Land off Cropper Road, Blackpool

Phase 1 Geo-Environmental Investigation

For: Breck Homes Ltd and Eden Land and Development Ltd.

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1.0 INTRODUCTION

This Phase 1 Geo-Environmental Investigation report has been prepared at the request of Breck Homes Ltd and Eden Land and Development Ltd.

Instructions to proceed were received in July 2021. Phase 1 Desk study work was undertaken between 26th and 30th July 2021.

Proposed Development

This Phase 1 Geo-Environmental Investigation is to be used for submission to the Local Authority as part of a planning application as it is the Client's intention to develop the site into a low-rise residential development comprising 65 No. semi-detached and terraced dwellings, with associated access roads and private gardens and a commercial / retail unit in the eastern site section.

A proposed development plan is contained in Appendix 11.

1.1 Brief

The brief was to carry out a Phase 1 Geo-Environmental Investigation for the site based upon the proposed development outlined in Section 1.0. The site area is shown on the site location plan contained in Appendix 2.

The investigation was to include the following:

a) Assess the probable ground conditions and contaminated land conditions on and below the site based on existing and historical site uses and relevant off-site activities. This is to include a site walkover.

b) Identify probable contaminants / sources of contamination that may be present at the site using current contaminated land guidance and develop a conceptual site model for potential human health, ground gas and controlled waters receptors.

c) Undertake a Preliminary Risk Assessment – this will determine the requirements for any further environmental (contaminated land) investigation and assessment.

d) Design, on the basis of the anticipated ground conditions, appropriate site investigation works and discuss potential development issues i.e. sub-surface features – obstructions, infilling, compressible ground, faulting, mineral extraction, mining and land instability.

A summary of the information / data sources is detailed in Section 2.2. A report was to be provided to summarise findings and to provide recommendations.

The limitations of this investigation work and report are included in Appendix 1.

1.2 Third Parties

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2.0 SCOPE OF INVESTIGATION WORK

2.1 Walkover Survey

The site was visited on 28th July 2021 in dry weather conditions and the objectives of the site walkover were, where applicable:

- to identify and assess visual and olfactory evidence of contamination (e.g. staining of concrete / soils, odours, presence of gas protection measures etc.);
- to identify locations of potential sources of contamination and assess their conditions (i.e. tank location, presence / condition of secondary containment / bunds, location of fill points, process areas);
- to identify surrounding land uses and any potentially contaminating activities;
- to identify / verify the presence of potential receptors (both on- and off-site) which may be affected by identified sources;
- to obtain information on activities / procedures and standards of housekeeping etc.;
- to assess site access and potential investigation locations and constraints; and
- to assess any visual subsurface geotechnical features / anomalies (e.g. foundations, Made Ground, subsidence etc.).

Photographs were taken of the site during the walkover survey and these photographs, together with a plan indicating their location and direction, are contained in Appendix 3.

2.2 Documentation

The following documents were obtained and examined during the desk study:

a) Aerial photographs of the site dated; April 2019, April 2014, May 2013, March 2012 and May 2000. The photographs are contained within the Groundsure Enviro and Geo Insight report in Appendix 5.

b) Historical Ordnance Survey maps dated between 1847 and 2020, at scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

c) Groundsure maps, all dated 2021, as follows:
    - Historical Land Use map;
    - Environmental Permits, Incidents and Registers map;
    - Landfill and other Waste Sites map;
    - Current Land Use map;
    - Hydrogeology and Hydrology maps;
    - Environment Agency / Natural Resources Wales flood maps;
    - Designated Environmentally Sensitive Sites map;
    - Geological maps and Ground Working map;
    - Mining, Extraction & Natural Cavities map;
    - Natural Ground Subsidence maps;
    - Borehole Records map;
    - Railways and Tunnels map.

    These maps are contained within the geo and enviro insight report in Appendix 5.

d) A combined Enviro and Geo Insight report was obtained from Groundsure, an environmental database company, which provides a list of recorded past and present activities at or adjacent to the site which could have an impact on the levels of contamination in the soils and groundwater at the site. The report is contained in Appendix 5.

e) The British Geological Survey (BGS) 1:50,000 solid and drift geological map (Map No 74, dated 1989). The British Geological Survey Borehole Records, including Borehole; SD33SW8. All items were copied under licence; [C18/01] British Geological Survey ©UKRI. All rights reserved:

f) The Indicative Atlas of Radon in England and Wales published by the British Geological and the Health Protection Agency and BR 211 Radon Report (2015)

were examined to assess the probable presence or otherwise of radon gas in the ground. Extracts of the relevant maps are contained in Appendix 7.

g) A Zetica UXO Risk Map was also obtained and is included in Appendix 8.

h) Liaison / correspondence with Environment Agency, Lancashire County Council and Fylde Council (Mr Ian Williamson – Environmental Protection) with respect to Midgeland Farm Landfill – located 106m to the south of the site.

3.0 FINDINGS

3.1 Site Location and Description

This report pertains to a c.1.94 Ha site located to the west of Cropper Road, Blackpool, c. 3.7km south east of Blackpool Town Centre at the postcode FY4 5LB. The National Ordnance Survey Grid Reference for the centre of the site is 334565E, 432448N.

The site currently comprises a garden centre, shops, café and stables with numerous associated outbuildings, car parking, access roads and open fields. Access to the site is off Cropper Road along the eastern boundary. An aerial photo of the site is included below:

Figure 1: Aerial image of the site dated April 2019

3.2 Walkover Survey

The walkover survey was carried out on 28th July 2021. During the walkover survey the following features were noted.

Geology

The site was noted to be occupied by numerous establishments, including a garden centre, pet shop, craft shop and café in the central site section, with associated car parking and outdoor space in the north eastern site section and stables in the western site section. Numerous arcade machines were noted to be stored in the north western corner, with a building possibly being used for refurbishment of the machines. The southern site section was noted to be open fields use for grazing by the horses from the stables in the western site section. Numerous vehicles were also stored on rough grassland in the central site section. An asphalt and gravel road was noted to run along the northern and western boundary of the site and through the central site section, splitting the northern site section housing the shops, café and stables from the open fields in the south.

The site topography was noted to be generally flat, gently sloping from c. 3.50m AOD in the south western corner to 4.50m AOD in the north eastern corner of the site. The ground underfoot comprised gravel and hardcore (asphalt and concrete) across the majority of the site, with the exception of the southern site section which was grass fields and an area in the central site section which was noted to be rough grassland.

Numerous buildings were present on site, including steel-framed polytunnels housing the garden centre, single storey masonry buildings housing the shops and café, an asbestos cement clad steel framed building used to store / restore the arcade machinery and stables. Numerous other stationary caravans, containers, single garages and sheds / showrooms were also noted.

Semi mature and mature trees were recorded on-site (c. 10m – 25m tall), particularly along the northern and western boundaries and in the central site section.

Evidence of numerous services was noted, including a meter building, above ground telecommunications and numerous manholes.

Contamination

No evidence of contamination (i.e. spillages or leakages) were identified however a Liquified Petroleum Gas (LPG) tank was noted in the northern site section as well as a suspected generator. The LPG tank was noted to be on a concrete slab with some evidence of rusting noted but no evident leakages.

Numerous vehicles were also noted to be parked / stored in the central site section, with some appearing to have been there for an extended period of time. Although no evidence of spillages or leakages were noted, localised spillages associated with the vehicles cannot be discounted as the area was overgrown.

Numerous pallets of soil and gravel were also noted in the garden centre, though are not considered to be contaminative sources.

The features mentioned above are shown on the Site Features Plan in Appendix 9.

3.3 Site History

The site development history has been researched by reference to historical maps, street plans and aerial photographs. The historical maps are included in Appendix 4 to this report and the principal observations which are divided into on-site history and off-site history are summarised below:

On-Site History

Date	Site Feature
1847 – 2003	On the earliest historical map, the site is recorded as open fields with a drain running along the western boundary.
2003 – 2005	The site remains undeveloped until 2003 when the existing garden centre was constructed. 3 No. ponds were recorded in the southern site section as well as numerous buildings in the northern site section, the drain remains.
2005 – 2021	By 2005, the ponds are no longer recorded and appeared to have been infilled. The site has remained relatively unchanged since.

Off Site History

The site lies within an agricultural area, with the majority of the surrounding site uses being farmland and plant nurseries.

3.4 Geology

3.4.1 BGS Geological Map

The BGS 1:50,000 Solid and Drift Geological Map of the area (Sheet No: 74 dated 1989) indicates that the western half of the site is underlain by superficial deposits comprising **Peat**, and the eastern half of the site is underlain by **Glacial Till**. Glacial Till typically comprises a heterogeneous mixture of clay, sand and gravel. The superficial deposits are underlain by bedrock of the **Kirkham Mudstone Member** comprising mudstone.

Figure 2; Extracts of the BGS 1:10,000 superficial and solid geological maps. Brown = Peat, Blue = Glacial Till and Pink = Kirkham Mudstone Member

The solid geological map indicates that no faults exist on-site or within 500m of the site. No bedrock dips are recorded on the geological map, however, based on the younging direction of the bedrock it is anticipated to dip towards the north east.

3.4.2 BGS Borehole Logs

There are no available BGS boreholes on the subject site. However, 1 No. BGS Borehole log is available in close proximity within a comparable geological setting. The pertinent information from the borehole logs is outlined below:

BGS Borehole Reference: SD33SW8

This borehole is located approximately 580m north of the site and was progressed to a depth of 24.38m bgl in 1936. The log recorded the following pertinent information:

- SOIL to a depth of 0.30m bgl, underlain by;
- BOULDER CLAY to a depth of 11.28m bgl, underlain by;
- MARL to a depth of 12.50m bgl, underlain by;
- Sandy MARL to a depth of 13.72m bgl, underlain by;
- Marly SAND to a depth of 14.63m bgl, underlain by;
- Running SAND to a depth of 24.38m bgl where the borehole was terminated.

3.4.3 BGS Geohazards

Data Type	Details
Ground Stability Data	➢ The Potential for Shrinking or Swelling Clay Ground Stability Hazards is regarded as negligible to very low. ➢ The Potential for Landslide Ground Stability Hazards is regarded as very low. ➢ The Potential for Dissolution Ground Stability Hazards is regarded as negligible. ➢ The Potential for Compressible Ground Stability Hazards is regarded as negligible to **high (peat)** ➢ The Potential for Collapsible Ground Stability Hazards is regarded as negligible to very low. ➢ The Potential for Running Sand Ground Stability Hazards is regarded as very low.

For further details please see the Groundsure Geo and Enviro Insight Report contained in Appendix 5.

3.4.4 BGS Estimated Soil Chemistry

The BGS have estimated that the superficial deposits across the site to naturally comprise of the following determinands:

- Arsenic – 15mg/kg
- Cadmium – 1.8mg/kg
- Chromium – 60mg/kg – 90/kg
- Nickel – 15mg/kg – 30mg/kg
- Lead – 100mg/kg

3.5 Mining

3.5.1 Coal Mining

The site does not lie within a Coal Authority Coal Mining Reporting Area.

3.5.2 Non-Coal Mining

The Groundsure Geo and Enviro-Insight report (contained in Appendix 5) indicates that no non-coal mining is recorded within 2km of the site.

3.5.3 Salt Mining / Brine Extraction

The site does not lie within a recognised salt mining or brine extraction area.

3.5.4 Historical Surface Excavations

Historical ponds were recorded in the southern site section between c. 2003 and 2005 which, considering their location, were possibly a result of peat excavations.

No other recorded historic surface excavations have been recorded on-site, however, numerous historical surface excavations exist in close proximity to the site. Consequently, the presence of unrecorded historical excavations on-site cannot be discounted.

3.5.5 Mineral Safeguarding

Where mineral resources are present, the mineral planning authority may designate areas as Mineral Safeguarding Areas (MSA) and Mineral Consultation Areas (MCA). These are aimed to safeguard mineral resource areas from unnecessary sterilization by non-mineral development. The BGS Mineral Resources maps designate the areas of potential mineral resources and where active / lapsed planning permission was granted for mineral extraction.

The BGS Mineral Resources Map for Lancashire indicates that the site lies within an area of Peat resources, however no surface or underground planning permissions (valid or expired) or active / inactive mineral works exist on-site or in close proximity

to the site. The Fylde Borough Council Local Plan (dated October 2018) indicates that the site does not lie within a Mineral Safeguarding Area.

The BGS Mineral Resource Map is in Appendix 6.

3.6 Previous Site Investigations

No known previous site investigations have been undertaken, however, a geo-environmental investigation was undertaken to the east of Cropper Road by REFA in November 2013 (Ref: 13082).

The site investigation works comprised 16 No. trial pits, and 5 No. window sample holes. The ground conditions encountered comprised topsoil underlain by firm to stiff, sandy clay with fine sand and silt lenses.

Strip foundations bearing onto the firm to stiff clay at a minimum depth of 0.90m bgl were deemed suitable, with a minimum bearing capacity of 150kN/m^2, with localised deepening due to the presence of trees required. Suspended ground floor slabs were recommended.

6 No. ground gas monitoring visits were undertaken which recorded a maximum methane concentration of 0.2% (v/v), and a maximum carbon dioxide concentration of 0.8% (v/v). No steady flow rates were recorded. Therefore, the site was designated as Characteristic Situation 1 (NHBC Green) with no ground gas protection measures required.

Chemical testing undertaken on shallow samples recorded no determinands present at concentrations above human health GACs, therefore no remediation was deemed necessary.

Geotechnical laboratory testing undertaken on samples of Glacial Till recorded modified plasticity indices of between 15.7% and 20.6%, indicating that the clays were of low to moderate volume change potential.

3.7 Hydrology and Hydrogeology

Environmental data relevant to the site and the immediately surrounding area have been obtained from sources available in the public domain. In addition, an environmental report was obtained from Groundsure. The Geo and Enviro Insight report and associated maps that have been inspected are presented in Appendix 5; the principal observations in relation to waters and flooding can be summarised as follows:

Data Type	Details
Flooding	➢ With respect to rivers and seas, the northern western site section lies within a Flood Zone 1, however, the RoFRaS map indicates that a medium risk of flooding from rivers and seas exists on-site. ➢ The southern site section is also recorded to be susceptible to surface water flooding, the highest risk pertaining to a **1 in 30 year event** with a flood depth of between 0.10m and 0.30m bgl. ➢ A BGS groundwater flooding susceptibility area has also been identified on-site, however, the risk is deemed to be Negligible to Low.
Surface Water Features	➢ No designated surface water features exist on-site or within 250m of the site, however numerous drains and ponds exist in close proximity.
Surface Water Abstractions	➢ There are no surface water abstraction licenses located on-site or within 2km of the site.
Superficial Aquifer	➢ The site is underlain by superficial deposits classed as unproductive strata (Peat) and a Secondary Undifferentiated Aquifer – *strata previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.*
Bedrock Aquifer	➢ The site is underlain by bedrock bedrock classed as a Secondary B Aquifer - *predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.*
Groundwater Abstractions	➢ There are no recorded groundwater abstraction licenses located on-site or within 2km of the site.
Source Protection Zones	➢ There are no recorded Source Protection Zones recorded on-site or within 500m of the site.
Nitrate Vulnerable Zones	➢ There are no Nitrate Vulnerable Zones recorded on-site or within 2km of the site.
Licensed Discharge Consents	➢ There no licensed discharge consents on-site. ➢ There are 2 No. licensed discharge consents recorded within 500m of the site. The nearest is located 342m west of the site and pertains to the discharge of final / treated sewage into a tributary of Spen Dyke.
Pollution Incidents to Controlled Waters	➢ There are no recorded pollution incidents to controlled waters located on-site or within 500m of the site.

For further details please see the Groundsure Enviro Insight Report contained in Appendix 5.

3.8 Hazardous Installations, Landfill and Waste

The following information relating to hazardous installations, landfill and waste was obtained from the Groundsure Geo and Enviro Insight report, published information and the walkover survey and is summarised below.

Data Type	Details
Environment Agency Recorded Active Landfill Sites	➢ There are no active or recent Environment Agency recorded landfill sites located on-site. ➢ There are 2 no. active or recent EA recorded landfills located within 500m of the site, the nearest is located 106m south of the site and pertains to a landfill operated by Lancashire County Council, further details regarding the landfill is included below this table.
Environment Agency Recorded Historic Landfill Sites	➢ There are no Environment Agency recorded historic landfill sites located on-site or within 500m of the site.
BGS Recorded Historic Landfill Sites	➢ There are no BGS recorded landfill sites located on-site or within 500m of the site.
Local Authority Recorded Landfill Sites	➢ There are no Local Authority recorded landfill sites located on-site. ➢ There is a single Local Authority recorded landfill site located 103m south, pertaining to a refuse tip identified on the 1983 mapping – anticipated to be the EA recorded landfill mentioned above.
Local Authority Pollution Prevention and Control (Part A(2) and Part B Activities and Enforcements)	➢ There are no Local Authority Part A(2) or Part B Activities or Enforcements located on-site or within 500m of the site.
Registered Radioactive Substances	➢ There are no Registered Radioactive Substances recorded on-site or within 500m of the site.
Registered Waste Treatment, Transfer or Disposal Sites	➢ There are no waste treatment, transfer or disposal sites located on-site. ➢ There are 36 No. waste exemption sites located within 500m of the site, the nearest is located 71m west and pertains to the use of waste in construction.
Industrial Land Use	➢ There are no current industrial land uses recorded on-site. ➢ There are 7 No. recent industrial land uses recorded within 250m of the site, pertaining to a pumping station, an electricity sub stations, pylons, a mast and special purpose machinery and equipment. ➢ There are no petrol or fuel sites located on-site or within 500m of the site. ➢ There is a single historical industrial land use recorded on-site, pertaining to the existing nursery. ➢ There are a further 30 No. historical industrial land uses recorded within 500m of the site, pertaining to a refuse heap, nurseries, an old clay pit and unspecified pits.
Dangerous Substances	➢ There are no recorded discharges of dangerous substances on-site or within 500m of the site.
Hazardous Building Materials	➢ Given the presence of numerous buildings on-site, Asbestos Containing Material including asbestos cement roofing is considered likely.

For further details please see the Groundsure Geo and Enviro Insight Report contained in Appendix 5.

Off-Site Landfill - Midgeland Farm Landfill

A freedom of information request was made to the Environment Agency regarding the recent EA recorded landfill located 106m south of the site. The request revealed that the landfill was operational between 1873 and 1984, with approval being granted in 1969.

The landfill had capacity for 1.5 million cubic meters of untreated domestic and commercial waste, medical, surgical and veterinary waste, non-hazardous industrial, wastes from the construction industry, street sweepings and gully sludges and sewage sludge.

The landfill does not have an engineered cap, although 1m of soil has been placed on the landfill.

There is a single partial active gas extraction measure in place which comprises 8 No. gas extraction wells which go to an open flare stack; the gas yield is allegedly too low to sustain a conventional enclosed flare.

There are 52 No. boreholes within the landfill, 25 No. of which are located within the waste and the remaining 27 No. outside of the landfill. During monitoring it is understood that the boreholes recorded elevated levels of methane and carbon dioxide, however, the complete gas monitoring data including exact concentrations was not provided.

Leachate control measures also exist within the landfill, comprising interconnecting pipework which connects the leachate and then feeds (via gravity) into two sumps. The methane is stripped from the leachate at the methane stripping plant before the leachate is discharged to the foul sewer system. A United Utilities discharge consent is in place for the discharge, with the methane concentration being monitored and required to be limited to <0.14mg/l. No conditions are in place limiting the head of leachate at the landfill.

Historical groundwater monitoring appears to suggest contamination from leachate in groundwater monitoring boreholes, however, the complete data were not provided.

A freedom of information request was also made with Fylde Borough Council and Lancashire County council on 30th June 2021. No response has been received to date.

3.9 Radon

The Indicative Atlas of Radon in England and Wales produced by the Health Protection Agency and British Geological Survey indicates the site lies within a lower probability area as between less than 1% of homes are above the action level. Consequently, BR211 (2015) indicates that no radon protection measures are required.

Map 17 of the Indicative Atlas of Radon in England and Wales and BR 211 (2015) are contained within Appendix 8.

3.10 Services

Given the 'live' nature of the site as a garden centre, extensive services are anticipated. Full service plans should be obtained prior to any intrusive works.

3.11 Unexploded Ordnance (UXO)

The Zetica UXO risk map, contained in Appendix 8, indicates that the site lies within an area of low risk.

3.12 Animal Burial Sites

The Animal Health and Veterinary Laboratories Agency (AHVLA) no longer routinely respond to consultations relating to records of animal burial sites. Based upon a

review of the site history it is considered unlikely that the site has been subject to recorded animal burials.

3.13 Archaeology

We do not anticipate that the site will be affected by archaeological issues, however consultation with the county archaeologist is recommended.

4.0 CONCLUSIONS

4.1 General

The site was greenfield in nature until the existing garden centre / nurseries and other buildings were constructed in c. 2003. Ponds were also recorded in the south western site section between 2003 and 2005 which appear to have been infilled. The site has remained relatively unchanged since.

4.2 Ground Conditions

The anticipated typical ground conditions across the site are as follows:

- MADE GROUND of unknown composition to an unknown depth, possibly deep in the areas of infilled ponds), underlain by;
- [Western Site Section] PEAT to an unknown depth, underlain by;
- GLACIAL TILL comprising firm to stiff, brown, slightly gravelly, slightly sandy CLAY with thin to thick bands of sand to a depth of between 37.00m and 52.00m bgl.
- KIRKHAM MUDSTONE MEMBER comprising MUDSTONE.

The thickness of the Glacial Till has been derived from the BGS superficial thickness model.

4.2.1 Geotechnical Hazard Identification

Potential geotechnical hazards based on the expected ground conditions that may require further consideration at the site are outlined below:

Factors	Remarks	Considerations	Risk
Made Ground	Made Ground of unknown composition is anticipated to be present across the majority of the site, possibly deep within the infilled pits in the south western site section.	Made Ground may settle variably, have highly inconsistent bearing capacity and may suffer significant movements that may be problematic for foundations, externals and infrastructure elements without treatment. The presence of Made Ground may be problematic for foundations as there may be loose / soft spots within the Made Ground and it may not be suitable to utilise traditional foundations.	**Low to Moderate**

Compressible Deposits - Peat	Peat deposits are anticipated in the western site section. The extent and thickness of these deposits is unknown.	Peat is an inherently saturated material of very low strength and very high compressibility. It is generally considered unsuitable for foundations for even the most lightly loaded of structures.	**Moderate to High**
Aggressive Ground and Groundwater	While the risk posed from the natural strata is anticipated to be very low, given the anticipated presence of Made Ground of unknown composition and of peat there is potential for aggressive ground conditions to be present on-site.	Acidic ground / groundwater and sulfate may attack the concrete and steel used in foundations and react with aggregates. The oxidation of pyrite and other sulfides can also occur due to geotechnical activities. This can lead to the generation of high concentrations of sulfate and low pH that attacks construction materials and may lead to the precipitation of gypsum resulting in the heave of foundations and floor slabs. Pyrite oxidation can also be triggered by mixing susceptible materials with lime or cement resulting in high pH that can lead to the expansion of some sulfates that cause heave of stabilised soils. Peat can be of extremely low pH and contain high levels of sulfate.	**Moderate**
Shrink and Swell Clays	Semi-mature and mature trees exist on-site and cohesive deposits are anticipated at shallow depths.	Some types of ground (e.g. clay soils) can change volume due to fluctuations in moisture content that may be induced by weather variations (e.g. drought), vegetation (e.g. growth or removal of trees) or man-made activities (e.g. changes to local drainage). This shrink / swell behaviour typically causes ground movement to a depth of approx. 3m potentially damaging building foundations, externals, pipes or services by differential movements.	**Low to Moderate**
Obstructions	Although the majority of buildings remain at the time of writing, there will be a significant demolition and grubbing exercise required prior to development. Significant obstructions may also be present associated with demolished buildings and structures (i.e. gasworks/ gasometer).	May act as obstructions to excavations and / or the chosen foundation solution or act as 'hard spots' within the ground if left in-situ.	**Low**

4.3 Sources of Contamination and Probable Contaminants

Based on the desk study information the following potentially contaminative on-site sources have been identified:

Potentially Contaminative Source	Associated Determinands	Remarks	Hazard
Made Ground (including infilled ponds)	Unknown, anticipated to be metals, semi-metals, PAHs, TPH, asbestos. Ground Gas – carbon dioxide, methane, hydrogen sulphide, VOCs	Widespread Made Ground anticipated as well as deep Made Ground within infilled areas. Widespread contamination not anticipated. However, the presence of contaminative hotspots associated with stored vehicles, LPG tank and other site uses is considered likely.	**LOW to MODERATE**
On-Site Garden Centre / Café / Shops / Stables	Unknown. Anticipated to be metals, semi-metals, PAHs, TPH, asbestos, herbicides and pesticides	Widespread contamination associated with the current site uses is not anticipated, however localised hotspots of contaminants such as TPH and PAHs associated with the car park, tank, parked vehicles etc. are considered possible.	**LOW to MODERATE**
On-Site and Off-Site Peat	Ground Gas – carbon dioxide, methane, hydrogen sulphide, VOCs	Peat is a low generation but high concentration ground gas source and is anticipated to be present in the western site section. Peat may have historically been excavated in the south western site section based on the presence of ponds between c. 2000 and 2005.	**LOW**
Off-Site Landfill (106m south, 1970s – 1980s)		A landfill is located c. 106m south of the site which received a wide range of waste between the 1970s and 1980s. Although gas control measures exist reducing the risk, migration of ground gas cannot be discounted.	**MODERATE**

It should be noted that potentially contaminative unrecorded historic activities may have occurred (e.g. the use or deposition of Made Ground from off-site during historic on-site developments) and in this event, further contaminative sources may be present.

4.3.1 Unknowns

Following the desk study, the areas of uncertainty are as follows:

- Extent, composition and thickness of Made Ground.
- Extent and thickness of peat deposits
- Presence of perched water within the Made Ground
- Presence of a shallow groundwater table within superficial deposits

- Presence of obstructions

4.4 Pathways for Contamination

4.4.1 Human Health

The pathways along which contamination could potentially reach the receptors on-site during use and after completion of development works are detailed in 'Updated Technical Background to the CLEA Model' (Environment Agency 2009) but can be summarised as follows:

End Users (Residential Land Use Scenario):

- Ingestion of soil directly and indoor dust* including on home-grown produce.
- Inhalation of soil dust (indoor and outdoor).
- Dermal contact with soil (indoor and outdoor).
- Inhalation of soil vapours (indoor and outdoor).
- Oral background.
- Inhalation background.

  ** Treated as one pathway*

4.4.2 Controlled Waters

The pathways along which contamination could potentially reach the controlled waters receptors during use and after completion of development works are as follows:

- Vertical migration along current and future foundations and pooling at base / beneath foundations.
- Vertical migration through granular Made Ground, natural granular deposits and granular lenses in natural cohesive deposits.
- Lateral migration along low permeability natural deposits and pooling at relative low points.
- Negligible infiltration through low-permeability natural cohesive deposits.
- Migration through porous sandstone bedrock.
- Migration along groundwater flow.
- Overland flow.

4.4.3 Ground Gas Pathways

The pathways along which ground gas could potentially reach the receptors on-site during use and after completion of the development works are as follows:

- Migration through fractures and fissures in bedrock.
- Preferential migration along foundations, service ducts / trenches.
- Migration within groundwater.
- Ingress through wall cavities and floors and accumulation.
- Inhalation of ground gas and vapours.

4.5 Receptors of Contamination

Human Health receptors for these pathways include the following:

- End Users (residential land use scenario).
- Construction workers.
- The general public and adjacent site users.

Controlled waters receptors for these pathways include the following:

- Groundwater contained within the underlying Secondary Undifferentiated Aquifer (Glacial Till) and Secondary B Aquifer (Kirkham Mudstone Member)
- Surface Water – Numerous land drains on-site and in close proximity to the site.

Other receptors for these pathways include the following:

- Subsurface plastic (e.g. potable plastic water pipe).
- Building fabric (e.g. concrete foundations, etc.)

4.6 Conceptual Model for Human Health Risk Assessment

Upon consideration of the identified probable contaminants, pathways and receptors, a site conceptual model has been produced. This model is in the form of a linkage table and forms part of a preliminary risk assessment for the human health of site occupants.

Sources of Contamination	Pathway	Receptor	Hazard (severity)	Likelihood	Risk
Made Ground (including infilled ponds) On-Site Garden Centre / Café / Shops / Stables	Ingestion of contaminated soil and dust (indoor and outdoor) Dermal contact with contaminated soil (outdoor and indoor) Inhalation of contaminated dust (indoor and outdoor)	End users and general public	Effect on human health **(Medium)**	**Low Likelihood:** Widespread contamination is not anticipated, however, localised contaminative hotspots possible associated with current site uses (i.e. tank, parked vehicles, car park) as well as the infilled ponds. Ingestion, dermal and inhalation pathways will be significantly reduced across the majority of the proposed development as hardstanding will be present (i.e. buildings, car parking, service areas and road). However, any private gardens and areas of soft landscaping will be at increased risk and remedial measures may be required in these areas.	**LOW TO MODERATE**
		Construction workers		**Likely:** Although no widespread contamination is anticipated, hotspots may be present and construction workers will be at increased risk due to their acute interaction with the soil. Asbestos will be a contaminant of concern as suspected ACM was noted on-site and disturbance may cause the release of loose fibres. However, the appropriate use of PPE, Good Practice and Health and Safety Measures will significantly reduce the risk.	**LOW TO MODERATE**
	Inhalation of soil vapours (indoors and outdoors)	End users and general public		**Unlikely:** No significant widespread sources of VOCs identified, VOC hotspots possible associated with spillages and leakages from vehicles but given their inherent volatility and mobility, VOCs are unlikely to remain other than associated with recent spillages / leakages.	**LOW**
		Construction workers		**Unlikely:** Construction workers at increased risk if any disturbance of soil occurs as this may generate a temporary increase in the release of soil vapours, however risk remains low given the lack of widespread sources of VOCs.	**LOW**

Diagrams of the conceptual site model is contained within Appendix 10.

4.7 Conceptual Model for Ground Gas Risk Assessment

Upon consideration of the identified probable contaminants, pathways and receptors, a site conceptual model has been produced. This model is in the form of a linkage table and forms part of a preliminary risk assessment with regards to ground gas at the site.

Source	Pollutant	Pathway	Receptor	Hazard (severity)	Likelihood of Occurrence	Risk
Made Ground (including infilled ponds)	Methane Carbon dioxide Hydrogen Sulphide VOCs	Preferential migration along foundations, service ducts / trenches Ingress through wall cavities and floors and accumulation Inhalation of ground gas	Human occupants Site Workers	Effect on human health **(Mild to Severe*)**	**Low Likelihood:** Although widespread Made Ground may be present as well as deep Made Ground within the infield ponds, the Made Ground is anticipated to be of low organic mater content and is not anticipated to contain significant putrescible material. Possible for organic material to be present within the infilled ponds, however, ground gas generation potential is anticipated to be low.	**LOW**
			Human occupants Site Workers	Effect on human health **(Mild to Severe*)**		
On-Site and Off-Site Peat	Methane Carbon dioxide Hydrogen Sulphide VOCs		Human occupants Site Workers	Effect on human health **(Mild to Severe*)**	**Likely:** Peat is anticipated to be present across the western half of the site. Although some peat may have been removed from the south western site section where ponds were present in the early 2000s, peat is anticipated to remain across the north western site section. Extensive peat deposits are also present off-site. Peat is a high concentration low generation ground gas source therefore migration of ground gas is considered possible.	**LOW to MODERATE**
			Human occupants Site Workers	Effect on human health **(Mild to Severe*)**		
Off-Site Landfill (106m South, 1970s – 1980s)	Methane Carbon dioxide		Human occupants Site Workers	Effect on human health **(Mild to Severe*)**	**Low Likelihood:** A landfill is located c. 106m south of the site which received a wide range of waste types including household waste in the late 1970s and early 1980s. Based on the landfill operational dates and waste type, according to BS8576 (2013) Figure 6 decision matrix tool, the landfill is of high ground gas risk. However, based on information obtained from the Environment Agency, gas control measures are in place at the landfill. Additionally, ground gas monitoring undertaken at the recent development site to the east of the site recorded only marginally elevated methane and carbon dioxide concentrations (0.2% methane and 0.8% carbon dioxide). Low permeability Glacial Till is also present between the landfill and the site which would reduce lateral migration of ground gas. No capping is present on the landfill, which would facilitate vertical migration of ground gas from the landfill into the atmosphere. Therefore, it is considered appropriate to reduce the risk to moderate.	**MODERATE**
			Human occupants Site Workers	Effect on human health **(Mild to Severe*)**		
			Building and Structures	Damage to building **(Mild)**		

Diagrams of the conceptual site model is included within Appendix 10.

4.8 Conceptual Model for Controlled Waters Risk Assessment

A site conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for pollution of controlled waters has been produced upon consideration of the probable contaminants, pathways and targets identified above, as follows:

Source	Pathway	Receptor	Hazard (severity)	Likelihood of Occurrence	Risk
Made Ground (including infilled ponds) On-Site Garden Centre / Café / Shops / Stables	Vertical migration along current and future foundations Vertical migration through granular Made Ground and / or natural deposits Negligible infiltration through low permeability cohesive deposits Migration through porous bedrock	Groundwater within Secondary Undifferentiated and Secondary B Aquifers	Effects to controlled waters (**Mild**)	**Pre-Development Site** **Low Likelihood**: Widespread contamination is not anticipated, and although contaminative hotspots may be present the presence of low permeability Glacial Till is likely to significantly reduce migration. Additionally, based on the off-site site investigation, shallow groundwater associated with the secondary undifferentiated aquifer is not anticipated and the significant thickness of Glacial Till (c. 37m – 52m) will act as an aquitard to the underlying Secondary B Aquifer. The peat deposits are classed as unproductive strata, Furthermore, any contamination is likely to be associated with low mobility and solubility contaminants of concern (i.e. metals and semi-metals and PAHs).	**LOW**
				Post-Development Site **Unlikely:** Following development there will be a significant increase in hardstanding (i.e. buildings and roads) across the site, therefore vertical migration will be significantly reduced. Furthermore, if any contamination is encountered, the remedial measures may be undertaken for human health purposes (i.e. possible removal of source) further reducing the risk to controlled waters.	**VERY LOW**
	Lateral migration along low permeability cohesive deposits Lateral migration along historic drainage Migration along groundwater flow	Surface water courses (Numerous Drains) & aquatic organisms	Effects to controlled waters: (**Mild**)	**Pre Development Site:** **Low Likelihood**: Lateral migration of contaminants is unlikely given the anticipated lack of widespread contamination and the presence of low permeability Glacial Till. Lateral migration of contaminants within the peat deposits is also considered unlikely given the low mobility and solubility of the contaminants of concern and given the lack of shallow groundwater recorded.	**LOW**
				Post Development Site: **Unlikely**: The potential for lateral migration of contaminants will be further reduced following development given the increased presence of hardstanding significantly reducing infiltration of water into the underlying ground. Furthermore, if any contaminative hotspots are present they are likely to be removed as part of remedial measures to satisfy human health requirements.	**VERY LOW**

	Overland flow	Surface water courses (Drains) & aquatic organisms	Effects to controlled waters: (**Mild)**	**Pre Development Site** **Unlikely**: Surface water features at and immediately surrounding the site are limited to drains. The presence of soft landscaping / gravel is likely to significantly reduce overland flow. Given the anticipated lack of widespread contamination at the site, overland flow of contaminants is not considered to be of significant concern.	**VERY LOW**
				Post Development Site: **Unlikely**: Although the presence of hardstanding is likely to increase significantly following development, the risk remains very low as any contamination is likely to be beneath hardstanding if any remains or beneath areas of soft landscaping / private gardens which will facilitate vertical migration rather than lateral migration to the surface water receptors.	**VERY LOW**

Diagrams of the conceptual site model is included within Appendix 10.

4.9 Preliminary Risk Assessment Summary

Human Health

Based on the human heath conceptual model the risk to human health is deemed low to moderate to end users and construction workers given the possible contaminative hotspots and possible contaminative linkages. The risk is increased for construction workers due to their acute interaction with site soils during development, however, it is envisaged that with appropriate PPE and site management, risks to construction workers can be mitigated.

Ground Gas

Potential ground gas sources have been identified on-site and in the vicinity of the site including Made Ground deposits (infilled ponds), peat, and an extensive landfill, therefore the risk is deemed low to moderate. Consequently, it is recommended to install ground gas monitoring wells and undertake monitoring over a period of 3 months with a minimum of 6 No. visits to confirm the ground gas regime.

If any organic rich Made Ground deposits are identified or if previously unrecorded potential ground gas sources are recorded during the site investigation works, then additional ground gas monitoring may be required. The length and frequency of the ground gas monitoring regime and the sampling method, initial results and alterations

to the conceptual model are subject to the findings of the site investigation works and development constraints (i.e. development timescales and liaison with the local authority).

Controlled Waters

Although potential contaminative sources have been identified on-site, no widespread contamination is anticipated and given the lack of significant pathways due to the presence of extensive Glacial Till deposits and the lack of shallow groundwater, the risk to controlled waters is deemed low.

If unrecorded contaminative sources are noted, the above conceptual models may require re-assessment / re-appraisal.

4.10 Scope of Phase 2 Intrusive Geo-Environmental Ground Investigation

As a result of the preliminary risk assessment a Phase 2 intrusive geo-environmental ground investigation should be carried out to quantify the identified risks. This intrusive ground investigation work should include the collection of appropriate samples – solid, leachate and / or liquid, if determined necessary, across the site for appropriate chemical testing as detailed above.

Furthermore, to determine the geotechnical and geological properties of the underlying ground conditions, appropriate intrusive works and associated testing should be undertaken. The rationale and aims for these Phase 2 environmental, geotechnical and geological investigative works are detailed below.

In order to provide adequate assessment in terms of both environmental and geotechnical site parameters, site investigation works will be required on a spatial basis and also targeting the location of the following features:

- Infilled Ponds – *unknown materials / content, likely highly organic*
- LPG Tank – *unlikely given gaseous nature of the fuel in atmospheric conditions*

- Areas where vehicles were stored. – *leakage / spillage of hydrocarbons (full / engine oils)*
- Potential areas of peat deposits – *highly organic deposit.*

The proposed **initial** site investigation works should comprise the following:

- Dynamic sample boreholes
- Trial pits

For the anticipated piled foundation design the installation of cable percussive boreholes will be required following an understanding shallow superficial deposits i.e. presence of peat to allow pile design to be undertaken.

The rationale for the exploratory holes is discussed below:

- To determine the extent, composition and depth of the Made Ground.
- To allow the collection of shallow soil samples from the Made Ground and natural deposits for chemical laboratory testing for an appropriate suite of determinands based on the site's historical uses.
- To allow for the collection of shallow samples from anthropogenic and natural deposits to be analysed for determinands in line with in line with BRE Special Digest 1 to determine the appropriate concrete classification for the site.
- To determine the nature, thickness and extent of superficial deposits, particularly the thickness and extent of any peat deposits.
- To determine the presence of any subterranean obstructions i.e. relict foundations, slabs or walls from historical developments.
- Enable in-situ and ex-situ geotechnical testing, including density testing (SPTs), hand shear vane (HSV) testing and undrained shear strengths of the underlying Made Ground and natural deposits for the purposes of sub-structure design.
- Dynamic sample boreholes to allow the installation of wells for monitoring of ground gas and any shallow groundwater.

Ground investigation should also include the following:

- Post fieldwork monitoring of ground gas and groundwater depth, comprising a minimum of 6 No. visits over 3 No. months. This monitoring period is subject to change following intrusive ground investigation findings.

5.0 RECOMMENDATIONS

5.1 As a result of the information gathered and the risks identified in this report, it is assessed that there is a low to moderate risk to human health on the basis that contaminative linkages have been identified for end users and construction workers. The risk to controlled waters is deemed low given the lack of viable contaminant linkages.

5.2 On the basis that a low to moderate ground gas risk has been assessed, it is considered necessary to undertake ground gas monitoring over a period of 3 months with a minimum of 6 visits. On the basis that the site lies within an area where less than 1% of homes are above the action level, no radon protection measures are required.

5.3 There are moderate geotechnical risks at the site, chiefly due to the chemically aggressive and poor geotechnical quality peat deposits, anticipated to be present at the west of the site. Ground investigation works should be undertaken to ascertain the ground conditions and determine the extent and thickness of any geotechnically poor materials at site, including Made Ground and peat. The design of the proposed development, drainage, services and immediate external areas can only be undertaken upon understanding the ground conditions at the site. It is therefore recommended that exploratory holes are constructed spatially across the site, where access is permitted.

5.4 From the results of the Phase 2 ground investigation work – if this report identifies a potential risk and / or a requirement for further detailed site specific assessment, a Phase 3 environmental investigation report and / or a Remedial Strategy (informing on potential remediation solutions) may be required.

5.5 The nature and extent of the proposed targeted chemical and environmental testing should be confirmed, if time / commercial constraints allow, with the relevant Local Authority Environmental Health Officer and the Environment Agency prior to

undertaking works on-site. Proceeding without agreement between regulatory authorities may result in further assessment being required.

5.6 It should be noted that, if any visual or olfactory evidence of contamination is encountered during remediation or construction work, then the Local Authority Environmental Health Officer and Environment Agency should be contacted immediately in order to agree any necessary remediation measures.

5.7 Given the presence of services on-site, full service plans should be obtained prior to any intrusive site investigation works.

5.8 Due to the presence of semi-mature and mature trees on-site and the presence of cohesive deposits, an arboricultural survey is recommended.

APPENDIX 1

LIMITATIONS OF INVESTIGATION WORK AND REPORT

LIMITATIONS OF REPORT

This consultancy report was compiled and carried out by IGE Consulting Limited ('IGE') for the client, as defined in the main report (the 'client'), on the basis of a defined programme and scope of works and the terms of a contract between IGE and the client. IGE undertook this with all reasonable skill and care, taking into account the limits of the scope of works required by the client, the prevailing site conditions, the time scale involved and the resources, including financial and manpower resources, agreed between IGE and the client. IGE cannot accept responsibility to any parties whatsoever, following the issue of this report, for any matters arising which may be considered outwith the agreed scope of works.

Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices. This report may not be relied upon, or transferred to, by any other party without the written agreement of its author. If a third party relies on this report, it does so wholly at its own and sole risk and IGE disclaims any liability to such parties.

It is IGE's understanding that this report is to be used for the purpose described in the 'Brief' section of this report. That purpose was a significant factor in determining the scope and the services to be provided. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without IGE's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of IGE.

This report is a function of the date it was written and should be read in light of any subsequent changes in legislation, statutory requirements and industry practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal

provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of IGE. In the absence of such written advice of IGE, reliance on the report in the future shall be at the client's own and sole risk. Should IGE be requested to review the report in the future, IGE shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between IGE and the client.

The observations and conclusions described in this report are based solely upon the scope of works agreed between the client and IGE. IGE has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. IGE is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the agreed scope of works. For the avoidance of doubt, this report is strictly limited to the nature of contamination contained within the ground and groundwater at the site. The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species (e.g. Japanese Knotweed). It is recommended that the client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected. Where mention has been made to the suspected presence asbestos or asbestos-containing materials this is for indicative purposes only and does not constitute or replace full and proper surveys.

Throughout the report the term ‘geotechnical’ is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term ‘geo-environmental’ is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. The geo-environmental sections are written in broad agreement with BS 10175:2011+A2 2017.

LIMITATIONS OF INVESTIGATION WORK

Desk Study References

This report is based upon IGE's observations of existing physical conditions at the site gained from a walkover survey of the site together with IGE's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. Reliance has been placed on this publicly available data obtained from the sources identified in the main report. When using the information, it has been assumed that it is correct. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst IGE have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified. No responsibility can be accepted for errors within third party items presented in this report. IGE did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services. IGE is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to IGE and including the doing of any independent investigation of the information provided to IGE except when otherwise provided in the terms of the contract between the client and IGE.

Historical Mapping

Historical Ordnance Survey maps do not provide a comprehensive description of a site history. They provide details of the site from a date prior to the publication of the map (i.e. a snapshot in time). The period between map editions can be substantial (i.e. several decades). Not all map series are available for every date range in many areas of the UK and therefore there will be gaps in this mapped record for some sites. Potentially contaminative land uses could have been present and removed during such periods and may therefore not form a part of this particular record. In addition, there will be potentially contaminative land uses which are not identified on the map records such as small scale storage / use of hazardous materials, illegal / unlicensed

waste disposal activities etc. Different map series identify different features utilising different symbols which can result in features that remain on-site being removed from maps. Some features are also not mapped for security reasons (e.g. airfields and other military installations). These areas are mostly shown as blank areas on historical maps.

Site Walkover

During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not be made known or accessible.

Flooding

Flooding in this report is defined as flooding caused by the sea, ditches, rivers, streams, ponds, lakes, reservoirs and the like. It does not extend to flooding caused by surcharged piped drainage systems and investigations into flooding of this nature are excluded from this report.

Extent of Contamination Studies

Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

The conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the reporting in full. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

PLANNING CONTEXT

The National Planning Policy Framework (NPPF, 2018) states that the purpose of the planning system is to contribute to the achievement of sustainable development. In order to do this the planning system has three overarching objectives, one of which directly relates to the potential for pollution and contaminated land:

- *'**environmental objective** - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy'.*

In accordance with this environmental objective, Paragraph 118 clarifies that 'making effective use of land' includes to:

- *'give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land'*.

In accordance with this environmental objective, Paragraph 170 clarifies that' conserving and enhancing the natural environment includes:

- *'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability*'; and
- *'remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate'.*

Paragraph 178 of the NPPF states that planning policies and decisions for developments should also ensure that:

- *'a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation)*'; and,

- ‘*after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990’*; and
- ‘*adequate site investigation information, prepared by a competent person, is available to inform these assessments’*.

This report has been prepared and authorised by staff that are competent as defined in the NPPF.

APPENDIX 2

SITE LOCATION PLAN

FOR GUIDANCE PURPOSES ONLY

Approximate Site Boundary

N

0 25 50 75 100 125 m

Rev	Drawn	Date	Description

Drawing Status:
Information

Contract:
Land off Cropper Road, Blackpool

For: Breck Homes Ltd and Eden Land and Development Ltd.

Drawing Title:

Site Location Plan

IGE consulting

Office 11, Bartle House, Oxford Court, Manchester M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 9149170

Scale: 1:2000 @A3	Date: July 2021	
Drawn: AL	Checked: AE	
Contract No. 3591	Drawing No. SI - 01	P1

APPENDIX 3

WALKOVER SURVEY PHOTOGRAPHS AND PHOTOGRAPH PLAN

FOR GUIDANCE PURPOSES ONLY

Approximate Site Boundary

Walkover Photographs

Rev	Drawn	Date	Description

Drawing Status:
Information

Contract:
Land off Cropper Road, Blackpool

For: Breck Homes Ltd and Eden Land and Development Ltd.

Drawing Title:

Walkover Photographs Location Plan

IGE consulting

Office 11, Bartle House, Oxford Court, Manchester M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 9149170

Scale: 1:750 @A3	Date: July 2021	
Drawn: AL	Checked: AE	
Contract No. 3591	Drawing No. SI - 02	P1

Photo 1: View south from the north eastern site section showing cars parked / stored on rough grass.

Photo 2: View south west from the eastern site section showing the garden centre and car park in the central site section.

Photo 3: View north west from the eastern site section showing the shops, café and associated car parking in the western site section.

Photo 4: View south east from the central site section showing the area of rough grass and the open fields use for horse grazing in the southern site section.

Photo 5: View north from the central site section showing the north eastern site section.

Photo 6: View north east from the central site section showing the track and area of rough grass in the central site section.

Photo 7: Looking south west showing the garden centre and mature trees in the western site section.

Photo 8: Looking north east showing the access in the north eastern corner of the site.

Photo 9: Looking south west from the northern boundary showing a caravan and various outbuildings in the northern site section.

Photo 10: View west showing arcade games being stored in the north western corner of the site.

Photo 11: View south from the north western corner showing more arcade games stored in a large shed.

Photo 12: View south east from the north western corner of the site showing various outbuildings.

Photo 13: View south from the north western site section showing the western site section with mature trees.

Photo 14: Looking north along the northern boundary.

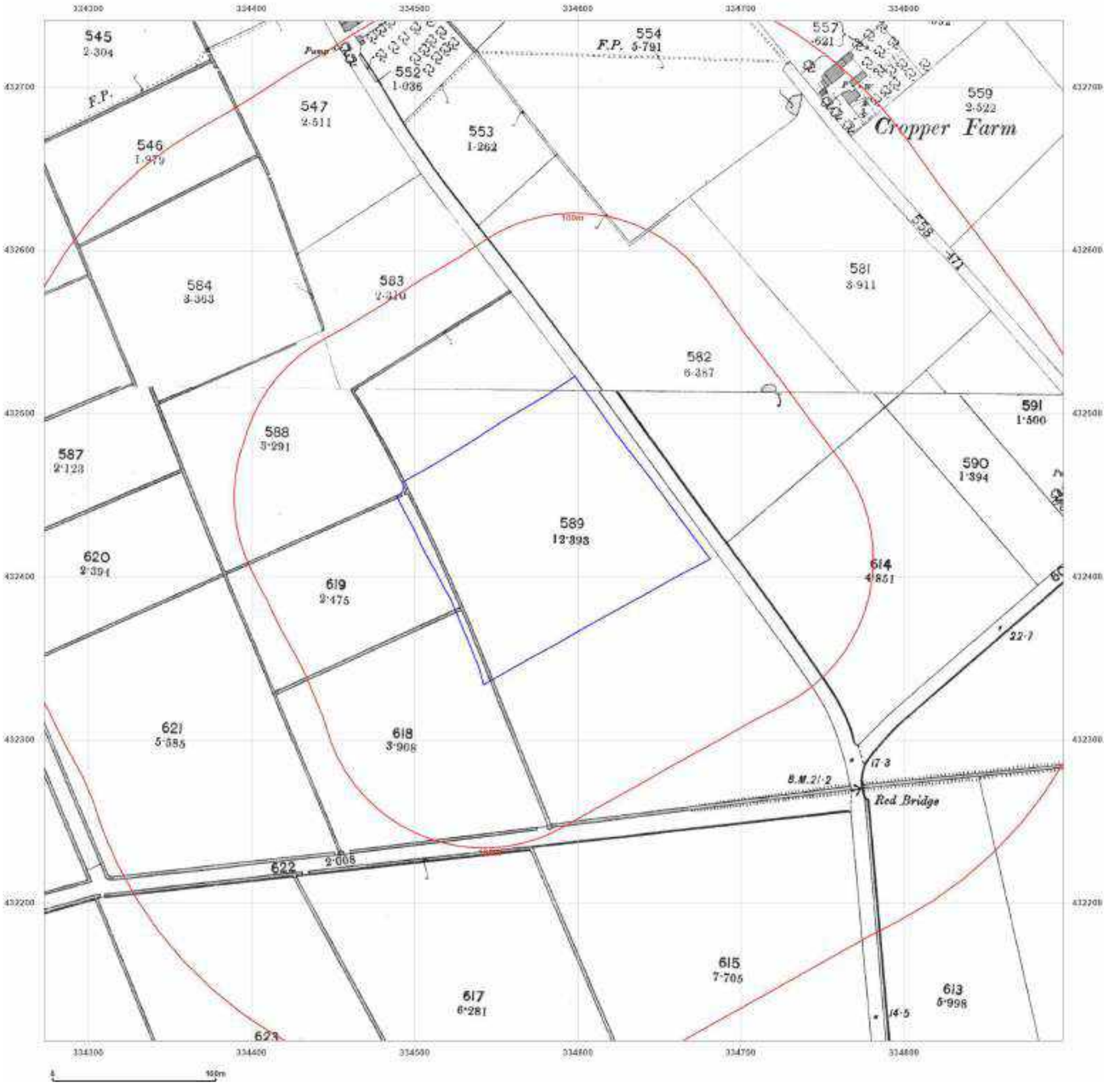
Photo 15: View south east showing the LPG tank in the northern site section.

Photo 16: View north east showing meter gas and electricity meter units in the north eastern corner.

Photo 17: View south west showing the south western site section.

APPENDIX 4

HISTORICAL ORDNANCE SURVEY MAPS



Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1891**

Scale: 1:2,500

Printed at: 1:2,500

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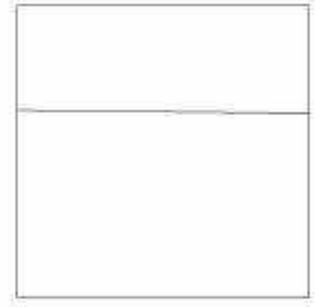
Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

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

Production date: 26 July 2021

Map legend available at:
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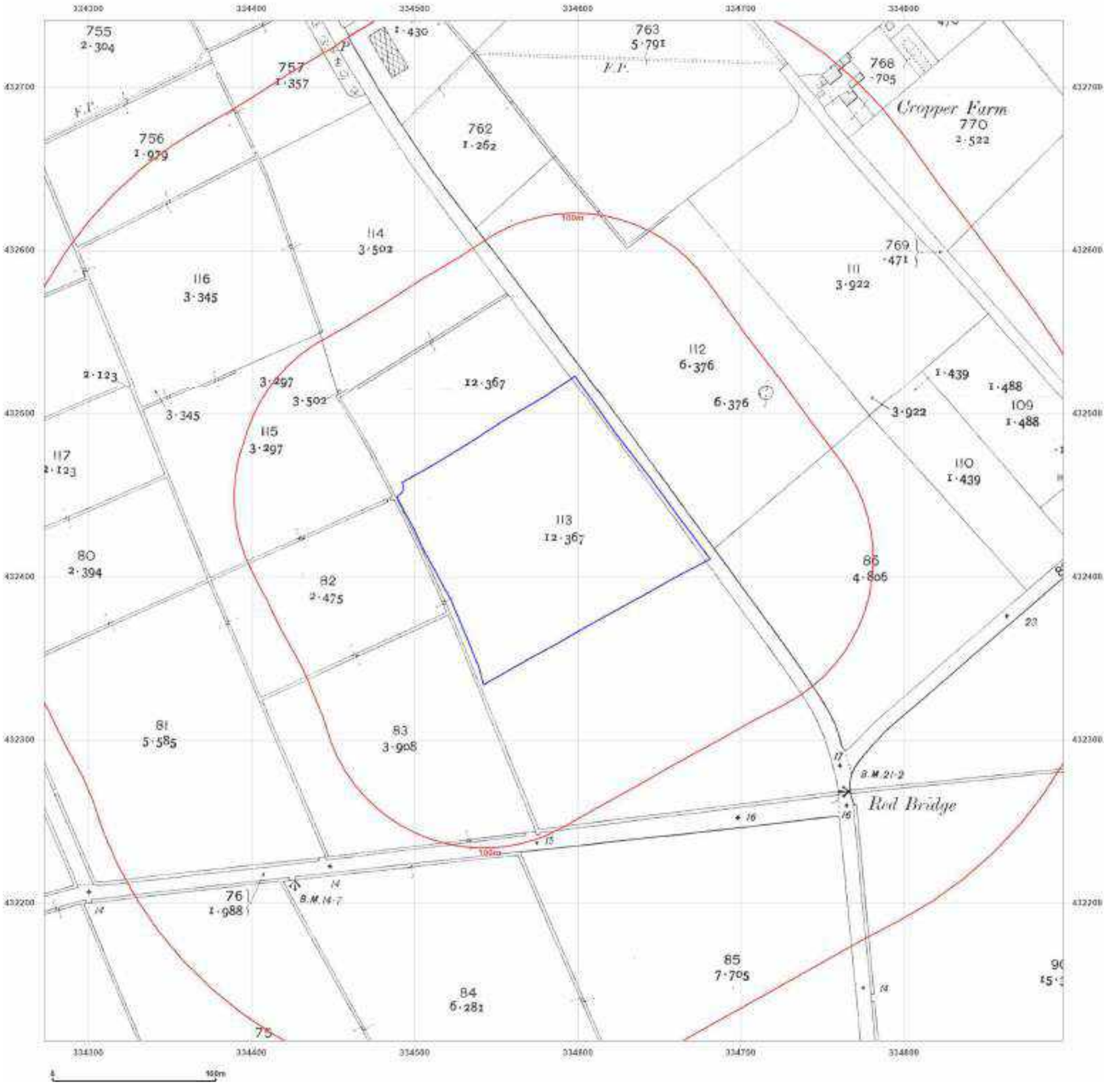

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CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

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Report Ref: GS-8072444
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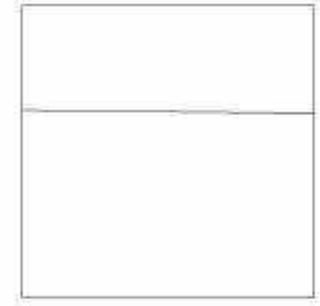

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T: 08444 159000
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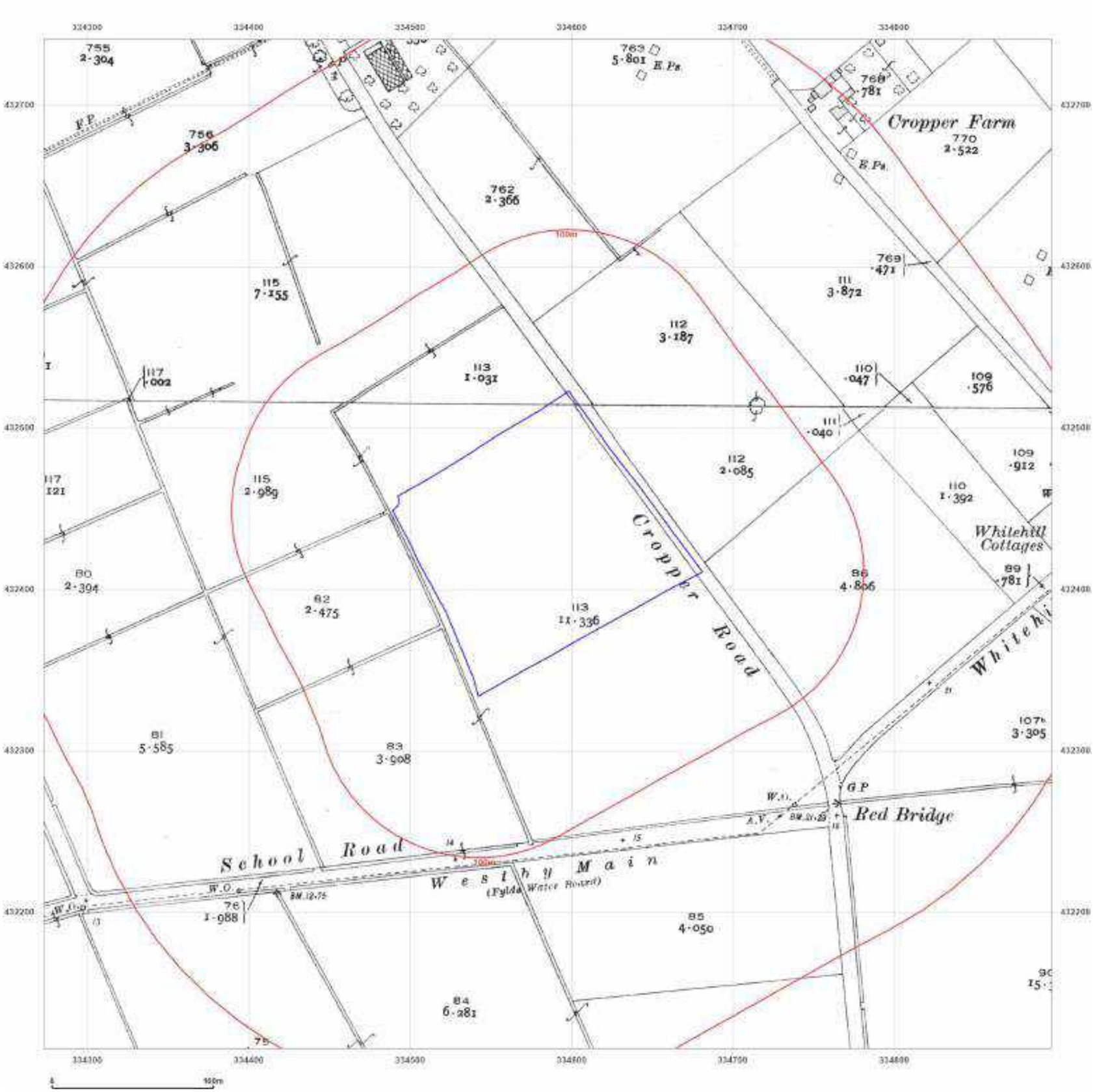

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

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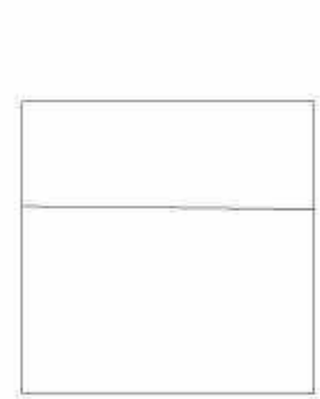

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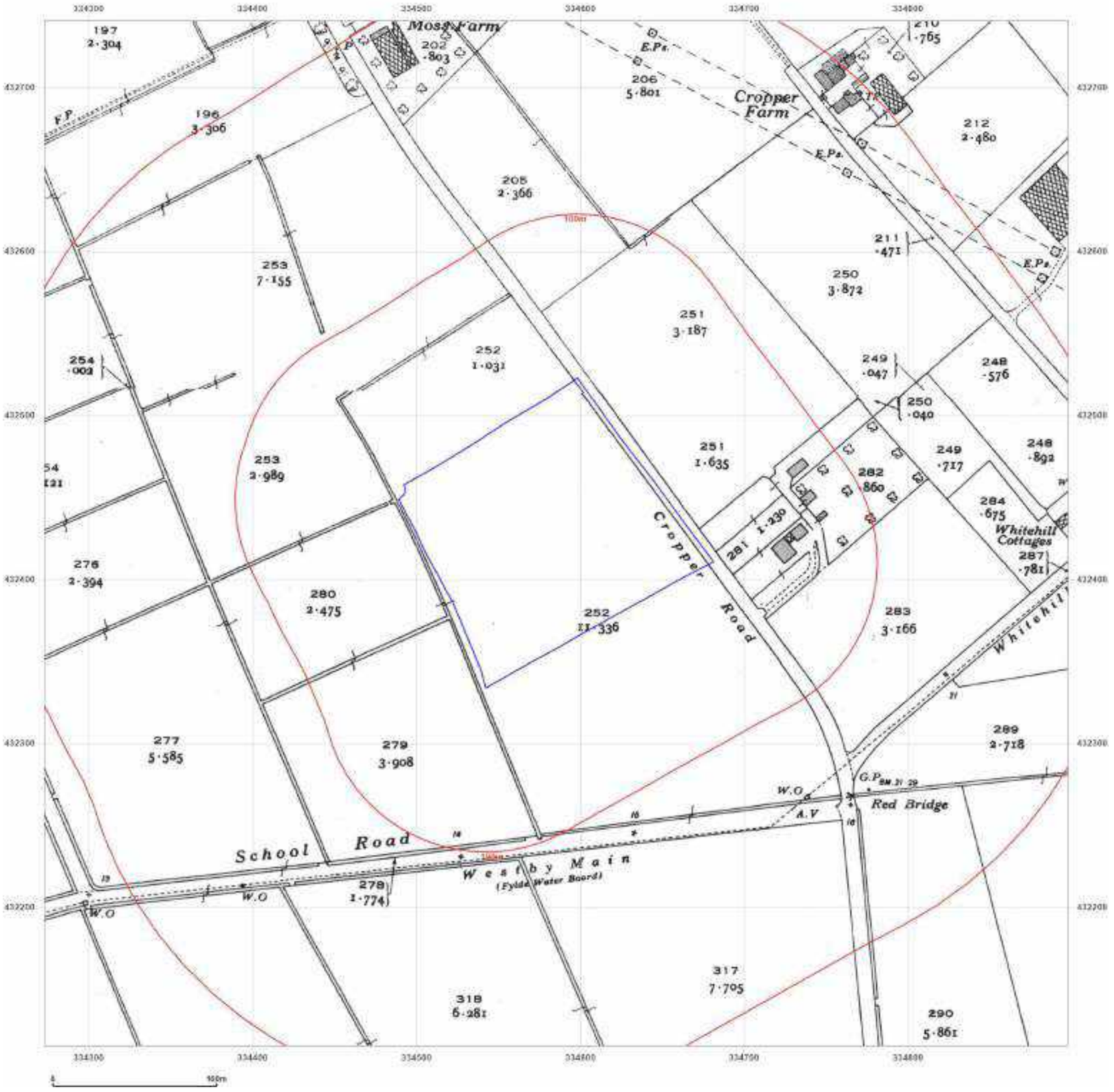

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1938**

Scale: 1:2,500

Printed at: 1:2,500

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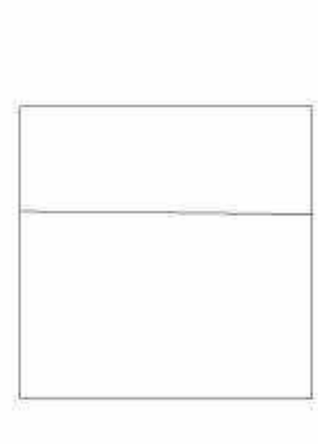

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Production date: 26 July 2021

Map legend available at:
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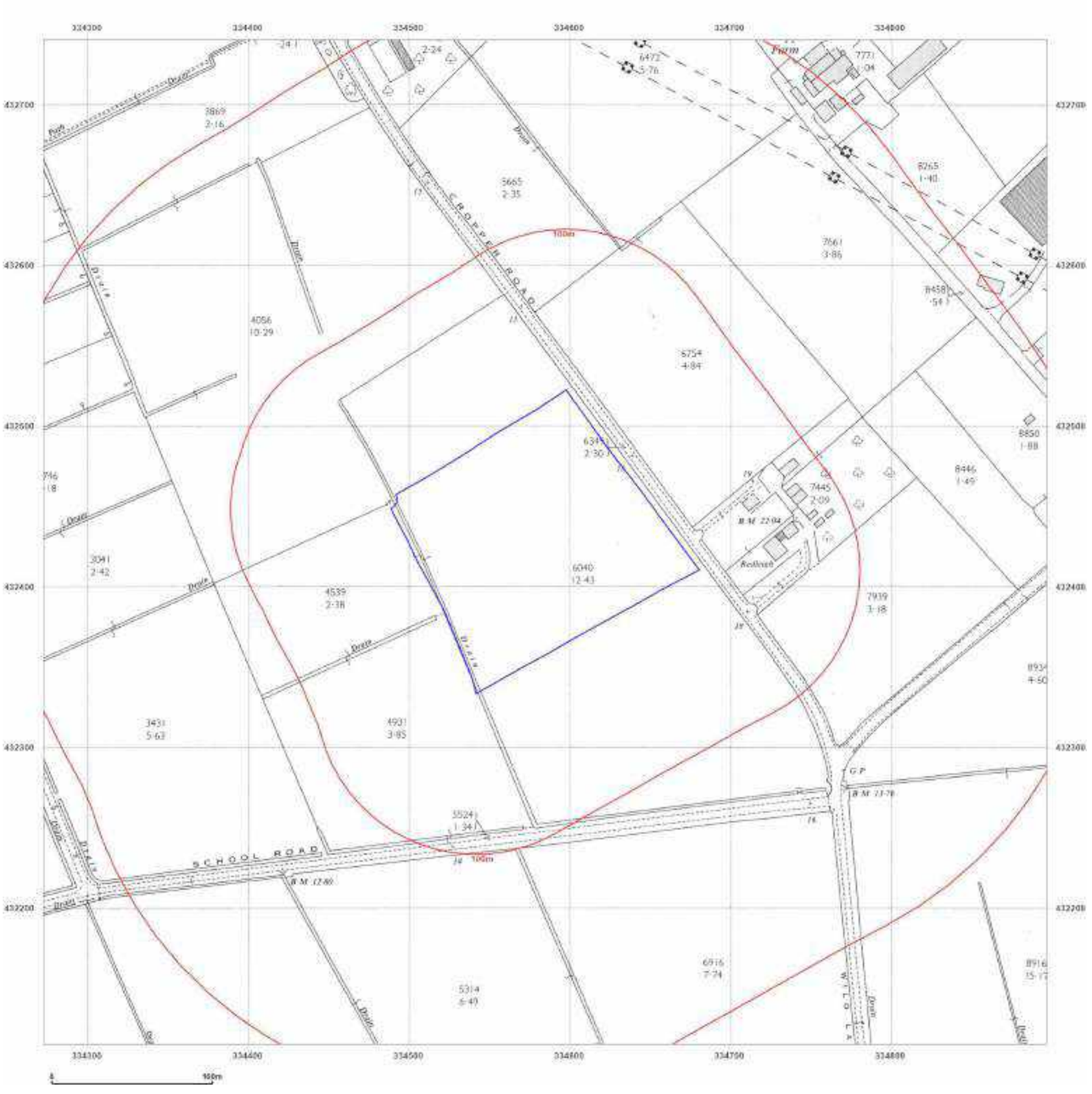

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1966**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1961

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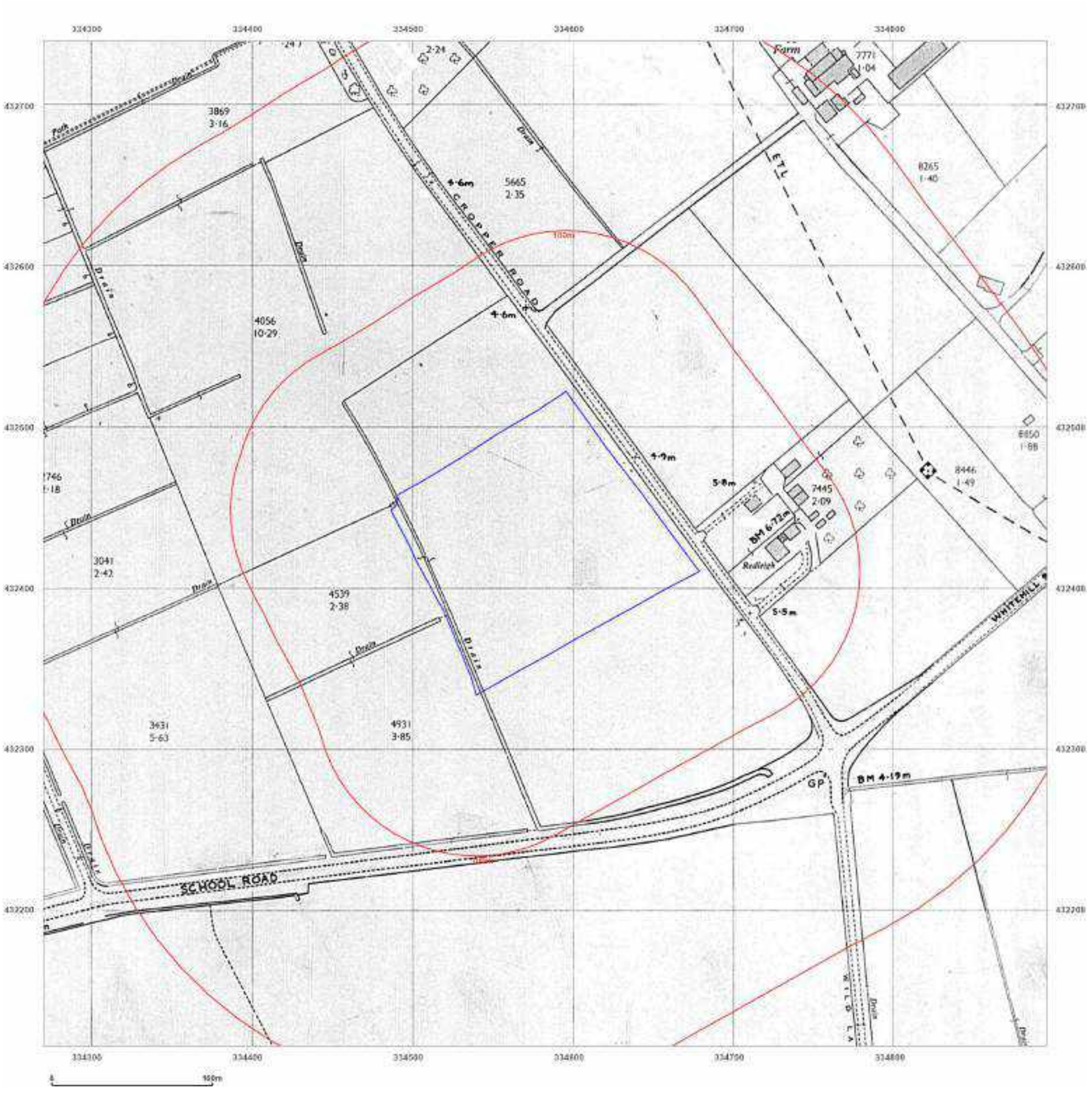

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1983**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1960
Revised 1983
Edition N/A
Copyright 1983
Levelled 1960

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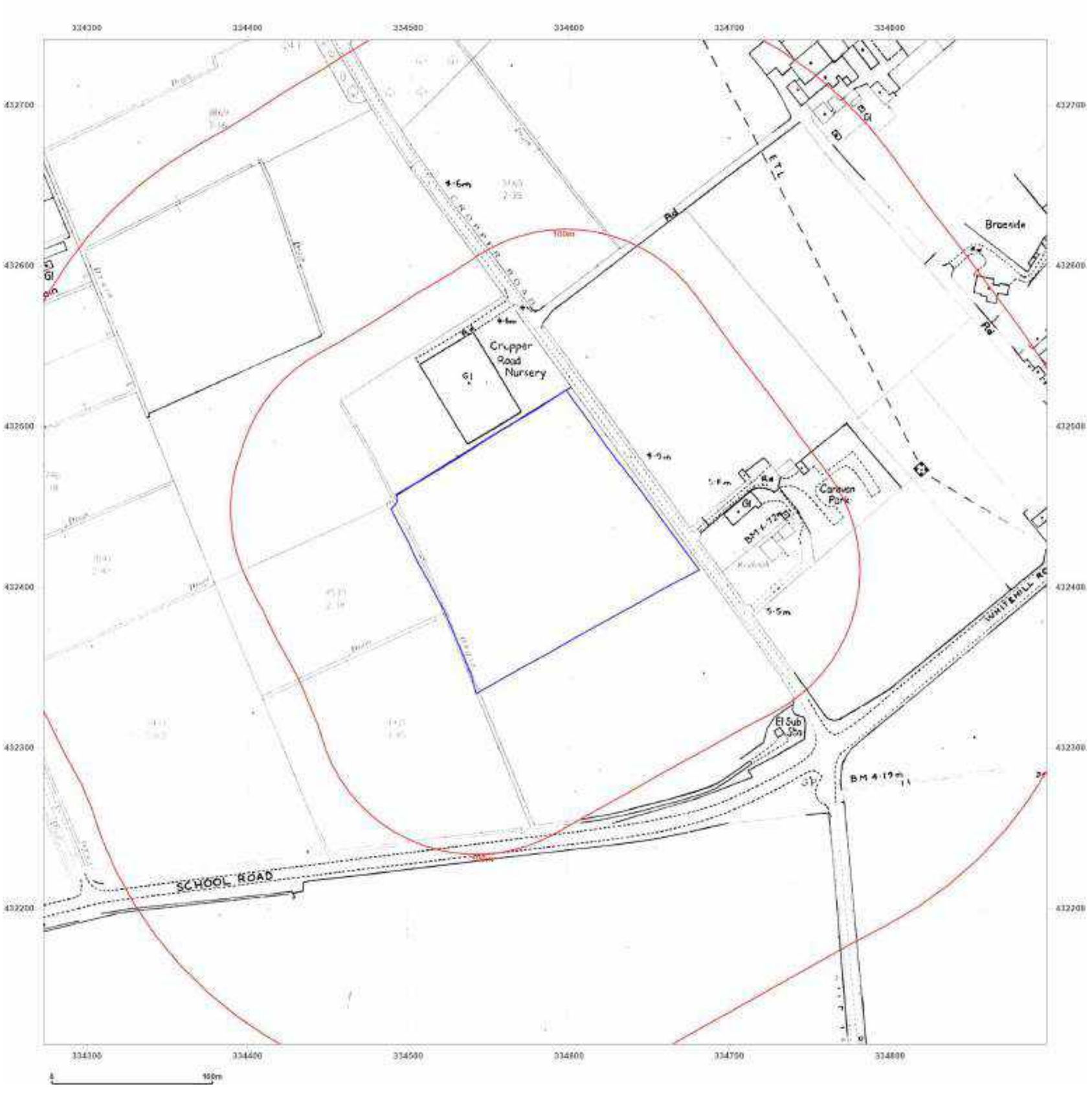

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1985**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed N/A
Revised 1960
Edition N/A
Copyright 1985
Levelled 1960

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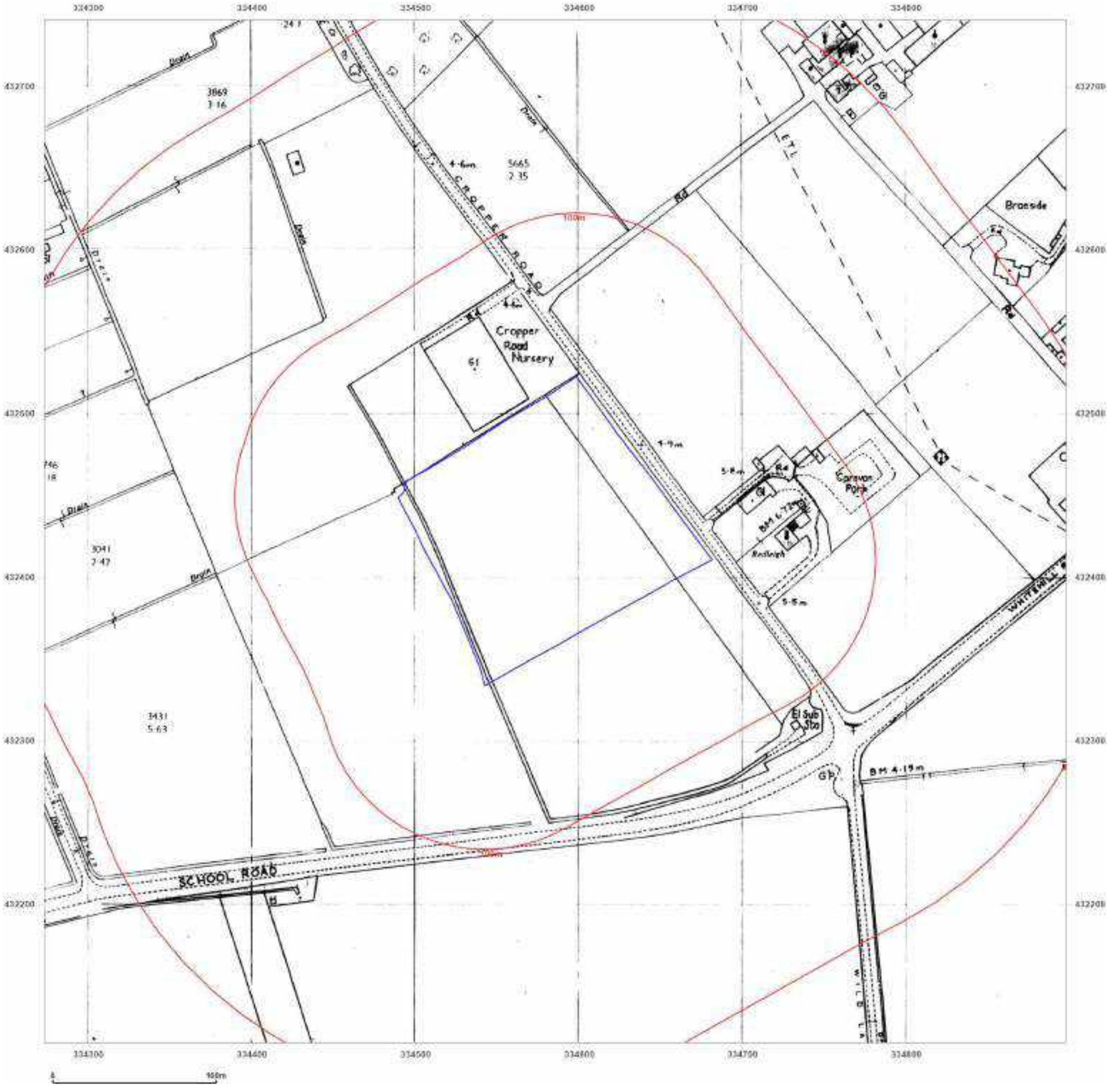

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1988**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1960
Revised 1960
Edition N/A
Copyright 1988
Levelled 1960

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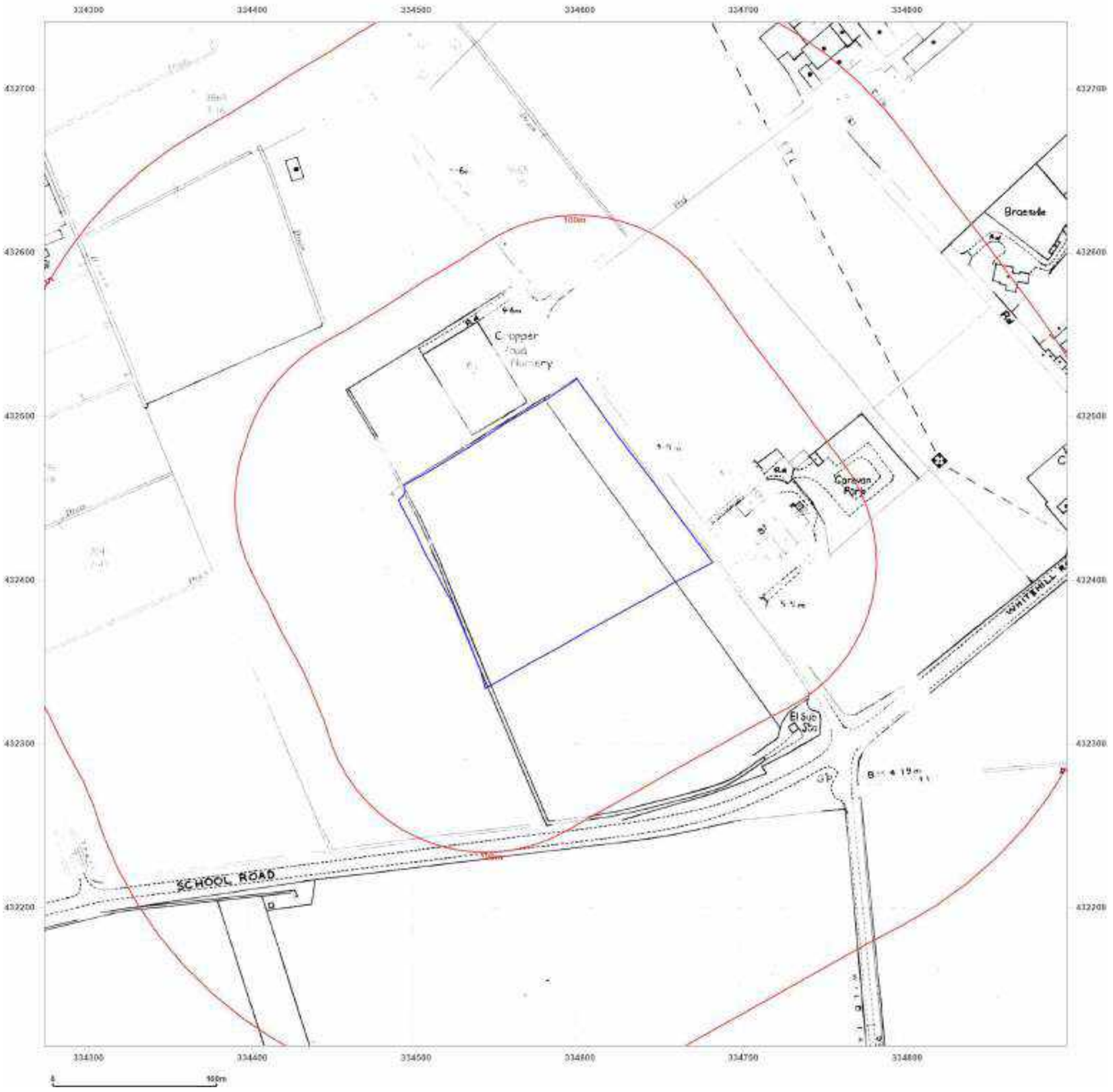

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1988**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed N/A
Revised 1960
Edition N/A
Copyright 1988
Levelled 1960

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Production date: 26 July 2021

Map legend available at:
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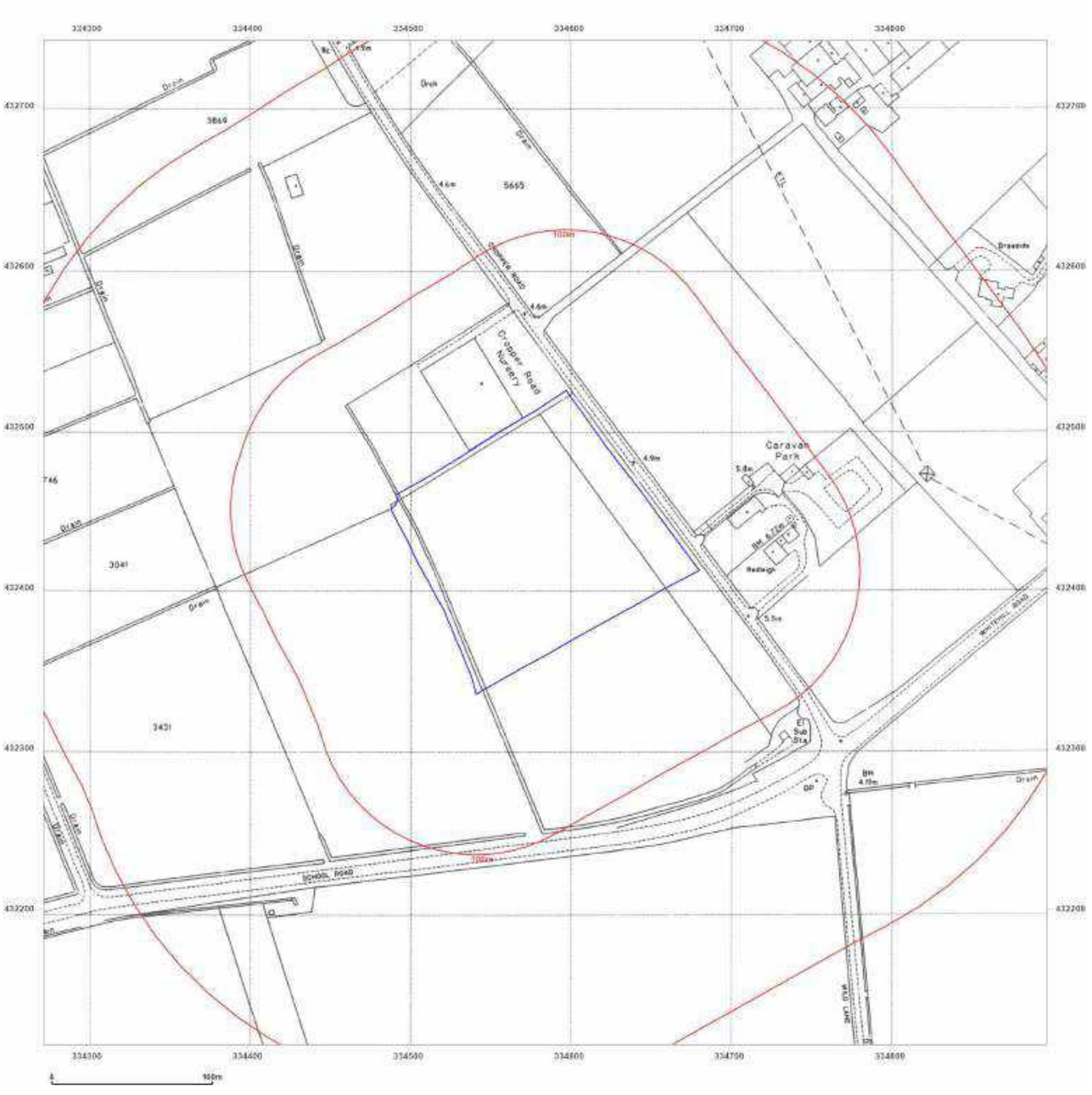

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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W: www.groundsure.com

Production date: 26 July 2021

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

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

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

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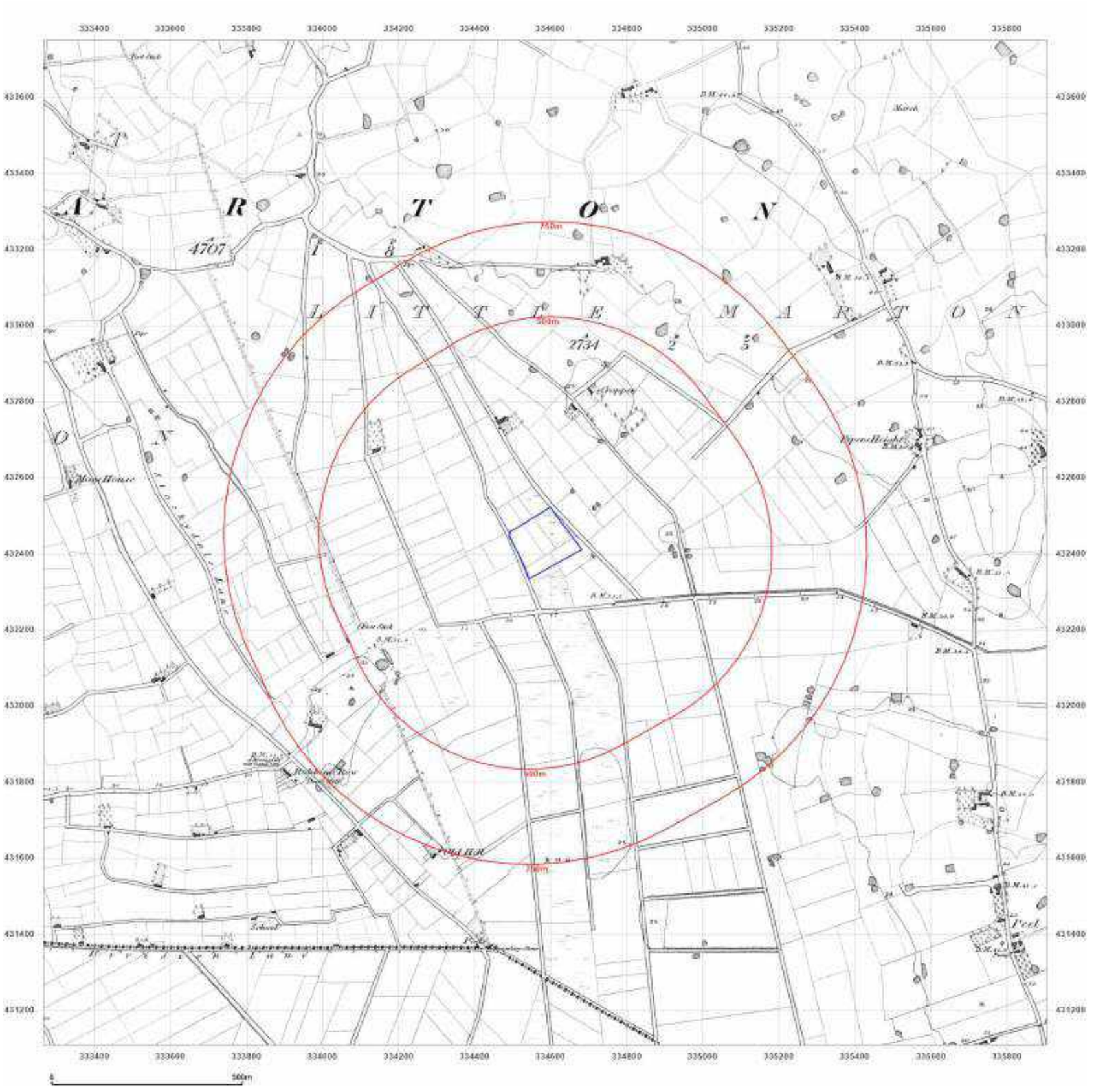

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1847**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1844
Revised N/A
Edition 1847
Copyright N/A
Levelled N/A

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Production date: 26 July 2021

Map legend available at:
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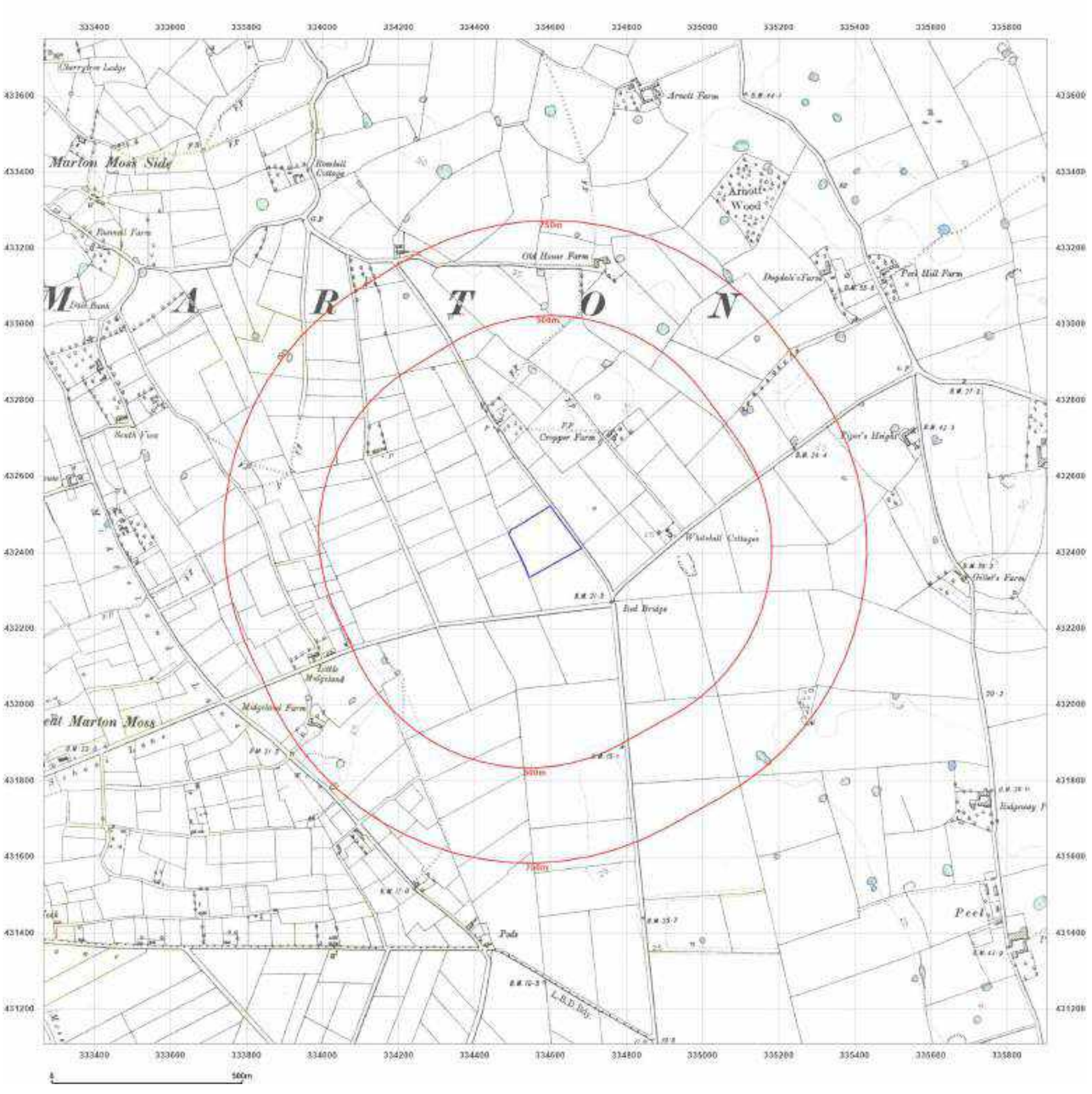

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1891**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

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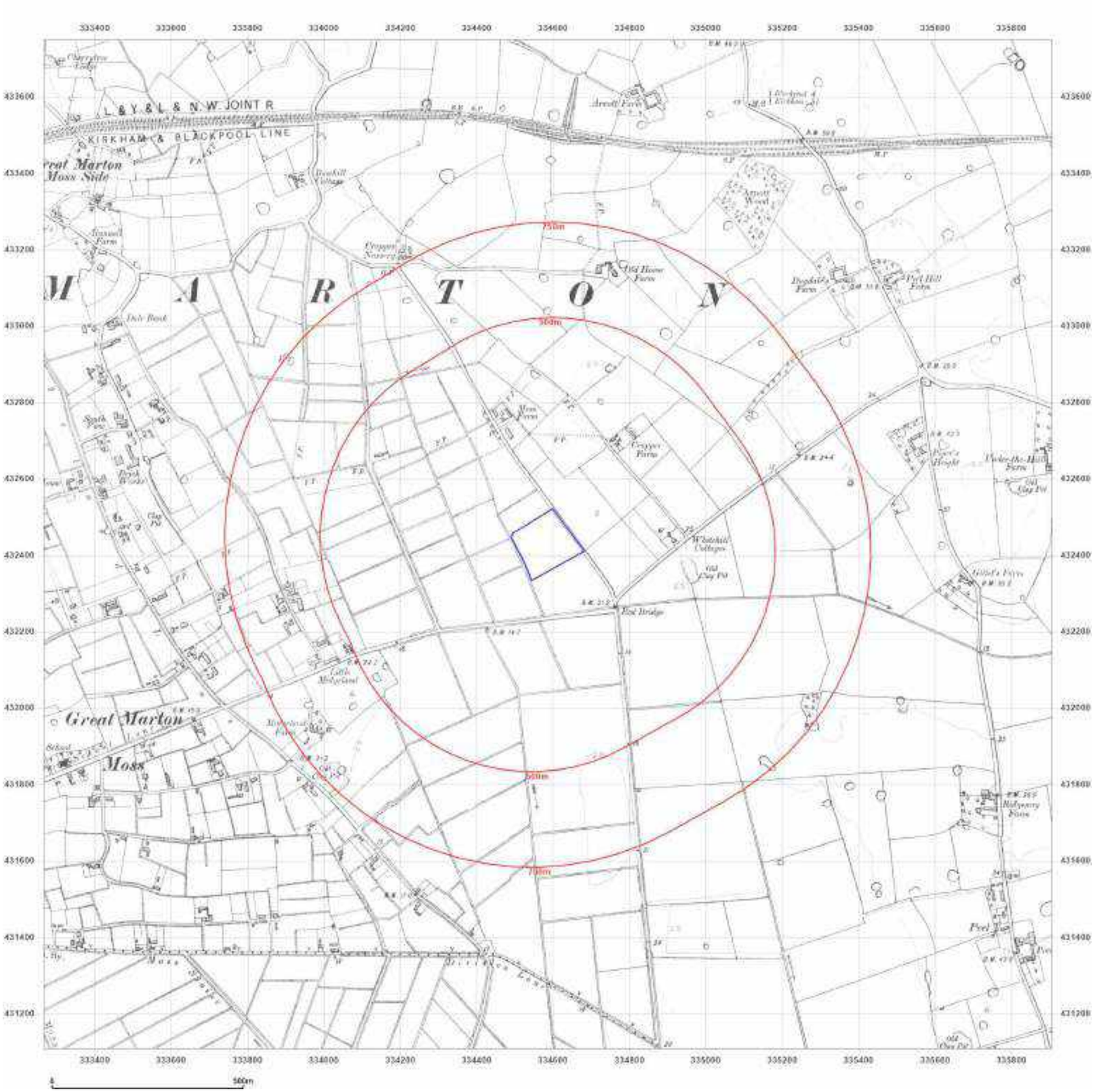

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1909**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1844
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:
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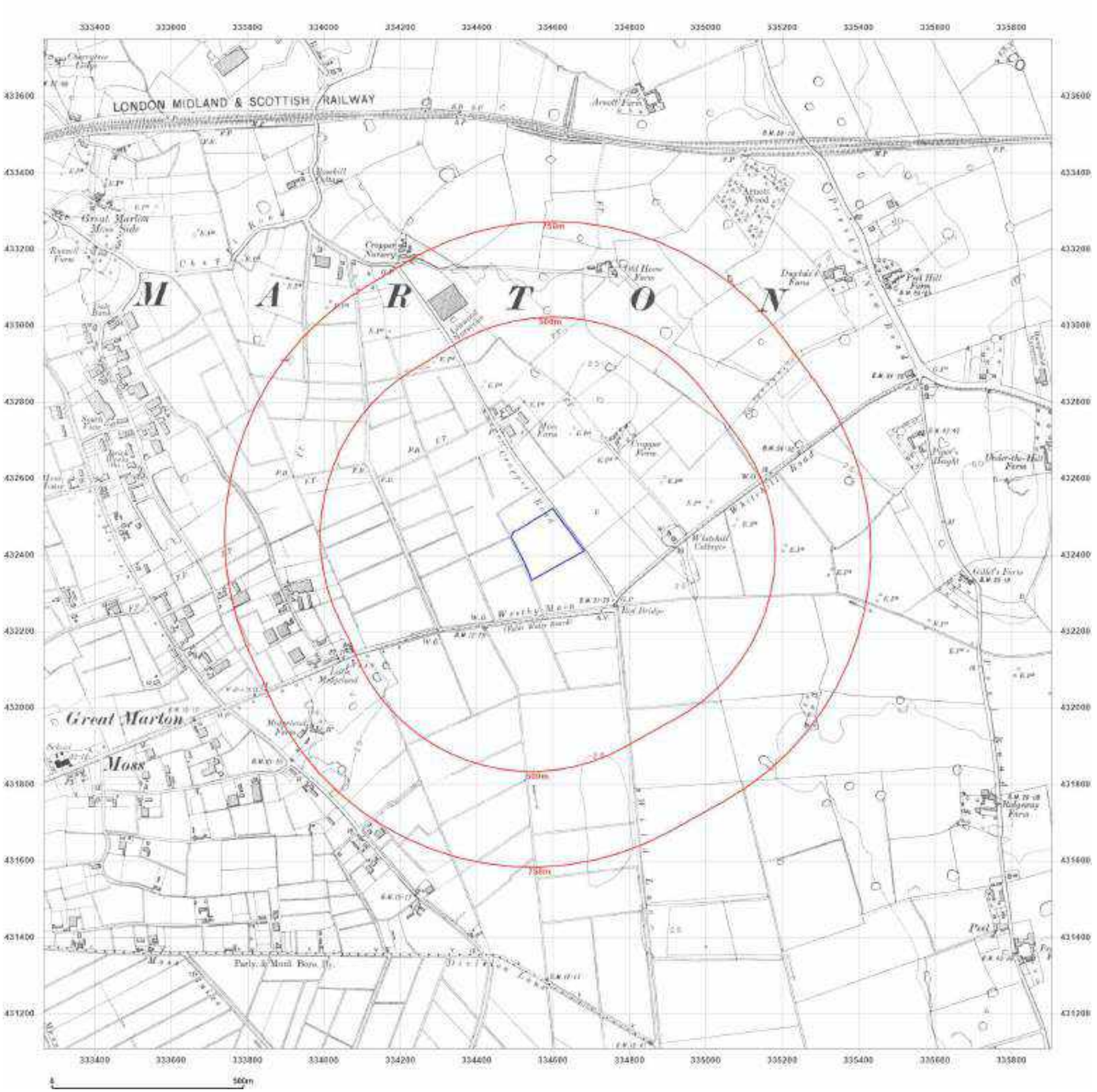

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1930**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1844
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 26 July 2021

Map legend available at:
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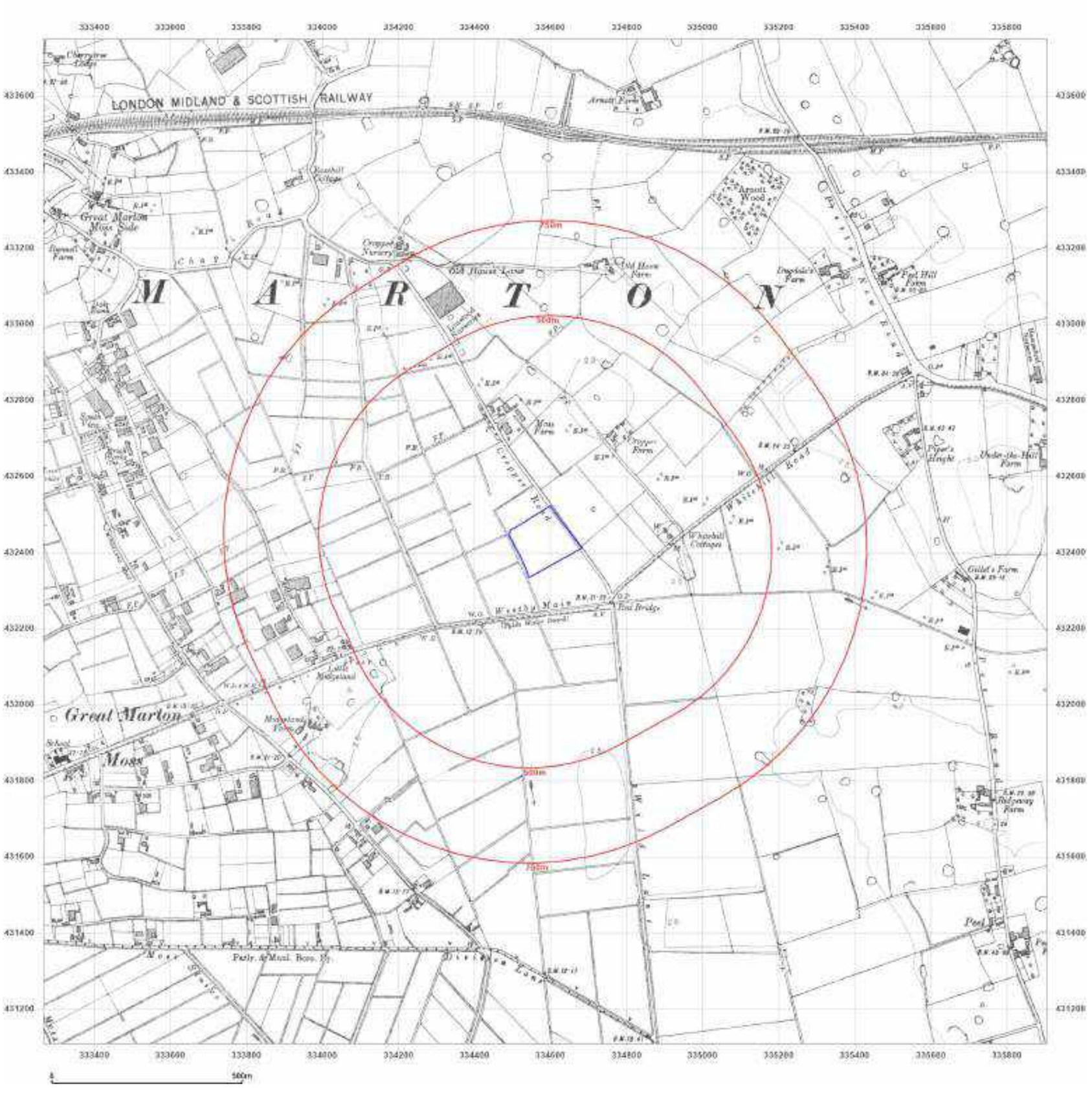

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

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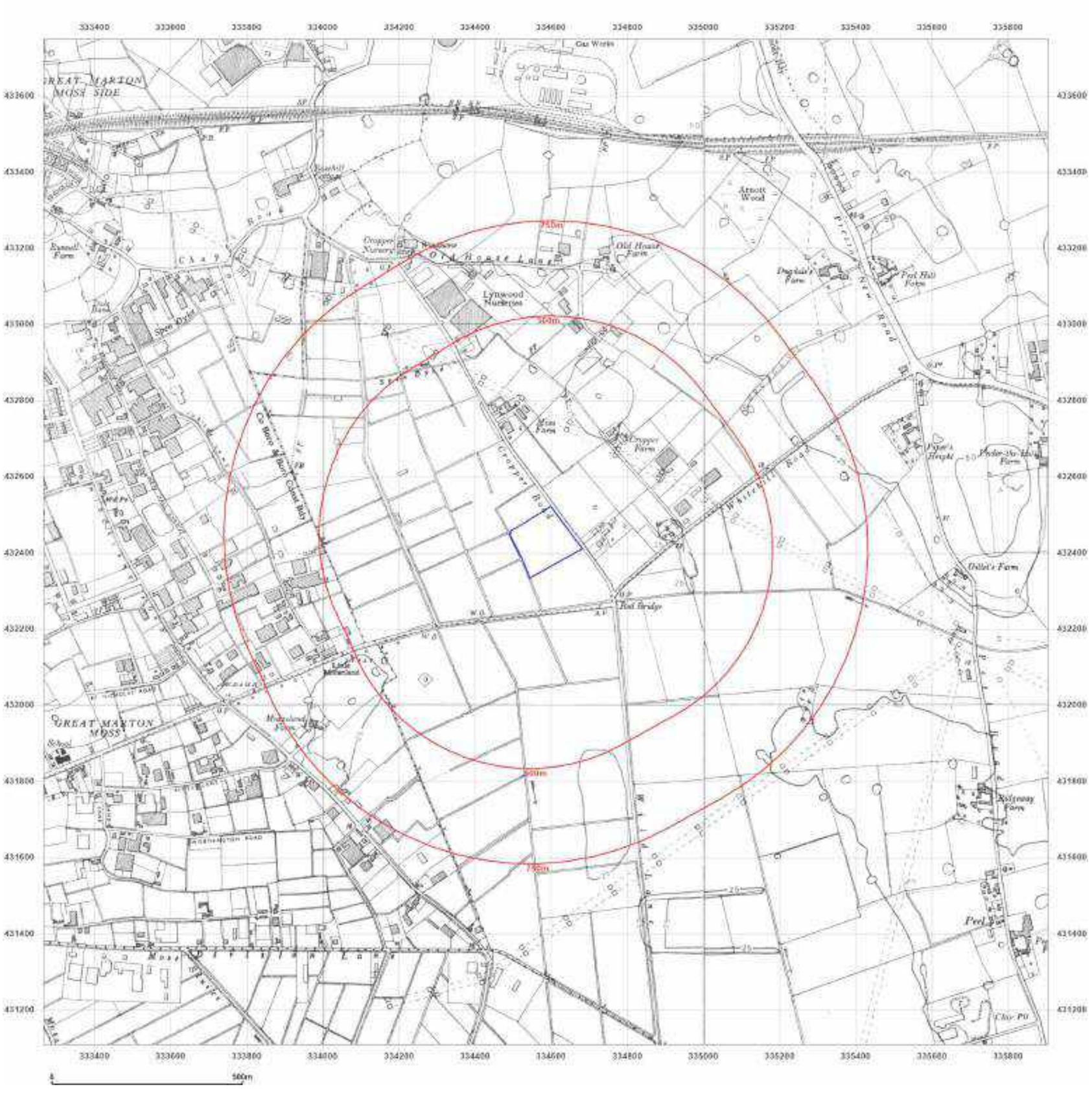

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: Provisional

Map date: **1951**

Scale: 1:10,560

Printed at: 1:10,560

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

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

Powered by OS

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W: www.groundsure.com

Production date: 26 July 2021

Map legend available at:
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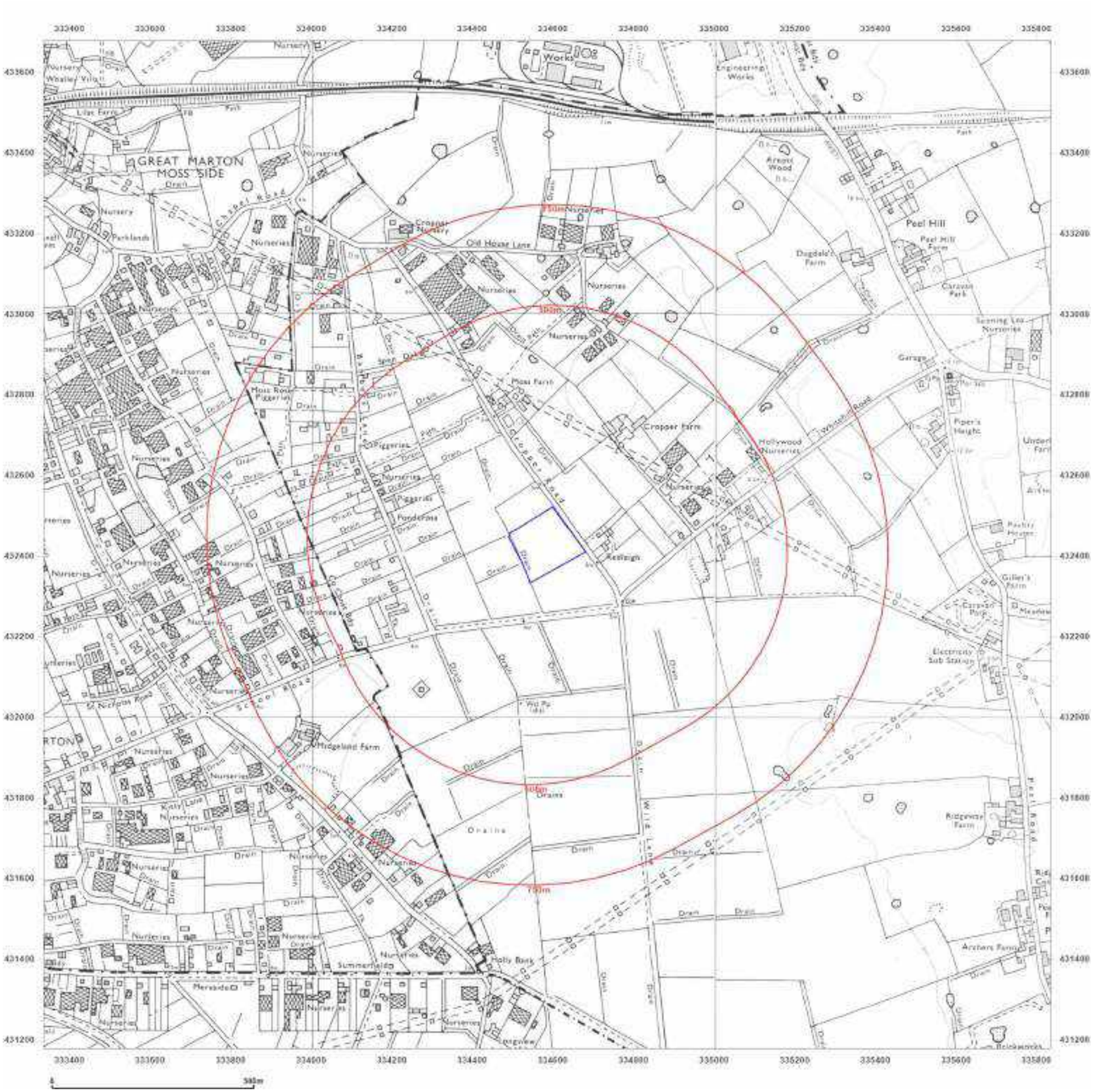

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1969-1971**

Scale: 1:10,000

Printed at: 1:10,000

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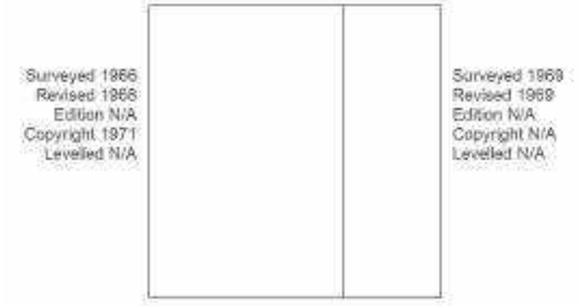

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Production date: 26 July 2021

Map legend available at:
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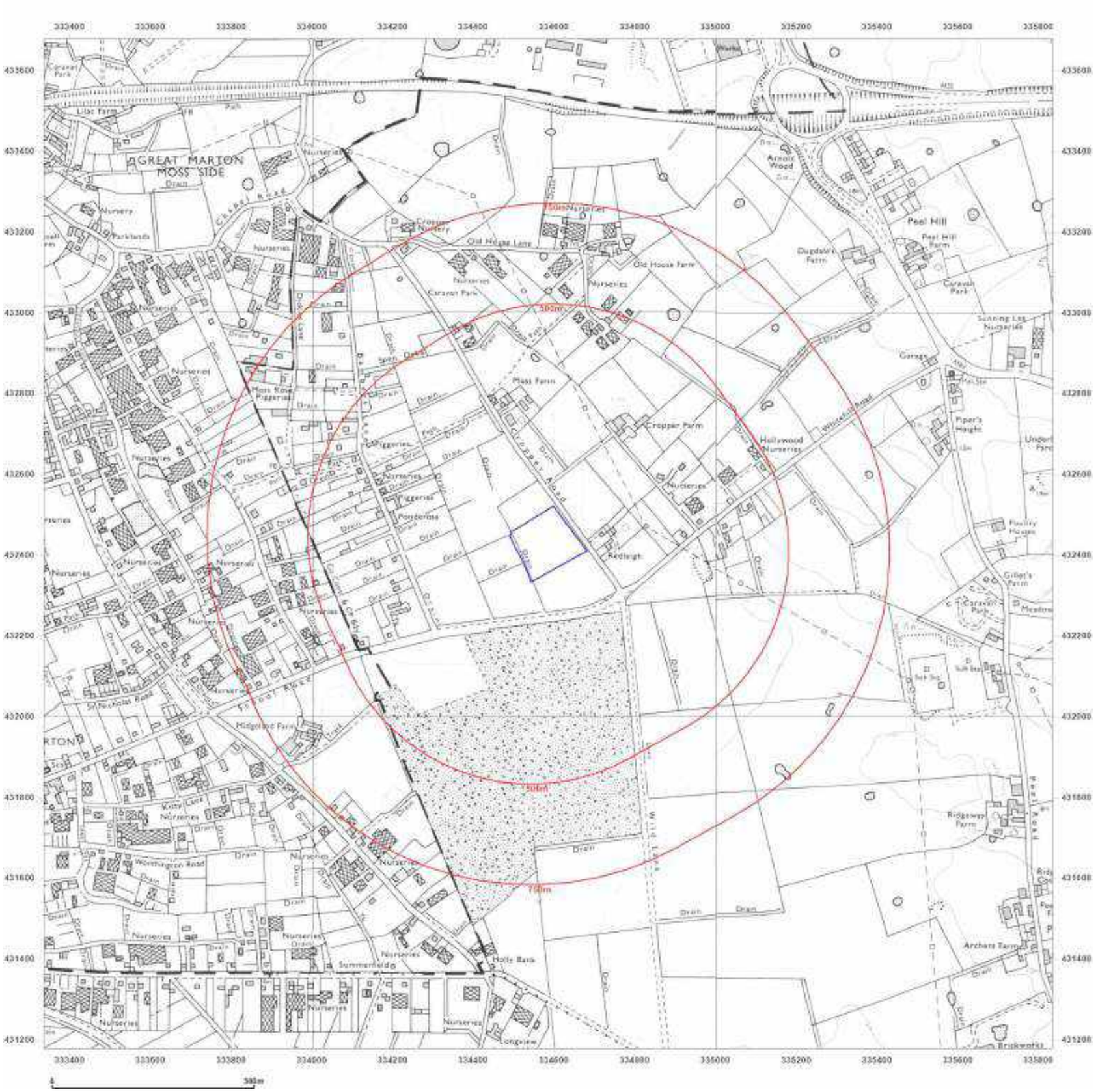

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1978-1981**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1980
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

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

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Production date: 26 July 2021

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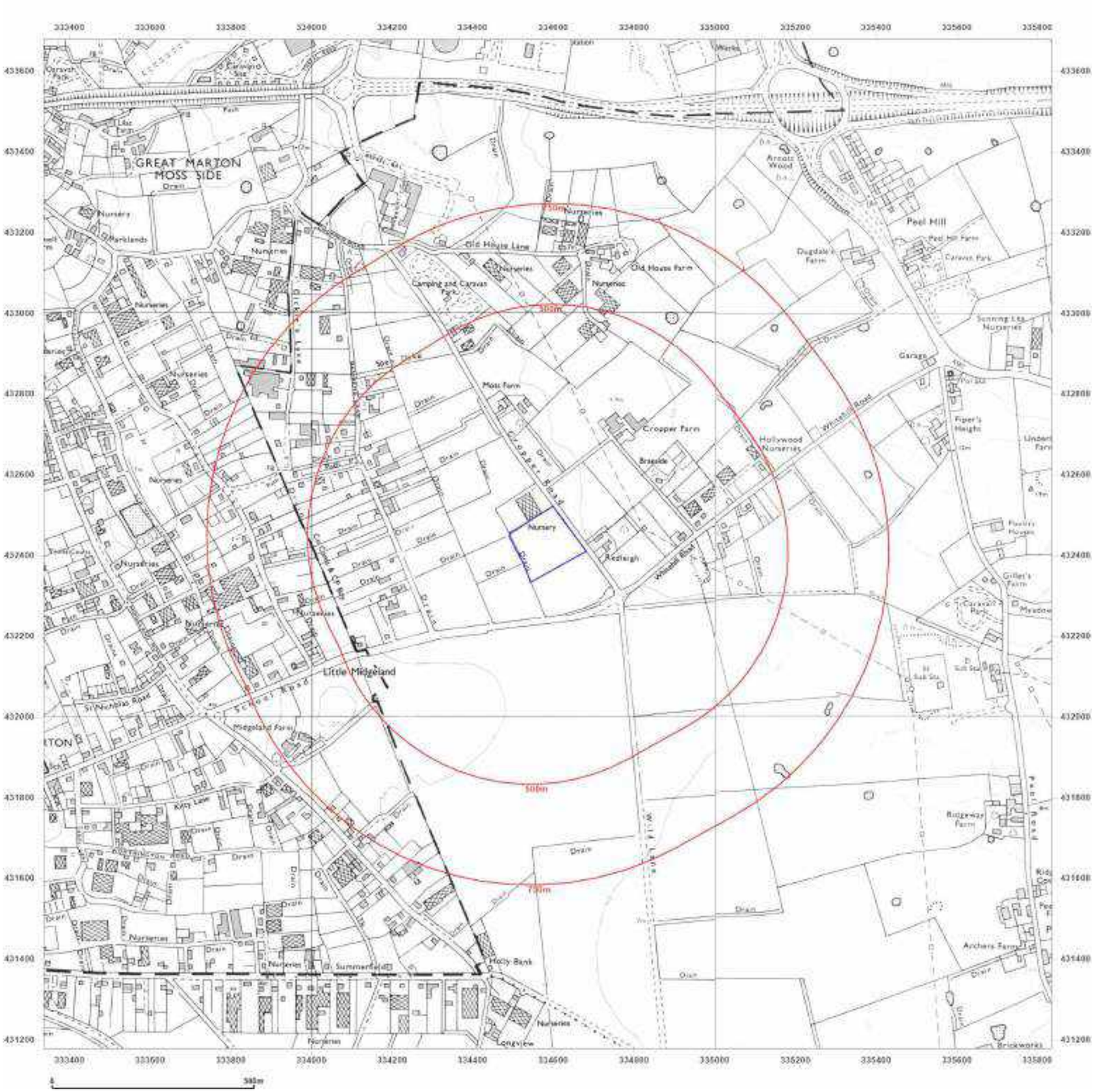

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **1987-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1985
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1975
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

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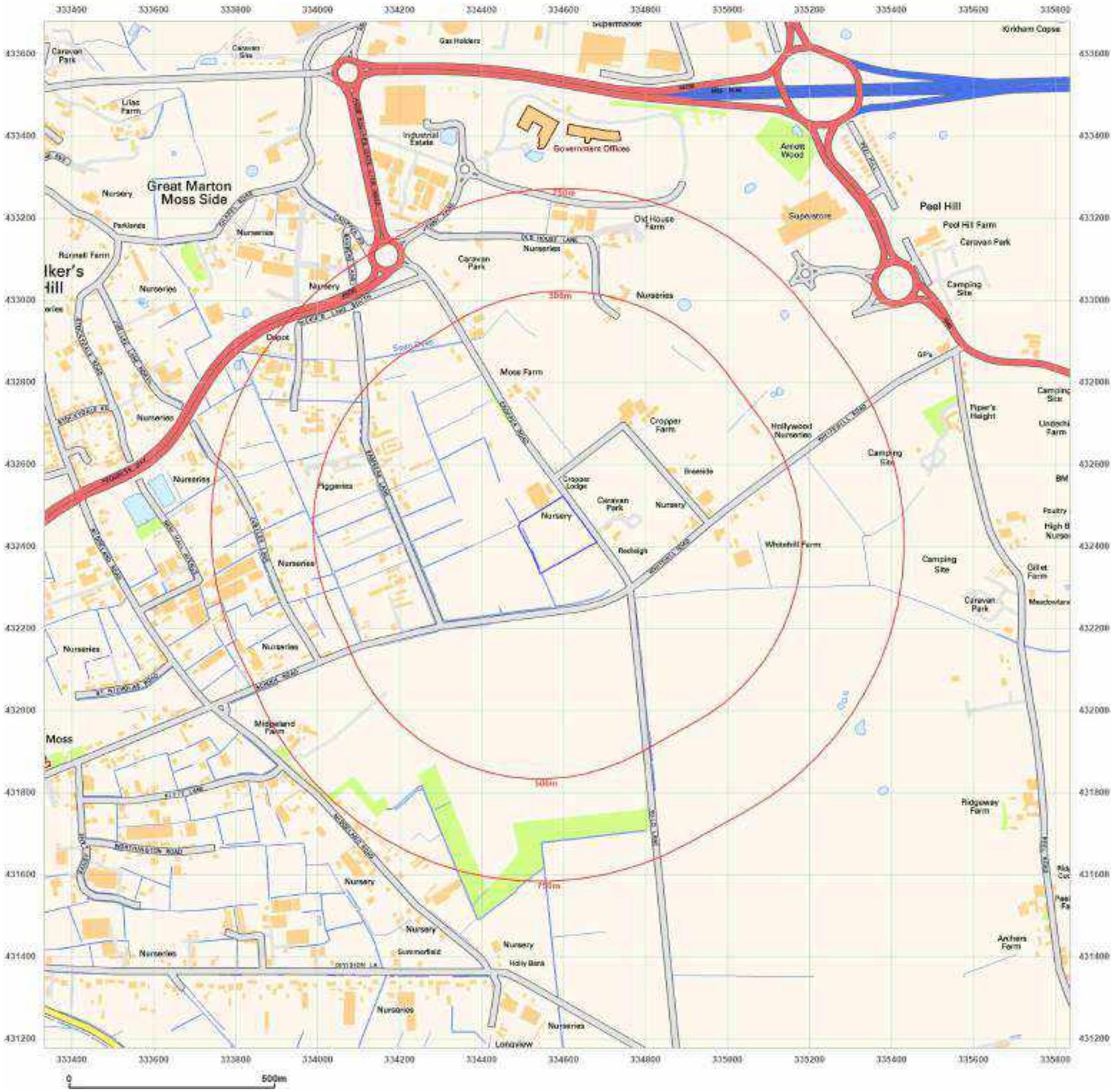

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
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2001

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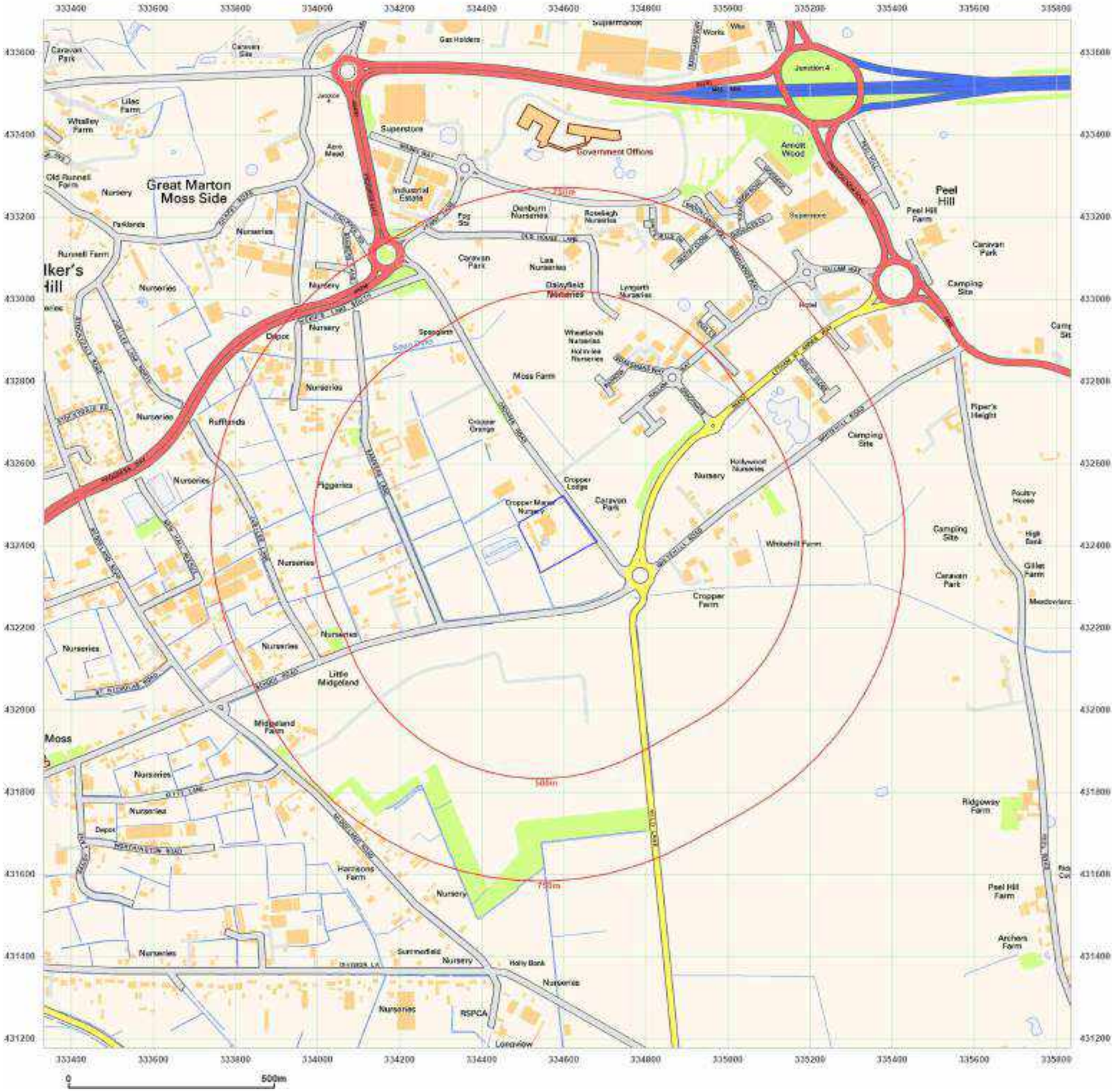

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
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2010

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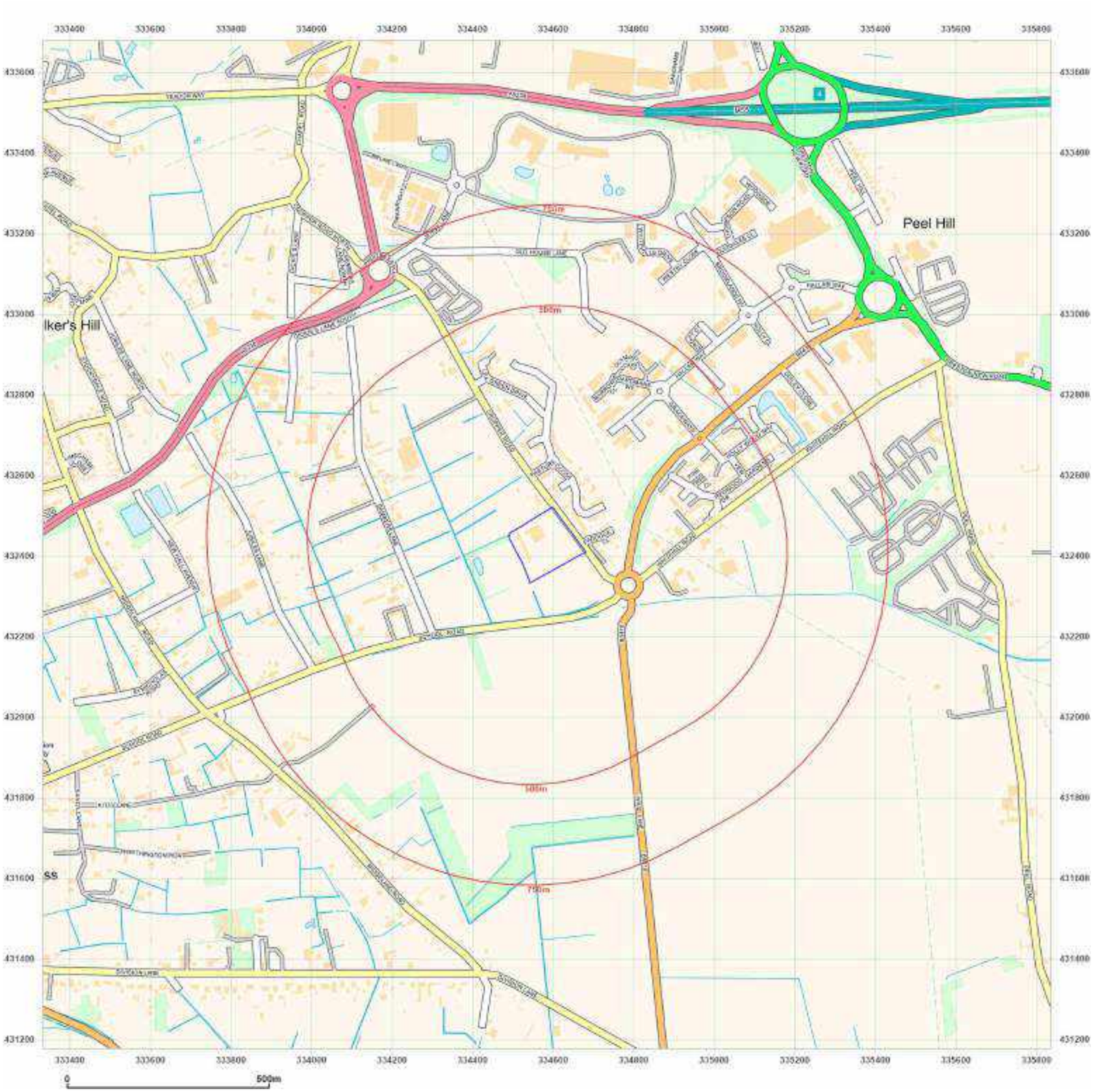

Groundsure INSIGHTS

Site Details:

CROPPER ROAD, WESTBY
WITH PLUMPTONS, FY4 5LB

Client Ref: 3591
Report Ref: GS-8072444
Grid Ref: 334585, 432428

Map Name: National Grid
Map date: **2021**
Scale: 1:10,000
Printed at: 1:10,000

N
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2021

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APPENDIX 5

GROUNDSURECOMBINED ENVIRO AND GEO-INSIGHT REPORT

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

CROPPER ROAD, WESTBY WITH PLUMPTONS, FY4 5LB

Order Details

Date: 26/07/2021

Your ref: 3591

Our Ref: GS-8072445

Client: IGE Consulting Ltd

Site Details

Location: 334574 432402

Area: 1.92 ha

Authority: Fylde Borough Council

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

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	1	0	5	15	-
15	1.2	Historical tanks	0	0	1	5	-
16	1.3	Historical energy features	0	0	2	1	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	1	0	5	23	-
20	2.2	Historical tanks	0	0	1	11	-
20	2.3	Historical energy features	0	0	4	1	-
21	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	1	1	-
23	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	1	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	1	0	-
24	3.5	Historical waste sites	0	0	0	0	-
24	3.6	Licensed waste sites	0	0	0	3	-
25	3.7	Waste exemptions	0	0	1	35	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
29	4.1	Recent industrial land uses	0	0	7	-	-
30	4.2	Current or recent petrol stations	0	0	0	0	-
30	4.3	Electricity cables	0	0	0	0	-
30	4.4	Gas pipelines	0	0	0	0	-
30	4.5	Sites determined as Contaminated Land	0	0	0	0	-

31	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
31	4.7	Regulated explosive sites	0	0	0	0	-
31	4.8	Hazardous substance storage/usage	0	0	0	0	-
31	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
31	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
32	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
32	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	2	-
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	4.17	List 2 Dangerous Substances	0	0	0	0	-
33	**4.18**	**Pollution Incidents (EA/NRW)**	0	4	2	2	-
35	4.19	Pollution inventory substances	0	0	0	0	-
35	4.20	Pollution inventory waste transfers	0	0	0	0	-
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
36	**5.1**	**Superficial aquifer**	Identified (within 500m)				
38	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
40	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
41	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
41	5.5	Groundwater vulnerability- local information	None (within 0m)				
42	5.6	Groundwater abstractions	0	0	0	0	0
42	5.7	Surface water abstractions	0	0	0	0	0
42	5.8	Potable abstractions	0	0	0	0	0
42	5.9	Source Protection Zones	0	0	0	0	-
43	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
44	**6.1**	**Water Network (OS MasterMap)**	1	3	34	-	-

48	6.2	Surface water features	0	3	14	-	-
48	6.3	WFD Surface water body catchments	1	-	-	-	-
48	6.4	WFD Surface water bodies	0	0	0	-	-
49	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
50	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	Medium (within 50m)				
51	7.2	Historical Flood Events	0	0	0	-	-
51	7.3	Flood Defences	0	0	0	-	-
51	7.4	Areas Benefiting from Flood Defences	4	6	19	-	-
52	7.5	Flood Storage Areas	0	0	0	-	-
53	7.6	Flood Zone 2	Identified (within 50m)				
54	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
55	8.1	Surface water flooding	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
57	9.1	Groundwater flooding	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
58	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
59	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
59	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
59	10.4	Special Protection Areas (SPA)	0	0	0	0	0
59	10.5	National Nature Reserves (NNR)	0	0	0	0	0
60	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
60	10.7	Designated Ancient Woodland	0	0	0	0	0
60	10.8	Biosphere Reserves	0	0	0	0	0
60	10.9	Forest Parks	0	0	0	0	0
61	10.10	Marine Conservation Zones	0	0	0	0	0
61	10.11	Green Belt	0	0	0	0	2
61	10.12	Proposed Ramsar sites	0	0	0	0	0

61	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
62	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
62	10.15	Nitrate Sensitive Areas	0	0	0	0	0
62	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
63	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
64	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
65	11.1	World Heritage Sites	0	0	0	-	-
65	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
65	11.3	National Parks	0	0	0	-	-
65	11.4	Listed Buildings	0	0	0	-	-
66	11.5	Conservation Areas	0	0	0	-	-
66	11.6	Scheduled Ancient Monuments	0	0	0	-	-
66	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
67	**12.1**	**Agricultural Land Classification**	Grade 3b (within 250m)				
68	12.2	Open Access Land	0	0	0	-	-
68	12.3	Tree Felling Licences	0	0	0	-	-
68	12.4	Environmental Stewardship Schemes	0	0	0	-	-
69	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
70	**13.1**	**Priority Habitat Inventory**	7	11	16	-	-
72	13.2	Habitat Networks	0	0	0	-	-
72	13.3	Open Mosaic Habitat	0	0	0	-	-
72	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
73	**14.1**	**10k Availability**	Identified (within 500m)				
74	14.2	Artificial and made ground (10k)	0	0	0	0	-
75	**14.3**	**Superficial geology (10k)**	2	0	0	8	-

76	14.4	Landslip (10k)	0	0	0	0	-
77	14.5	Bedrock geology (10k)	1	0	0	1	-
78	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
79	15.1	50k Availability	Identified (within 500m)				
80	15.2	Artificial and made ground (50k)	0	0	1	0	-
81	15.3	Artificial ground permeability (50k)	0	0	-	-	-
82	15.4	Superficial geology (50k)	2	0	0	4	-
83	15.5	Superficial permeability (50k)	Identified (within 50m)				
83	15.6	Landslip (50k)	0	0	0	0	-
83	15.7	Landslip permeability (50k)	None (within 50m)				
84	15.8	Bedrock geology (50k)	1	0	0	1	-
85	15.9	Bedrock permeability (50k)	Identified (within 50m)				
85	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
86	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
87	17.1	Shrink swell clays	Very low (within 50m)				
88	17.2	Running sands	Very low (within 50m)				
89	17.3	Compressible deposits	High (within 50m)				
90	17.4	Collapsible deposits	Very low (within 50m)				
91	17.5	Landslides	Very low (within 50m)				
92	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
93	18.1	Natural cavities	0	0	0	0	-
94	18.2	BritPits	0	0	0	1	-
94	18.3	Surface ground workings	0	0	1	-	-
94	18.4	Underground workings	0	0	0	0	0
95	18.5	Historical Mineral Planning Areas	0	0	0	0	-

95	18.6	Non-coal mining	0	0	0	0	0
95	18.7	Mining cavities	0	0	0	0	0
95	18.8	JPB mining areas	None (within 0m)				
95	18.9	Coal mining	None (within 0m)				
96	18.10	Brine areas	None (within 0m)				
96	18.11	Gypsum areas	None (within 0m)				
96	18.12	Tin mining	None (within 0m)				
96	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
97	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
98	**20.1**	**BGS Estimated Background Soil Chemistry**	5	1	-	-	-
98	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
99	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
100	21.1	Underground railways (London)	0	0	0	-	-
100	21.2	Underground railways (Non-London)	0	0	0	-	-
100	21.3	Railway tunnels	0	0	0	-	-
100	21.4	Historical railway and tunnel features	0	0	0	-	-
100	21.5	Royal Mail tunnels	0	0	0	-	-
101	21.6	Historical railways	0	0	0	-	-
101	21.7	Railways	0	0	0	-	-
101	21.8	Crossrail 1	0	0	0	0	-
101	21.9	Crossrail 2	0	0	0	0	-
101	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 22/04/2019

Site Area: 1.92ha

Recent site history - 2017 aerial photograph

Capture Date: 03/04/2017

Site Area: 1.92ha

Recent site history - 2013 aerial photograph

Capture Date: 25/05/2013

Site Area: 1.92ha

Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 1.92ha

Recent site history - 2000 aerial photograph

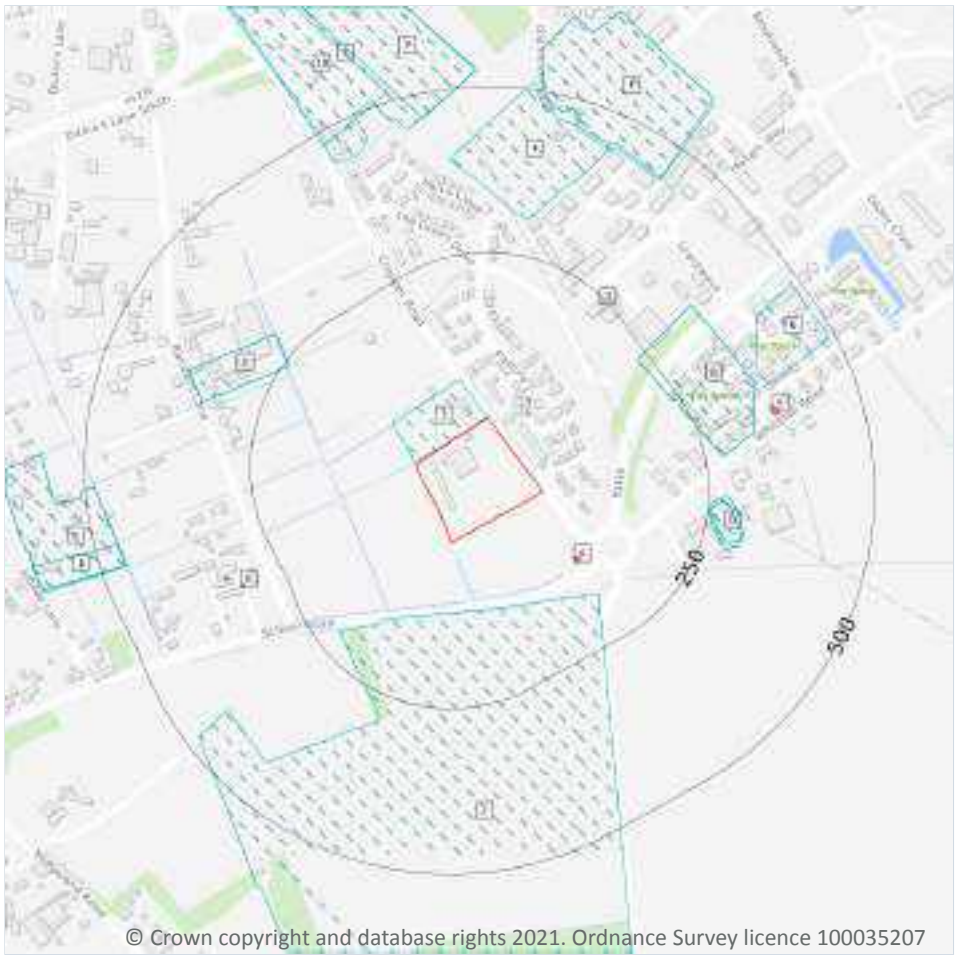
Capture Date: 05/04/2000

Site Area: 1.92ha

OS MasterMap site plan

Site Area: 1.92ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	21

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

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Nursery**	**1987**	**679853**

ID	Location	Land use	Dates present	Group ID
2	105m S	Refuse Heap	1981	676556
B	234m NE	Nurseries	1981	770065
B	234m NE	Nurseries	1968	786905
C	242m NW	Nurseries	1968	702813
C	242m NW	Nurseries	1981	735606
D	251m E	Old Clay Pit	1909	639891
D	251m E	Unspecified Pit	1930 - 1938	743665
D	251m E	Unspecified Pit	1891	741989
D	252m E	Unspecified Pit	1981 - 1987	708531
D	252m E	Unspecified Pit	1951 - 1968	727714
4	304m N	Nurseries	1968	786616
6	371m NE	Nurseries	1969 - 1992	779867
7	442m NW	Nurseries	1951 - 1968	775049
F	443m NE	Nurseries	1981 - 1987	769351
F	447m NE	Nurseries	1968	791163
8	462m W	Nurseries	1987	788838
9	462m N	Nurseries	1981	706667
G	462m W	Nurseries	1981	717154
G	462m W	Nurseries	1968	764752
10	479m NW	Nurseries	1930 - 1938	775863

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	6

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

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
3	244m NE	Unspecified Tank	1938	80197
E	312m SW	Unspecified Tank	1983 - 1988	97853
E	312m SW	Unspecified Tank	1993	99897
E	313m SW	Unspecified Tank	1966	92572
E	327m SW	Unspecified Tank	1983 - 1988	95287
E	328m SW	Unspecified Tank	1966	104202

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**3**

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

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	110m SE	Electricity Substation	1985 - 1988	47782
A	112m SE	Electricity Substation	1993	56827
5	365m E	Electricity Substation	1993	44397

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

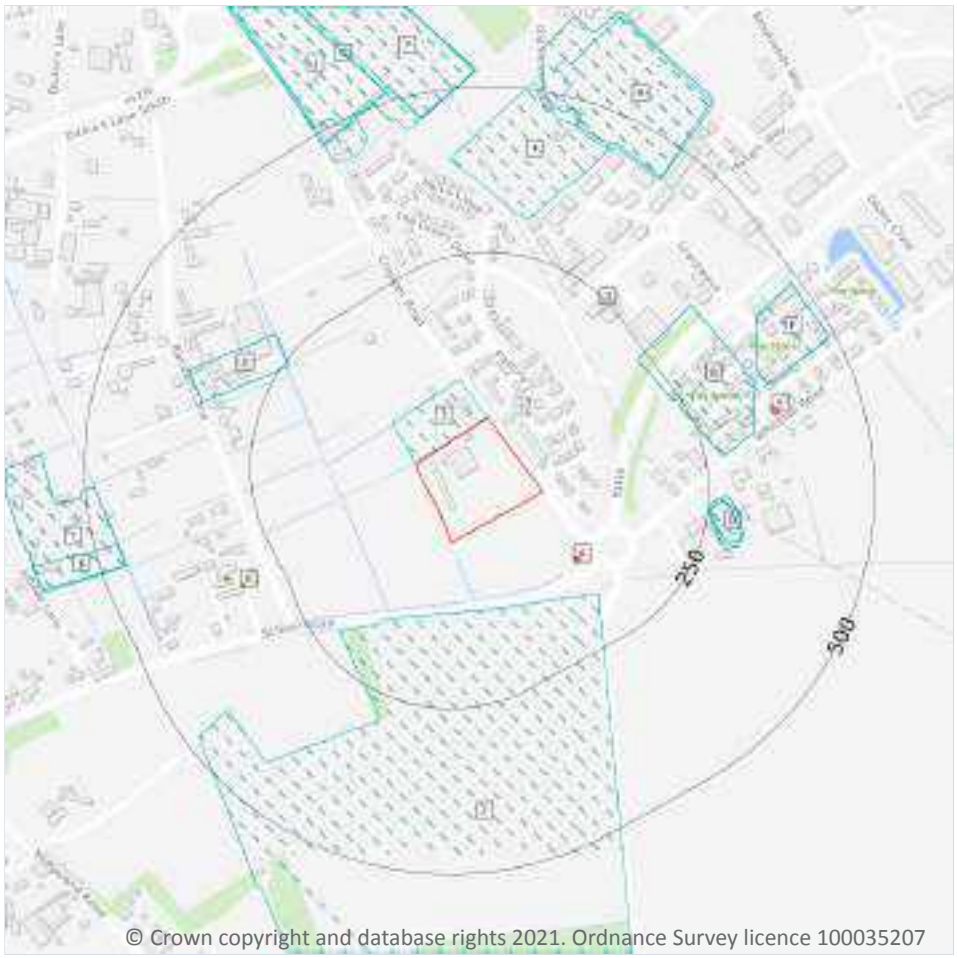
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	29

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

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

ID	Location	Land Use	Date	Group ID
1	**On site**	**Nursery**	**1987**	**679853**
2	105m S	Refuse Heap	1981	676556
B	234m NE	Nurseries	1981	770065

ID	Location	Land Use	Date	Group ID
B	234m NE	Nurseries	1968	786905
C	242m NW	Nurseries	1981	735606
C	242m NW	Nurseries	1968	702813
D	251m E	Unspecified Pit	1938	743665
D	251m E	Unspecified Pit	1930	743665
D	251m E	Unspecified Pit	1891	741989
D	251m E	Old Clay Pit	1909	639891
D	252m E	Unspecified Pit	1987	708531
D	252m E	Unspecified Pit	1981	708531
D	252m E	Unspecified Pit	1968	727714
D	252m E	Unspecified Pit	1951	727714
4	304m N	Nurseries	1968	786616
F	371m NE	Nurseries	1992	779867
F	371m NE	Nurseries	1969	779867
F	371m NE	Nurseries	1978	779867
G	442m NW	Nurseries	1968	775049
H	443m NE	Nurseries	1987	769351
H	447m NE	Nurseries	1981	769351
H	447m NE	Nurseries	1968	791163
G	451m N	Nurseries	1951	775049
6	462m W	Nurseries	1987	788838
7	462m N	Nurseries	1981	706667
I	462m W	Nurseries	1981	717154
I	462m W	Nurseries	1968	764752
J	479m NW	Nurseries	1930	775863
J	482m NW	Nurseries	1938	775863

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	12

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

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

ID	Location	Land Use	Date	Group ID
3	244m NE	Unspecified Tank	1938	80197
E	312m SW	Unspecified Tank	1983	97853
E	312m SW	Unspecified Tank	1985	97853
E	312m SW	Unspecified Tank	1988	97853
E	312m SW	Unspecified Tank	1988	97853
E	312m SW	Unspecified Tank	1993	99897
E	313m SW	Unspecified Tank	1966	92572
E	327m SW	Unspecified Tank	1983	95287
E	327m SW	Unspecified Tank	1985	95287
E	327m SW	Unspecified Tank	1988	95287
E	327m SW	Unspecified Tank	1988	95287
E	328m SW	Unspecified Tank	1966	104202

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	5

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

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

ID	Location	Land Use	Date	Group ID
A	110m SE	Electricity Substation	1985	47782
A	110m SE	Electricity Substation	1988	47782

ID	Location	Land Use	Date	Group ID
A	110m SE	Electricity Substation	1988	47782
A	112m SE	Electricity Substation	1993	56827
5	365m E	Electricity Substation	1993	44397

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Active or recent landfill

Historical landfill (EA/NRW)

Historical landfill (LA/OS)

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	2

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

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Details	
4	106m S	Operator: Lancashire County Council Site Address: Waste Disposal Authority, Midgeland Road, Marton, Blackpool, Lancashire, FY4 5EE	WML Number: 54049 EPR Reference: WAS001 Landfill type: A06: Landfill taking other wastes Status: Closure IPPC Reference: - EPR Number: EA/EPR/ZP3091CR/A001

ID	Location	Details	
5	451m NW	Operator: Cumbrian Industrials Ltd Site Address: Land / Premises At, Cropper Rd, Off Squires Gate Link Rd, Marton, Blackpool, Lancashire, FY4 5LB	WML Number: 54169 EPR Reference: CUM002 Landfill type: A06: Landfill taking other wastes Status: Closure IPPC Reference: - EPR Number: EA/EPR/PP3997CE/A001

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

3.2 Historical landfill (BGS records)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	**1**

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

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site address	Source	Data type
3	103m S	Refuse Tip	1983 mapping	Polygon

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	**1**

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

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Details		
2	99m S	Site Address: Midgeland Farm, Midgeland Road, Marton, Blackpool, Lancashire Licence Holder Address: -	Waste Licence: - Site Reference: K1/04/005, 342, 200/4, Resolution 200/6, L1/04/001, Resolution No. 4 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Lancashire County Council Licence Holder: Lancashire County Council First Recorded 31/12/1973 Last Recorded: 31/10/1984

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

3.5 Historical waste sites

Records within 500m	**0**

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

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

3.6 Licensed waste sites

Records within 500m	**3**

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

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Details		
C	336m S	Site Name: Midgeland Road Site Address: Waste Disposal Authority, Midgeland Road, Marton, Blackpool, Lancashire, FY4 5EE Correspondence Address: Guild House, Cross Street, Preston, Lancashire, PR1 8RD	Type of Site: Landfill taking other wastes Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS001 EPR reference: - Operator: Lancashire County Council (Environment Directorate) E T P / W D A Waste Management licence No: 54049 Annual Tonnage: 0	Issue Date: 10/10/1979 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
C	336m S	Site Name: Midgeland Road Site Address: Waste Disposal Authority, Midgeland Road, Marton, Blackpool, Lancashire, FY4 5EE Correspondence Address: Guild House, Cross Street, Preston, Lancashire, PR1 8RD	Type of Site: Landfill taking other wastes Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS001 EPR reference: - Operator: Lancashire County Council (Environment Directorate) E T P / W D A Waste Management licence No: 54049 Annual Tonnage: 0	Issue Date: 10/10/1979 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
C	336m S	Site Name: Midgeland Farm Site Address: Waste Disposal Authority, Midgeland Road, Marton, Blackpool, Lancashire, FY4 5EE Correspondence Address: -	Type of Site: Landfill taking other wastes Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS001 EPR reference: EA/EPR/ZP3091CR/A001 Operator: Lancashire County Council Waste Management licence No: 54049 Annual Tonnage: 74999	Issue Date: 10/10/1979 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Closure

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

3.7 Waste exemptions

Records within 500m **36**

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

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	71m W	Cropper Road Nursery Cropper Road Lancashire FY4 5LT	EPR/ZF0905NP/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction

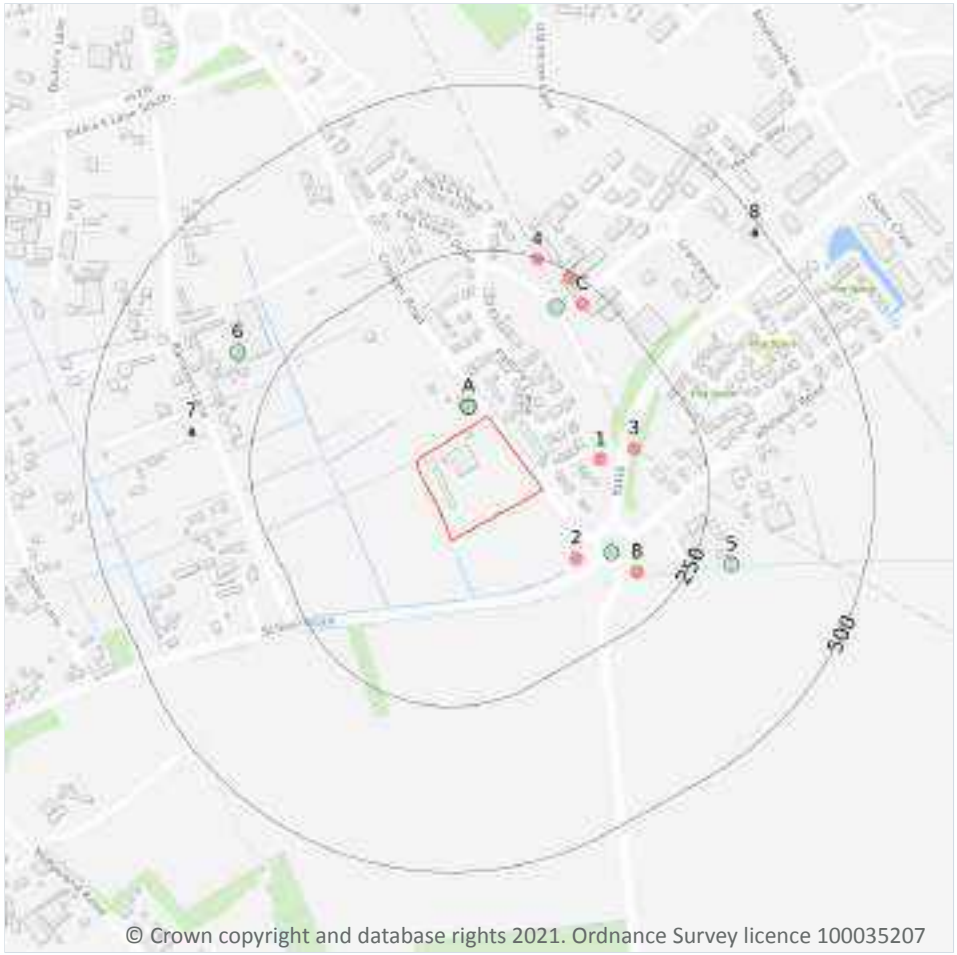
ID	Location	Site	Reference	Category	Sub-Category	Description
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Deposit of waste from dredging of inland waters
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Disposal by incineration
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Aerobic composting and associated prior treatment
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Preparatory treatments (baling, sorting, shredding etc)
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of mulch
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading of plant matter to confer benefit

ID	Location	Site	Reference	Category	Sub-Category	Description
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance
A	253m E	Cropper Farm Whitehill Road BLACKPOOL Lancashire FY4 5LA	EPR/CH0775MG/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose
B	276m NE	Contract Floors Ltd, 1 Barrow Close, Whitehills Business Park, Blackpool, FY4 5PS	WEX137446	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	284m N	1 BARROW CLOSE BLACKPOOL LANCASHIRE FY4 5PS	EPR/QE5541ZA/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Disposing of waste exemption	On a farm	Disposal by incineration
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Disposing of waste exemption	On a farm	Burning waste in the open
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Treating waste exemption	On a farm	Preparatory treatments (baling, sorting, shredding etc)
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Using waste exemption	On a farm	Use of mulch
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Using waste exemption	On a farm	Spreading of plant matter to confer benefit

ID	Location	Site	Reference	Category	Sub-Category	Description
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
D	340m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX012641	Using waste exemption	On a farm	Use of waste for a specified purpose
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Disposing of waste exemption	On a farm	Burning waste in the open
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Disposing of waste exemption	On a farm	Disposal by incineration
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Treating waste exemption	On a farm	Preparatory treatments (baling, sorting, shredding etc)
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Using waste exemption	On a farm	Use of waste for a specified purpose
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Using waste exemption	On a farm	Use of mulch
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
D	346m E	Cropper Farm, Whitehill Road, Blackpool, FY4 5LA	WEX172832	Using waste exemption	On a farm	Spreading of plant matter to confer benefit

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	7

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	Activity	Category
1	98m NE	Pumping Station	Lancashire, FY4	Water Pumping Stations	Industrial Features
2	115m SE	Electricity Sub Station	Lancashire, FY4	Electrical Features	Infrastructure and Facilities
3	151m NE	Pylon	Lancashire, FY4	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
B	188m SE	Mast	Lancashire, FY4	Telecommunications Features	Infrastructure and Facilities
C	221m NE	Electricity Sub Station	Lancashire, FY4	Electrical Features	Infrastructure and Facilities
C	242m NE	Harvie	4 Apollo Court, Hallam Way, Whitehills Business Park, Blackpool, Lancashire, FY4 5FS	Special Purpose Machinery and Equipment	Industrial Products
4	247m N	Pylon	Lancashire, FY4	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	**0**

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	0

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

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	2

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

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Address	Details	
7	342m W	LYNDENE, BAMBERS LANE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 011107 Permit Version: 1 Receiving Water: TRIB OF SPEN DYKE	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 01/03/1962 Effective Date: 01/03/1962 Revocation Date: -
8	488m NE	NEWFIELD RES DEVELOPMENT SWO, PEEL HILL, BLACKPOOL	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 017190330 Permit Version: 1 Receiving Water: RIVER RIBBLE ESTUARY	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 13/04/1989 Revocation Date: 25/01/1991

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	8

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

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Details	
A	27m NW	Incident Date: 12/03/2001 Incident Identification: 233 Pollutant: Specific Waste Materials Pollutant Description: Asbestos	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	27m NW	Incident Date: 10/07/2001 Incident Identification: 15310 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	27m NW	Incident Date: 12/03/2001 Incident Identification: 233 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	27m NW	Incident Date: 12/03/2001 Incident Identification: 233 Pollutant: Inert Materials and Wastes:Specific Waste Materials Pollutant Description: Construction and Demolition Materials and Wastes:Asbestos	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
B	139m SE	Incident Date: 17/07/2002 Incident Identification: 92155 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
C	194m NE	Incident Date: 26/04/2002 Incident Identification: 74956 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
5	305m E	Incident Date: 29/01/2002 Incident Identification: 55232 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6	316m NW	Incident Date: 17/04/2013 Incident Identification: 1103593 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 2 (Significant) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

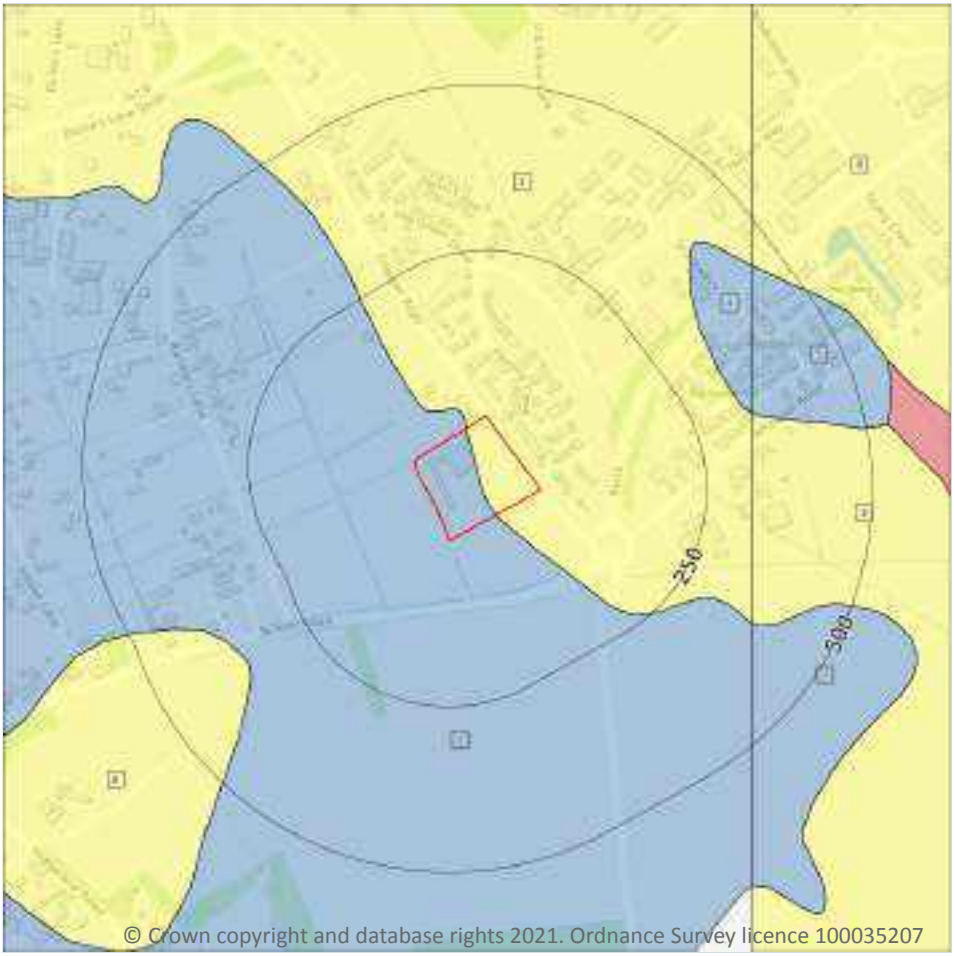
4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	8

Aquifer status of groundwater held within superficial geology.

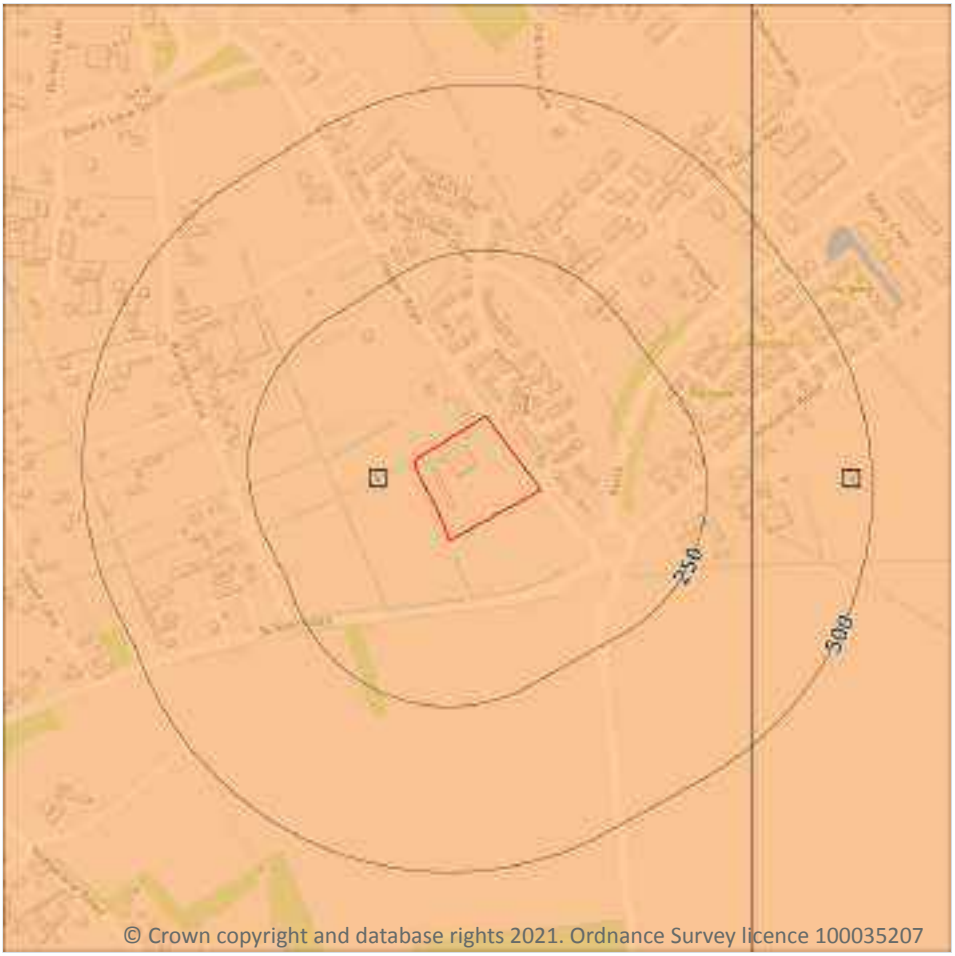
Features are displayed on the Hydrogeology map on **page 36**

ID	Location	Designation	Description
1	**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**
2	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**

ID	Location	Designation	Description
3	319m E	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
4	322m NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
5	340m E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
6	354m 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
7	378m SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
8	458m NE	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

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 38**

ID	Location	Designation	Description
1	**On site**	**Secondary B**	**Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers**
2	319m E	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

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

Groundwater vulnerability

Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	2

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

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

Features are displayed on the Groundwater vulnerability map on **page 40**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	On site	**Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

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

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

5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones

5.6 Groundwater abstractions

Records within 2000m	0

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

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

5.7 Surface water abstractions

Records within 2000m	0

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

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

5.8 Potable abstractions

Records within 2000m	0

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

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

5.9 Source Protection Zones

Records within 500m	0

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

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

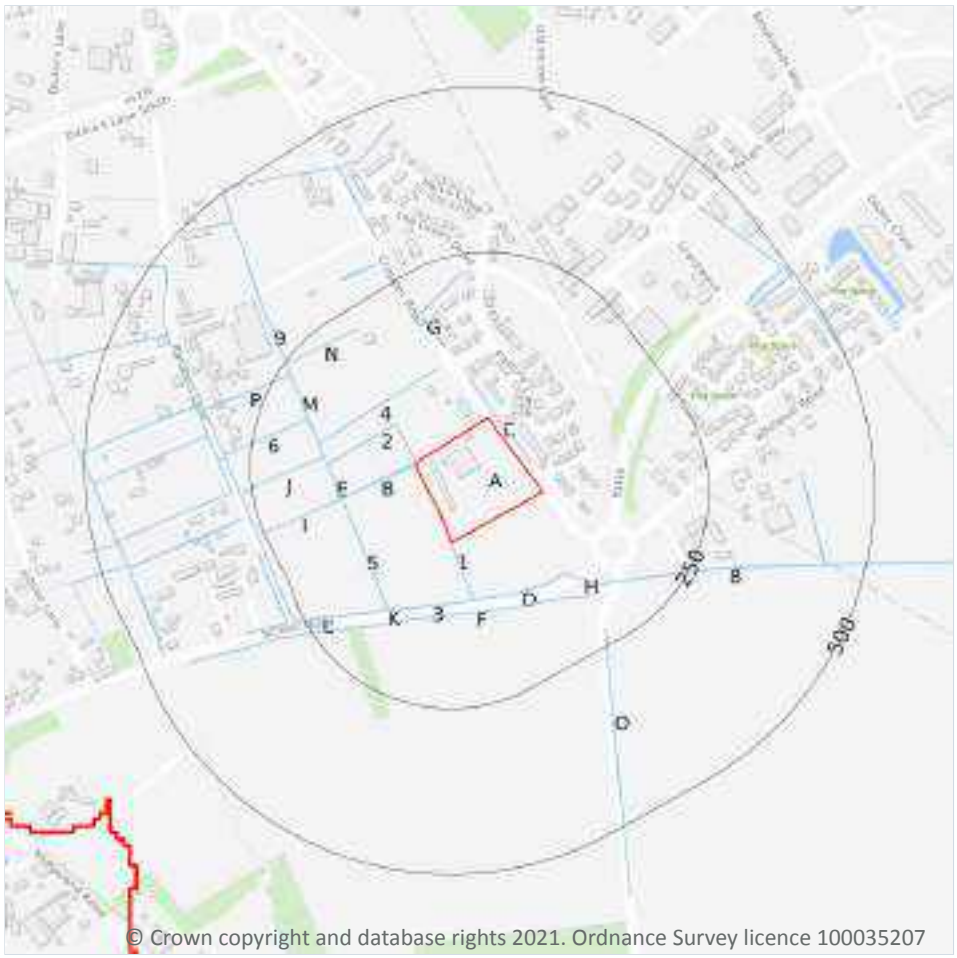
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**38**

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

Features are displayed on the Hydrology map on **page 44**

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

ID	Location	Type of water feature	Ground level	Permanence	Name
B	2m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
2	4m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	12m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	90m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	92m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	102m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	107m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	121m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	121m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	121m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	121m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
H	122m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
I	131m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
E	134m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	139m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	139m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	141m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	142m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	145m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	150m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	156m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
K	156m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
H	160m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	164m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	168m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	170m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
6	177m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	177m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	187m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	201m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	203m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	203m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	217m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	225m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	232m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
P	232m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
9	246m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	17

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

Features are displayed on the Hydrology map on **page 44**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

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

Features are displayed on the Hydrology map on **page 44**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River WB catchment**	**Main Drain (Ribble)**	**GB112071065651**	**Savick Brook and Fylde South Drains**	**Ribble**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 44**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1509m E	River	Main Drain (Ribble)	GB112071065651	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	1

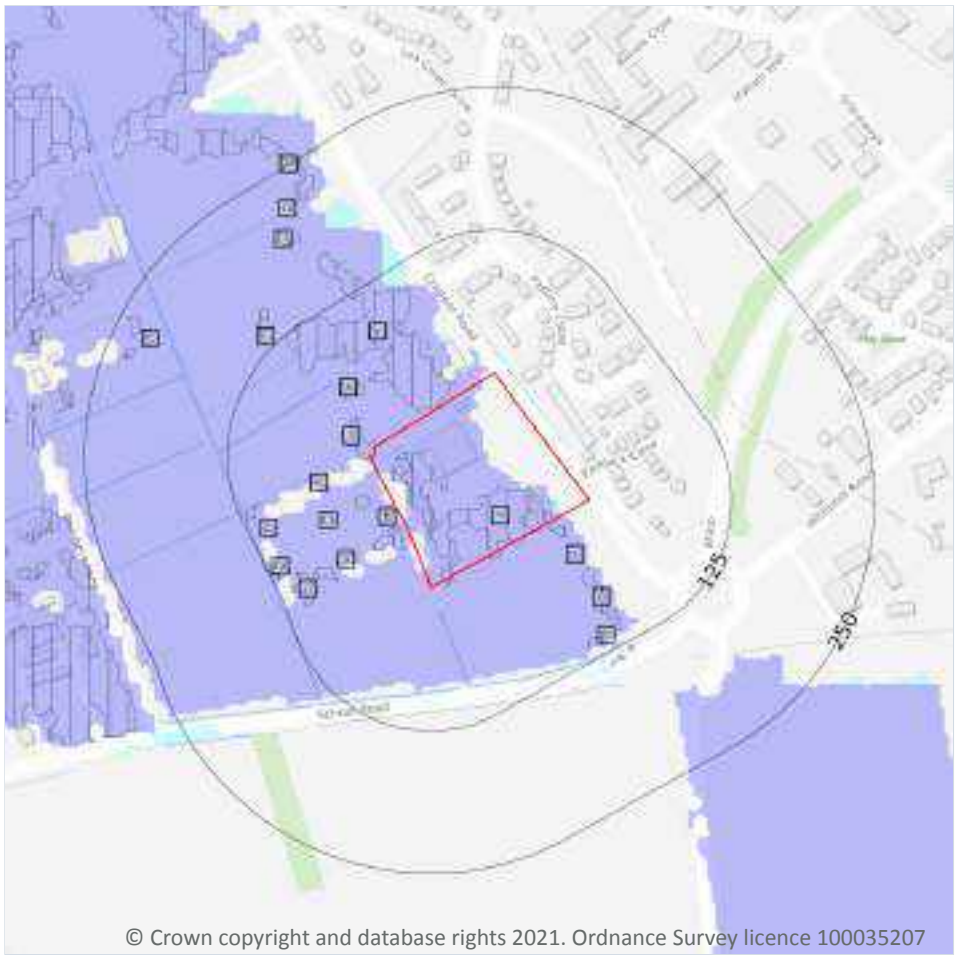
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 44**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**West Lancashire Quaternary Sand and Gravel Aquifers**	**GB41202G912700**	**Good**	**Good**	**Good**	**2015**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

Environment Agency river and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	**3**

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 50**

Distance	RoFRaS flood risk
On site	**Medium**
0 - 50m	Medium

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	29

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

Features are displayed on the River and coastal flooding map on **page 50**

ID	Location	
1	**On site**	**Area benefiting from flood defences**
2	**On site**	**Area benefiting from flood defences**
4	**On site**	**Area benefiting from flood defences**
A	**On site**	**Area benefiting from flood defences**
B	2m SW	Area benefiting from flood defences
B	4m SW	Area benefiting from flood defences
B	18m SW	Area benefiting from flood defences
5	26m SE	Area benefiting from flood defences

ID	Location	
6	44m NW	Area benefiting from flood defences
7	44m SW	Area benefiting from flood defences
9	51m SW	Area benefiting from flood defences
10	52m SE	Area benefiting from flood defences
11	52m SW	Area benefiting from flood defences
12	73m W	Area benefiting from flood defences
C	104m SW	Area benefiting from flood defences
D	105m SE	Area benefiting from flood defences
C	105m SW	Area benefiting from flood defences
14	108m SW	Area benefiting from flood defences
D	129m SE	Area benefiting from flood defences
D	132m SE	Area benefiting from flood defences
E	132m NW	Area benefiting from flood defences
E	144m NW	Area benefiting from flood defences
E	146m NW	Area benefiting from flood defences
17	190m NW	Area benefiting from flood defences
18	214m NW	Area benefiting from flood defences
F	214m NW	Area benefiting from flood defences
20	215m NW	Area benefiting from flood defences
F	224m NW	Area benefiting from flood defences
F	229m NW	Area benefiting from flood defences

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

7.5 Flood Storage Areas

Records within 250m	**0**

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

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

River and coastal flooding - Flood Zones

Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 50**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 50**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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

8 Surface water flooding

Site Outline
Search buffers in metres (m)

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

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

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

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

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, 0.1m - 0.3m**

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

Features are displayed on the Surface water flooding map on **page 55**

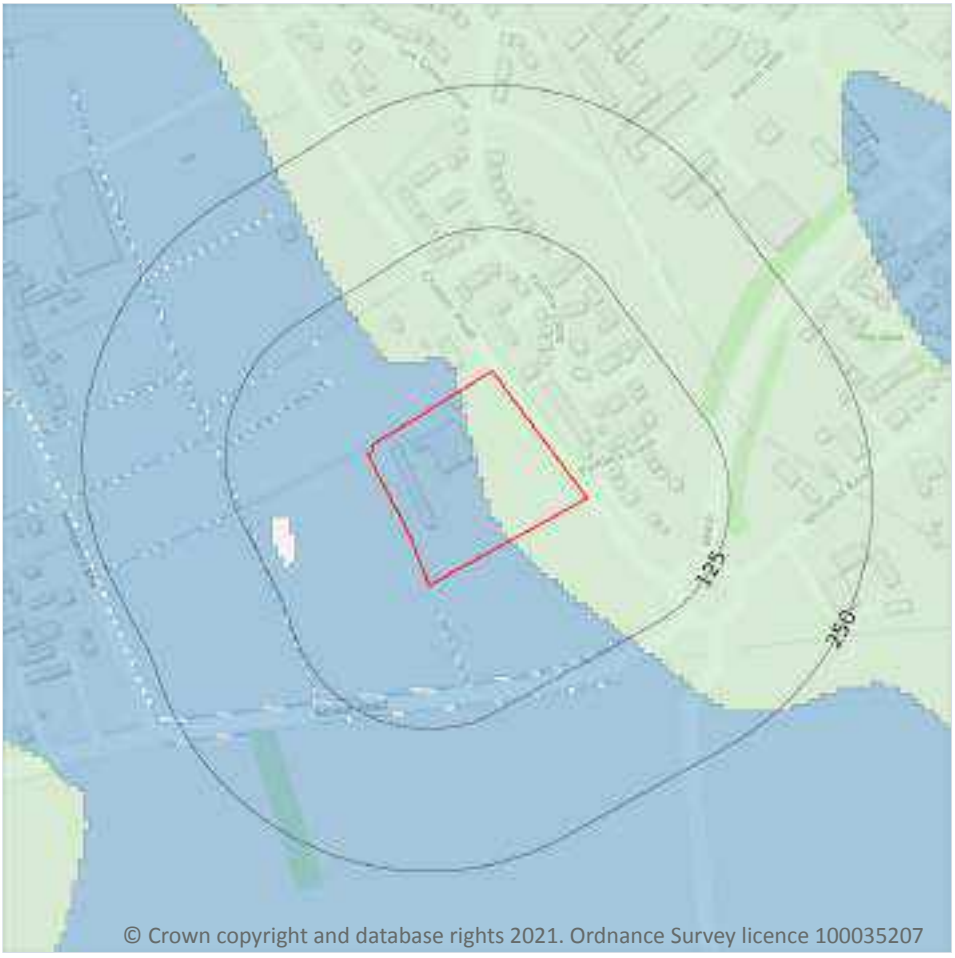
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

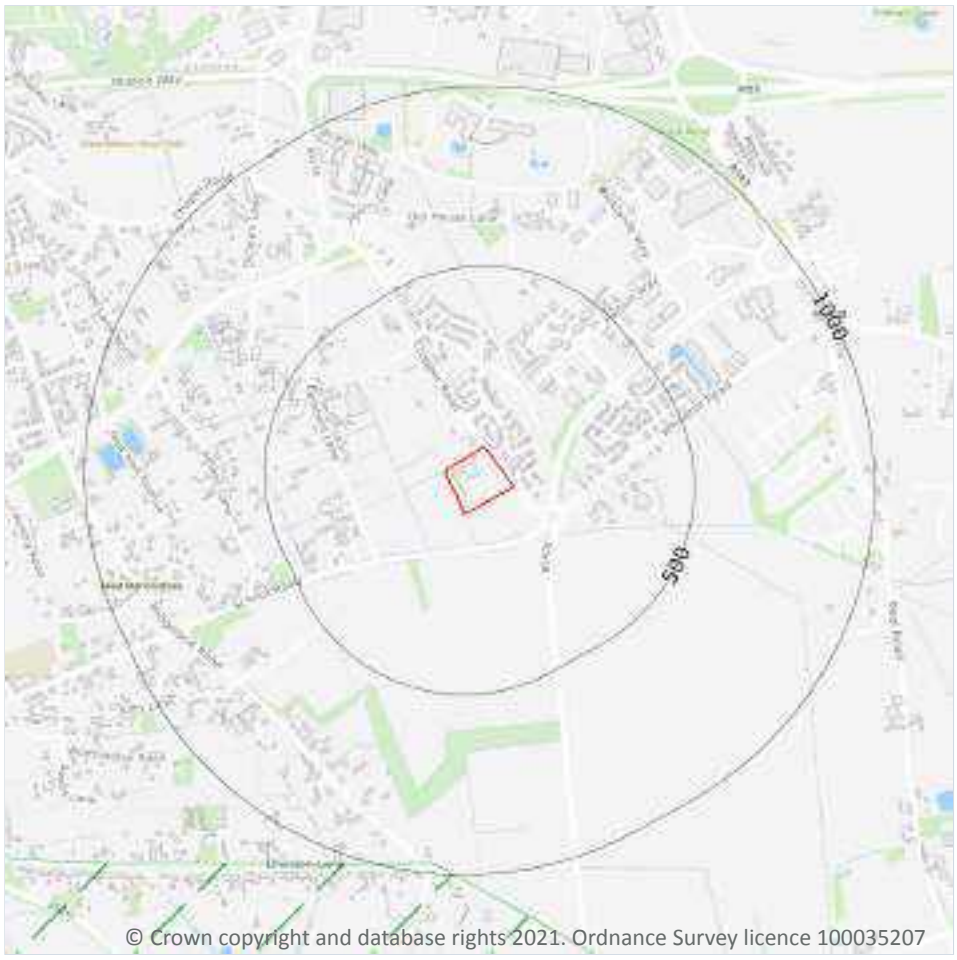
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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

Features are displayed on the Groundwater flooding map on **page 57**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	0

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

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	2

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

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Local Authority name
1	973m S	Blackpool	Fylde
-	1601m SW	Blackpool	Blackpool

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

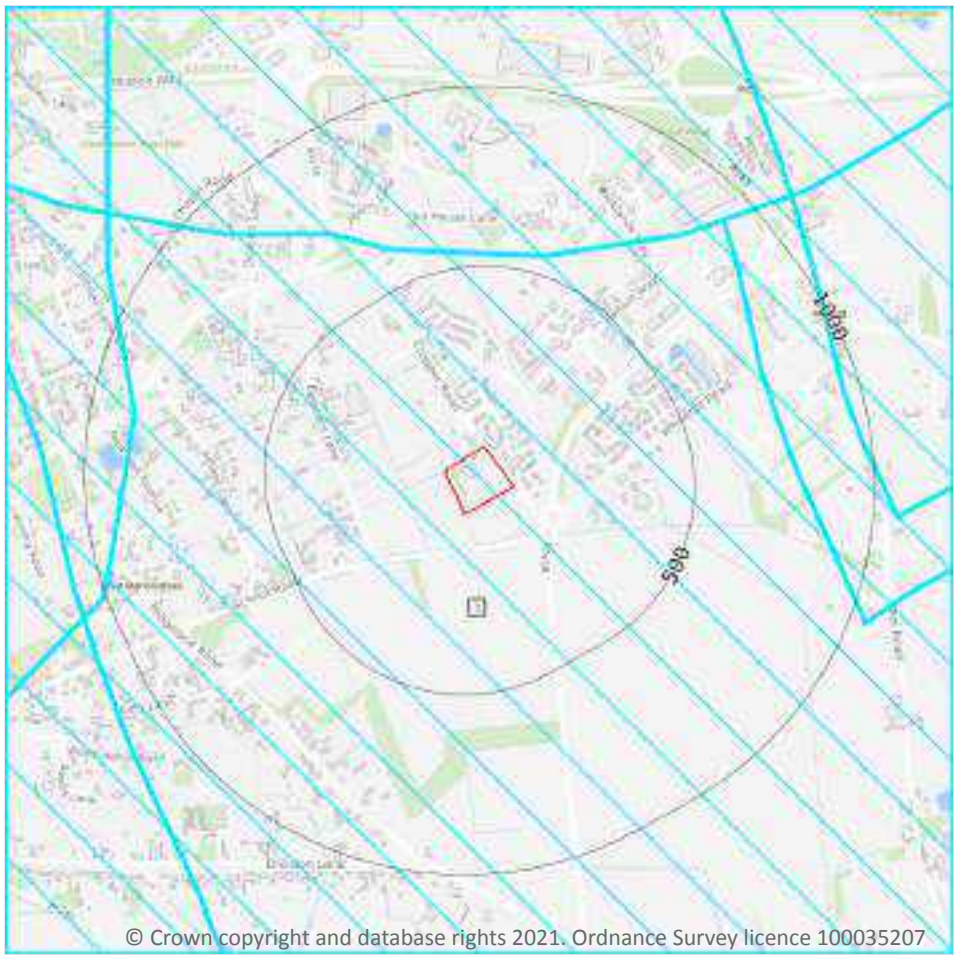
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 63**

ID	Location	Type of developments requiring consultation
1	On site	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha Residential - Residential development of 10 units or more. Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t) Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location) Notes: New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	0

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

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

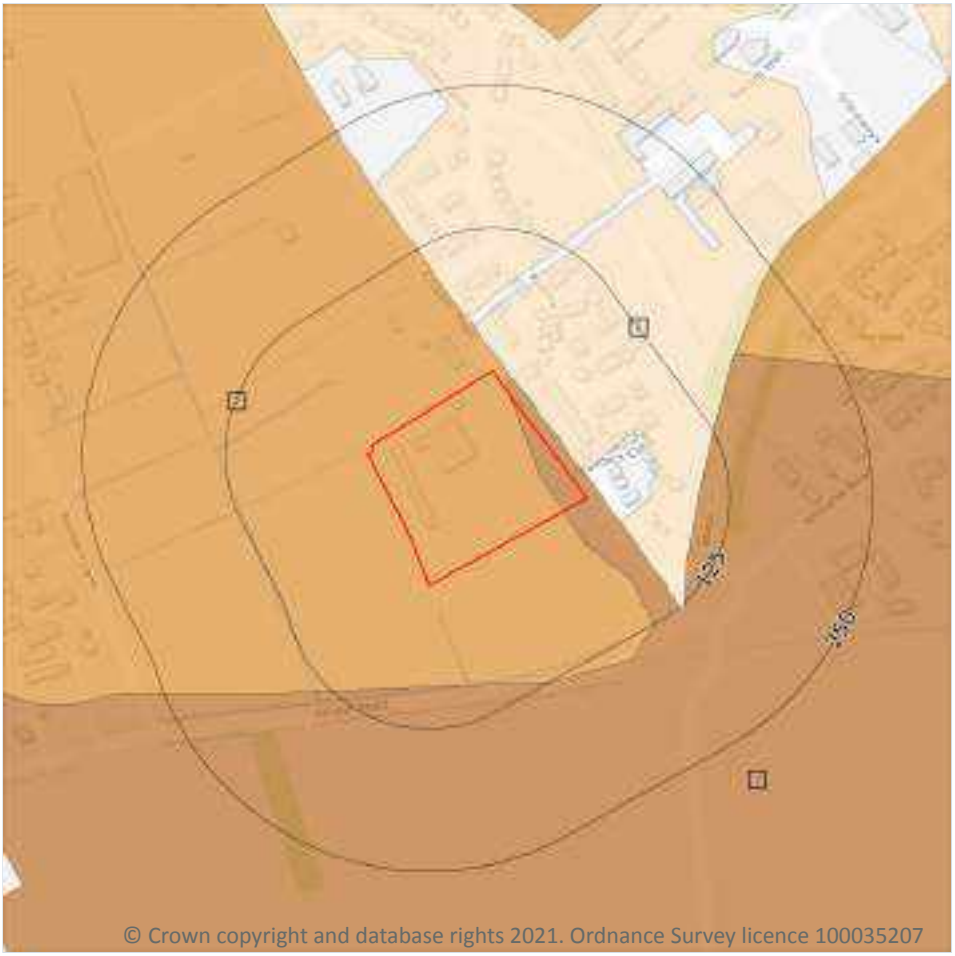
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

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

12.1 Agricultural Land Classification

Records within 250m	3

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

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

ID	Location	Classification	Description
1	**On site**	**Grade 2**	**Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.**
2	**On site**	**Grade 3**	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**
3	9m NE	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	**0**

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

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

12.3 Tree Felling Licences

Records within 250m	**0**

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	**0**

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

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

13.1 Priority Habitat Inventory

Records within 250m	34

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

Features are displayed on the Habitat designations map on **page 70**

ID	Location	Main Habitat	Other habitats
1	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
2	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
3	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
4	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)

ID	Location	Main Habitat	Other habitats
5	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
6	**On site**	**No main habitat but additional habitats present**	**Main habitat: CFPGM (INV > 50%)**
7	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
8	2m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
9	2m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
10	3m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
11	5m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
12	8m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
13	9m NE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
A	12m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
14	13m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
A	16m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
A	23m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
15	49m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
16	70m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
17	74m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
18	86m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
19	88m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
20	102m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
21	119m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
22	123m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
23	138m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
24	160m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
25	165m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
26	179m NW	No main habitat but additional habitats present	Main habitat: CFPGM (INV > 50%)
27	205m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
28	212m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
29	218m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)

ID	Location	Main Habitat	Other habitats
30	233m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
31	248m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

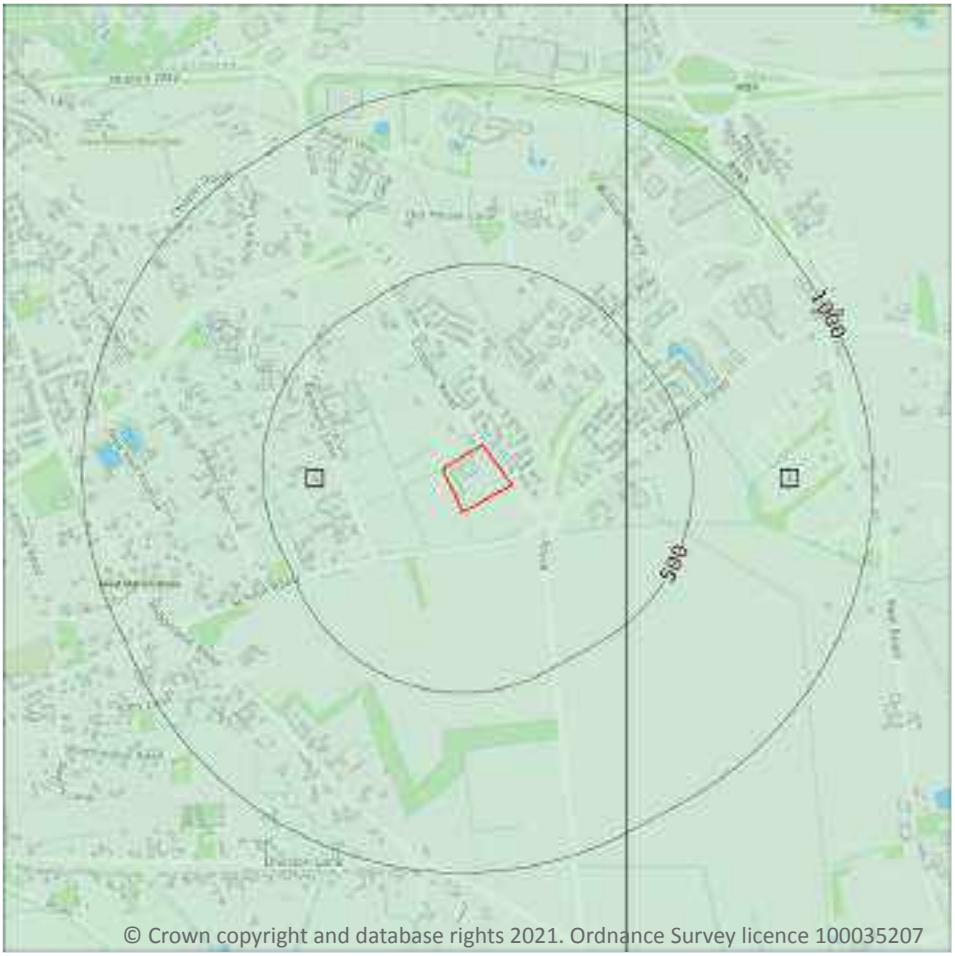
13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	2

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

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

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SD33SW**
2	319m E	Full	Full	Full	No coverage	SD33SE

This data is sourced from the British Geological Survey.

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

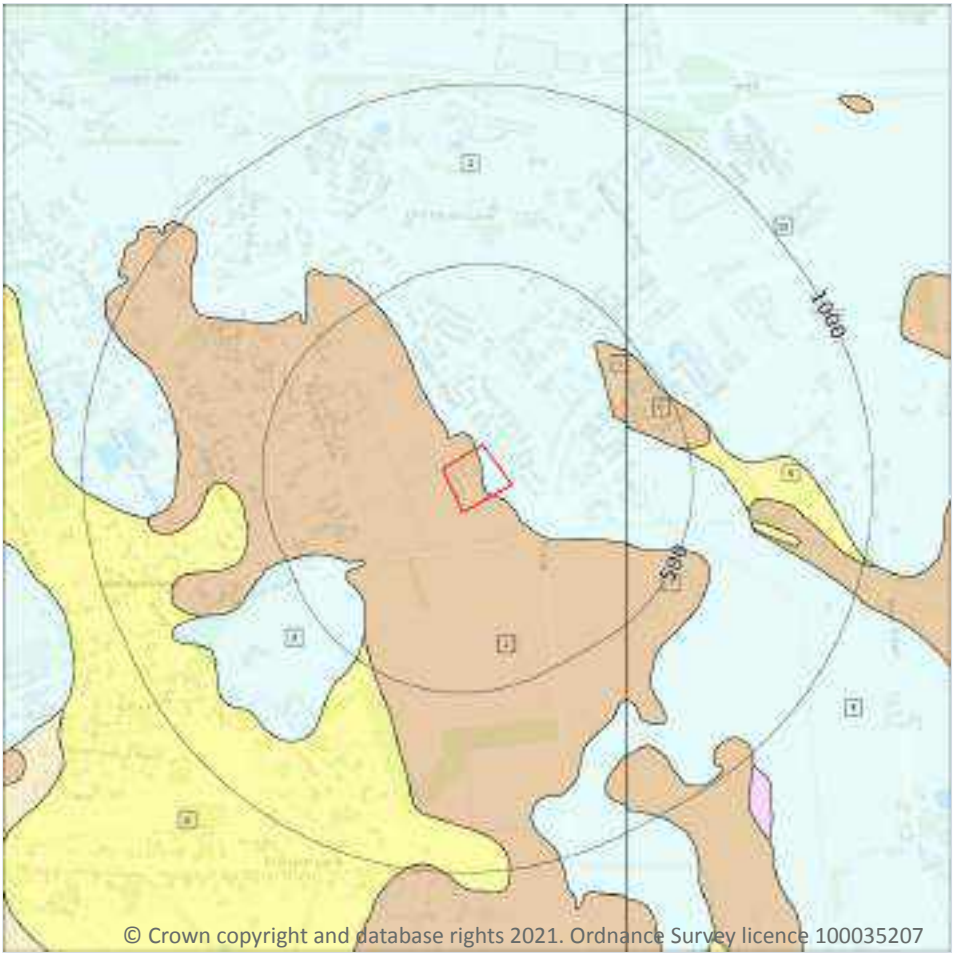
14.2 Artificial and made ground (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **10**

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 75**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**Till, Devensian - Diamicton**	**Diamicton**
2	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
3	304m SW	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

ID	Location	LEX Code	Description	Rock description
4	319m E	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty
5	340m NE	PEAT-P	Peat - Peat	Peat
6	357m NE	PEAT-P	Peat - Peat	Peat
7	359m SE	PEAT-P	Peat - Peat	Peat
8	435m SW	TFD1-XCZ	Tidal Flat Deposits, 1 - Clay And Silt	Clay And Silt
9	472m E	TFD1-XZCS	Tidal Flat Deposits, 1 - Silt, Clay And Sand	Silt, Clay And Sand
10	476m NE	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty

This data is sourced from the British Geological Survey.

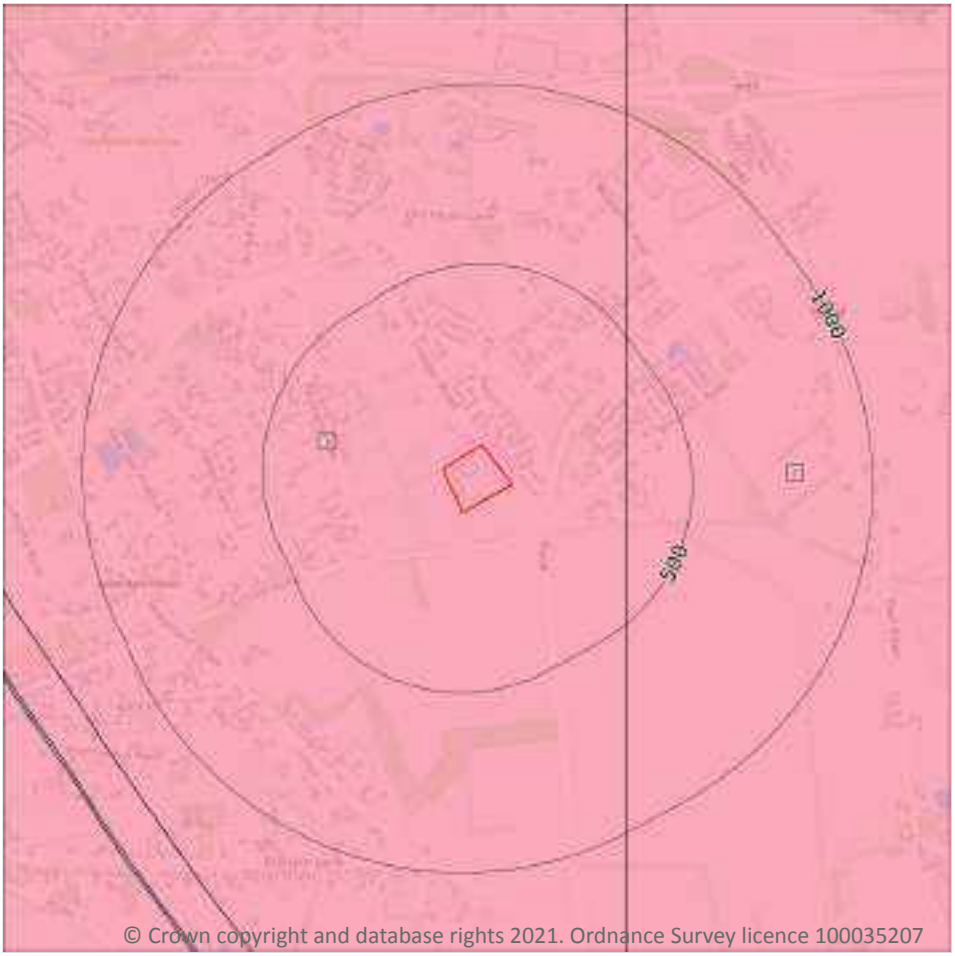
14.4 Landslip (10k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m **2**

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 77**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**KRM-MDST**	**Kirkham Mudstone Member - Mudstone**	**Ladinian Age - Anisian Age**
2	319m E	SIM-MDST	Sidmouth Mudstone Formation - Mudstone	Carnian Age - Olenekian Age

This data is sourced from the British Geological Survey.

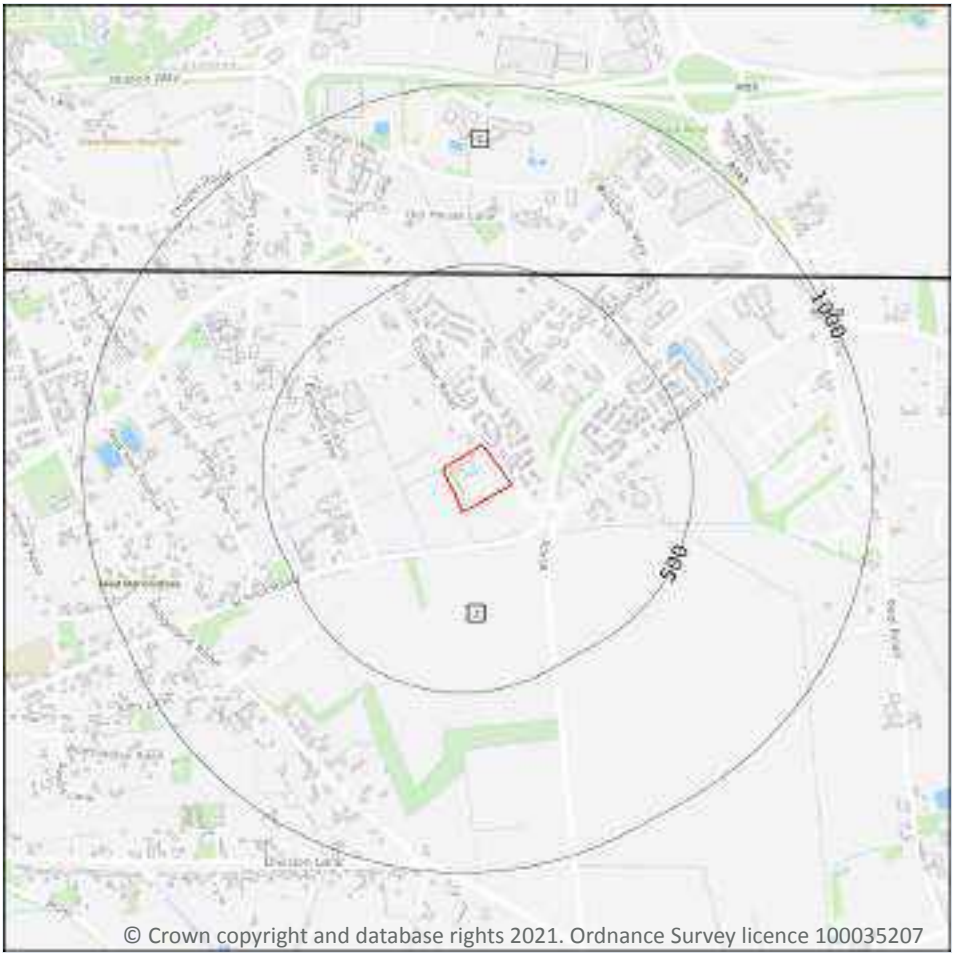
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	2

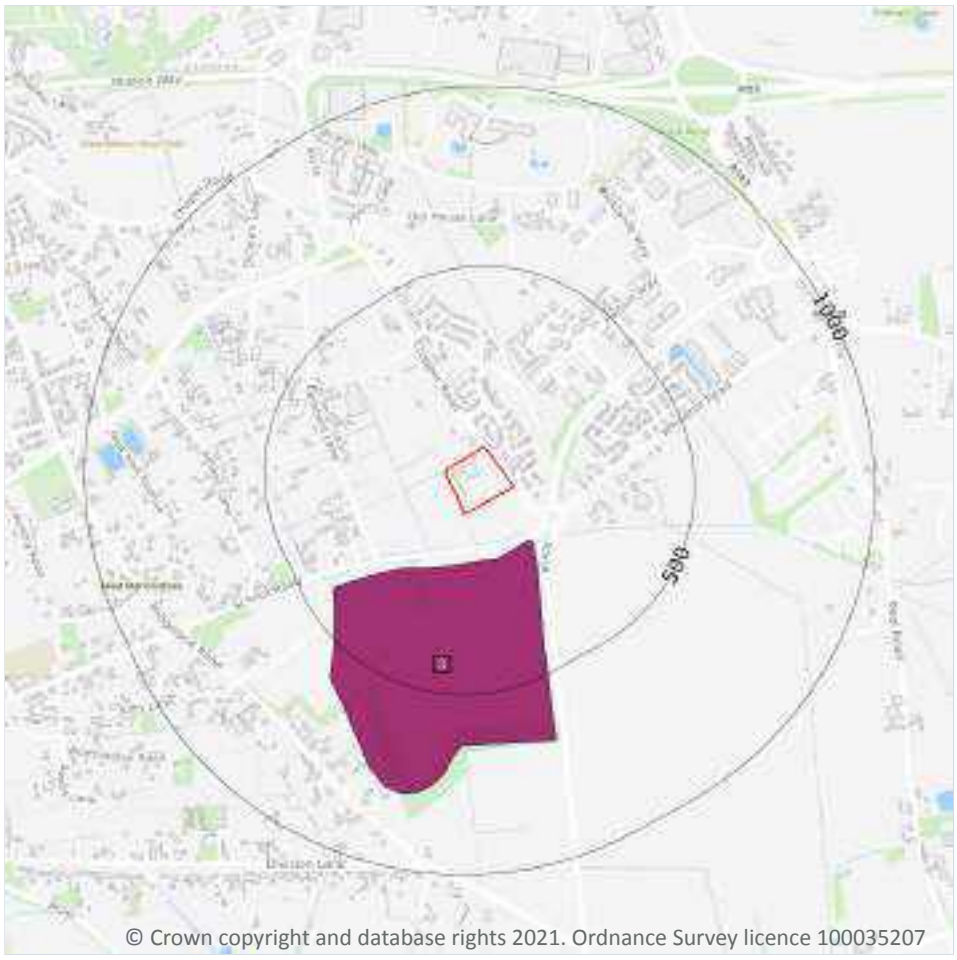
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 79**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**EW074_southport_v4**
2	473m N	Full	Full	Full	No coverage	EW066_blackpool_v4

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

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

15.2 Artificial and made ground (50k)

Records within 500m	1

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 80**

ID	Location	LEX Code	Description	Rock description
1	134m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

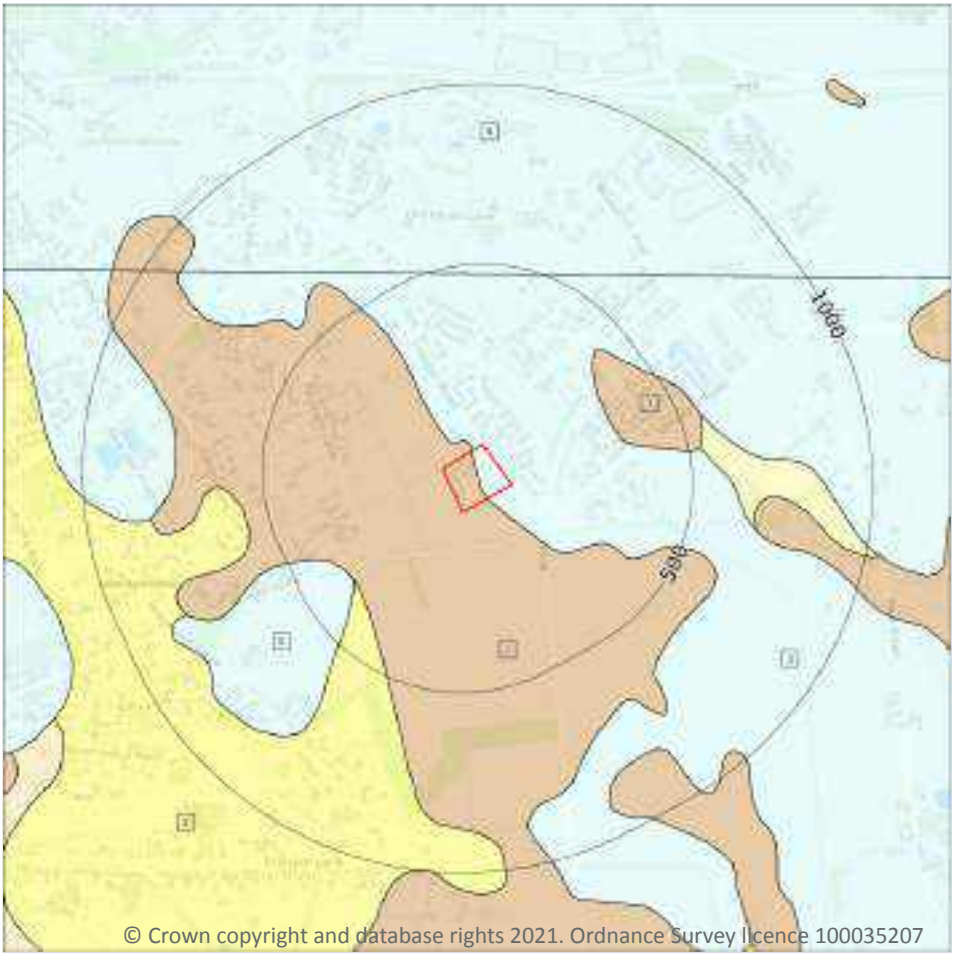
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **6**

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 82**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	**On site**	**PEAT-P**	**PEAT**	**PEAT**
3	322m NE	PEAT-P	PEAT	PEAT

ID	Location	LEX Code	Description	Rock description
4	353m SW	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT
5	354m SW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
6	473m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**2**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Low**	**Very Low**
On site	**Mixed**	**High**	**Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

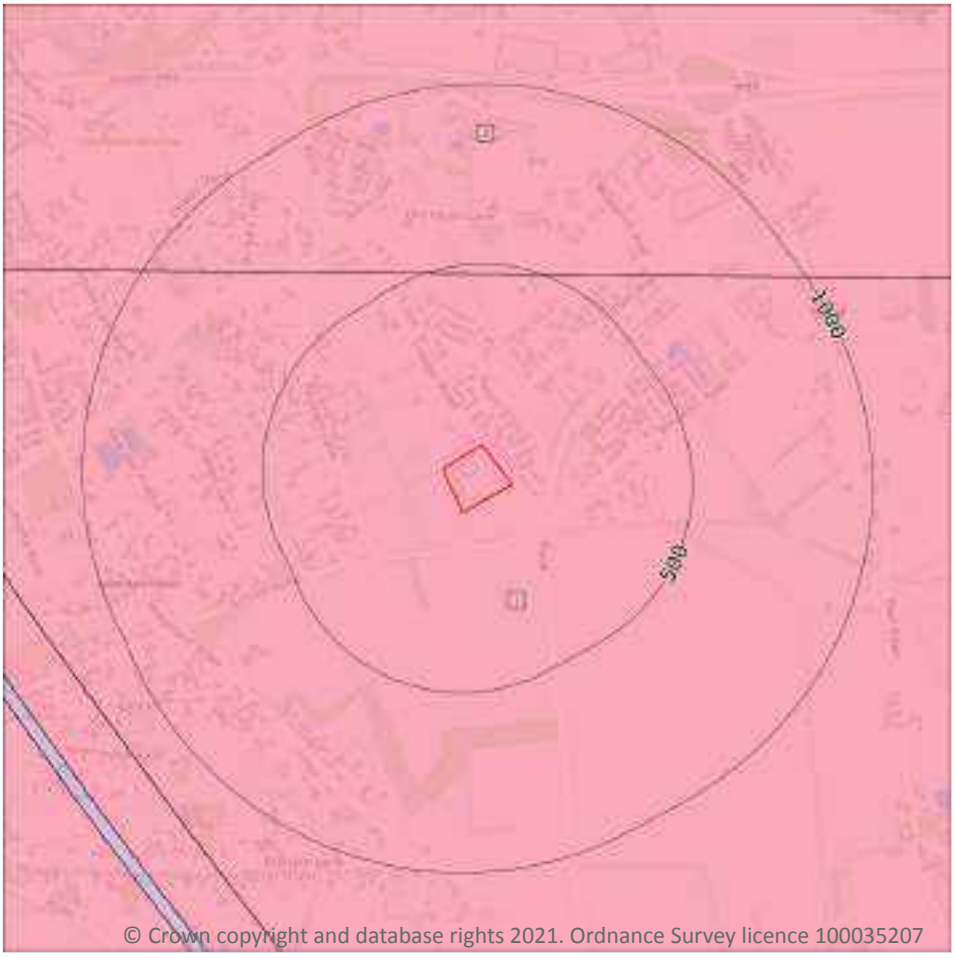
15.7 Landslip permeability (50k)

Records within 50m	**0**

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m	2

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 84**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**KRM-MDST**	**KIRKHAM MUDSTONE MEMBER - MUDSTONE**	**ANISIAN**
2	473m N	KRM-MDST	KIRKHAM MUDSTONE MEMBER - MUDSTONE	ANISIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Low**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

16 Boreholes

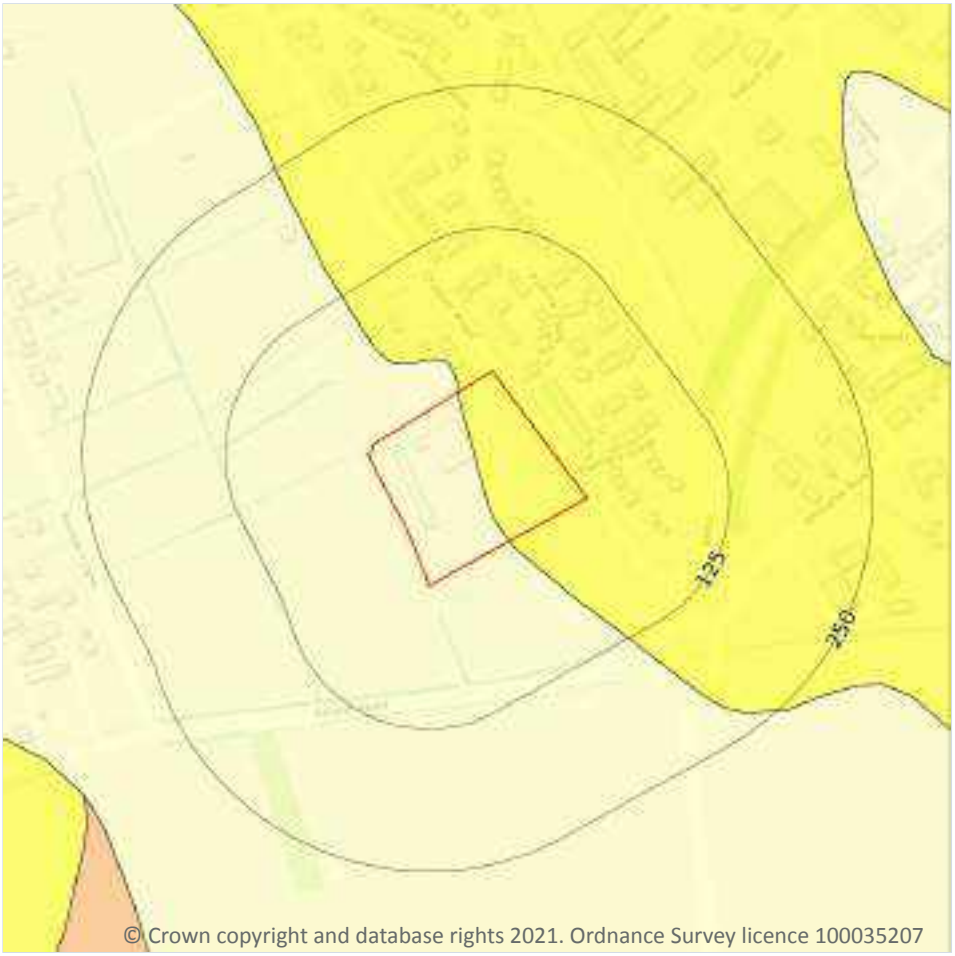
16.1 BGS Boreholes

Records within 250m	0

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

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	2

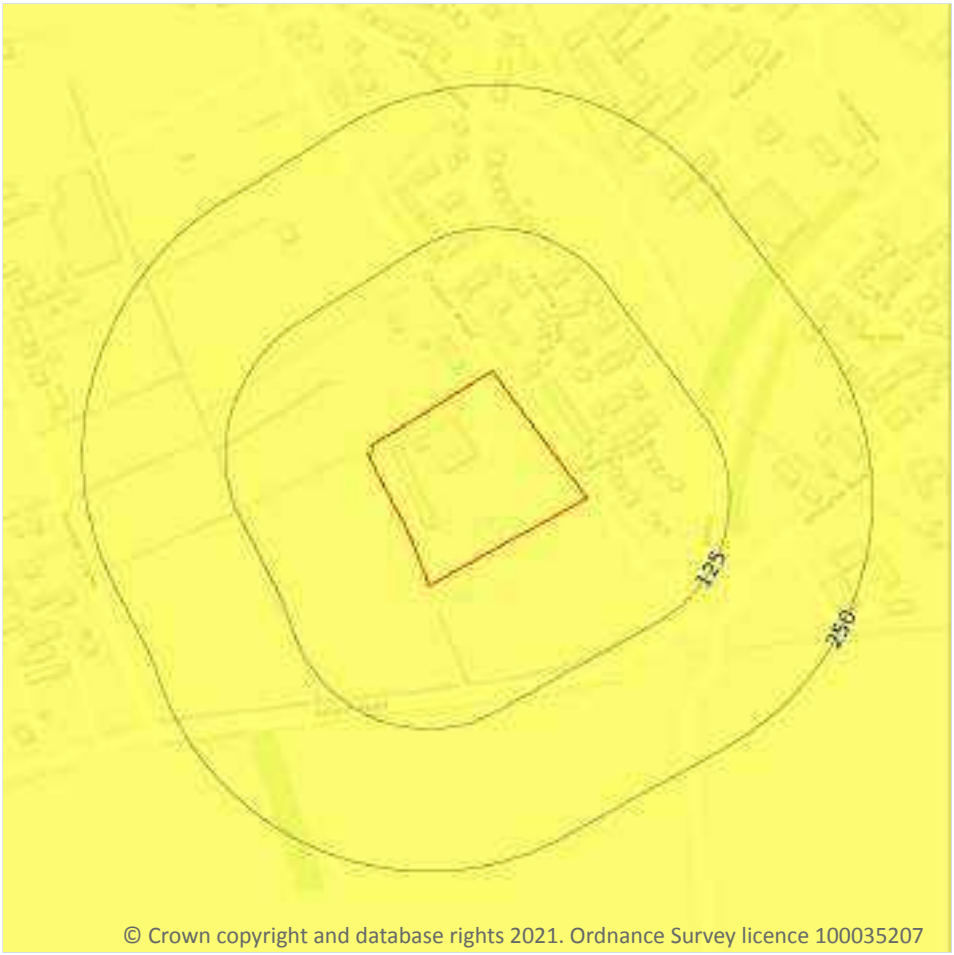
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 87**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

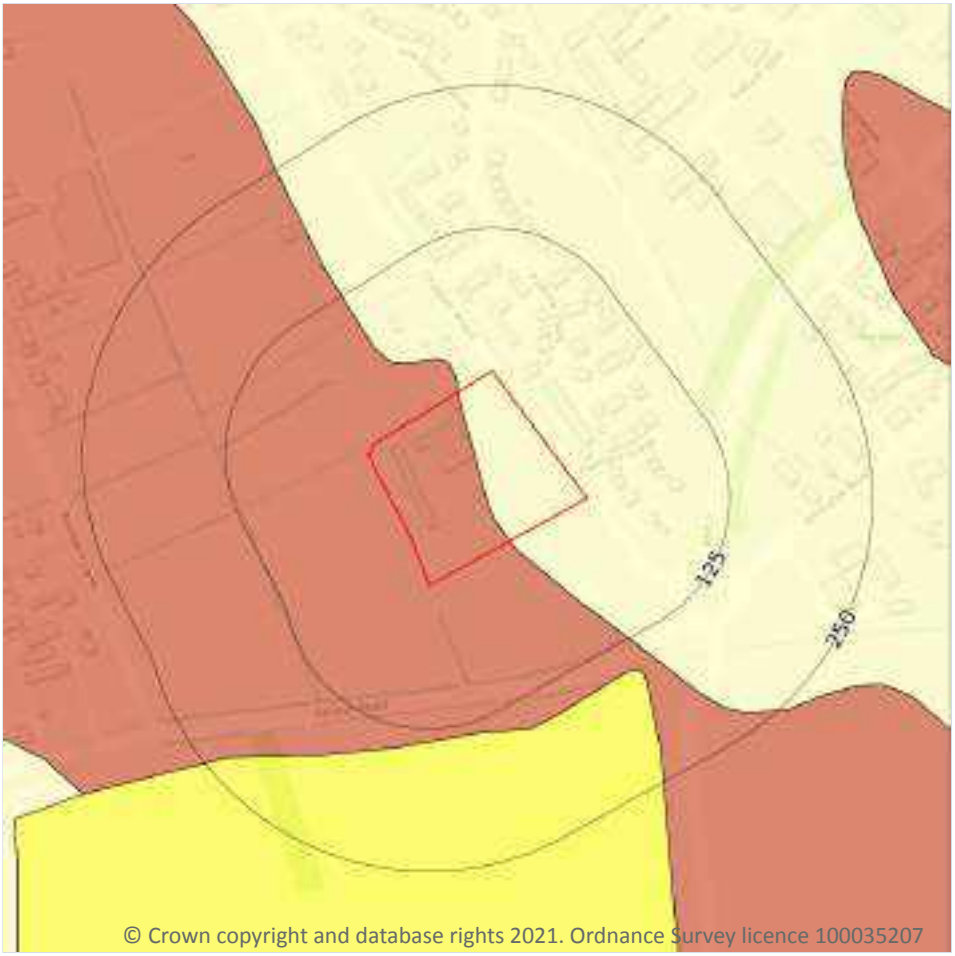
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

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

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	2

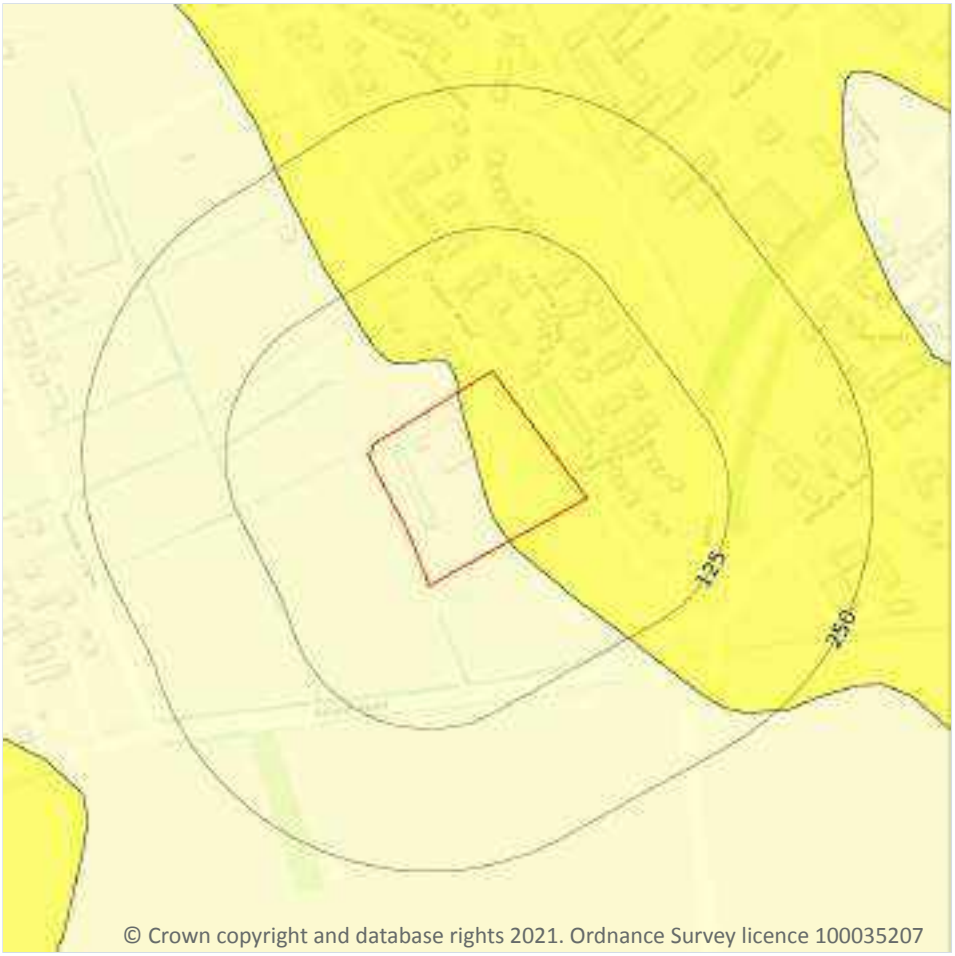
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 89**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**High**	**Highly compressible strata present. Significant constraint on land use depending on thickness.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	**2**

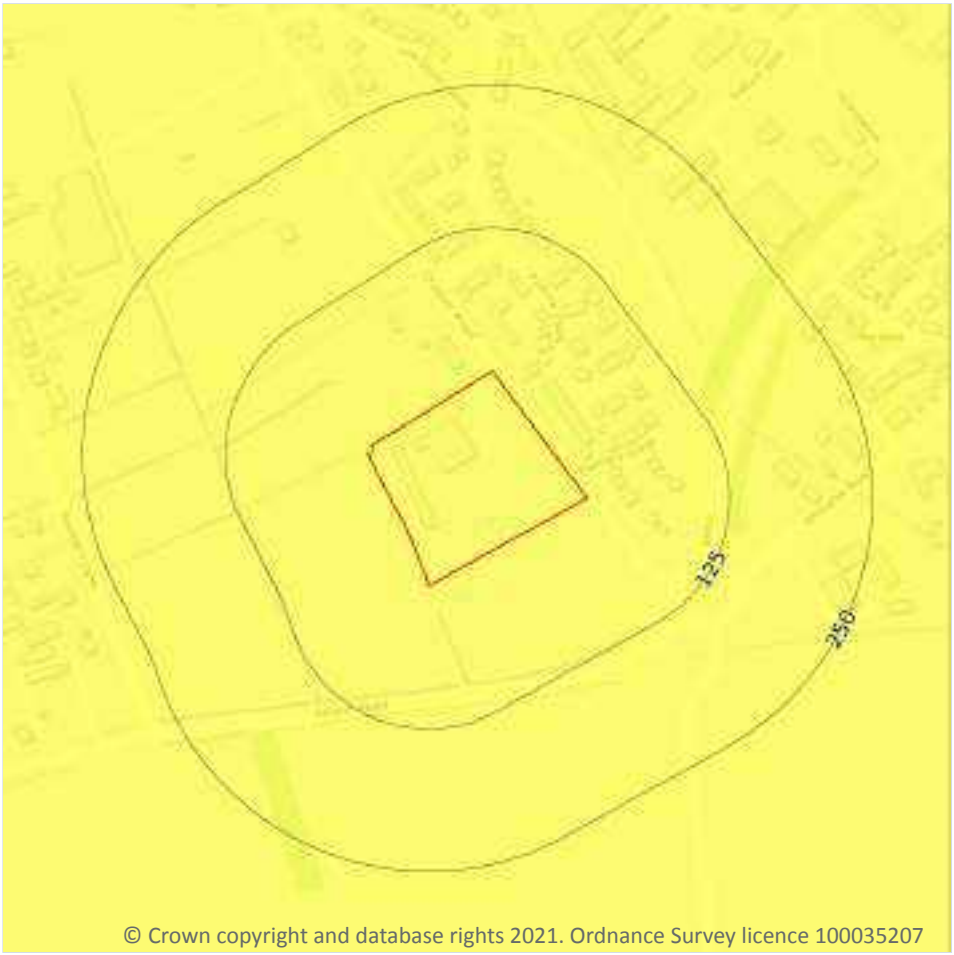
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 90**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

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

Features are displayed on the Natural ground subsidence - Landslides map on **page 91**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks

Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 92**

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

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities

Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	1

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 93**

ID	Location	Details	Description
A	275m E	Name: Whitehill Cottages Address: Peel, Higher Ballam, LYTHAM ST ANNES, Lancashire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	1

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 93**

ID	Location	Land Use	Year of mapping	Mapping scale
1	105m S	Refuse Heap	1981	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

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

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

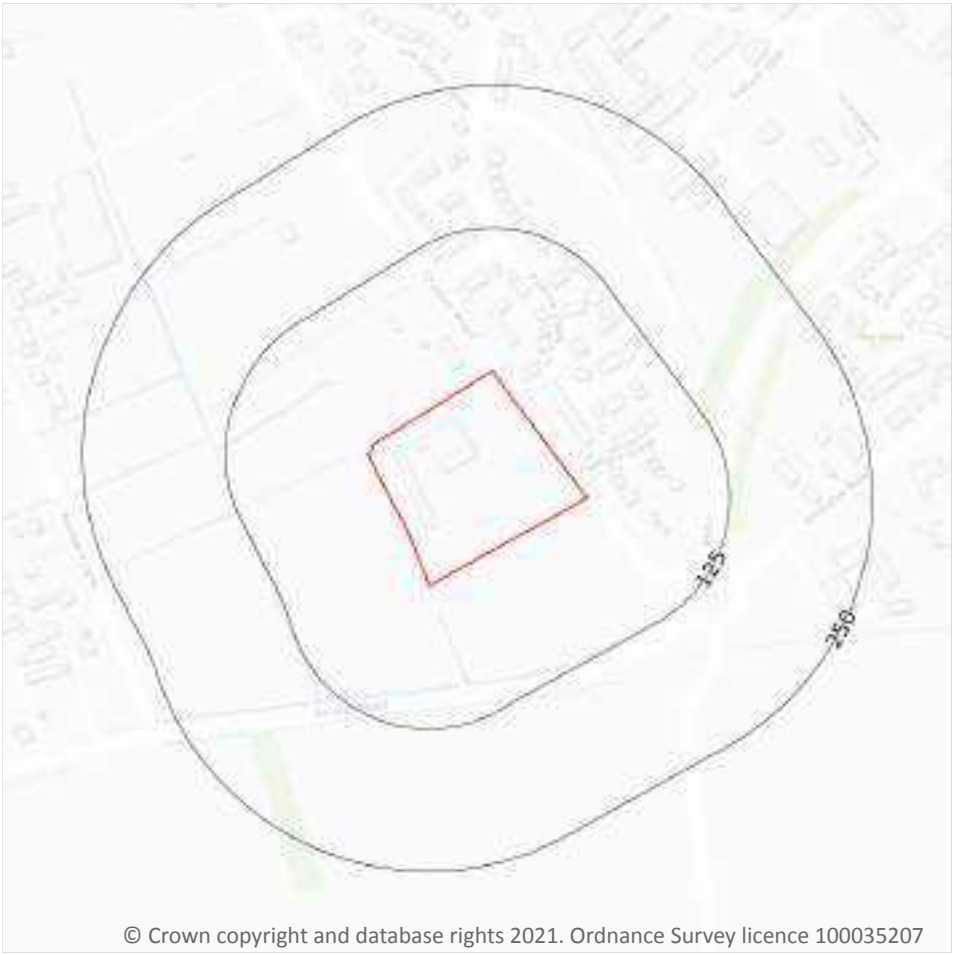
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 97**

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

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m **6**

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
32m NW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m **0**

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

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

APPENDIX 6

BGS BOREHOLE LOGS AND BGS MINERAL RESOURCE MAP (LANCASHIRE)

SD33 SW 8 SD33/15 68

RECORD OF WELL (SHAFT OR BORE)

128

SD 3436 3304

Water struck at depths of (feet)

Rest-level of water below/above top of well ______ feet. Suction at ______ feet. Yield on ______ hours'/days' test ______ gallons per ______ (with pump of capacity ______ g.p.h.); depressing water level to ______ feet below top. Time of recovery ______ hrs. Amount normally pumped daily ______ g.p.h. for ______ hours.

Quality (attach copy of analysis if available)

Sunk by Messrs. T. Matthews for Mr. Cardwell Bros. Date of well 1936

Information from Messrs. Thomas Matthews, Pendleton, Manchester.

(For Survey use only) GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
QUATERNARY	Soil			1	-
	Boulder clay			37	-
	Marl			41	-
	Sandy marl			45	-
	Marly sand			48	-
	Running sand			80	-

Visited & sited on Lancs 59 NW/E.

Water from bore is used for the first three weeks in March only, because the temperature is fairly constant at 52°F. About 1000 g.p.d. 3 times a week are used during this period.

Pumping details — 1st hour gives about 600 gph.
2nd " " " 400 "
3rd " " " 300 "
then constant at about 300 gph.

Capacity of pump is 3,000 gph. Installed in 1936.

M.H.P. 26.4.56.

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Office of the Deputy Prime Minister
Creating sustainable communities

LANCASHIRE

(comprising Lancashire, Boroughs of Blackpool and Blackburn with Darwen)

Mineral Resource Information in Support of National, Regional and Local Planning

Mineral Resources

Scale 1:100 000

Compiled by F.M. McEvoy, D.J. Minchin, D.J. Harrison, D.G. Cameron, D.J. Evans, R.G. Crofts, G.K. Lott, S. Hobbs and D.E. Highley.
Project Leader: D.E. Highley.
Digital cartography by N.A. Spencer, British Geological Survey.
Published 2006.

This map comprises part of a summary of the 'Mineral Resources of the North-West of England Region'.
For more information see www.mineralsUK.com

BIBLIOGRAPHIC REFERENCE

McEvoy, F M, and 8 others. 2006. Mineral Resource Information for National, Regional and Local Planning: Lancashire (comprising Lancashire and the Boroughs of Blackpool and Blackburn with Darwen). *British Geological Survey Commissioned Report CR/05/144N.*

Production of this map was commissioned and funded by the Office of the Deputy Prime Minister (Contract MP0677).

COAL

Southwest and southeast Lancashire lie within the South Lancashire and Burnley (Wigan Basin) coalfields respectively. The northwestern limits of the South Lancashire Coalfield crop out in the south of the county in the Chorley to Ormskirk area. Pennine Lower to Middle Coal Measures dip to the south, where they eventually become concealed beneath the Permo-Triassic of the Cheshire Basin. In excess of 30 named coal seams occur within the South Lancashire Coalfield, the most important of which occur in the middle and upper parts of the Pennine Lower Coal Measures and throughout the Pennine Middle Coal Measures, with a number of seams in excess of 2 m in thickness. Coals from the Pennine Upper Coal Measures are generally thin, the exception being the Worsley Four Foot, which can be up to 1.6 m in thickness. Within Lancashire, the Pennine Lower Coal Measures predominantly occur. Although the county was formerly an important coal mining area there are no significant current mining operations, opencast or underground. There has been no opencast coal extraction since the early 1990s. Very small scale mining is carried out intermittently at Hill Top Colliery, near Bacup. The future potential for opencast working is limited by the lack of thick seams in the basal part of the Pennine Lower Coal Measures, the overlying thick drift deposits and the extensive urban development.

Within the Burnley Coalfield, the main coal-bearing interval occurs within the Pennine Lower Coal Measures (Upper Carboniferous) and can be up to 650 m in thickness. The seams occur from surface and are overlain by thick superficial drift deposits, particularly in the west. The seams are often of excellent quality but are relatively thin. The most important seams are the Burnley Four Foot, Ardley, and Lower and Upper Mountain seams. The Burnley Coalfield which has been extensively worked in the past, is not currently worked. The last deep mine, Hapton Valley Colliery, was closed in 1982. The potential for future underground coal mining is low due to extensive mining in the past and the lack of good, thick seams. Although large areas of shallow coal has been sterilised by urban development and thick overburden occurs in parts, some potential for future opencast sites remains in the east of the county.

Significant parts of the Burnley Coalfield and parts of the South Lancashire Coalfield are now considered to be unproductive (see inset map). Locally, however, small opencast coal prospects may exist within these areas

A further small area of unprospective coalfield occurs in the northeast of the county, part of the Ingleton Coalfield. This coalfield has limited extent and little coal remains and is only shown on the Hydrocarbons inset map.

PEAT

Peat is an unconsolidated deposit of compressed plant remains in a water-saturated environment such as a bog or fen. Bogs occur in areas where inputs of water (almost exclusively from precipitation) have a low nutrient content and where the rainfall is sufficient to maintain the ground surface in a waterlogged condition. The vegetation is characterised by acid-tolerant plant communities of which the moss genus *Sphagnum* is dominant. The two main types of bog are (i) raised bogs, characteristic of flat underlying topography and found on plains and broad valley floors and (ii) blanket bogs, which occur mainly in upland areas where conditions are suitably cool and wet. Many lowland raised bogs have been designated as sites of international and national conservation areas. Peat is dug in England mainly from raised lowland bogs, almost entirely (98 per cent) for horticultural purposes, either as a growing medium, or as a soil improver.

In Lancashire, extensive lowland bogs have been mapped in the extreme southwest and west of the county. Many of the peat deposits have been worked extensively in the past and today a large percentage of these areas have been "reclaimed" to agricultural land. Due to the unavailability of up to date linework defining the extent of the reclamation, the entire resource as mapped is shown on the map. Today, peat is worked at Simonswood Moss, northwest of Kirkby. Areas of upland blanket peat are not shown.

SAND & GRAVEL

Superficial deposits

- Sub-alluvial: Inferred resources
- River Terrace deposits
- Glaciofluvial deposits
- Blown Sand

PEAT

SANDSTONE

- Crushed rock and Building stone (Upper and Lower Haslingden Flags, Fletcher Bank Grit, Ousel Nest Grit and Old Lawrence Rock) — Carboniferous: Millstone Grit and Pennine Coal Measures

LIMESTONE

- Limestone (Chatburn Limestone) — Carboniferous
- High purity limestone (>97% $CaCO_3$) (Park Limestone and Urswick Limestone) — Carboniferous

COAL

- Shallow coal — Carboniferous: Pennine Coal Measures
- Opencast: worked area

BRICK CLAY

- Brick clay and Fireclay coincident with coal-bearing strata - Shallow Coal/ Unproductive Coal Measures — Carboniferous: Pennine Coal Measures

SALT

- Preesall Halite (area affected by groundwater - wet rockhead) — Triassic: Mercia Mudstone
- Sub-surface extent of Preesall Halite

COAL LICENCE AREAS (as at 01.02.06)

Source: The Coal Authority

- Deep mine

MINERAL PLANNING PERMISSION (as at 30.09.05)

Source: Mineral Planning Authorities

- Surface planning permission (valid and expired)
- Underground planning permission other than coal (valid and expired)

MINERAL WORKINGS

- Bankfield — Active site
- *Preesall* — Inactive (including yet to be worked), worked-out and/or restored site

Mineral commodity

Cl	Clay & Shale	Peat	Peat	Sg	Sand and Gravel
Co	Coal	MSg	Marine sand and gravel		
Fr	Fireclay	San	Sand	Sst	Sandstone
Lst	Limestone	Salt	Salt	SiS	Silica Sand

- ▲ Active underground mine
- ◆ Active marine aggregate wharf

ENVIRONMENTAL DESIGNATIONS (as at 31.12.05)

- National nature conservation designations (SSSIs and NNRs)
- International nature conservation designations (SACs, SPAs and Ramsar sites)
- Area of Outstanding Natural Beauty (AONB): Pendle Hill, Forest of Bowland (part) and Arnside and Silverdale (part)
- + Scheduled Monument

ADMINISTRATIVE AREAS

- Mineral Planning Authority
- District

Aims and Limitations

The purpose of the maps in this series is to show the broad distribution of those mineral resources which may be of current or potential economic interest and to relate these to selected nationally-recognised planning designations. The maps are intended to assist in the consideration and preparation of development plan policies in respect of mineral extraction and the protection of important mineral resources against sterilisation. They bring together a wide range of information, much of which is scattered and not always available in a convenient form.

The maps have been produced by the collation and interpretation of mineral resource data principally held by the British Geological Survey. Information on the extent of mineral planning permissions has been obtained from the relevant Mineral Planning Authority (MPA). Some of these permissions may have lapsed or expired. The status of individual areas can be ascertained from the appropriate MPA. Location information on national planning designations has been obtained from the appropriate statutory body (Countryside Agency, English Nature and English Heritage). For further information the relevant body should be contacted.

The mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The inferred boundaries shown are, therefore, approximate. Mineral resources defined on the map delineate areas within which potentially workable minerals may occur. These areas are not of uniform potential and also take no account of planning constraints that may limit their working. The economic potential of specific sites can only be proved by a detailed evaluation programme. Such an investigation is an essential precursor to submitting a planning application for mineral working. Extensive areas are shown as having no mineral resource potential, but some isolated mineral workings may occur in these areas. The presence of these operations generally reflect very local or specific situations.

The maps are intended for general consideration of mineral issues and not as a source of detailed information on specific sites. The maps should not be used to determine individual planning applications or in taking other decisions on the acquisition or use of a particular piece of land, although they may give useful background information which sets a specific proposal within context.

PLANNING PERMISSIONS FOR MINERAL EXTRACTION

The extent of all known extant and former planning permissions for mineral working is shown on the map, irrespective of their current planning or operational status. The polygons were supplied as digital files by Lancashire County Council, and also were digitised by BGS from Plotting Sheets and other documents supplied by Lancashire County Council, Blackburn with Darwen and Blackpool Borough Councils. In addition, planning permission information was digitally acquired from Ministry of Housing and Local Government maps for the area and incorporated in the data. This data has been checked and amended by the local authorities shown below. Any queries regarding the sites shown should be directed to these authorities at the addresses shown below. The polygons cover active, former and restored mineral workings and, occasionally, unworked deposits.

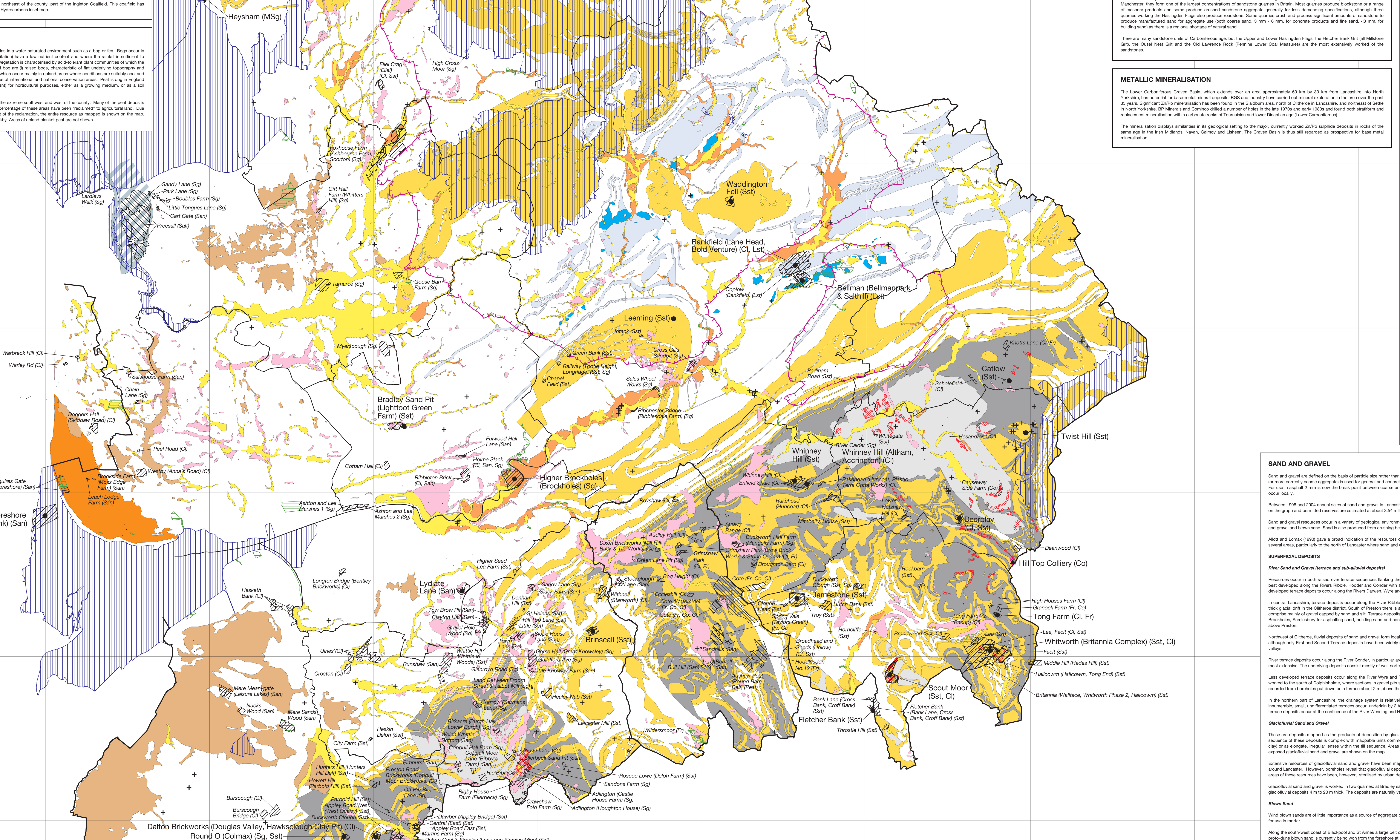
Planning Permissions represent areas where a commercial decision to work mineral has been made, a successful application has been dealt with through the provisions of the Town and Country Planning legislation and the permitted reserve will have been depleted to a greater or lesser extent. Current planning status is not qualified on the map but is available in the underlying database.

Contact addresses:

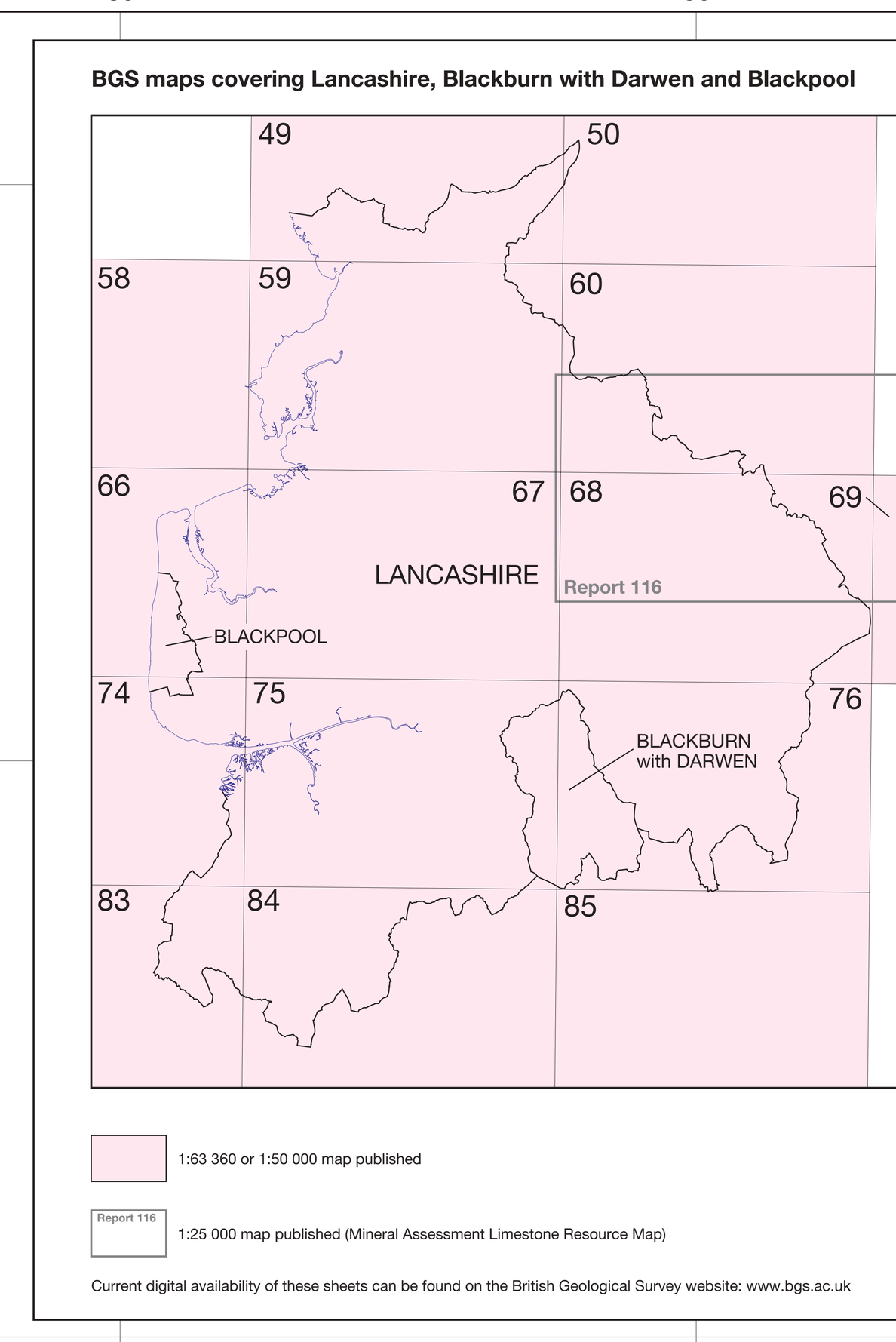
Lancashire County Council, Environmental Directorate, PO Box 9, Guild House, Cross Street, Preston PR1 8RD, Tel: 01772 264468, Fax: 01772 264201, web address: www.lancashire.gov.uk

Blackburn with Darwen Borough Council, Technical Services Department, Town Hall, Blackburn BB1 7DY, Tel: 01254 585585, Fax: 01254 674683, web address: www.blackburn.gov.uk

Blackpool Borough Council, Technical Services Department, PO Box 117, Westgate House, Squires Gate Lane, Blackpool FY4 2TS, Tel: 01253 476240, Fax: 01253 476201, web address: www.blackpool.gov.uk



BGS maps covering Lancashire, Blackburn with Darwen and Blackpool



Current digital availability of these sheets can be found on the British Geological Survey website: www.bgs.ac.uk

CRUSHED ROCK AGGREGATES

A variety of hard rocks are, when crushed, suitable for use as aggregates. Their technical suitability for different applications depends on their physical characteristics, such as crushing strength and resistance to impact and abrasion. Higher quality aggregates are required for coating with bitumen for road surfacing, or for mixing with cement to produce concrete. For applications such as constructional fill and drainage media, with less demanding specifications, lower quality materials are acceptable.

Lancashire has important hard rock resources consisting of both limestones and sandstones of Carboniferous age. The limestones are the most important both in terms of output and quality. Carboniferous sandstones are generally only suitable for less demanding applications, but their proximity to major conurbations means that they are worked on a substantial scale.

Limestone

Lancashire is an important source of limestone and in 2004, 4.68 million tonnes were quarried in the county. Most (about 3 million tonnes) is consumed in the construction industry as aggregate or fill for local and regional needs. Significant amounts of limestone are also extracted for cement manufacture at Clitheroe.

The Carboniferous Limestone is a major source of limestone aggregate and it is these rocks which comprise the present and future resources of limestone in Lancashire. The Carboniferous limestones of Lancashire occur in two distinct areas, each containing rocks of distinctive character and thickness.

In the northwest of the county, Carboniferous limestones crop out around Carnforth. These limestones, which form part of the larger resource area of south Cumbria, are shallow water, 'shelf' limestones that are mostly thick-bedded, pale grey, consistent deposits. They are structurally simple and can be quarried extensively and economically. Currently three quarries work these limestones for aggregates and have good motorway access, distributing material to north Lancashire, Manchester and Merseyside. The limestones in this area are mostly of high purity. Notable high purity (>97% $CaCO_3$) units are the Park Limestone and Urswick Limestone formations; both contain substantial thicknesses of high purity limestone and form a potential resource of industrial grade limestone. The Urswick Limestone is the most actively quarried unit; extraction is for crushed rock aggregate production.

Carboniferous limestones in the Clitheroe area were deposited in a different sedimentary environment (of deeper water sedimentation) from the Carnforth limestones. The limestone sequence is much thicker and is significantly different in lithology. Dark grey, shaly limestones interbedded with mudstones predominate. The limestones are very variable in character, are folded and steeply dipping. Partial replacement of the limestones by silica and dolomite is a common feature. The limestones are also mostly concealed beneath superficial (drift) deposits. Most of the limestones are impure or are of low and variable chemical purity. Knoll-reef limestones, however, are developed around Clitheroe and these form relatively consistent deposits of high purity limestone. The knoll-reefs range in thickness from less than 30 m to over 600 m and are formed of massive, mid-grey, fine-grained limestone.

The most important limestone unit in the Clitheroe area is the Chatburn Limestone which consists of over 200 m of dark grey, well bedded limestone with muddy partings but relatively few thick mudstones. They are relatively well exposed and are extracted in a large shared quarry at Clitheroe for aggregate (Tarmac Ltd North West) and cement production (Castle Cement). The large cement plant, utilises the natural mix of limestone and mudstone. Some local deposits of higher purity knoll-reef limestone are used to optimise the mix. The cement plant has a clinker capacity of 0.75 million tonnes per year. It is a major consumer of limestone raw material with, approximately, 1.6 tonnes of dry raw material being required for each tonne of clinker produced. Aggregates from this site are used for roadstone (as it is a naturally dark coloured stone) and there are two asphalt plants within the quarry. Output is around 1 million tonnes per year and all products are transported by road to markets within Lancashire as far as Liverpool.

Sandstone

The Carboniferous sandstones of the Millstone Grit and Pennine Coal Measures groups (particularly the Pennine Lower Coal Measures) of Lancashire have traditionally been extensively used as a source of building stone and, today, both disused and working quarries are a common feature of the landscape. However, the main use of the sandstones at present is for relatively low-grade aggregate; sales of sandstone aggregate were 1.3 million tonnes in 2004.

Carboniferous sandstones consist of sand-sized particles, with minor pebbles, composed dominantly of quartz, but also with some feldspar, which are cemented by silica, to a greater or lesser extent. The sandstones are typically buff-coloured, although locally grey, and vary from fine- to coarse-grained.

Most of the sandstones are too weak and porous to make good quality aggregate for roadstone and concrete, but may be suitable for fill and for the production of manufactured sand to produce reconstituted stone products. The Haslingden Flags (Millstone Grit) are unusual in that they are much stronger than most other local sandstones, and are capable of producing crushed rock aggregates for concrete and roadstone.

There are currently around 12 working sandstone quarries in Lancashire, and together with several quarries in adjacent areas of Greater Manchester, they form one of the largest concentrations of sandstone quarries in Britain. Most quarries produce blockstone or a range of masonry products and some produce crushed sandstone aggregate generally for less demanding specifications, although three quarries working the Haslingden Flags also produce roadstone. Some quarries crush and process significant amounts of sandstone to produce manufactured sand for aggregate use (both coarse sand, 3 mm - 6 mm, for concrete products and fine sand, <3 mm, for building sand) as there is a regional shortage of natural sand.

There are many sandstone units of Carboniferous age, but the Upper and Lower Haslingden Flags, the Fletcher Bank Grit (all Millstone Grit), the Ousel Nest Grit and the Old Lawrence Rock (Pennine Lower Coal Measures) are the most extensively worked of the sandstones.

METALLIC MINERALISATION

The Lower Carboniferous Craven Basin, which extends over an area approximately 60 km by 30 km from Lancashire into North Yorkshire, has potential for base-metal mineral deposits. BGS and industry have carried out mineral exploration in the area over the past 35 years. Significant Zn/Pb mineralisation has been found in the Slaidburn area, north of Clitheroe in Lancashire, and northeast of Settle in North Yorkshire. BP Minerals and Cominco drilled a number of holes in the late 1970s and early 1980s and found both stratiform and replacement mineralisation within carbonate rocks of Tournaisian and lower Dinantian age (Lower Carboniferous).

The mineralisation displays similarities in its geological setting to the major, currently worked Zn/Pb sulphide deposits in rocks of the same age in the Irish Midlands; Navan, Galmoy and Lisheen. The Craven Basin is thus still regarded as prospective for base metal mineralisation.

BUILDING STONE

Historically, Lancashire has a very long tradition of using locally quarried stone for building purposes. The oldest rocks of the county are the limestones of the Lower Carboniferous succession and these have been quarried locally along much of their outcrop, notably around Carnforth and Clitheroe.

Many of the overlying Carboniferous (Namurian) sandstone units have also been quarried in the past for building stone, for example, the Pendle Grit (Ogden Reservoir); Warley Wise Grit (Sabden Reservoir); Kinderscout Grit (Walshaw Dean and Longdendale reservoirs). The sandstone of the Pendle Grit Formation was extensively quarried for building around Preston for example at Longridge Fell and Mellor. The town hall at Preston is built of Longridge Stone. The Ellel Crag sandstone, one of several sandstones used extensively in Lancaster and the surrounding villages and towns, also known as Galgate Stone, is still worked. The Rough Rock was worked to a small extent on Scout Moor for building stone. In recent years, the Fletcher Bank Grit was used for the construction and restoration of Manchester Cathedral. Extensive stone quarrying industries developed in several areas notably along the Tame, Rossendale and Longdendale valleys where houses, factories, bridges and reservoirs are characteristically constructed of local stones.

The Haslingden Flags (Lower and Upper) were quarried and mined in several areas around Chorley and, most extensively, along the Rossendale Valley from Whitworth and Bacup through Rawtenstall, Haslingden to Pickup Bank. Many of the local towns and villages were built and roofed using block stone and flagstone from these sandstones. The Moorcock Sandstone was quarried extensively at Caton Moor for flagstone. The numerous small pits in the Ward's Stone Sandstone on the fells around Clougha supplied fissile sandstone for roofing to Lancaster and surrounding towns and villages.

In the southern part of the county the numerous sandstones of the Pennine Coal Measures Group have also been extensively exploited in the past throughout their outcrop area. The fissile sandstones of the Dyneley Knowle Flags (at Appley Bridge and Billinge) and Upholland flags provided paving and roofing slates for local use e.g. in St. Helen's, Wigan, Bolton, Darwen, Accrington, Burnley etc.

The more massive beds of these Pennine Lower Coal Measure sandstone units have also been locally worked for building stone e.g. Milnrow (Crutchman) and Tim Bobbin (Burnley) sandstones. The growth of the former industrial towns of Skelmersdale, Chorley, Blackburn, Accrington, Burnley and Nelson, at the heart of the coalfield area, formerly supported a very active local building stone industry.

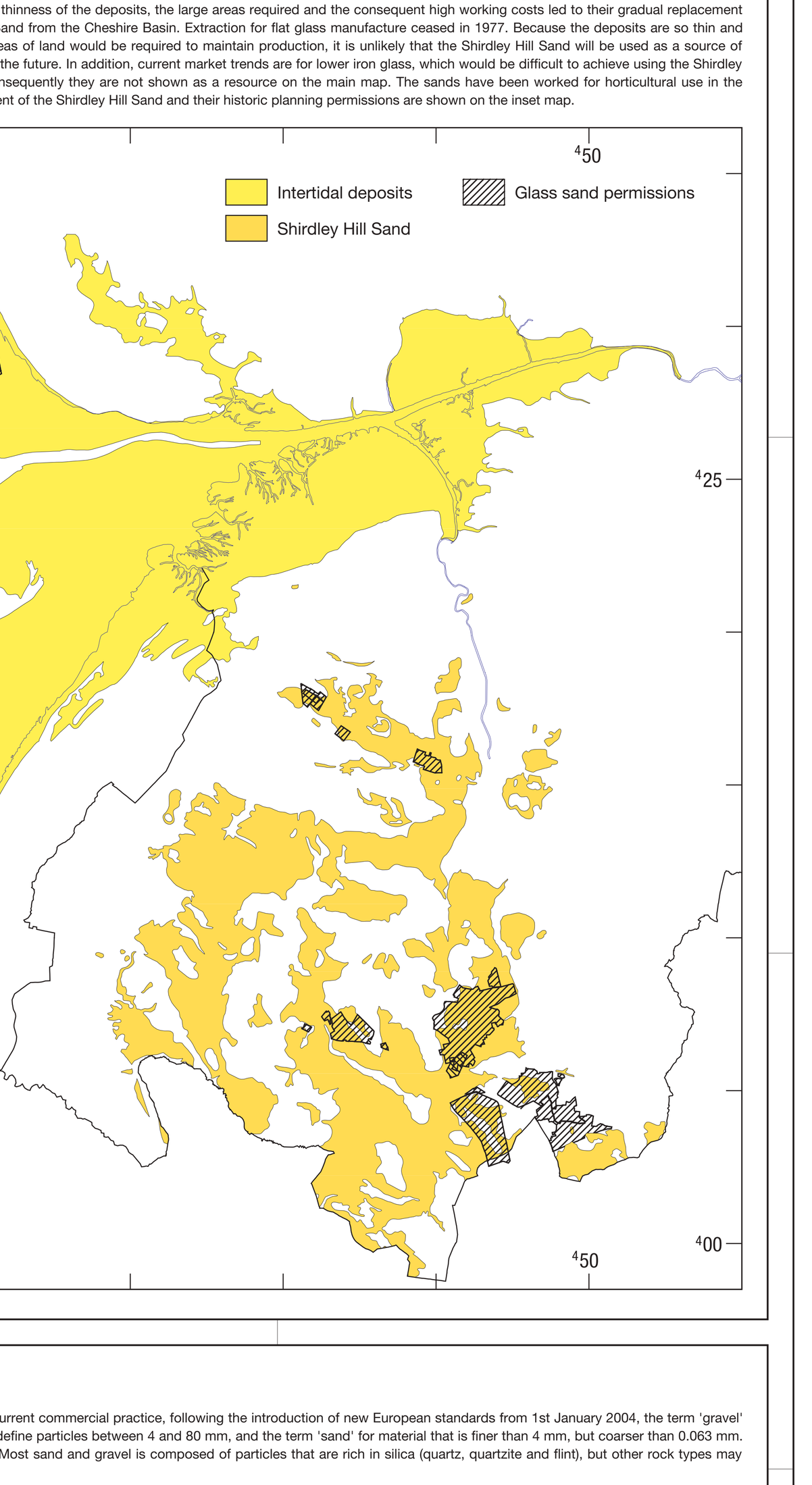
The red and yellow sandstones of the Triassic Sherwood Sandstone Group succession cropping out in the southwest of the county have been worked at a number of localities for local building stone including Halsall, Melling, Clieves, Downholland and Altcar. Currently there are 11 active building sandstone quarries in the county all working sandstones from the Carboniferous succession.

SILICA SAND

Silica (industrial) sands contain a high proportion of silica (SiO_2) in the form of quartz and are used for purposes other than as construction aggregates. They are essential raw materials for the glass and foundry castings industries, but also have a wide range of other industrial applications, including in ceramics and chemicals manufacture, for water filtration media, and in sports and horticultural applications. They are produced from both loosely consolidated sand deposits and by crushing weakly cemented sandstones. Unlike construction sands, which are used for their physical properties alone, silica sands are valued for a combination of chemical and physical properties. These include a high silica content in the form of quartz and, more importantly, low levels of impurities, particularly clay, iron oxides and refractory minerals such as chromite. Silica sands typically have a narrow grain size distribution, generally in the range 0.5 mm to 0.1 mm, although coarser grades are required for some applications. For most applications, silica sands have to conform to very closely defined specifications and consistency in quality is of critical importance. Particular uses often require different combinations of properties. Consequently, different qualities of silica sand are usually not interchangeable in use. Silica sands command a higher price than construction sands. This allows them to serve a wider geographical market, including exports.

Silica sand processing is of varying degrees of complexity and depends on the nature of the raw material and the end use of the sand. It typically requires a high capital investment in plant. Processing is aimed at modifying both the physical and chemical properties of the sand to meet user specifications. The ease with which contaminants (such as iron-bearing impurities and clay) can be removed, together with the level of losses incurred in removing oversize and undersize fractions from a sand, has a major bearing on its potential use. Within the UK, deposits of silica sand occur in only limited areas and quantities, and the special characteristics of silica sand extraction, in particular the cost of processing, means that the industry has a restricted distribution.

Large parts of the west Lancashire Plain are covered by extensive deposits of wind blown sand known as the Shirdley Hill Sand Formation. The sands, which are up to 3 m thick, are younger than the glacial deposits and lie immediately beneath a cover of topsoil. They account for some of the most productive agricultural land in Lancashire. The sands are fine-grained, yellow and grey and characteristically uniform in both composition and grain size distribution, reflecting their wind-blown origin. The sand deposits were of considerable economic importance in the past as a source of glass sand, particularly after the development of St Helens as a major glassmaking centre. The sands have been extensively worked in the Ormskirk/Rainford area for the production of coloured container glass and, more importantly, flat glass. Most of the sand particles fall in the range 500 µm to 125 µm, which is ideal for glassmaking but unsuitable for construction use. For flat glass manufacture only the top 0.5 to 1 m of lower iron sand was worked directly beneath topsoil. This sand typically contains 97% SiO_2 and 0.1-0.12% Fe_2O_3, the latter component being the most critical for glassmaking. However, the thinness of the deposits, the large areas required and the consequent high working costs led to their gradual replacement by Chelford Sand from the Cheshire Basin. Extraction for flat glass manufacture ceased in 1977. Because the deposits are so thin and such large areas of land would be required to maintain production, it is unlikely that the Shirdley Hill Sand will be used as a source of glass sand in the future. In addition, current market trends are for lower iron glass, which would be difficult to achieve using the Shirdley Hill Sand. Consequently they are not shown as a resource on the main map. The sands have been worked for horticultural use in the past. The extent of the Shirdley Hill Sand and their historic planning permissions are shown on the inset map.



BRICK CLAY (including FIRECLAY)

'Brick clay' is the term used to describe clay used predominantly in the manufacture of bricks and, to a lesser extent, roof tiles, clay pipes and decorative pottery. These clays may also be used in cement manufacture, as a source of constructional fill and for lining and sealing landfill sites. The suitability of a clay for the manufacture of bricks depends principally on its behaviour during shaping, drying and firing. This will dictate the properties of the fired brick such as strength and frost resistance and, importantly, its architectural appearance, such as colour and texture.

Most facing bricks, engineering bricks and related clay-based building products are manufactured in large automated factories. These represent a high capital investment and are increasingly dependent, therefore, on raw materials with predictable and consistent firing characteristics in order to achieve high yields of saleable products. Blending different clays to achieve improved durability and to provide a range of fired colours and textures is an increasingly common feature of the brick industry. Continuity of supply and consistent raw materials is of paramount importance.

Brick clay has been worked extensively in the past, mostly from Carboniferous mudstones (chiefly from the Pennine Coal Measures but also the Millstone Grit). Today the Pennine Coal Measures remain the principal brick clay resource and are shown as coincident with shallow coal and also unproductive Pennine Coal Measures on the map. Resources of brick clay are extensive in Lancashire and there are several large production units for facing and engineering bricks, extracting mudstones from the Pennine Lower Coal Measures and Millstone Grit. The suitability of Carboniferous mudstones depends, in part, on their carbon and sulphur contents. Both may lead to firing problems and sulphur may also give unacceptable emission levels, although blending of clays may reduce these problems. The Accrington Mudstone (Pennine Lower Coal Measures) of Lancashire is higher in illite and consistently lower in carbon than other Pennine Coal Measure mudstones and is the principal brick clay resource. Similar greenish-grey mudstones occur at the level of the Haslingden Flags (Millstone Grit) and also form a valuable resource. The location of brickpits is principally the result of proximity to the centre of demand and ease of accessibility, rather than on factors simply of resource quality. As both the Pennine Coal Measures and Millstone Grit consist predominantly of interbedded sandstones and mudstones, several sandstone quarries are sources of brick clay and vice versa.

SALT

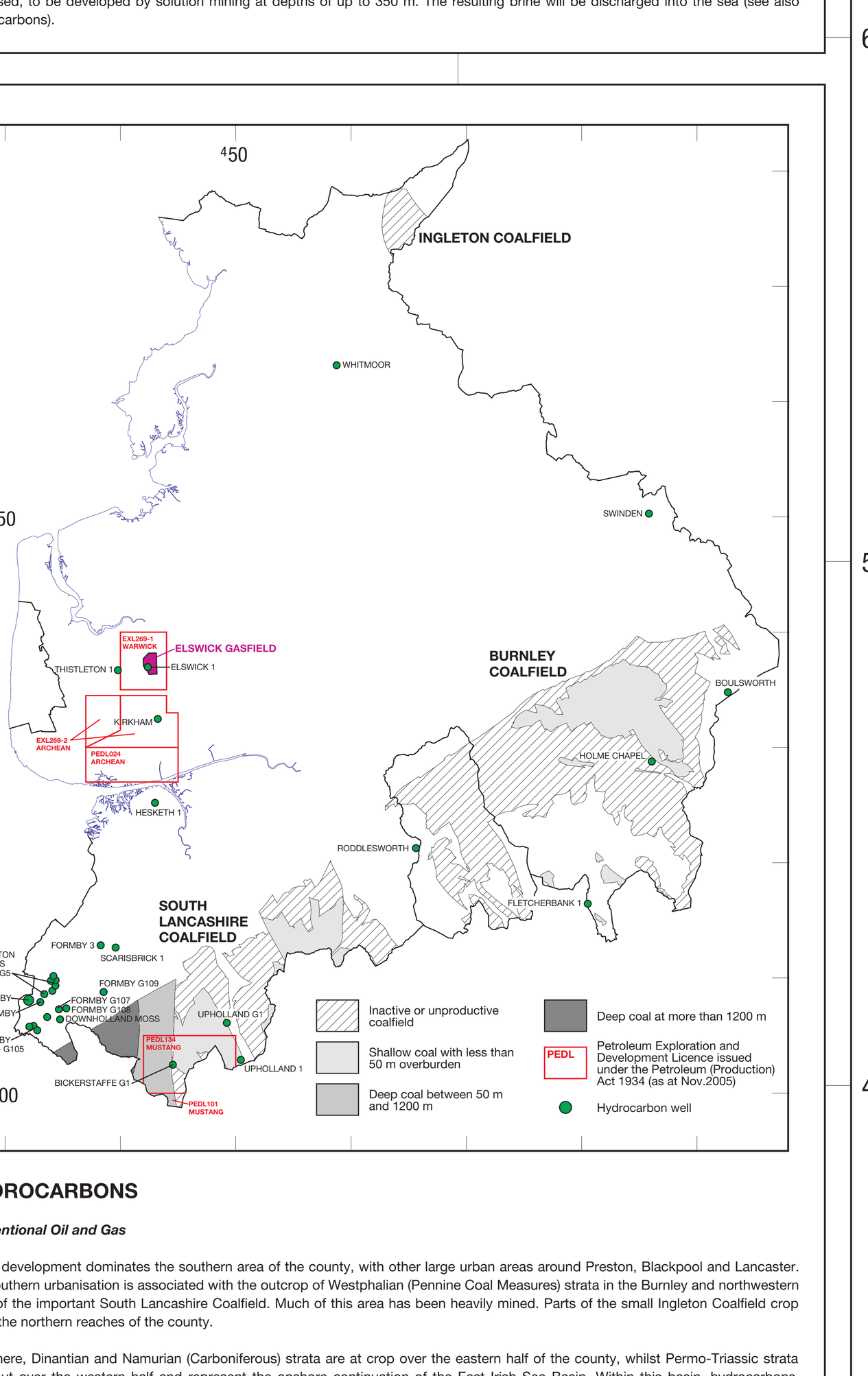
Salt (sodium chloride, NaCl), occurs in nature in the solid form as rock salt (halite) or in solution as brine. Rock salt occurs in beds, commonly associated with mudstone, ranging from a few centimetres up to several hundred metres in thickness. The purity of individual salt beds depends on the extent of mudstone interbedding. Salt-bearing strata do not crop out at the surface in the UK because of dissolution by groundwater. The boundary at which salt dissolution is taking place is called the 'wet-rockhead.' Where salt-bearing strata are too deep to be affected by groundwater, the normal contact between the salt and overlying rock is known a 'dry-rockhead.' Brine occurs naturally at the wet-rockhead but may also be produced artificially by injecting water into the salt bed and pumping out the resultant salt solution. This may contain up to 25 - 26 per cent NaCl when fully saturated.

In the UK rock salt is extracted by underground mining, for use principally in de-icing roads, and by controlled brine pumping for use as a chemical feedstock and in the manufacture of white salt. Natural or 'wild' brine pumping has, in the past, resulted in accelerated subsidence over wide areas. Modern, controlled methods of brine extraction, which were developed at Preesall, do not cause subsidence and almost all brine is now produced by this method. At Preesall, however, subsidence did occur as the method was being developed.

Salt resources in Lancashire occur at Preesall within the Triassic, Mercia Mudstone Group in a small area to the east of Fleetwood. The principal salt-bearing unit is the Preesall Halite, which is preserved in a fault-bounded graben, and is continuous with the salt resources that occur beneath Walney Island in Cumbria. The complete sequence of the Preesall Halite, proved by boreholes to be up to 289 m thick on the western edge of the former brinefield, is only present in the area of the dry-rockhead. The extent of the wet-rockhead and dry-rockhead is shown on the map.

Salt was produced at Preesall between 1889 and 1993. Extraction was initially by brine pumping using an early form of controlled brine pumping in which cavities are created in the salt bed. Soon after rock salt mining was introduced but was abandoned in the early 1930s. The brine was used in salt manufacture and as a chemical feedstock. In later years it was only used in the manufacture of chlorine and caustic soda by the electrochemical process at the Hillhouse works in Fleetwood. However, this plant closed in 1993 removing the need for brine. With a large and well established salt industry in Cheshire, it is highly unlikely that production will resume at Preesall.

Salt-bearing strata are, however, ideally suited for the creation of storage cavities, notably for natural gas but also other materials. Proposals have been made to create an underground natural gas storage facility on to the east of the Wyre Estuary. Twenty cavities are proposed, to be developed by solution mining at depths of up to 350 m. The resulting brine will be discharged into the sea (see also Hydrocarbons).



HYDROCARBONS

Conventional Oil and Gas

Urban development dominates the southern area of the county, with other large urban areas around Preston, Blackpool and Lancaster. The southern urbanisation is associated with the outcrop of Westphalian (Pennine Coal Measures) strata in the Burnley and northwestern parts of the important South Lancashire Coalfield. Much of this area has been heavily mined. Parts of the small Ingleton Coalfield crop out in the northern reaches of the county.

Elsewhere, Dinantian and Namurian (Carboniferous) strata are at crop over the eastern half of the county, whilst Permo-Triassic strata crop out over the western half and represent the onshore continuation of the East Irish Sea Basin. Within this basin, hydrocarbons, mainly gas, have been discovered offshore in the Morecombe, Douglas, Lennox, Millom, Hamilton (including East and North), Bains, Calder, Dalton, Ormond South and Crossans fields. Oil has also been produced from the Douglas and Lennox fields.

Onshore, there are many known occurrences of oil and gas. Gas is encountered in the coalfields, and oil seeps have been recorded in the Formby area since 1637. A tragic example of gas generation is provided by the explosion at the Abbeystead water pumping station in May 1984. A build-up of methane gas that had collected in the tunnels and underground valve house was ignited and the ensuing explosion and fire killed 18 people, and badly injuring many more. The gas is likely to have originated from the Namurian mudstones.

The region has, attracted interest from oil companies. In 1939, D'Arcy Exploration (later to become BP) drilled 45 shallow wells and proved the existence of the small Formby Oilfield, straddling the western county boundary and extending into Merseyside (Table 1). The oilfield proved almost unique, being sealed by glacial boulder clay and produced 71,557 barrels of oil until it was shut down in 1965 (Table 1). Much work has gone into trying to identify the origin of the oil, with most observers believing it represents a deeper and breached Carboniferous trap: hydrocarbons have been generated from the underlying Carboniferous (Silesian) source rocks.

Reflecting the potential of the Namurian mudstones as source rocks, there have been quite intensive periods of oil exploration across much of the county. At one time or another, exploration licences have covered much of the county and there has been extensive acquisition of seismic reflection data and drilling of a number of exploration wells (Table 2). Exploration wells to date, however, show little or no success (Table 2), with the exception of Elswick and Thistleton wells, drilled over the Permo-Triassic crop. British Gas drilled Thistleton 1 in 1988, which encountered gas shows. Elswick 1 was subsequently drilled in 1990 and encountered commercial quantities of gas in Permo-Triassic reservoirs (Table 1). The gasfield was developed in 1996 and to date, has produced 11,722,000 m³ of gas. The produced gas is used for power generation on site and supplied to local industries.

Only four licences were held in late 2005. One was by Warwick (EXL 269-1) who operate the Elswick Gasfield. These licences reflect the fact that the hydrocarbon prospectivity of the county is not presently perceived as great, with perhaps the best prospects appearing to be in the west of the county, adjacent to the producing East Irish Sea Basin. The absence of Mesozoic strata across much of the eastern half of the county means that the potential for oil and gas fields must rely on similar conditions occurring to those in the East Midlands oil province. That is, an intra-Carboniferous play and accumulations that have been little disturbed since their formation and charging.

Noteworthy is the Kirkham well, drilled in 1970 as a test for the underground storage of gas by the NW Gas Board. This is a topic gaining much significance due to the fact that in 2004, and despite our North Sea reserves, the UK became a net importer of natural gas. Further such gas storage projects are now going through planning application and public inquiry stages, including one around the River Wyre (see Salt text box)

Table 1: Oil and gas fields in Lancashire

Name of field	Field type (oil or gas)	Operator at time of discovery	Current operator	Discovery date	Production started	Status at 2005	Total production (tonnes/barrels or Ksm³)
Formby	Oil	D'Arcy Exploration Company Ltd	Currently open acreage	1939	1939	Shut down (1965)	10,195 / 71,557
Elswick	Gas	British Gas	Warwick	1990	1996	Still producing	12,723

Table 2: Hydrocarbon exploration wells in Lancashire

Exploration wells	Drilling date	Original operator	Status
Bickerstaffe 1	1944	D'Arcy Exploration Company Ltd	Plugged & abandoned, dry
Boulsworth 1	1963	Conoco	Plugged & abandoned, dry
Hesketh 1	1990	British Gas	Plugged & abandoned, dry
Holme Chapel 1	1974	Quintana Petroleum Corporation	Plugged & abandoned, dry
Roddlesworth 1	1988	Amoco	Plugged & abandoned, dry
Scarisbrick 1	1939	D'Arcy Exploration Company Ltd	Plugged & abandoned, dry
Swinden	1978	Cluff Oil & Gas	Plugged & abandoned, dry
Thistleton 1	1988	British Gas	Plugged & abandoned, gas shows
Upholland 1	1956	BP Exploration Company Ltd	Plugged & abandoned, dry
Upholland G1	1944	D'Arcy Exploration Company Ltd	Plugged & abandoned, dry
Whitmoor 1	1967	Place Oil & Gas Company Ltd	Plugged & abandoned, dry

Abandoned Mine Gas Drainage (AMM) and Coal Bed Methane (CBM) potential

Three coalfields exist within the county and Pennine Coal Measures crop out over much of the southeastern part of the county. The Burnley coalfield comprises Pennine Lower Coal Measures preserved in an asymmetrical syncline and covering an area of approximately 315 km². Two main coal-bearing intervals exist, containing medium-low volatile coals with most coals being thin and extensively worked. No seam gas data are available for the Burnley coalfield. The last deep mine (Hapton Valley) closed in 1982 and mine workings are thus expected to be flooded.

The northwestern limits of the South Lancashire coalfield crop out in the south of the county in the Chorley to Ormskirk area. Pennine Lower to Middle Coal Measures dip to the south, where they eventually become concealed beneath the Permo-Triassic of the Cheshire Basin. Elsewhere in the coalfield the succession is up to 880 m thick, with 33 named coals present, attaining a maximum seam thickness of >3 m and producing 20-25 m total thickness. Coals are high to medium, volatile bituminous types and yield a seam gas content of up to 9.5 m³, with an average of 8.2 m³ CH_4 per tonne.

Coal Measures of the small Ingleton Coalfield, formed by a partially concealed syncline, are found in the northeast of the county. There is little remaining coal and those seams present are truncated by an intra-Coal Measures unconformity, limiting their extent. Hereabouts, up to 6 seams may have been mined in shallow workings only a few hundred metres deep. No gas or rank data are available and the coal is largely worked out.

In the USA, most coalbed methane production is from coals containing 7 or more m³ CH_4 per tonne. Gas content of the coals in the South Lancashire coalfield is thus above the economic threshold as defined in America, however, the coalfield in the county has been heavily worked. CBM development from virgin coal seams in any of the coalfields is thus probably not a prospect. AMM potential in the county are not perceived as good, given the intense coal mining in the area and now long abandoned and likely flooded mines. These conclusions are supported by the fact that, unlike to the south within the South Lancashire Coalfield, there are presently no hydrocarbon extraction or development licences for CBM or AMM extraction, except in the extreme southwest of the county.

Licensing

The Department of Trade and Industry grants licences for exclusive rights to explore and exploit oil and gas onshore within Great Britain. The rights granted by landward licences do not include any rights of access, and the licensees must also obtain any consent under current legislation, including planning permissions. Licensees wishing to enter or drill through coal seams for coalbed methane and abandoned mine methane must also seek the permission of The Coal Authority.

SAND AND GRAVEL

Sand and gravel are defined on the basis of particle size rather than composition. In current commercial practice, following the introduction of new European standards from 1st January 2004, the term 'gravel' (or more correctly coarse aggregate) is used for general and concrete applications to define particles between 4 and 80 mm, and the term 'sand' for material that is finer than 4 mm, but coarser than 0.063 mm. For use in asphalt 2 mm is now the break point between coarse and fine aggregate. Most sand and gravel is composed of particles that are rich in silica (quartz, quartzite and flint), but other rock types may occur locally.

Between 1998 and 2004 annual sales of sand and gravel in Lancashire (including Blackpool and Blackburn with Darwen) has varied roughly between 350,000 and 1 million tonnes. Recent production is shown on the graph and permitted reserves are estimated at about 3.54 million tonnes.

Sand and gravel resources occur in a variety of geological environments. In Lancashire these resources occur mainly within superficial or 'drift' deposits, subdivided into river sand and gravel, glaciofluvial sand and gravel and blown sand. Sand is also produced from crushing bedrock sandstone deposits (see Sandstone).

Allott and Lomax (1990) gave a broad indication of the resources of sand and gravel in the region. Although the report was prepared before the most recently completed mapping in the region, it identifies several areas, particularly to the north of Lancaster where sand and gravel is likely to be present within the till sheet.

SUPERFICIAL DEPOSITS

River Sand and Gravel (terrace and sub-alluvial deposits)

Resources occur in both raised river terrace sequences flanking the modern floodplains and in floodplain terrace deposits associated with, and underlying, present day alluvium. This sequence of deposits is best developed along the Rivers Ribble, Hodder and Conder with a succession of deposits formed, representing accumulations of sand and gravel in response to falling sea level in Pleistocene times. Less developed terrace deposits occur along the Rivers Darwen, Wyre and Wenning. The deposits typically consist of upwardly-fining and laterally graded spreads of gravel, sand, silt and clay.

In central Lancashire, terrace deposits occur along the River Ribble from south of Preston to Holden, north of Clitheroe. The distribution of terraces in the Ribble Valley relates to the blockage of the river by thick glacial drift in the Clitheroe district. South of Preston there is a wide alluvial flood plain, but upstream the valley is occupied largely by two river terraces, 1 m and 3 m above the flood plain. The terraces comprise mainly of gravel capped by sand and silt. Terrace deposits in the Preston area are predominantly sterilised by urban development. However, to the northeast of Preston, these deposits are worked at Brockholes, Samlesbury for asphalting sand, building sand and concreting aggregate. A similar development of fluviatile alluvium and terraces is found in the valley of the River Darwen, which joins the Ribble above Preston.

Northwest of Clitheroe, fluvial deposits of sand and gravel form localised terrace deposits in the upper reaches of the River Hodder between Whitewell and Slaidburn. At least three terraces have been identified, although only First and Second Terrace deposits have been widely mapped. Second Terrace occurrences are generally thin and patchy. Further more limited deposits occur in the lower Dunsop and Langden valleys.

River terrace deposits occur along the River Conder, in particular around Galgate. Here, three terraces are developed at about 2 m, 4 m and 6 m respectively above the present floodplain, the lowest being the most extensive. The underlying deposits consist mostly of well-sorted sand and gravel up to 5 m thick. River terrace deposits have been worked on a small scale in the Galgate area.

Less developed terrace deposits occur along the River Wyre and River Lune. Along the River Wyre, south of Lancaster, two terraces have been mapped. The deposits beneath the first terrace have been worked to the south of Dolphinholme, where sections in gravel pits showed up to 4 m of gravel overlying 1.5 m of well-laminated sand and silt. Along the River Lune, sand and gravel up to 9.5 m thick has been recorded from boreholes put down on a terrace about 2 m above the present floodplain.

In the northern part of Lancashire, the drainage system is relatively immature with upland rivers and streams still actively downcutting. Terrace formation is extremely irregular in these upland areas, with innumerable, small, undifferentiated terraces occur, underlain by 2 to 4 m of coarse imbricate bouldery gravels. These deposits are typically underlain by glaciofluvial deposits. West of High Bentham, localised terrace deposits occur at the confluence of the River Wenning and Hindburn.

Glaciofluvial Sand and Gravel

These are deposits mapped as the products of deposition by glacial meltwaters and are nowadays commonly labelled on BGS maps as glaciofluvial deposits, a more accurate description of their origin. The sequence of these deposits is complex with mappable units commonly exhibiting intricate relationships. Bodies of sand and gravel may occur as sheet-like layers or ridges on top of the sheet of till (boulder clay) or as elongate, irregular lenses within the till sequence. Areas of wholly concealed, and thus unknown, bodies of sand and gravel may occur under spreads of till and other drift deposits. Only areas of exposed glaciofluvial sand and gravel are shown on the map.

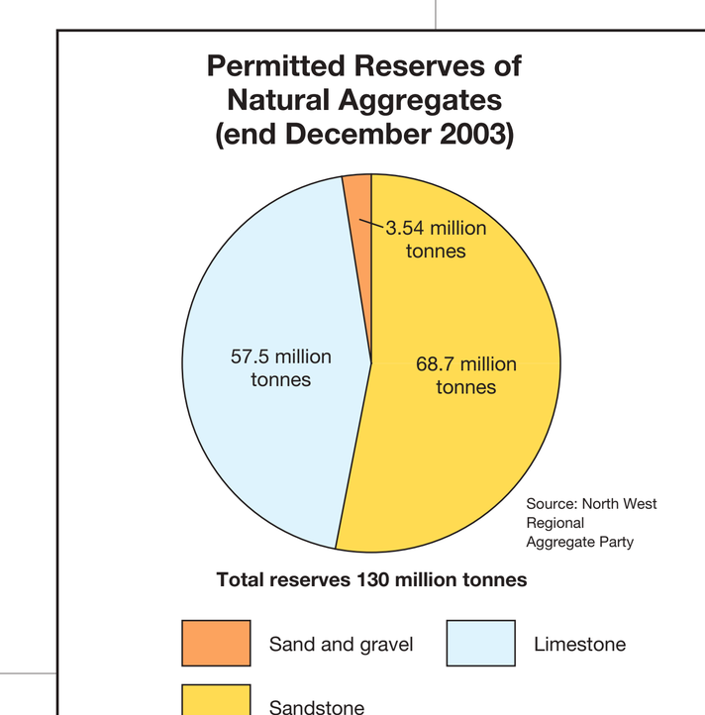
Extensive resources of glaciofluvial sand and gravel have been mapped in the south of the county around Blackburn and Preston, the country east of Blackpool up to the M6 and in the north of the county around Lancaster. However, boreholes reveal that glaciofluvial deposits are more widespread that is suggested by mapping. The thickness of such deposits is variable but may be as high as 20 - 30 m. Large areas of these resources have been, however, sterilised by urban development.

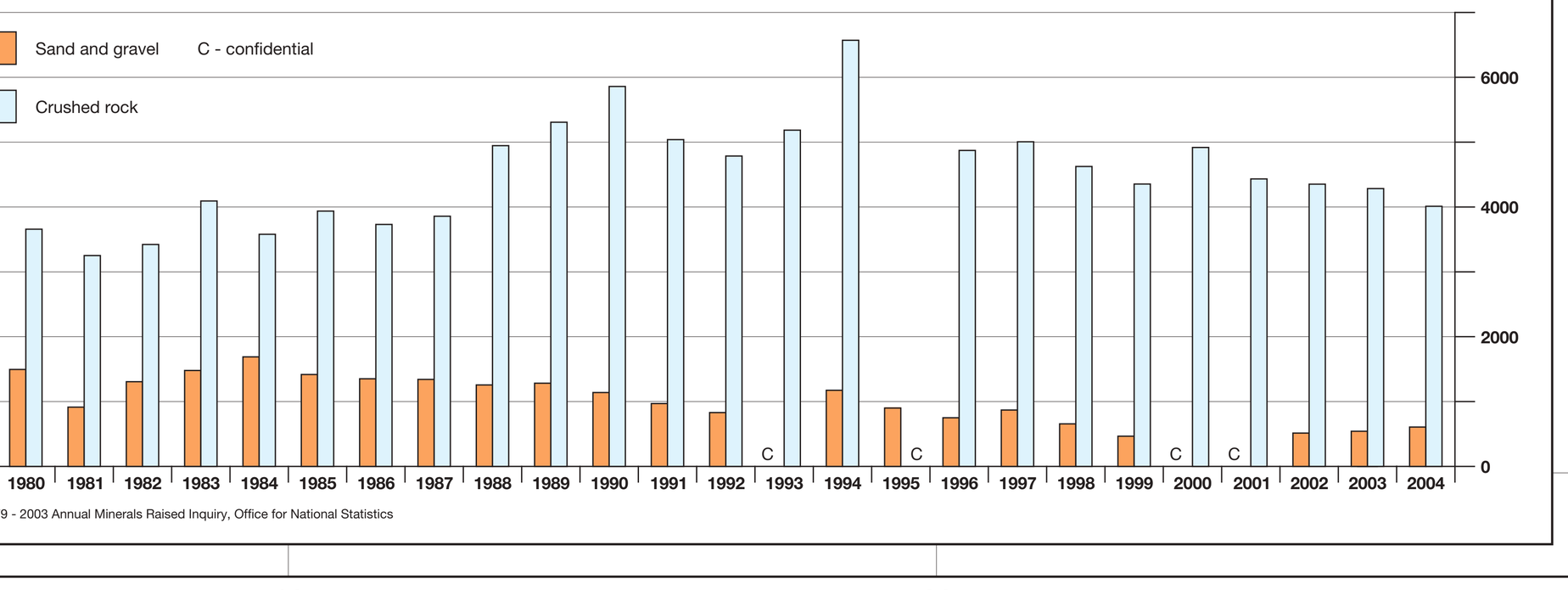
Glaciofluvial sand and gravel is worked in two quarries: at Bradley sandpit near Fulwood and at Lydiate Lane, Leyland. The quarries are extracting general purpose building and concreting, high grade sand from glaciofluvial deposits 4 m to 20 m thick. The deposits are naturally very clean and can be processed by simple dry screening as they do not require washing.

Blown Sand

Wind blown sands are of little importance as a source of aggregate because they are usually too fine-grained and uniform in size for use as concrete aggregate. Their narrow grain size is also an inhibiting factor for use in mortar.

Along the south-west coast of Blackpool and St Annes a large belt of blown sand between 2 and 5 km wide has developed, but the deposits are largely sterilised by urban development. Beach sand and some proto-dune blown sand is currently being won from the foreshore at St Annes.

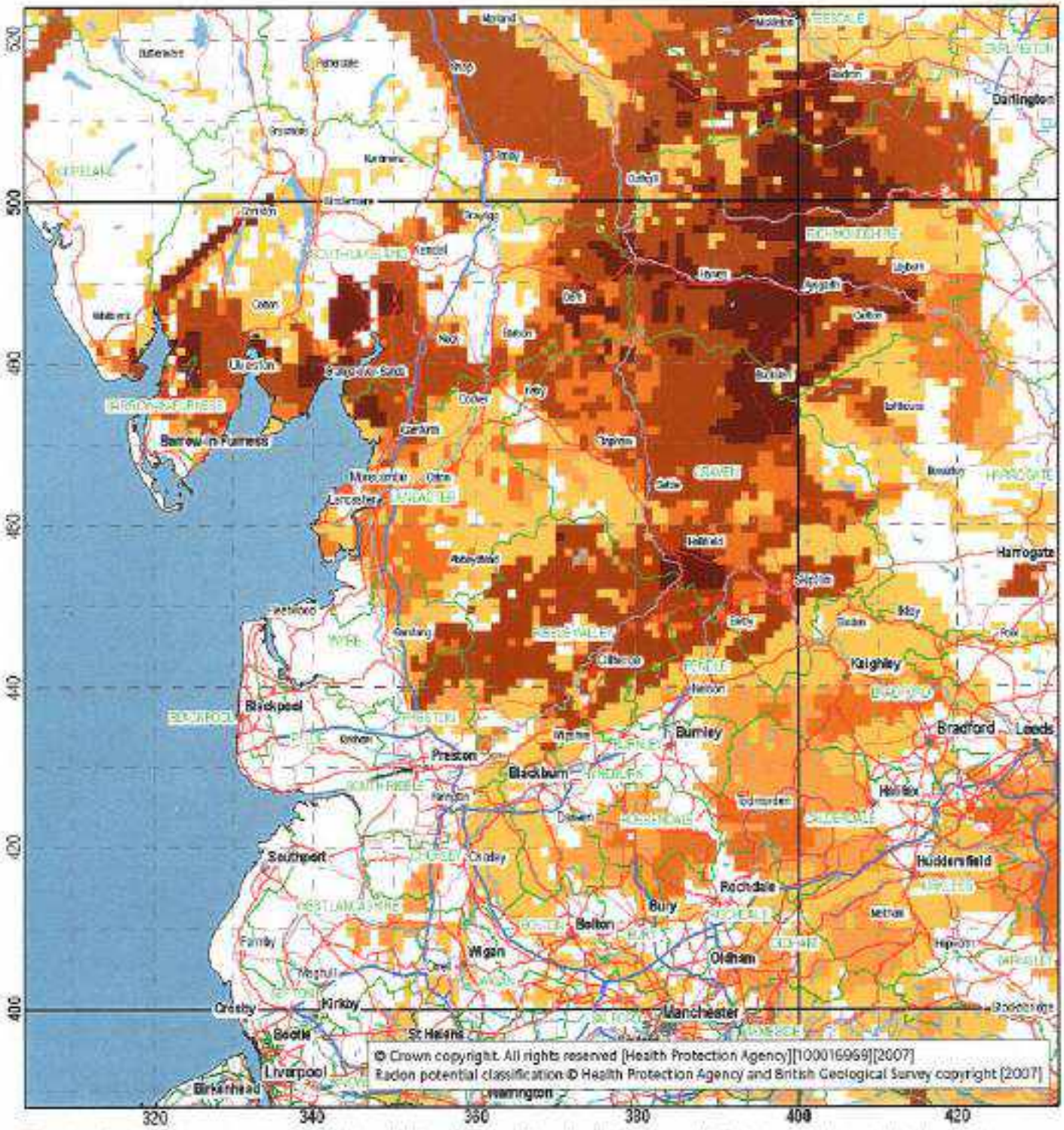




Source: 1979 - 2003 Annual Minerals Raised Inquiry, Office for National Statistics

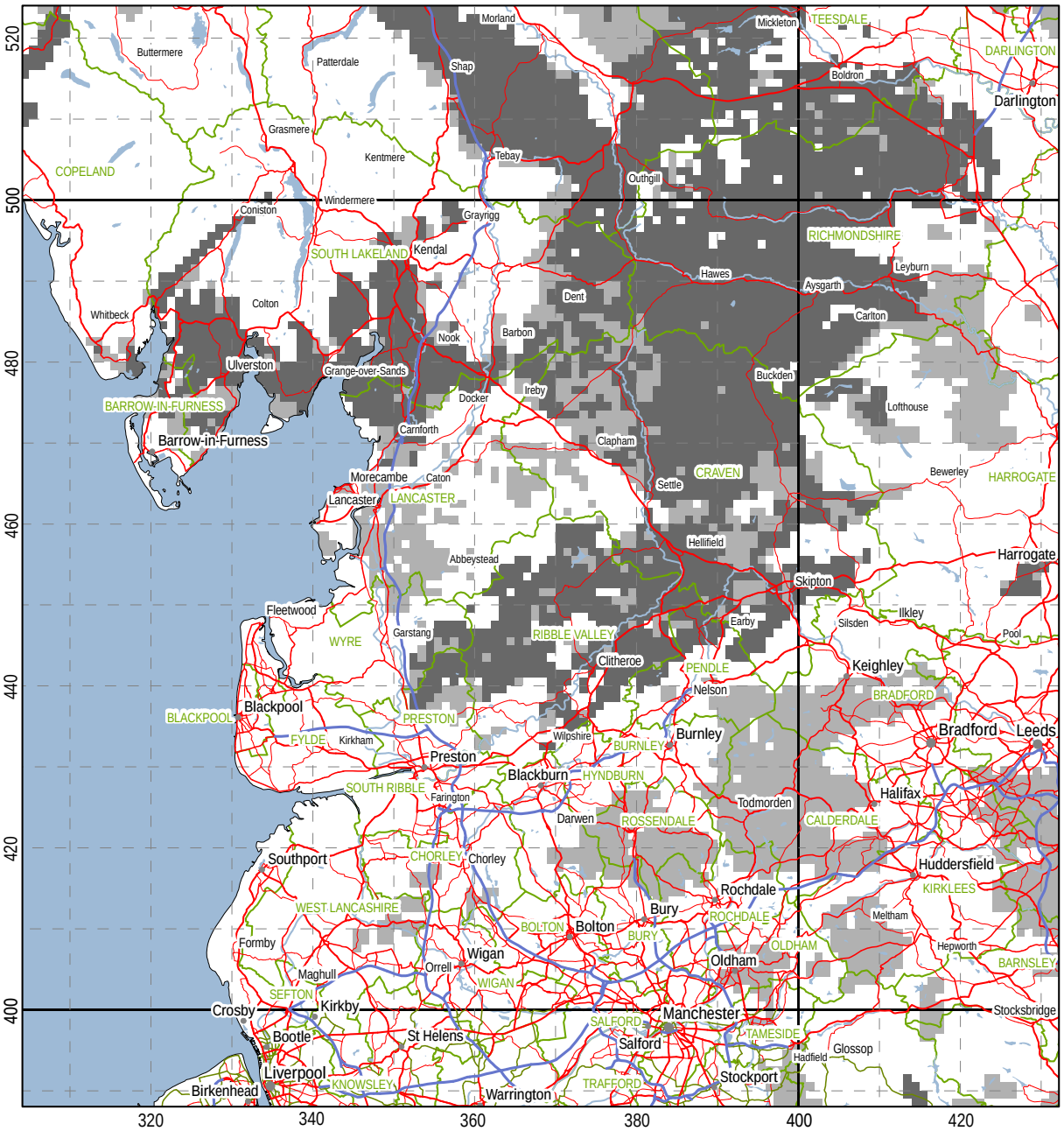
APPENDIX 7

EXTRACTS OF RADON ATLAS FOR ENGLAND AND WALES



The colours show the maximum percentage band within each 1-km grid square of the national grid (see page 4). The best estimate for an individual property in a coloured square can be obtained for a small charge from www.ukradon.org. The white squares, the 0-1% band, contain no Affected Areas as defined by the HPA.

MAP 17 Lancashire, south Cumbria and western North Yorkshire, 100-km grid squares SD and SE (axis numbers are the coordinates of the national grid)



The shading indicates the maximum requirements for radon protective measures in any location within each 1-km grid square to satisfy the guidance in Building Regulations Approved Document C. The requirement for an existing building with a valid postal address can be obtained for a small charge from www.ukradon.org. The requirement for a site without a postal address is available through the British Geological Survey GeoReports service, http://shop.bgs.ac.uk/GeoReports/.

Level of protection required
- None
- Basic
- Full

Settlements
- Blackburn
- Keighley
- Hawes
- Coniston

Roads
- Motorways
- Primary Roads
- A Roads
- B Roads

National Grid
- 100-km
- 10-km

Other Features
- LOCAL ADMINISTRATIVE DISTRICT
- Water features

Map 17 Lancashire, south Cumbria and western North Yorkshire, 100-km grid squares SD and SE (axis numbers are the coordinates of the National Grid)

APPENDIX 8

ZETICA UXO RISK MAP

UNEXPLODED BOMB RISK MAP

zeticauxo

SITE LOCATION

Location: FY4 5LB,
Map Centre: 334469,432760

LEGEND

High: Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.

Moderate: Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.

Low: Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

APPENDIX 9

SITE FEATURES PLAN

FOR GUIDANCE PURPOSES ONLY

N

Stockpile 1

1 - 3
4 - 7
8 - 9
10 - 11
12 - 15
16 - 18
19 - 21
22 - 24
25 - 30
31 - 33
34 - 36
37 - 38
39 - 40
41 - 42
43 - 48
49 - 50
51 - 52
53 - 54
55 - 56
57 - 58
59 - 60
61 - 63
64 - 65
Retail & Store

CROPPER ROAD
FAIRHOLME CLOSE

0 25 50 75 100 125 m

Approximate Site Boundary

Features
- Proposed Plots / Retail Unit
- Peat
- Glacial Till
- Infilled Ponds
- Existing LPG Tank
- Existing Drain
- Car Parking / Vehicle Storage

Land Use
- Garden Centre
- Shops / Cafe
- Stables
- Arcade Games Storage / Restoration
- Fields

Peat / Glacial Till delineation based on BGS Map

Rev		Date	Description

Drawing Status:
Information

Contract:
Land off Cropper Road, Blackpool

For: Breck Homes Ltd and Eden Land and Development Ltd.

Drawing Title:

Site Features Plan

IGE consulting

Office 11, Bartle House, Oxford Court, Manchester M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 9149170

Scale: 1:750 @60	Date: July 2021	
Drawn: AL	Checked: AE	
Contract No. 3591	Drawing No. SI - 03	P1

FOR GUIDANCE PURPOSES ONLY

N

Approximate Site Boundary

Features

- Proposed Plots / Retail Unit
- Peat
- Glacial Till
- Infilled Ponds (c. 2003 - 2005)
- Existing LPG Tank
- Existing Drain

Peat / Glacial Till delineation based on BGS Map

1 - 3
4 - 7
8 - 9
10 - 11
12 - 15
16 - 18
19 - 21
22 - 24
25 - 30
31 - 33
34 - 36
37 - 38
39 - 40
41 - 42
43 - 48
49 - 50
51 - 52
53 - 54
55 - 56
57 - 58
59 - 60
61 - 63
64 - 65
Retail & Store

Dahlias Kitchen
Takeout · Delivery
Choco Chelli
Takeout
The Garden Place
Healthy Option Natural Pet Shop Blackpool
Gifts n Giggles
Delivery
Cropper Rd
Paddock Cl

0 25 50 75 100 125 m

Rev	Drawn	Date	Description

Drawing Status:
Information

Contract:
Land off Cropper Road, Blackpool

For: Breck Homes Ltd and Eden Land and Development Ltd.

Drawing Title:

Site Features Plan

IGE consulting

Office 11, Bartle House, Oxford Court, Manchester M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 9149170

Scale: 1:750 @60	Date: July 2021	
Drawn: AL	Checked: AE	
Contract No. 3591	Drawing No. SI - 03	P2

APPENDIX 10

CONCEPTUAL SITE MODEL DIAGRAM

Notes

1 This drawings is indicative and not to vertical scale.

2 This drawing is to be read in conjunction with all relevant Architects and Service Engineers drawings.

Key

- Made Ground
- Peat
- Glacial Till
- Kirkham Mudstone Member

SOURCES

Sources
1. On-Site Made Ground - Including Infilled Ponds
2. On-Site Current Land Uses

Secondary Sources
3. Pooling Beneath Future Foundations
4. Pooling in Relative Low Points Above Low Permeability Deposits
5. Pooling within Granular Lenses within Low Permeability Deposits

Ground Gas Sources
1. On-Site Made Ground - Including Infilled Ponds
2. On-Site and Off-Site Peat Deposits
3. Off-Site Landfill (106m South, 1970s - 1980s).

PATHWAYS

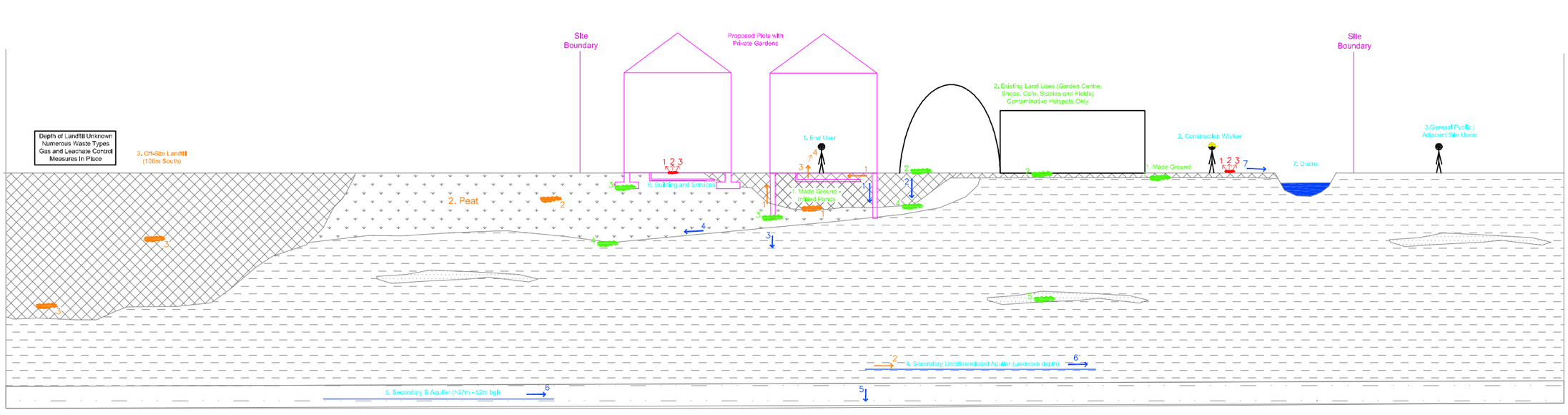
Pathways To Human Health
1. Dermal Contact
2. Inhalation of Soil Dust and Vapours
3. Ingestion of Soil Directly

Pathways To Controlled Waters
1. Vertical Migration Along Current and / or Future Foundations
2. Vertical Migration Through Granular Made Ground, Granular Natural Deposits and Granular Lenses Within Natural Cohesive Deposits
3. Negligible Infiltration Through Low Permeability Natural Deposits
4. Lateral Migration Along Low-Permeability Natural Deposits
5. Migration Through Fractures and Fissures in Bedrock
6. Migration Along Groundwater Flow
7. Overland Flow

Ground Gas Pathways
1. Preferential Migration Beneath Hardstanding, Along Foundations, Service Ducts and Trenches
2. Dissolved Gases Within Groundwater
3. Ingress Through Wall Cavities / Floors and Subsequent Accumulation
4. Inhalation of Ground Gas and Vapours
5. Vertical Migration Through Granular Deposits

RECEPTORS

Receptors
1. End User
2. Construction Workers
3. General Public / Adjacent Site Users
4. Superficial Secondary Undifferentiated Aquifer (unknown depth)
5. Bedrock Secondary B Aqulfer (>37 - 52m bgl)
6. Buildings and Services
7. Surface Water Features - On-Site and Off-Site Drains



Rev	Drawn	Date	Description

Drawing Status
INFORMATION

Contract
LAND OFF CROPPER ROAD, BLACKPOOL

FOR: BRECK HOMES LTD AND EDEN LAND AND DEVELOPMENTS LTD.

Drawing Title
CONCEPTUAL SITE MODEL DIAGRAM

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tel: 0161 9149170

Scale	Date
NTS	JUL 2021
Drawn: AJ	Checked: AE
Contract No.: 3591	Drawing No.: SI–04 P1

APPENDIX 11

PROPOSED DEVELOPMENT PLAN

Housing Accommodation Schedule
06No. 1b2p Apartments (51)
06No. 2b3p Apartments (58)
08No. 3b4p Aspect House Type (80)
17No. 2b4p House Types (68)
28No. 3b5p House Types (82)
Total 65No. Units

Retail Accommodation Schedule
Convenience Store 3000sq.ft
Office / Stores 1200sq.ft
Retail Units x2 1000sq.ft

Site Area = 1.91 Hectares

EDEN Land & Development

REV	DATE	DESCRIPTION
B	MAY.21	UPDATED FOLLOWING CLIENT COMMENT
A	MAY.21	UPDATED FOLLOWING CLIENT COMMENT

TITLE
PROPOSED SITE LAYOUT

PROJECT
CROPPER ROAD, BLACKPOOL

DRAWING NUMBER	DATE	SCALE	REV
CROPPER ROAD - SK02	FEB.21	1:500 @ A1	B