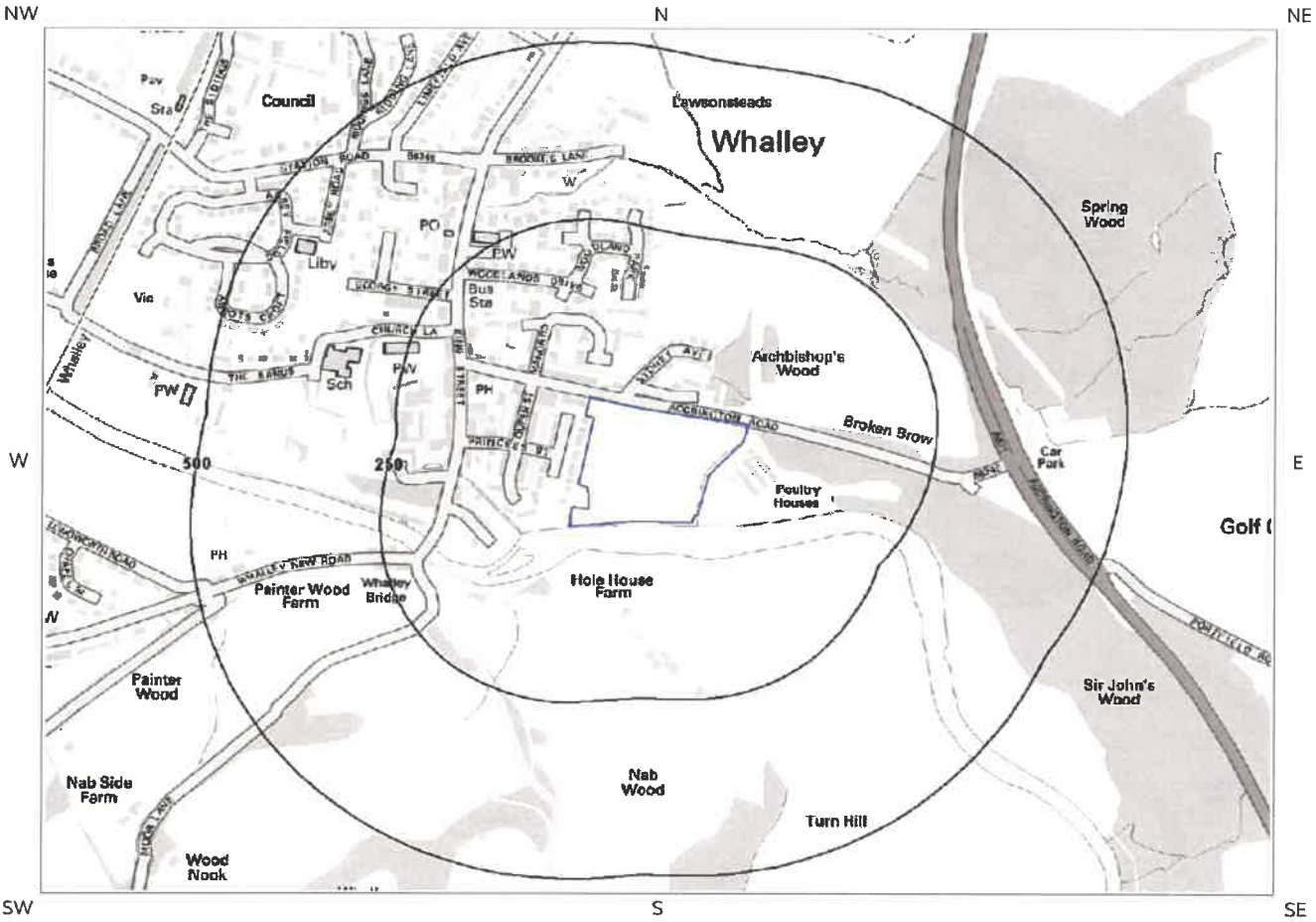
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

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



Site Outline

250 — 500 — Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

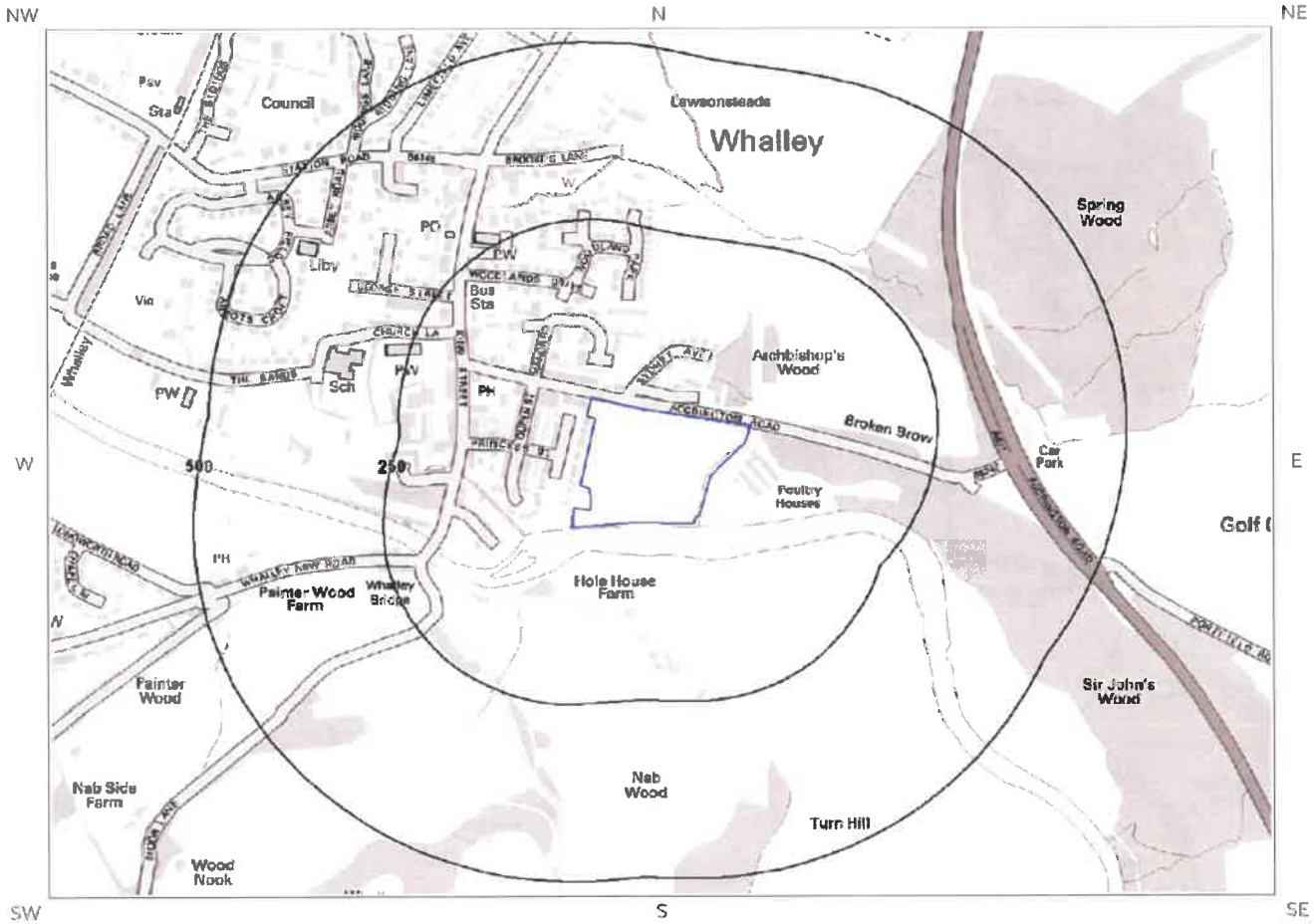
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

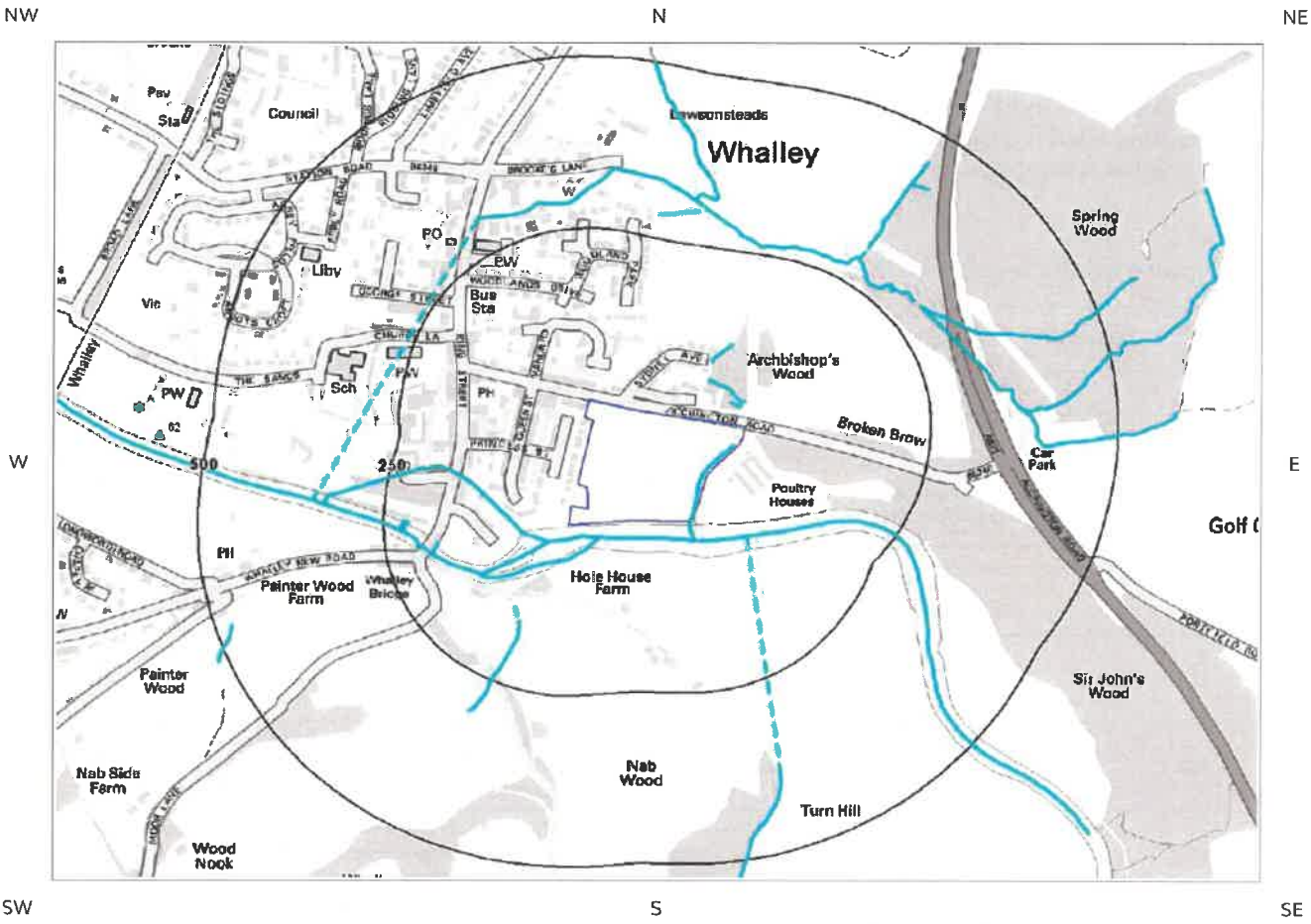
Source Protection Zone 3C - Total Catchment within Confined Aquifer

Potable Water Abstraction Licence

Site Outline

250 / 500 Search Buffers (m)

6e. Hydrology – Watercourse Network and River Quality



Site Outline

250 / 500 Search Buffers (m)

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
6	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
7	137	SW	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
8	179	S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
9	400	S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	428	SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	833	S	373400 435100	Status: Historical Licence No: 2671336007 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT DEAN NAB , WHALLEY Data Type: Point Name: CLARKE	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/07/1993 Expiry Date: - Issue No: 102 Version Start Date: 01/07/2003 Version End Date:
Not shown	833	S	373400 435100	Status: Historical Licence No: 2671336007 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT DEAN NAB, WHALLEY Data Type: Point Name: CLARKE	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/07/1993 Expiry Date: - Issue No: 102 Version Start Date: 01/07/2003 Version End Date:
Not shown	833	S	373400 435100	Status: Historical Licence No: 2671336007 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household" Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DEAN NAB , WHALLEY" Data Type: Point Name: ANDREW	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/07/1993 Expiry Date: - Issue No: 101 Version Start Date: 29/06/1998 Version End Date:
Not shown	1798	E	375400 436700	Status: Historical Licence No: 2671335020 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT WISWELL MOOR FARM, SABDEN Data Type: Point Name: RILEY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 30/06/1966 Expiry Date: - Issue No: 100 Version Start Date: 30/06/1966 Version End Date:
Not shown	1798	E	375400 436700	Status: Historical Licence No: 2671335020 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT WISWELL MOOR FARM,SABDEN Data Type: Point Name: RILEY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 30/06/1966 Expiry Date: - Issue No: 100 Version Start Date: 30/06/1966 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not show n	1798	E	375400 436700	Status: Historical Licence No: 2671335020 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT WISWELL MOOR FARM,SABDEN" Data Type: Point Name: RILEY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 30/06/1966 Expiry Date: - Issue No: 100 Version Start Date: 30/06/1966 Version End Date:
Not show n	1928	E	375500 436800	Status: Historical Licence No: 2671335008 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT BRAMLEY FARM,WISNELL, WHALLEY." Data Type: Point Name: HOLGATE	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 04/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 04/04/1966 Version End Date:
Not show n	1928	E	375500 436800	Status: Historical Licence No: 2671335008 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT BRAMLEY FARM,WISNELL, WHALLEY. Data Type: Point Name: HOLGATE	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 04/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 04/04/1966 Version End Date:
Not show n	1928	E	375500 436800	Status: Historical Licence No: 2671335008 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT BRAMLEY FARM, WISNELL, WHALLEY. Data Type: Point Name: ROY & KATHLEEN DENT	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 04/04/1966 Expiry Date: - Issue No: 101 Version Start Date: 28/11/2003 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

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

ID	Distance (m)	Direction	NGR	Details	
14	34	S	373500 435897	Status: Active Licence No: NW/071/0329/001 Details: Hydroelectric Power Generation Direct Source: Surface, Non-Tidal - North West Region Point: RIVER CALDER AT WHALLEY WEIR, BILLINGTON, CLITHEROE Data Type: Point Name: Whalley Community Hydro Limited	Annual Volume (m^3): 1.188e+008 Max Daily Volume (m^3): 540000 Application No: - Original Start Date: 25/09/2013 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 01/01/2015 Version End Date:
Not shown	1282	NE	374600 437000	Status: Historical Licence No: 2671336006	Annual Volume (m^3): - Max Daily Volume (m^3): -

ID	Distance (m)	Direction	NGR	Details	
				Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household" Direct Source: "Surface, Non-Tidal - North West Region" Point: "SPRING FED TANK AT WISWELL, CLITHEROE" Data Type: Point Name: SCHOLFIELD	Application No: - Original Start Date: 05/04/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1987 Version End Date:
Not shown	1282	NE	374600 437000	Status: Historical Licence No: 2671336006 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Surface, Non-Tidal - North West Region Point: SPRING FED TANK AT WISWELL, CLITHEROE Data Type: Point Name: SCHOLFIELD	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 05/04/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1987 Version End Date:
Not shown	1356	NE	374600 437100	Status: Historical Licence No: 2671336001 Details: General use relating to Secondary Category (Medium Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "SPRING AT SHEEPEATE FARM,WISWELL." Data Type: Point Name: MR T WHITEWELL MRS A M WOOD	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 11/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/03/1966 Version End Date:
Not shown	1356	NE	374600 437100	Status: Historical Licence No: 2671336001 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Surface, Non-Tidal - North West Region Point: SPRING AT SHEEPEATE FARM,WISWELL. Data Type: Point Name: MR T WHITEWELL MRS A M WOOD	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 11/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/03/1966 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details	
Not shown	833	S	373400 435100	Status: Historical Licence No: 2671336007 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT DEAN NAB , WHALLEY Data Type: Point Name: CLARKE	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/07/1993 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	833	S	373400 435100	Status: Historical Licence No: 2671336007 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household" Direct Source: Ground Water - North West	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/07/1993 Expiry Date: -

ID	Distance (m)	Direction	NGR	Details	
				Region Point: "BOREHOLE AT DEAN NAB , WHALLEY" Data Type: Point Name: ANDREW	Issue No: 101 Version Start Date: Version End Date:
Not shown	833	S	373400 435100	Status: Historical Licence No: 2671336007 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT DEAN NAB, WHALLEY Data Type: Point Name: CLARKE	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/07/1993 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1282	NE	374600 437000	Status: Historical Licence No: 2671336006 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Surface, Non-Tidal - North West Region Point: SPRING FED TANK AT WISWELL, CLITHEROE Data Type: Point Name: SCHOLFIELD	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 05/04/1976 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1282	NE	374600 437000	Status: Historical Licence No: 2671336006 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household" Direct Source: "Surface, Non-Tidal - North West Region" Point: "SPRING FED TANK AT WISWELL, CLITHEROE" Data Type: Point Name: SCHOLFIELD	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 05/04/1976 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

6.6 Source Protection Zones

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

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

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

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
0	On Site	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
16	E	Minor Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site — Identified

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

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

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
61A	599	W	372900 436100	River Name: Calder (calder) Reach: Hyndburn Bk To Whalley Weir End/Start of Stretch: End of Stretch NGR	D	D	D	B	B

6.9.2 Chemical Quality:

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

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

					Chemical Quality Grade				
ID	Distance (m)	Direction	NGR	River Quality Grade	2005	2006	2007	2008	2009
62	564	W	372927 436058	River Name: Calder Reach: Whalley Weir To Ribble End/Start of Stretch: Sample Point NGR	C	B	B	B	B
63A	599	W	372900 436100	River Name: Calder Reach: Whalley Weir To Ribble End/Start of Stretch: Start of Stretch NGR	C	B	B	B	B

6.10 Ordnance Survey MasterMap Water Network

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

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

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

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	0 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
61	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
62	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
63	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
64	0 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	1 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
65	1 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	5 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.5
66	5 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.5
7	18 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
67	18 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
8	21 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 27.8
9	21 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
68	21	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	S			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 27.8
69	21 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
10	27 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
70	27 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	28 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
71	28 S	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
12	35 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
72	35 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	36 SW	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
14	36 SW	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.7
73	36 SW	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
74	36 SW	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.7
15	77 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
16	77 SE	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
75	77 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
76	77 SE	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 28.3
17	85 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
77	85 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	139 SW	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.4
19	139 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
78	139 SW	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.4
79	139 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
20	154 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
80	154 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	157 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
81	157 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
22	176 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.9
82	176 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.9
23	179 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.0
83	179 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.0
24	188 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.0
84	188 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.0
25	206 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
85	206 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	214 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
86	214 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
27	222 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
87	222	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	W			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
28	226 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.8
88	226 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.8
29	228 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.8
89	228 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.8
30	245 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
90	245 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	248 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
91	248 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
32	257 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
92	257 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
33	263 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
93	263 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
34	267 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
94	267 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	284 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	284 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	287 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	287 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
37	289 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
97	289 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
38	294 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
98	294 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
39	295 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
40	295 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
99	295 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
100	295 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
41	301 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
101	301 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
42	310 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	310 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
43	312 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	312 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
44	319 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	319 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
45	327 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
105	327 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
46	331	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	W			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.8
106	331 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.8
47	333 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
107	333 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
48	339 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
108	339 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
49	341 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.4
109	341 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.4
50	345 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.8
110	345 W	River Calder	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.8
51	381 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
52	381 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	381 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
Not shown	381 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
53	391 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
54	391 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	391 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	391 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
55	393 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	393 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
56	407 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	407 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
57	418 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
58	418 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	418 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	418 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
59	477 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	477 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
60	497 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
Not shown	497 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5

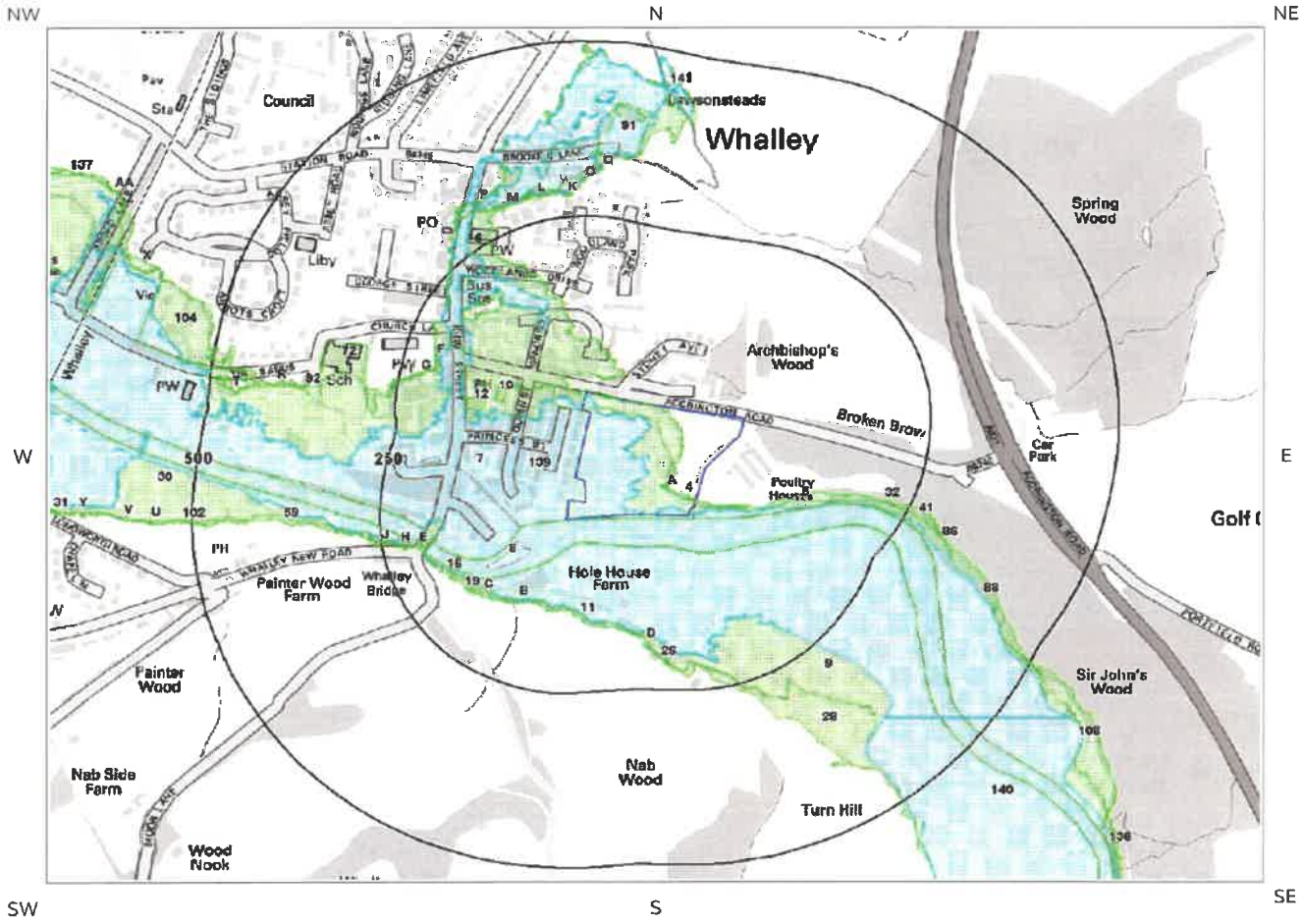
6.11 Surface Water Features

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

The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
0	On Site
2	S
4	E
27	N
35	N
66	SW
85	N
139	SW
154	SW
178	W
187	W
248	SW

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



Site Outline

Search Buffers (m)

Zone 2 Floodplain

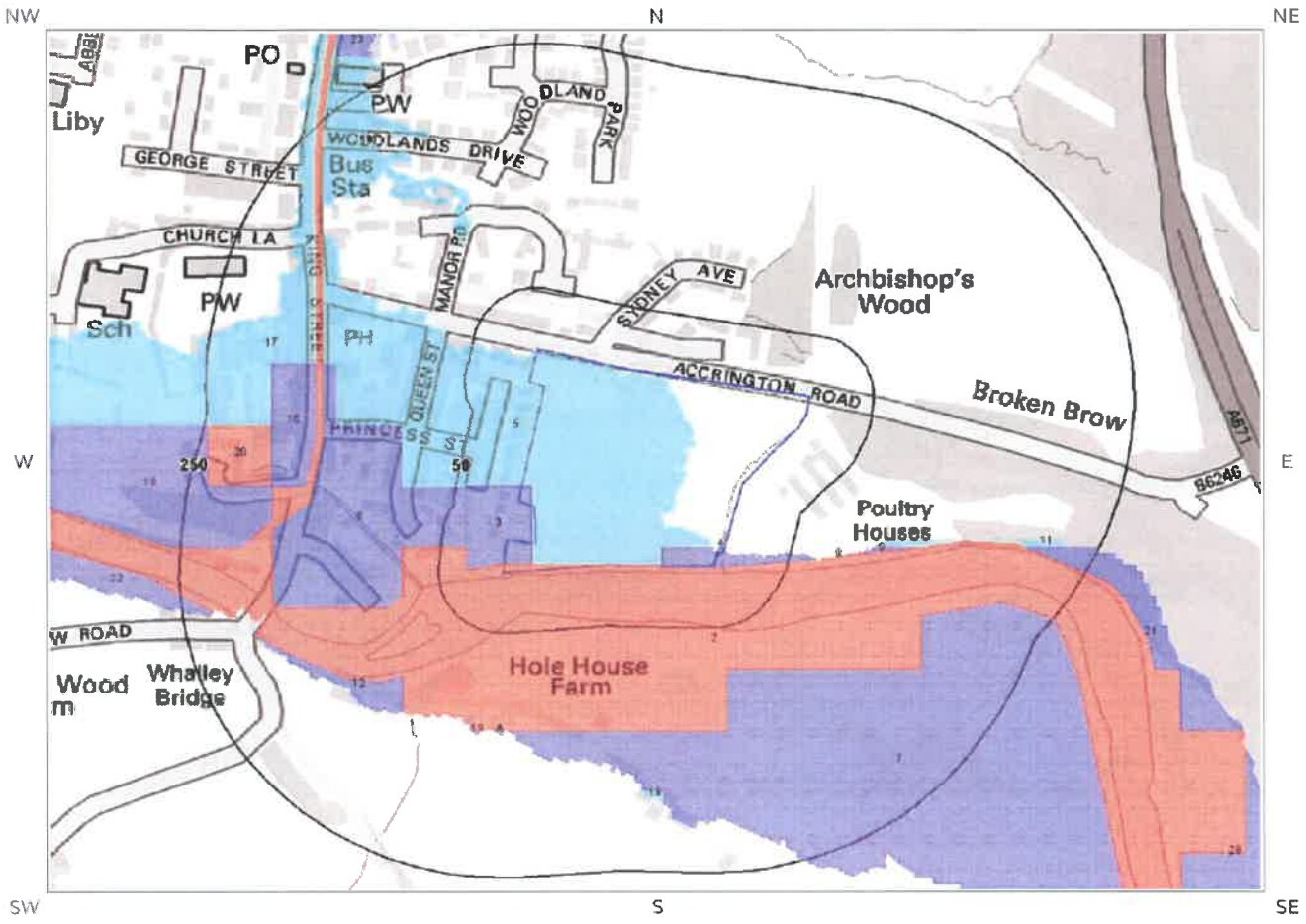
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



Site Outline

100 250 Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

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

ID	Distance (m)	Direction	Update	Type
1A	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
2A	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
3A	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
4	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
5	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
6	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
7	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
8	1	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
9	33	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
10	106	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
11	123	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
12	130	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
13B	132	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
14B	134	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
15C	146	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
16	157	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
17C	159	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
18C	166	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
19	166	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)

20D	171	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
21E	186	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
22	190	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
23D	192	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
24D	195	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
25E	196	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
26	200	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
27F	202	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
28	208	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
29F	209	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
30	211	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
31F	212	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
32	213	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
33F	214	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
34F	216	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
35E	217	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
36F	218	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
37E	219	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
38H	220	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
39G	221	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
40G	223	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
41	225	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
42G	233	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
43I	240	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
44H	240	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
45H	242	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
46I	244	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
47J	247	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — Identified

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

ID	Distance (m)	Direction	Update	Type
1A	0	On Site	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)

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

Highest risk of flooding onsite — High

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

RoFRaS data for the study site indicates the property is in an area with a High (1 in 30 or greater) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRas flood Risk
1	0.0	On Site	Medium
2	0.0	On Site	High
3	0.0	On Site	Medium
4	0.0	On Site	Low
5	0.0	On Site	Low
6	31.0	W	Medium

7.4 Flood Defences

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

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

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

7.7 Groundwater Flooding Susceptibility Areas

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

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

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

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

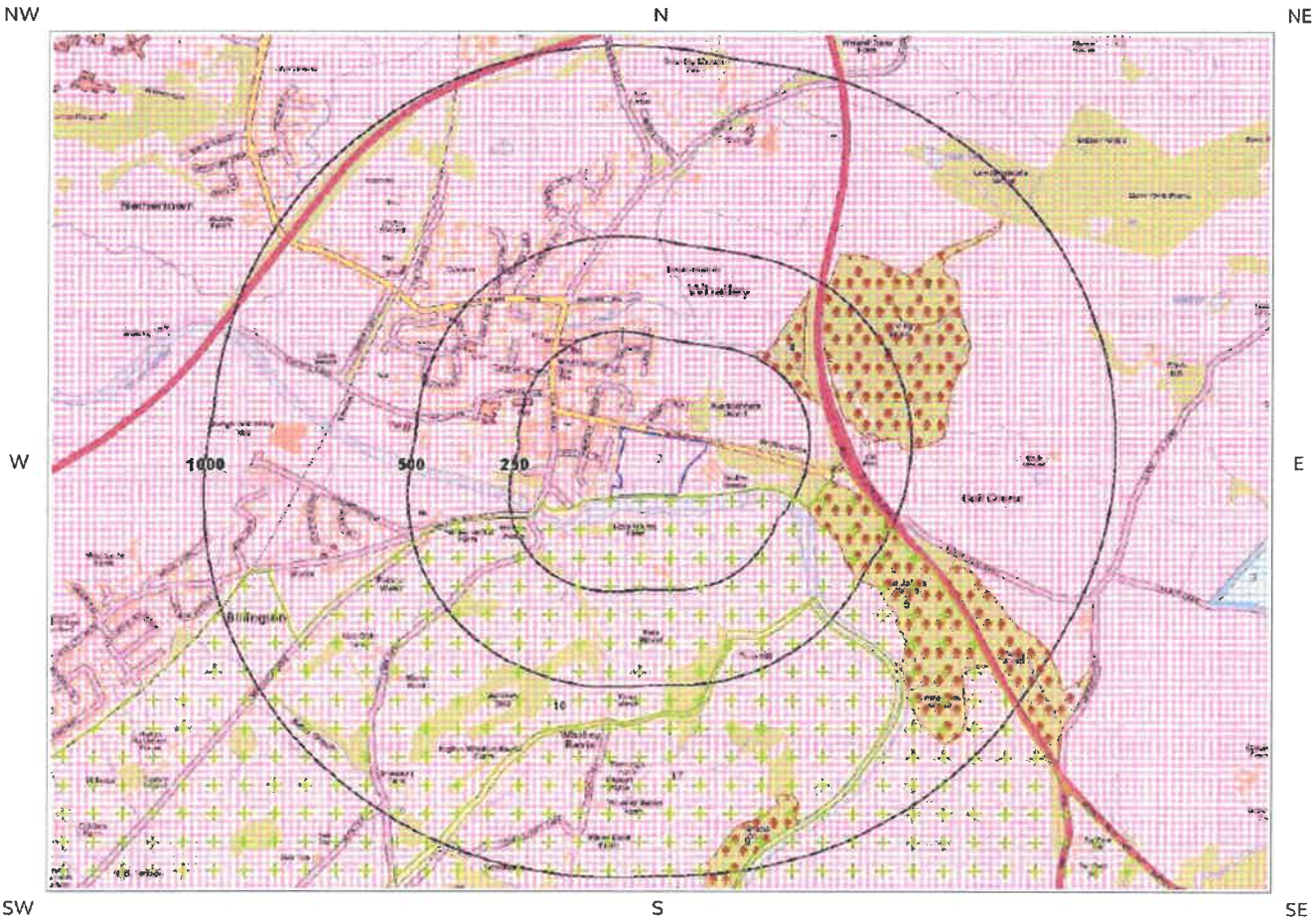
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result	Moderate

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

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

8. Designated Environmentally Sensitive Sites Map



Site Outline

100 / 250 Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones
Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas
Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

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

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

1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1602	SE	Cock Wood Gorge	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

12

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
4	252	NE	SPRING WOOD	Ancient and Semi-Natural Woodland
5	288	SE	PLANES WOOD	Ancient and Semi-Natural Woodland
6	335	E	SPRING WOOD	Ancient and Semi-Natural Woodland
7	571	NE	SPRING WOOD	Ancient Replanted Woodland
8	674	SE	PLANES WOOD	Ancient and Semi-Natural Woodland
9	827	S	BANKS WOOD	Ancient and Semi-Natural Woodland
Not shown	1552	S	DEAN WOOD	Ancient and Semi-Natural Woodland
Not shown	1605	SE	COCK WOOD	Ancient and Semi-Natural Woodland
Not shown	1682	E	BROCKLEHURST WOOD	Ancient and Semi-Natural Woodland
Not shown	1696	S	DEAN WOOD	Ancient Replanted Woodland
Not shown	1761	S	DEAN WOOD	Ancient Replanted Woodland
Not shown	1816	S	DEAN WOOD	Ancient and Semi-Natural Woodland

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

The following Area of Outstanding Natural Beauty (AONB) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	AONB/NSA Name	Data Source
3	1303	E	Forest Of Bowland	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NVZ Name	Data Source
2	0	On Site	New	DEFRA

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

2

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

ID	Distance	Direction	Green Belt Name	Local Authority Name
16	2	S	Liverpool, Manchester and West Yorks Greenbelt	Ribble Valley
17	400	S	Liverpool, Manchester and West Yorks Greenbelt	Hyndburn District (B)

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site — Very Low

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

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

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Low

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

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

9.1.3 Soluble Rocks

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

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

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

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

9.1.4 Compressible Ground

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

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

Hazard
Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

9.1.5 Collapsible Rocks

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

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

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

9.1.6 Running Sand

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

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

Hazard
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

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

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — Identified

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

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Vein Mineral	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
0.0	On Site	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

Past underground mine workings may occur. The rock types present in these areas are such that small mineral veins may be present on which it is possible that small scale mining has been undertaken and/or it is possible that limited underground extraction of other materials may have occurred. All such occurrences are likely to be of minor localised extent and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

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

Groundsure
LOCATION INTELLIGENCE

Contact Details

CENTREMAPS
Telephone: 01886 832972
Groundsure@centremaps.co.uk
Open Space, Upper Interfields, Malvern, Worcester, WR14 1UT

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

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

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

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

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

Local Authority
Authority: Ribble Valley Borough Council
Phone: 01200 425111
Web: https://www.ribblevalley.gov.uk/
Address: Council Offices, Church Walk, Clitheroe, Lancashire, BB7 2RA

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

Standard Terms and Conditions

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

https://www.groundsure.com/terms-and-conditions-feb11-2019

APPENDIX D

Potential Pollutant Linkages

Table A: *Potential Receptors to be Considered in the Preliminary Conceptual Model*

POTENTIAL RECEPTOR	COMMENTS	Include in PCM
PROPERTY: Other		
On Site		
Crops	None intended on site	✗
Domestic Produce	May be grown in residential gardens	✓
Livestock	None anticipated on site	✗
Domestic Animals	May be owned by residents	✓
Game	None on site	✗
Off Site		
Crops	Not applicable	✗
Domestic Produce	Possibly in houses in vicinity of the site	✓
Livestock	May be present adjacent to site	✓
Domestic Animals	May belong to adjacent residents	✓
Game	Not applicable	✗
PROPERTY: Buildings		
On Site		
	Residential Properties, services, flora	✓
Off Site		
	Residential Properties, services, flora	✓
HUMANS		
On Site		
Residents	Future Residents	✓
Construction Workers	During ground excavations	✓
Employees	Not applicable	✗
Surface water users	Surface water abstraction some 34 m south of the site	✓
Off Site		
Residents	Residents adjacent to the site	✓
Employees	None adjacent to the site	✗
Groundwater users	No groundwater abstractions within 250 m.	✗
Controlled Waters		
On Site		
Surface Waters	Land drain in east of the site	✓
Groundwater	The site is underlain by a Secondary A Aquifer (superficial strata across majority o f the site) and a Secondary A Aquifer (bedrock geology in the south-east) and these represent potential receptors.	✓
Off Site		
Controlled Waters	River Calder located immediately south of the site	✓
Ecological Systems		
On/Off Site		
SSSIs, national nature reserves, SACs etc	Not applicable to the site	✗

Link	Source	Hazard	Transport Mechanism	Pathway	Medium of Exposure	Receptor	Risk Summary*
1	Contaminated Soils	Direct contact /ingestion of soil or dust	Direct contact with contaminated soil	Dermal contact/ingestion of soil at surface	Soil	Humans (on-site/off-site), domestic pets	Low-medium
2	Contaminated Soils	Particulate inhalation	Wind blown particulates	Inhalation of particulates	Air	Humans (on-site/off-site), domestic pets	Low-medium
3	Contaminated Soils	Impaired produce growth	Uptake of contaminants by homegrown produce	Uptake during growth	Vegetable produce	Property (domestic produce)	Low-medium
4	Contaminated Soils	Ingestion of Contaminants	Uptake of contaminants by homegrown produce	Consumption of homegrown produce	Vegetable produce	Humans	Low-medium
5	Contaminated Soils	Damage to structure/services	Direct contact of contaminants with building structures/services	Direct contact	Soil/Water	Flora, services	Low
6	Contaminated Soils	Degradation of perched water quality	Dissolution or suspension of contaminants into perched waters	Dissolution or Suspension	Water	Perched Waters	Low
7	Contaminated Soils	Pollution of underlying groundwater	Dissolution or suspension of contaminants into groundwaters	Dissolution or Suspension	Water	Groundwaters	Low
8	Contaminated Soils	Degradation of land drain/River Calder	Dissolution or suspension of contaminants into surface waters	Dissolution or Suspension	Water	Watercourse	Low-medium

***Relative Risk Screening and Prioritisation for further Investigation & or Assessment**

High	Higher probability of occurrence and identification of primary sources of contamination with respect to most sensitive receptors.
Medium	Pollutant linkage generally dependent on the presence of other primary pollutant linkages and/or where pollutant linkage generally associated with less sensitive receptors.
Low	Lower probability of occurrence such as based on requirement for significant migration pathway or where pollutant linkage requires the presence of source contaminants at concentration likely to be much higher than other identified pollutant linkages.

APPENDIX E

Photographs

View over site from north-eastern corner

Photograph 1

View across the northern boundary of site (note embankment on left and newly constructed access ramp)

Photograph 2

Gate in south-east of site

Photograph 3

South of site

Photograph 4

Borehole identified during site walkover towards south-east of the site

Photograph 5

Newly constructed access ramp in centre north of site with stockpiled topsoil adjacent

Photograph 6

View from north to south of site

Photograph 7

Land drain at eastern boundary of the site

Photograph 8

Land drain in east of site

Photograph 9

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

APPENDIX F

Drawings

LEGEND

SITE LOCATION

REV	DESCRIPTION	DATE	BY

Suite One, No 3 Mitton Road Business Park, Mitton Road,
Whalley, Lancashire BB7 9YE
Tel: 01254 377622 Mob: 07906753583
Email: mbuckley@bekenviro.co.uk
Web: www.bekenviro.co.uk

CLIENT.
OAKMERE

JOB TITLE.
ACCRINGTON ROAD,
WHALLEY

DRAWING TITLE.
SITE LOCATION PLAN

SCALE @ A3.	DRAWN BY.	APPROVED BY.	DATE.
NTS	D.E.	M.B.	05/04/19

DRAWING No.	REV.
19545-1	-

LEGEND

SITE FOOTPRINT

REV	DESCRIPTION	DATE	BY

BEK
ECO-ENVIRONMENTAL CONSULTING ENGINEERS
Suite One, No 3 Mitton Road Business Park, Mitton Road,
Whalley, Lancashire BB7 9YE
Tel: 01254 377622 Mob: 07906753583
Email: mbuckley@bekenviro.co.uk
Web: www.bekenviro.co.uk

CLIENT.
OAKMERE

JOB TITLE.
ACCRINGTON ROAD, WHALLEY

DRAWING TITLE.
SITE LAYOUT PLAN

SCALE @ A3.	DRAWN BY.	APPROVED BY.	DATE.
NTS	D.E.	M.B.	05/04/19

DRAWING No.	REV.
19545-2	-

Housetype Schedule						
Housetype		Quantity	SqFt	Total SqFt	Beds	People
Apartments (Plots 59-66)						
	1Bed	6	515.5	3093	1	2
	1Bed	2	585.5	1171	1	2
Apartments (Plots 10-58)						
	1Bed	18	650.1	11701.8	1	2
	2Bed	31	875.1	27128.1	2	4
Bowfell		2	1075.7	2151.4	4	6
Brathay		4	954.1	3816.4	3	5
Grasmere		4	1434.8	5739.2	4	7
Kirkstone		4	1402.1	5608.4	4	5
Wasdale		3	1311.4	3934.2	4	6
Total		74				

G 29/11/22 – Roof layouts on the apartments updated to match house type drawings.

F 31/10/22 – Pump station added and banking indicated around apartment.

E 18/10/22 – Layout completed following receipt of engineering data.

D 22/09/22 – Further redesign following internal discussion.

C 14/09/22 –Scheme redesigned following flood modelling

B 12/07/22 –Scheme redesigned as a single phase.
–Public car park accessed off Accrington Road added.

A 06/10/20 –Apartments over Garages footprint amended
–Housing schedule amended for GAR(APTS)
–Parking and paths for GAR~(APTS) amended

PROJECT TITLE
Accrington Road
Whalley

DRAWING TITLE
Reduced Development Proposal

DRAWING NUMBER 015/R-OAK/01 | REVISION G

DATE 06/08/20 | SCALE 1:500 @A1

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

smas worksafe consultant www.smasltd.com SSIP

GEO-ENVIROMENTAL CONSULTING ENGINEERS

Suite One | No 3 Mitton Road Business Park | Mitton Road | Whalley | Lancashire | BB7 9YE
Office: 01254 377622 Mobile: 07906 753583 mbuckley@bekenviro.co.uk www.bekenviro.co.uk