Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Proposed Corbriggs Wood Processing Facility

Silva Recycling Limited

Bespoke Environmental Permit Application

Site Condition Report

Prepared by:

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Site Condition Report

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APPENDICES

1.0 INTRODUCTION

1.1 Overview

1.1.1 Silva Recycling Limited have appointed Caulmert Limited to prepare a Bespoke Environmental Permit application for a new wood processing facility off Mansfield Road, Corbriggs, Chesterfield. As part of this application, a Site Condition Report (SCR) is required.

1.1.2 Silva propose to develop the new wood processing facility at an existing industrial site and the proposed activities will be the shredding and storage of non-hazardous wood wastes prior to removal off-site, primarily for manufacturing into chip-board based products. Some recovered by-products (i.e. shredded MDF and wood fines) will be sent for combustion.

Proposed Development

1.1.3 This permit application is for a new bespoke waste operation for a non-hazardous waste wood processing and transfer facility at a site on Mansfield Road, Corbriggs, Chesterfield. The operator, Silva Recycling Limited, propose to undertake the sorting, shredding, screening and storage of non-hazardous waste wood as a recovery activity. The site will accept and treat up to 75,000 tonnes per year of non-hazardous wood waste as a recovery activity, with the temporary storage of up to 6,000 tonnes of non-hazardous wastes at any one time.

1.1.4 The sorting, shredding, screening and temporary storage of unprocessed and processed waste wood and incidental contamination and production wastes will take place outside within the processing areas and storage bays on site. The site will be operated in a phased approach, with the initial site plan operated as the layout shown in drawing ref. '12800_004 Phase 1'. This will be for the pre-shredding of wood and limited screening and storage of wood wastes prior to transfer off-site for recycling. Once the site is processing at a greater capacity and the temporary storage of larger volumes of wood waste is required, the operator proposes to use the site layout plan as shown in the drawing ref. '12800_004 Phase 2'. Both plans show the proposed locations of the weighbridge, processing area, quarantine area, storage bays, site entrances, parking areas and other site infrastructure at each operational stage.

1.2 Template for Site Condition Reports

1.2.1 The Environment Agency guidance on Site Condition Reports (horizontal guidance note H5) sets out the requirements to prepare and maintain a site condition report for facilities that are regulated under the Environmental Permitting Regulations over the lifetime of the facility.

1.2.2 A Site Condition Report template is provided within the guidance. The template is divided into sections to be completed at different life stages of the regulated facility:

Sections 1-3 to be completed and submitted with applications for new facilities: This should include a description of the condition of the land at permit issue and a description of permitted activities at the site.

Sections 4-7 to be maintained during the life of the site: This should include a description of any changes to the activities and any changes to the use or production of dangerous substances at the facility. It should also include records of inspections for all pollution prevention measures, pollution incidents that may have had an impact on land, and environmental monitoring.

Sections 8-10 to be completed and submitted with surrender applications: This should include a description of site decommissioning and removal of pollution risk and, where relevant, reference data and details of any remediation. Finally, it should include a 'statement of site condition' that is based on the information provided in the previous sections of the report.

1.2.3 To support the permit application for the wood processing facility, Sections 1 to 3 of the Environment Agency's Site Condition Report Template are addressed below. The text in italics is copied from the template as this is the Environment Agency guidance on what should be included.

2.0 SITE DETAILS

2.1 Operator and Site Location

2.1.1 The details of the operator and site address are as follows:

Name of Operator	Silva Recycling Limited
Activity Address	Corbriggs Wood Processing Facility Mansfield Road Corbriggs Chesterfield S41 0JW
National Grid Reference (NGR)	SK 41002 68251
This Document Reference	5448-CAU-XX-XX-RP-V-0301

2.2 Site Plans

2.2.1 In the H5 Site Condition Report guidance, the following is stated about site plans:

*"**Note**: In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:*

- *Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.*
- *Locations of receptors, sources of emissions/releases, and monitoring points.*
- *Site drainage.*
- *Site surfacing.*

If this information is not shown on the site plan required by Part A of the application form, then you should submit the additional plan or plans with this site condition report".

2.2.2 The relevant site plans showing details of the site, and its surroundings are listed below and attached to this report:

Drawing number	Drawing title
12800_004 Phase 1	Site Layout Plan – Phase 1
12800_004 Phase 2	Site Layout Plan – Phase 2
14866	Concept Drainage Plan
5448-CAU-XX-XX-DR-V-1800	Sensitive Receptors Plan
5448-CAU-XX-XX-DR-V-1801	Proposed Site Permit Boundary
Figure 1 of this report (below)	Site Location Plan

2.2.3 The site is located in an industrial estate on the eastern side of the B6039 Mansfield Road, at Corbriggs, southeast Chesterfield. The nearest postcode for the site is S41 0JW and the site is located at National Grid Reference SK 41002 68251.

2.2.4 The closest human receptors to the site boundary are the workers at the adjacent industrial sites 30m east and 60m to the southeast of the site. The site is surrounded by agricultural land, with the closest residential receptors, a travellers site, located 30m west of the site on Mansfield Road. A residential property is located approximately 45m to the southwest of the site and another row of houses is located 75m to the south. There are no schools or hospitals within 1km of the site.

2.2.5 The nearest watercourse is Calow Brook, located 110m to the southeast of the site. The surrounding area is predominantly agricultural land to the north and east, with South Chesterfield Golf Club located 30m to the southwest and Grassmoor Country Park 130m to the south. In between the site and the fields to the north is the A617 dual carriageway. The settlement of Temple Normanton is located approximately 940m to the southeast and Grassmoor is located 910m to the southwest of the site.

2.2.6 The site location is shown below in Figure 1:

Figure 1 – Site Location Plan (source: OS maps, 2022)

3.0 CONDITION OF THE LAND AT PERMIT ISSUE

3.1 Environmental Setting

3.1.1 The site is located in an industrial estate off Mansfield Road, in Corbriggs, southeast Chesterfield, at postcode S41 0JW and National Grid Reference SK 41002 68251. The operator, Silva Recycling Limited, are proposing to operate a wood processing facility at an existing industrial site, with the shredding of waste wood to be undertaken in the yard, and the temporary storage of unprocessed waste wood and shredded wood, incidental contamination and production wastes (i.e. metals, wood fines). The site will treat up to 75,000 tonnes per year of wood waste, with temporary storage of stockpiled wood.

3.1.2 As per the guidance, the Environmental Setting should include information on:

- Geology
- Hydrogeology
- Surface Water

Geology

3.1.3 The geological setting of the site has been made against a review of the British Geological Survey (BGS) online data and mapping[1]. In addition, geological data have been summarised from geological records, previous site investigations at the site and local borehole records.

Formation	Description
Made Ground	Present across the entire site. Tarmac or topsoil at the surface (depending on location) overlying 'reworked natural strata', comprising sandy gravels, clayey gravelly sands and sandy gravelly clays, containing fragments of brick, concrete, mudstone, limestone, sandstone, fabric, ash and in one location some metal pipe.
Superficial Deposits	None recorded on site.
Pennine Middle Coal Measures	Mudstone, siltstone, sandstone interbedded with coal seams – interbedded sedimentary bedrock, formed in the Carboniferous Period. Recent site investigations describe the coal measures encountered as a weathered gravelly mudstone recovered as 'firm greyish brown or bluish grey slightly sandy slightly gravelly clay' (2022 investigation).

Hydrogeology

3.1.4 The site is located on a Secondary A Aquifer within the bedrock which is classified as 'permeable layers capable of supporting water supplies at a local rather than strategic scale'.

[1] British Geological Survey (BGS) online geological maps, 2022. Accessed at: https://mapapps.bgs.ac.uk/geologyofbritain/home.html

3.1.5 The site is not within a groundwater Source Protection Zone (SPZ), with the nearest SPZ, a Zone III, located over 11km to the southwest of the site.

Surface Water

3.1.6 The closest surface water feature to the site is the Calow Brook located 110m to the southeast of the site boundary, which is an inland river not affected by tidal action and in normal circumstances contains water all year round. The Calow Brook flows to the northeast.

3.1.7 Surface water from the site currently discharges to the Calow Brook via a 300mm pipe.

3.1.8 According to the GOV.UK's long term flood risk maps, the majority of the site is at very low risk of Surface Water Flooding (chance of flooding of less than 0.1% each year), and very low risk of Flooding from Rivers or the Sea. It is noted the area of land immediately to the southeast of the proposed site permit boundary is shown as at low to medium risk of surface water flooding (i.e. flash flooding). Low risk is defined as having between a 0.1% and 1 % chance of flooding each year. Medium risk is between 1% and 3.3% chance of flooding each year.

3.1.9 There are no records of surface water flooding at or near to the site. Any potential surface water flooding arising at or near to the site would be directed east, away from the site, following the local topography. It is therefore considered the site is at low risk of surface water flooding.

Topography

3.1.10 A recent topographical survey undertaken in May 2022 for the site shows that the developable area of the site slopes from approximately 98.21 metres Above Ordnance Datum (m AOD) in the north-west to approximately 93.64m AOD in the east.

Sensitive Receptors

3.1.11 A search of the area has identified that the site is set within an industrial estate bounded by two roads (Mansfield Road and the A617) and surrounded by predominantly agricultural fields, a few local residential properties and a golf course and country park.

3.1.12 The Environment Agency Nature and Heritage Conservation Screen provided as part of the Basic Pre-Application Advice has identified two Local Wildlife Sites (LWSs) within 200m of the site. The closest is Corbriggs Marsh, located approximately 100m southeast of the site. And the second is Grassmoor Country Park located 130m to the south of the site.

3.1.13 A search of the surrounding area using the DEFRA Magic Maps and Wildlife Trusts[2] websites has also identified that within 2km of the site is The Avenue Washlands LWS approximately

[2] The Wildlife Trusts website, 2022: https://www.wildlifetrusts.org/

1.6km to the southwest of the site, and Williamthorpe Local Nature Reserve (LNR) approximately 1.8km to the southeast of the site. There are no LNRs within 1km of the site.

3.1.14 There are no Sites of Scientific Interest (SSSI), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Nature Reserves (NNRs), Ramsar sites or Areas of Outstanding Natural Beauty (AONBs) within 2km of the site boundary. There are no Ancient Woodlands within 1km of the site boundary.

3.1.15 A review of local sensitive receptors and an assessment of the risks from the proposed operations at the site is considered further in the Amenity and Accidents Risk Assessment report ref. 5448-CAU-XX-XX-RP-V-0302, included within this permit application.

3.2 Pollution History

3.2.1 (Pollution history including:

- *pollution incidents that may have affected land;*
- *historical land-uses and associated contaminants;*
- *any visual/olfactory evidence of existing contamination;*
- *evidence of damage to pollution prevention measures.)*

Pollution Incidents

3.2.2 There are no recorded pollution incidents recorded for the site.

3.2.3 The Environment Agency (EA) publishes data on reported Environmental Pollution Incidents (Category 1 and 2)[3] which were categorised as either 'significant' or 'major', dated from March 2001 to September 2022 (updated 14th October 2022). The EA data indicates there were no incidents reported within the proposed site area.

Evidence of Historic Contamination and Land-Uses

3.2.4 The guidance states evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available) should be provided.

3.2.5 The following reports have been referred to for historic land-use:

- 'Phase II Environmental Assessment – Land at Mansfield Road, Corbriggs, Chesterfield' by Ivy House Environmental, dated February 2020; and,
- 'Geo-Environmental Assessment (Phase I & II) – Land at Mansfield Road, Corbriggs, Chesterfield' by Ivy House Environmental, dated August 2022 (2022 site works).

[3] Environment Agency, 14 Oct 2022: https://www.data.gov.uk/dataset/c8625e18-c329-4032-b4c7-444b33af6780/environmental-pollution-incidents-category-1-and-2

3.2.6 Ordnance Survey maps were reviewed by Ivy House Environmental between the years 1877 – 2022, which are included within Appendix C of the August 2022 site investigation report. The following observations were made:

- *"1877 – The site is illustrated as agricultural land. A railway line is present 200 m south-west of the site. A quarry and gasometer are present 300 m south of the site. Grassmoor Colliery is located 500 m to the south. The centre of 'Corbridge' village is located approximately 200 m south.*
- *1898 – The south of the site is occupied by a colliery, including two shafts and a railway line which connects to Grassmoor Station 100 m to the north-west. The gasometer to the south is no longer present, and the adjacent quarry is identified as a clay pit accompanied by a brick kiln. A sewage tank is present 500 m to the north-west.*
- *1918 – A railway line and sidings occupy the northern region of the site, running east to west. The former colliery and shafts in the south are marked as 'old' and are presumably disused. The village name has changed to Corbriggs.*
- *1921 – A sewage works is present 500 m to the north-west.*
- *1962 – A garage is present immediately south of the site. The railway in the north of the site appears to be dismantled, however the sidings remain. Opencast workings are located 250 m north of the site.*
- *1967 – Grassmoor Colliery to the south is no longer present, replaced by a sports ground and a mine.*
- *1976 – Much of the nearby railway, including Grassmoor Station, have been dismantled or are no longer present. A large area of disused tips is marked 500 m to the south-west.*
- *1980 – The sewage works in the north-west are no longer present.*
- *1981 – A scrap yard is present 50 m to the west.*
- *1992 – The site appears to reflect the present-day layout, comprising an L-shaped office building. Opencast workings are located 250 m west. The garage to the immediate south is now labelled as a depot".*

3.2.7 More recently, a waste transfer station was located in the southern portion of the site, operated by Ward Recycling Limited, for which there is extant planning permission.

3.2.8 Existing infrastructure at the site as a whole includes a gravelled carpark area and derelict office block/workshop in the south. There is also an L-shaped derelict office building in the centre and a grassy 'paddock' to the north, classified as unmanaged semi-improved neutral grassland. The site entrance is currently shared with other businesses on the industrial estate,

to the southeast of the site. The new wood processing facility will replace the existing infrastructure, by demolishing existing buildings and installing a new impermeable site surface, weighbridge, movable concrete storage bays, and other infrastructure within the same site boundary.

3.2.9 From the known history of the site, and subsequent site investigations undertaken in recent years (2019), the contaminants of concern present in the ground at the site include Polyaromatic Hydrocarbons (PAHs) and asbestos fibres within the Made Ground. However, the 2022 site investigation did not find any contaminants of concern within the soil samples taken.

Visual/Olfactory Evidence of Existing Contamination

3.2.10 Evidence of visual and olfactory contamination of the site are presented in the following site investigation reports:

- 'Phase II Environmental Assessment – Land at Mansfield Road, Corbriggs, Chesterfield' by Ivy House Environmental, dated February 2020 (2019 site works); and,
- 'Geo-Environmental Assessment (Phase I & II) – Land at Mansfield Road, Corbriggs, Chesterfield' by Ivy House Environmental, dated August 2022 (2022 site works).

3.2.11 During the 2019 site investigation visual evidence of contamination was found within the Made Ground at the site, of sandy gravels containing brick, ash, clinker and mixed lithologies of natural gravels. The Made Ground was recorded as between 0.6 to 1.0 m below ground level (bgl). However only one Made Ground sample taken during the investigation was found to contain Benzo(a)pyrene at a concentration in excess of a safe threshold for human health. Asbestos fibres above safe levels for human health were also detected during laboratory testing in 3 samples from 3 locations, and it was concluded asbestos fibres are likely to be present across much of the site where Made Ground is present.

3.2.12 From the 2022 site investigation it was concluded there were no contaminants of concern identified during the site investigation and the risk posed to controlled waters (surface water, groundwater) and other receptors is negligible. No asbestos was detected in any of the soil samples taken. Made ground was found at all locations excavated, comprising of reworked natural strata, with typical depths in the paddock area and northern car park area between 0.5m and 0.8m thick, and in the carpark area to the south extended down to 2.3m below ground level. Made ground consisted of topsoil or tarmac (depending on location on site) overlying disturbed sands, gravels and clays containing fragments of brick, ash, concrete, fabric, mudstone, limestone, sandstone, and in one location, some metal pipe. The Pennine Lower Coal Measures were understood to have been found across the site underlying the Made Ground, observed as a slightly gravelly clay interpreted to be weathered gravelly mudstone. No remediation of the ground is required for the proposed site, however any temporary structures are required to be raised to allow sufficient ventilation. Should permanent buildings be constructed in the future, Characteristic Gas Situation 2 (CS2) ground gas protection measures will be required due to elevated carbon dioxide concentrations

detected during ground gas monitoring of borehole WSD between 15th July and 15th Aug 2022. No mine entries were identified, however recommendations for further exploratory works are advised below the existing building prior to construction works.

Evidence of Damage to Pollution Prevention Measures

3.2.13 The current site surface comprises a large, gravelled area in the south for carparking and vehicle turning, a building with a concrete floor and a field to the north. The building and external concrete yard was where most of the waste operations were undertaken by the previous operator and from photographs provided in the '2020 Phase II Environmental Assessment' report of the site by Ivy House Environmental show the surfacing of the building floor and general external site surfacing was in good condition.

3.2.14 The proposed development will include 13,970m² of hardstanding in the form of yards, storage areas, vehicle turning, parking and container offices. The site surfacing will be installed with kerbing and a drainage system which will discharge to surface water (the Calow Brook) via an interceptor. The site surface will be maintained in accordance with procedures that will form part of the Management System for the site and will be kept in good condition, free of cracks or damage.

3.3 Baseline Soil Gas and Groundwater Reference Data

3.3.1 The following report gives detail on baseline soil gas and groundwater reference information for the area:

- 'Geo-Environmental Assessment (Phase I & II) – Land at Mansfield Road, Corbriggs, Chesterfield' by Ivy House Environmental, dated August 2022 (site works 2022).

3.3.2 As part of the Phase II Site Investigation conducted by Ivy House Environmental between 6th and 29th July 2022, one window sample borehole, WSD, was installed to 2 m below ground level (bgl) for the purpose of environmental monitoring, specifically ground gas monitoring. The locations of the exploratory hole locations, including WSD, is shown within the attached 2022 Phase II report in Appendix 2. Environmental monitoring of ground gas concentrations and water levels were undertaken on 3 separate visits between 15th July and 15th August 2022, and the results are attached within Appendix G of the 2022 site investigation report.

3.3.3 The monitoring results showed elevated carbon dioxide concentrations of between 13.4 %vol and 15.1 %vol during the monitoring visits, and methane concentrations of between 1.2 %vol and 1.5 %vol. These results suggested the ground gas conditions are a Characteristic Gas Situation 2 (CS2) ground gas protection measures will be required due to elevated carbon dioxide concentrations. The presence of very low concentrations of methane and variable carbon dioxide concentrations in the sub-surface environment is not considered to present any adverse or unacceptable risk to the wider environment.

3.3.4 The borehole WSD was dry on all monitoring visits during July and August 2022. Groundwater was not encountered in any borehole or trial pit during the site investigation, except in trial

pit number TTA at 2 mbgl, during excavations searching for mine entry (none found). However, no water samples were taken.

3.3.5 It is considered that this recent environmental monitoring data for the site is suitable to characterise baseline soil gas conditions at the proposed wood processing facility location. No groundwater monitoring data was obtained during the 2020 or 2022 site investigations.

4.0 PERMITTED ACTIVITIES

4.1 Proposed Permitted Activities

4.1.1 The operator proposes to develop a new wood processing facility at an existing industrial site and the proposed activities will include the reception, screening, separating, shredding, and storage of non-hazardous wood wastes prior to removal off-site for manufacturing into chip-board based products.

4.1.2 The site will accept and treat up to 75,000 tonnes per year of non-hazardous wood waste as a recovery activity, with the temporary storage of up to 6,000 tonnes of non-hazardous waste at any one time.

4.1.3 The sorting, shredding, screening and temporary storage of unprocessed and processed waste wood and incidental contamination and production wastes will take place outside within the processing areas and storage bays on site. The site will be operated in a phased approach, with the initial site plan operated as the layout shown in drawing ref. '12800_004 Phase 1'. This will be for the pre-shredding of wood and limited storage of wood wastes prior to transfer off-site for recycling. Once the site is processing at a greater capacity and the temporary storage of larger volumes of wood waste is required, the operator proposes to use the site layout plan as shown in the drawing ref. '12800_004 Phase 2'. Both plans show the proposed locations of the weighbridge, processing area, quarantine area, storage bays, site entrances, parking areas and other site infrastructure at each operational stage.

4.1.4 In the beginning stages of operations commencing at the site, the processing of wood waste will comprise a shredder plant that shreds the wood to a 300mm size woodchip (called a 'pre-shred') before being stored temporarily in the 'pre-shred' bays. This is then removed from this site to the Kronospan site in Chirk for further processing and refining (removing metals, fines etc. and shredding down a smaller woodchip). The site layout for this phase of operations at Corbriggs is shown in drawing ref. 12800_004 'Phase 1'. A smaller area of the site will be used in this phase due to the smaller volumes of wood waste to be stored at this time.

4.1.5 The requirement for the Corbriggs site to move into the second phase of operations will be determined by either an increase in throughput of wood wastes at the site and/or the need for greater storage capacity at the site due to seasonal demands. When volumes of waste wood coming to site increase and the need for further processing and storage occurs, the shredded wood will be fed through a screener to remove wood fines and an Eddy Current Separator may be used to remove non-ferrous metals. This is shown in Site Layout Plan drawing ref. 12800_004 'Phase 2'. The processing and storage activities will all be undertaken outside in the yard, with no permanent buildings and the site will be installed with impermeable surfacing, drainage system and interceptor. The temporary storage of unprocessed and processed wood and the resulting recovered by-products such as ferrous and non-ferrous metals from the processing will also be outside in designated bays or skips. Incidental contamination and production wastes such as plastics and litter will be stored in skips awaiting removal from site.

4.1.6 The proposed activities to be carried out at the site include the following:

- Delivery and reception of wood wastes with strict Waste Acceptance Procedures.
- Temporary storage outside of unprocessed wood wastes within designated storage bays constructed with modular, movable concrete walls, with 1m freeboard above stockpile.
- Initial sorting of unprocessed wastes to remove MDF chipboard into separate bay.
- Shredding of waste wood, and removal of ferrous metals.
- Screening of shredded wood to remove fines/smaller wood grades.
- Removal of non-ferrous metals using an Eddy Current Separator may be undertaken.
- Storage of good quality woodchip in bays before transfer off-site for recycling.
- Storage of incidental contamination and production wastes (i.e. plastics, litter etc.) will be in skips awaiting removal from site.
- Run-off surface water from the site surface will be collected by the site drainage system with interceptor and stop valves on-site before discharging to surface water. Any potential firewater generated in the event of a fire on site will be collected by the site drainage system with sump, bunding and penstock valve. This will then be tested and either discharged to foul sewer (in agreement with the sewer provider) or pumped by tanker and remove from site for disposal.
- Welfare facilities will be connected to foul sewer.

4.1.7 Stockpiles of unprocessed and processed wood will be up to 4 metres high, with movable modular concrete storage bay walls up to 5 metres high. By-product waste streams from the processing of the waste wood will be small amounts of ferrous and non-ferrous metals, wood fines and incidental contamination and production wastes (i.e. litter, plastics etc.).

4.1.8 The impermeable site surface will be installed with drainage and interceptor. The site will be inspected daily and subject to regular cleaning and maintenance, with remedial actions required to be fully documented in the site diary, which is to be kept at all times in the Site offices.

Potentially Polluting Substances

4.1.9 There are no potentially polluting substances proposed to be used as part of the processing activities at the proposed wood processing facility, other than those substances used for the maintenance and fuelling of mobile plant, including oils, lubricants and fuels. Any leaks or spillages from oils, lubricants or fuels could result in potentially polluting substances entering the environment unless controlled. To reduce the potential for leaks of polluting substances from leaving site the following control measures will be in place:

- All delivery and collection vehicles and mobile plant moving around site will do so on the impermeable surfacing which has installed drainage with interceptor. Overnight

parking of HGVs and mobile plant will be in a dedicated area (shown on the site layout plan ref. 12800_004 as the area in cross-hatch) on the yard surface. The impermeable surfacing will prevent any migration of potentially polluting substances, included potentially contaminated surface water run-off, from entering the ground and groundwater below, or from entering water courses. The drainage system will be installed with oil/water interceptor and is constructed with a sump and stop valve should run-off need to be contained on the site in a bunded area until further notice.

- Emergency spill procedures will be adhered to by site staff should a spill occur and adequate training of dealing with spills and leaks and first aid will be provided to site staff as per the training programmes in the site's management system. Spill kits will be provided around site and replenished when used, along with first aid kits and eyewash. Spillages and leaks will be reported to site management immediately, cleared up or contained as quickly as possible and records made of the incident, including recommendations for improvements on dealing with spills.

- All plant and equipment used on site or visiting site will be maintained in accordance with manufacturer's instructions and will be serviced regularly and inspected as part of daily site inspections, and before an operator begins using the plant. This will minimise the potential for a spillage or leak to occur from worn or corroded parts. Any defects found which could present a risk of leaking or spilling potentially polluting substances will be reported and fixed prior to use.

- Any potentially polluting substances in liquid form delivered to and stored on site will be stored in appropriate sealed containers and provided with secondary containment or bunding with 110% the capacity of the volume of the substance. Oils and greases stored on site will be within a lockable shipping container. Staff will be trained in appropriate handling procedures when dealing with potentially polluting substances, including liquids. All documentation with deliveries will be checked, approved and any discrepancies resolved.

- Refuelling of mobile plant will be undertaken by a mobile fuel bowser in a designated area with the appropriate impermeable surfacing, bunding and absorbent spill pads available for accidental spills. The mobile fuel bowser will be parked at night within the HGV parking area, with CCTV surveillance to monitor for vandalism or trespassing.

4.1.10 The risk of leaks and spillages and potentially polluting substances are detailed further within the Amenity and Accidents Risk Assessment report ref. 5448-CAU-XX-XX-RP-V-0302.

4.1.11 A review of Best Available Techniques (BAT) for operations at the site is covered in the Operating Techniques & BAT Review report ref. 5448-CAU-XX-XX-RP-V-0303.

4.2 Non-Permitted Activities Undertaken

4.2.1 There are no non-permitted activities undertaken on the area of land subject to this application.

4.3 Plan Showing Activity Layout

4.3.1 Plans showing the proposed site layout are detailed below:

- 12800_004 Phase 1
- 12800_004 Phase 2

4.4 Environmental Risk Assessment

4.4.1 The following environmental risk assessments have been completed and are presented separately within this application:

- Amenity & Accidents Risk Assessment report ref. 5448-CAU-XX-XX-RP-V-0302 (produced in accordance with the Environment Agency's 'Risk assessments for your environmental permit' guidance, last updated 31st August 2022).
- Dust & Emissions Management Plan ref. 5448-CAU-XX-XX-RP-V-0305.
- Noise Impact Assessment (undertaken as part of the planning application) report ref. UK.15174559/02.
- Air Quality Assessment (undertaken as part of the planning application) report ref. AIR15169915.

DRAWINGS

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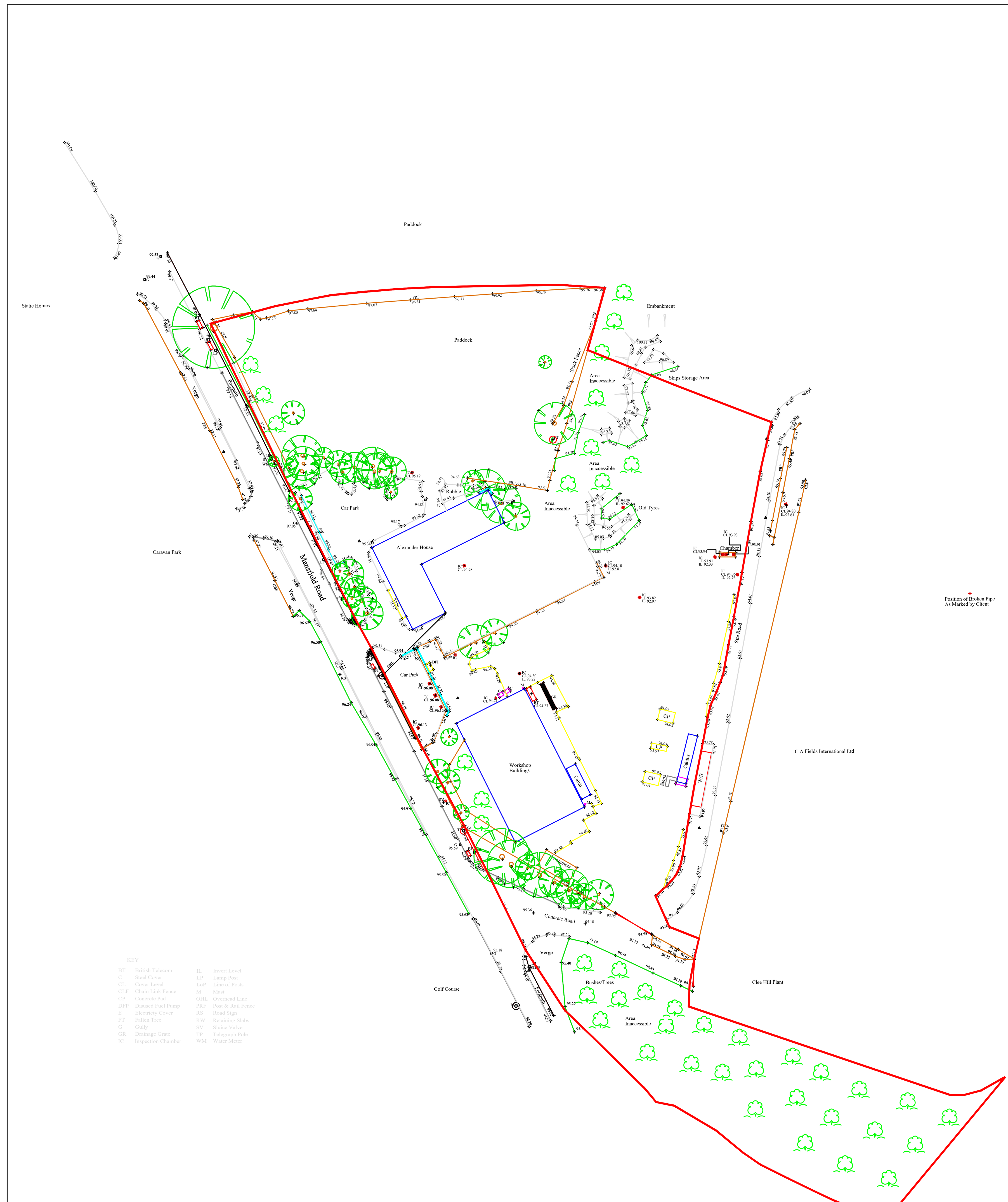
14866	Concept Drainage Plan
5448-CAU-XX-XX-DR-V-1800	Sensitive Receptor Plan
5448-CAU-XX-XX-DR-V-1801	Proposed Permit Boundary Plan

Proposed site layout



JF Brown Topographical survey
Drawing CB23X9D

Legend

- Perimeter fence - Linear: 557m; Area : 16,450m²
- Purchased land boundary
- Quarantine area & overnight parking for HGV & mobile plant
- Processing plant
- Overnight parking for HGV & mobile plant

PHASE 1

KRONOSPAN STATUS
Date 13.10.2022

STATUS		WAITED COMMENTS	
By	KRONOSPAN	Deadline	YYYY-MM-DD
Date	YYYY-MM-DD	By	.....
By		By	.....
		By	.....

DISTRIBUTION		WAITED APPROVAL	
Date	YYYY-MM-DD	Deadline	YYYY-MM-DD
Attn	#####	By	
Cc1		By	
Cc2		By	....
Cc3		WARNING	
Cc4		Not receving comments and / or approval within above deadlines, the drawing is intended as "APPROVED" under full resposibility of the listed commenters and / or approvers.	
Cc5			
Cc6	....		

CERTIFIED Date YYYY-MM-DD

Index	Modification	Date	Name
D	Stock pile layout	17.10.2022	A. Hilditch
C	Boundary update	10.10.2022	A. Hilditch
B	Boundary update	06.10.2022	A. Hilditch
A	Electrical box	03.10.2022	A. Hilditch

Status

Xylo Technologies AG
Rütihofstrasse 1
CH-9052 Niederteufen
Schweiz

Technology
Kronospan Ltd
Maesgwyn Farm
LL14 5NT Chirk, Wrexham
United Kingdom

	Date	Name
Project leader	31.05.2022	J. Arkley
Drawn	31.05.2022	A. Hilditch
Checked	30.09.2022	C. Emery

Size: A1
origin
Scale: 1:200 1:100
Norm: ISO

Project number
Project name

Description
G.A. Stock piles
Recycling Centre, Corbriggs

Drawing number: 12800_004
Index: D
Sheet/Number: 1/2

Sub Category .
Division .
Process .
Subprocess .

Proposed site layout

JF Brown Topographical survey
Drawing CB23X9D

Legend

- Perimeter fence - Linear: 557m, Area : 16,450m²
- Purchased land boundary
- Quarantine area & overnight parking for HGV & mobile plant
- Processing plant
- Overnight parking for HGV & mobile plant

PHASE 2

KRONOSPAN STATUS
Date 17.10.2022

STATUS		WAITED COMMENTS	
By	KRONOSPAN	Deadline	YYYY-MM-DD
Date	YYYY-MM-DD	By	.....
By		By	.....
		By	.....

DISTRIBUTION		WAITED APPROVAL	
Date	YYYY-MM-DD	Deadline	YYYY-MM-DD
Attn	#####	By	
Cc1		By	
Cc2		By	....
Cc3		WARNING	
Cc4		Not receving comments and / or approval within above deadlines, the drawing is intended as "APPROVED" under full resposibility of the listed commenters and / or approvers.	
Cc5			
Cc6	....		

CERTIFIED Date YYYY-MM-DD

Index	Modification	Date	Name
E	Stock pile layout	17.10.2022	A. Hilditch
D	Purchase land boundary updated	10.10.2022	A. Hilditch
C	Position of purchase land boundary updated.	07.10.2022	M. Welch
B	Paddock concrete wall amendment	06.10.2022	A. Hilditch
A	Paddock concrete wall amendment	03.10.2022	A. Hilditch

Confidentiality
This drawing is the property of Kronoplus Technical AG. Unauthorised distribution or utilisation without prior written authorisation is forbidden and may be unlawful.

Status

Xylo Technologies AG
Rütihofstrasse 1
CH-9052 Niederteufen
Schweiz

Technology
Kronospan Ltd
Maesgwyn Farm
LL14 5NT Chirk, Wrexham
United Kingdom

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Size: A1
origin
Scale: 1:200 1:100
Norm: ISO

Project number
Project name

Description
G.A. Stock piles
Recycling Centre, Corbriggs

Drawing number: 12800_004
Index: E
Sheet/Number: 1/2

Sub Category .
Division .
Process .
Subprocess .

Proposed Rising Main

Proposed Pump Chamber

Proposed Silt Trap

Attenuation tank with an area of 977m2, a depth of 0.8m with a 95% void ratio provides up to 742.52m3. This is sufficient to accomodate the 1 in 100 year plus 25% climate change event.

Hydrobrake restricting flows to 42.3 l/s

0 20 40 60 80 m

Notes:
1) This sketch has not been subject to formal checks or approvals. Its validity and use must therefore be limited to discussion and information purposes only.
2) Unless otherwise noted the risks associated with this proposal are not considered to be extra ordinary and within the remit of an experienced and competent contractor.
3) All dimensions in millimetres and all levels in metres above ordnance datum unless shown otherwise.
4) This drawing is an ammendment of the 'Phase 2 Site Layout Plan' provided by 'Caulmert Ltd'. This drawing provides a concept only and is not intended for detailed design.

LEGEND

- Site Boundary
- Proposed Attenuation Tank
- Proposed Interceptor
- Existing Separator
- Existing Drainage Grate
- Proposed Surface Water Drain
- Proposed Rising Main
- Existing Foul Drain
- Proposed Silt Trap
- Proposed Pump Chamber
- Proposed Diverter Valve
- Proposed Flow Control Chamber
- Existing Surface Water Inspection Chamber

CLIENT:
Caulmert Ltd

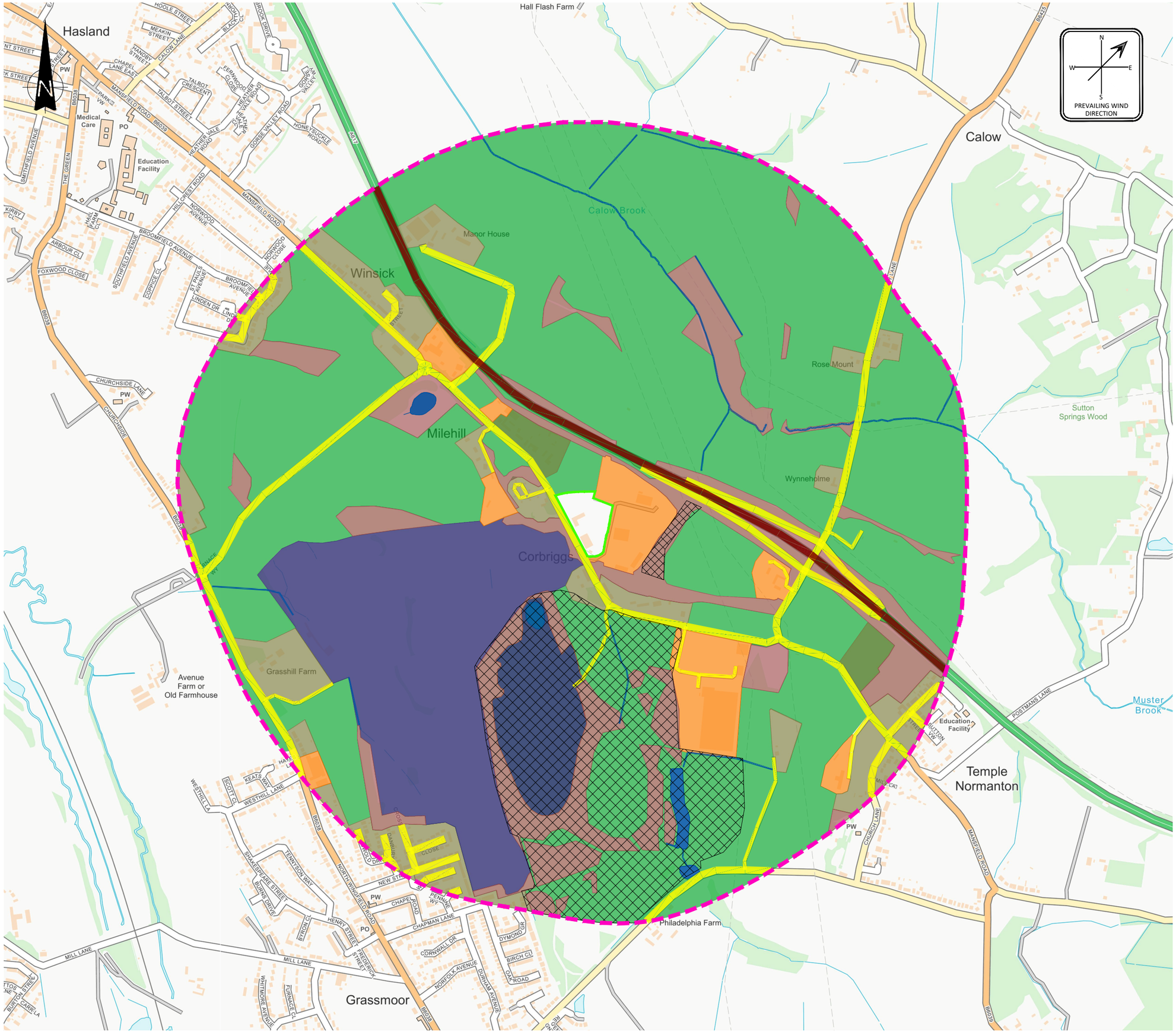
waterco
www.waterco.co.uk

SCHEME:
Mansfield Road, Corbriggs

PLOT TITLE:
Concept Drainage Sketch

PLOT STATUS:			DATE:
CONCEPT			24-10-2022
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	AW	NJ	1:750

PLOT NAME:	REVISION:
14866_Concept_Drainage_Sketch	-



LEGEND

- PROPOSED PERMIT BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND / SCRUBLAND
- RECREATIONAL
- COMMERCIAL / INDUSTRIAL
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- LOCAL WILDLIFE SITES

REV	MODIFICATIONS	BY	RE	AP	DATE
P03	CLIENT COMMENTS INCORPORATED	EJD	SH	SH	02.12.22
P02	BOUNDARY UPDATED	EJD	SH	SH	09.11.22
P01	ISSUED FOR INFORMATION	EJD	SH	SH	01.11.22

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: SILVA RECYCLING LTD

PROJECT: CORBRIGGS WOOD PROCESSING FACILITY

TITLE: SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

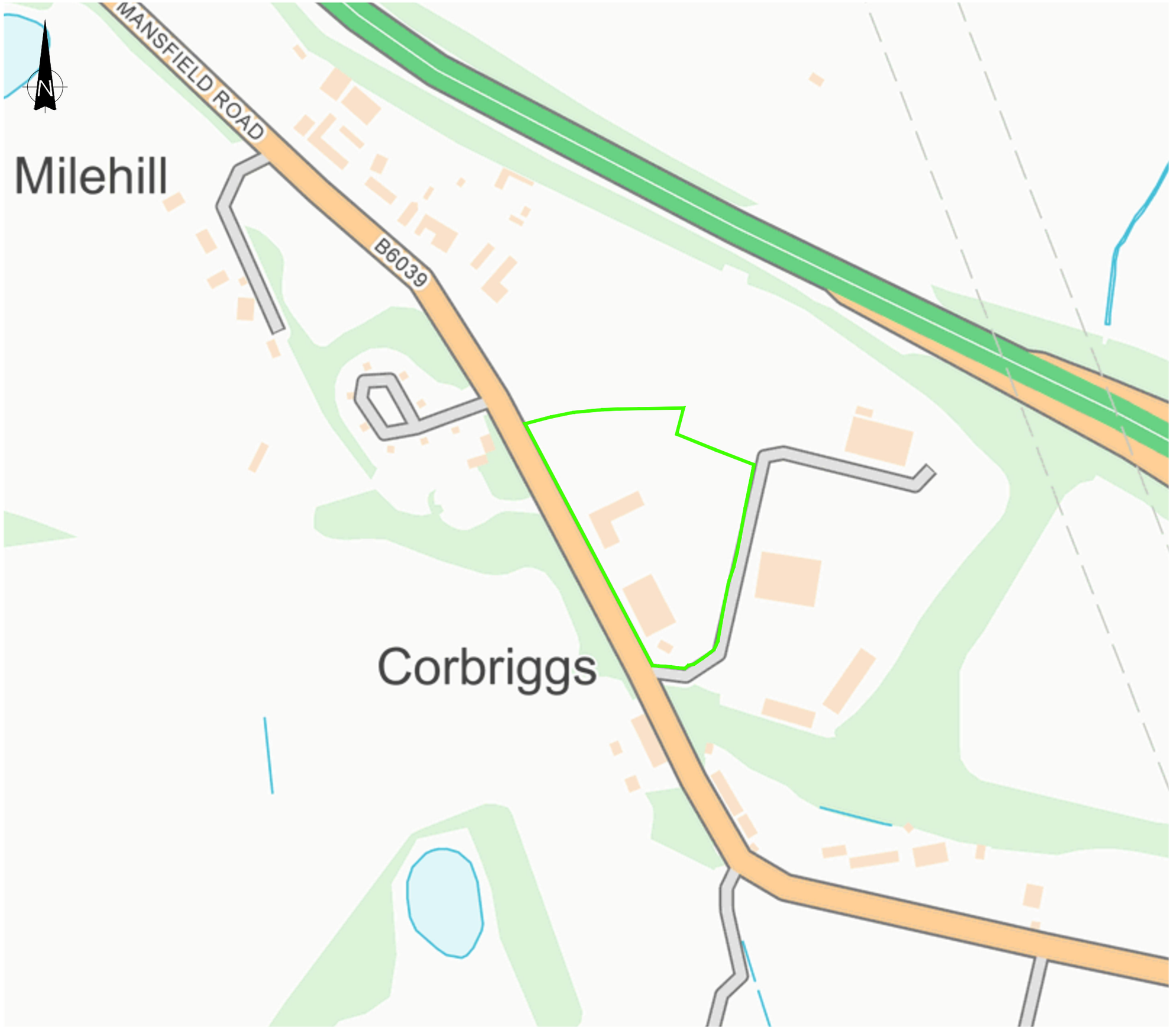
DATE	SCALE @ A3	JOB REF:	REVISION
01.11.2022	1:10,000	5448	P03

DRAWING NUMBER: 5448-CAU-XX-XX-DR-V-1800

Caulmert
engineering environmental planning

WWW.CAULMERT.COM

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319



LEGEND

PROPOSED PERMIT BOUNDARY

P03	CLIENT COMMENTS INCORPORATED	EJD	SH	SH	02.12.22
P02	BOUNDARY UPDATED	EJD	SH	SH	09.11.22
P01	ISSUED FOR INFORMATION	EJD	SH	SH	01.11.22
REV	MODIFICATIONS	BY	RE	AP	DATE

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: SILVA RECYCLING LTD

PROJECT: CORBRIGGS WOOD PROCESSING FACILITY

TITLE: PROPOSED PERMIT BOUNDARY

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
01.11.2022	1:2500	5448	P03

DRAWING NUMBER: 5448-CAU-XX-XX-DR-V-1801

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

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APPENDIX 1

Phase II Site Investigation Report 2020

PHASE II ENVIRONMENTAL ASSESSMENT

LAND AT MANSFIELD ROAD, CORBRIGGS, CHESTERFIELD

SILVA RECYCLING LIMITED

FEBRUARY 2020

IVY HOUSE environmental

SUMMARY TABLE: PHASE II ENVIRONMENTAL ASSESSMENT		
SITE:	Land at Mansfield Road, Corbriggs, Chesterfield	
CLIENT:	Silva Recycling Limited	
DATE:	February 2020	
REFERENCE	IV.95.22	
DEVELOPMENT PROPOSAL:	Change of use of an unused industrial unit to a waste transfer facility	
HUMAN HEALTH:	Remediation required.	Asbestos present across the site within the Made Ground and localised PAH will need either removing or capping.
CONTROLLED WATERS:	Negligible risk	
GAS RISK:	No Risk	
COMMENTS:	None	

Written:		Daniel Wade *Geo-Environmental Engineer*
Authorised:		Richard Sutton MRICS *Director*
Date:	February 2020	
Version:	3.0	Readdressing of the report to Silva Recycling Limited

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 PREAMBLE

This Phase II Environmental Assessment has been produced for Silva Recycling Limited to provide a pre-development contamination and geotechnical assessment of the site known as Ward Recycling, Corbriggs, Chesterfield. It is proposed to change the use of an unused industrial unit to a waste transfer facility.

A Phase I Environmental Assessment was not undertaken as the proposed end use is considered is a low risk and there is not a significant change of use.

1.2 SITE LOCATION

The site is located approximately 3.9km south-east of Chesterfield town centre. The National Grid Reference (NGR) for the approximate centre of the site is SK 410 681. The site location, development proposal and site layout are illustrated in Appendix A.

1.3 PROJECT BRIEF

The brief for the Phase II Environmental Assessment incorporates:

- Provide a strategy for, and to implement, a Phase II Environmental and Geotechnical Assessment.
- Development of the Phase II Conceptual Model.
- To provide recommendations to mitigate against environmental risks.

1.4 DATA REFERENCES

- British Geological Survey Online Geological Mapping.
- BSI (2015), BS 5930:2015 Code of practice for ground investigations.
- CIRIA (2014), C733 Asbestos in soil and made ground: a guide to understanding and managing risks.

1.5 LIMITATIONS

This report has been produced in accordance with industry best practice at the time of writing.

Ivy House Environmental Ltd has, in the production of this report, relied upon information provided by third parties. Ivy House Environmental Ltd does not warrant the accuracy of this information and will not be responsible for any opinions which Ivy House Environmental has expressed, or conclusions which it has drawn, in reliance upon information which is subsequently proven to be inaccurate.

All statements and opinions provided in this report have been reported in good faith and are based on the information gained during, and restrictions imposed by, site investigation techniques used at the time. Ivy House Environmental cannot be held responsible for conditions not revealed by the investigation.

This report has been prepared for the sole use of the client and shall not be relied upon or transferred to third parties without the express written consent of Ivy House Environmental. Unauthorised third parties rely upon the information contained within this report at their own risk.

1.6 SITE DESCRIPTION

The site currently comprises of an existing industrial building, which is currently not used, and a large gravelled car parking, vehicle turning area and storage area. The building, in the south west of the site, is set on a large concrete slab and is mostly empty inside barring 2No. vehicles. The roof is a potential ACM. There are 3No. large entrances to the building, suitable for the loading and unloading of HGV's. There is a portacabin, currently used as the site

office, located outside of the building. The remainder of the site is mostly gravelled and is currently used for car parking, a storage area – there are a number of shipping containers to the east of the site, and a proposed HGV turning area. In the western corner of the site are 2No. disused fuel pumps on a concrete slab. There is no evidence of a fuel spillage, and whilst the fuel pumps were disused, generally looked in acceptable condition. The northern portion of the site is largely disused and consists of uneven gravels and vegetation, a pile of car tyres and a number of skips. The northern portion of the site is not proposed to be used.

1.7 SITE HISTORY

A brief site history compiled using publicly available maps has been undertaken to assess the sites former use and identify any possible contaminative sources.

1876 – The site is shown as open, presumably agricultural, land. A road borders the site to the south and west. A small hamlet, Corbridge, is illustrated south of the site.

1898 – A colliery and associated shaft is illustrated in the northern section of the site. A small mineral rail links the colliery with a mainline railway which passes close to the south of the site.

1918 – The colliery is marked as an ‘old colliery’.

1938 – A building is now shown on site in the approximate footprint of the existing building.

1962 – A building on site is now shown as a garage.

1970 – The railway lines are illustrated as dismantled.

1982 – A large opencast mine is illustrated to the south west of the site.

1999 – The existing building is now shown.

2020 – The site has remained largely unchanged.

1.8 PHASE I CONCEPTUAL SITE MODEL

The conceptual model for the site considers the proposed change of use to commercial/industrial end use.

The site’s former uses are considered in respect to potential contaminative sources.

Potential contaminants of concern for the end user include Heavy metals, PAH’s, TPH, VOC/SVOC and asbestos

Pathways for the end user of the site include the ingestion of potentially contaminated soil and potentially contaminated vegetables, direct contact (dermal) with potentially contaminated soil and soil dust; ingestion and inhalation of potentially contaminated soil dust.

The primary receptors for the site are end users of the site (workers).

For the environment (controlled waters) the primary receptor is the Secondary A Aquifer (Middle Pennine Coal Measures) underlying the site.

Contaminants of concern for the environment include Heavy metals, PAH’s, TPH, VOC/SVOC.

The primary pathway for controlled waters is the leaching and vertical migration of contaminants through the vadose zone to the saturated zone.

2.0 PHASE II FIELDWORK

2.1 INTRODUCTION

The Phase II intrusive investigation was undertaken on the 18th April 2019 under the supervision of a suitably qualified Ivy House Environmental engineer and in general accordance with the Code of Practice for Site Investigations BS5930: 2015.

The Phase II investigation incorporated the following:

- The advancing of 5No. window sample boreholes to a maximum depth of 3.0mbgl.
- The sampling of 1No. hand dug pit.
- The analysis of 8.No samples for a standard 'CLEA' screening suite and selected site specific determinands.

Window Samples logs are contained in Appendix B.

2.2 RATIONALE

The Phase II investigation has been designed to facilitate an assessment of the general ground conditions across the site, including contaminant sources, pathways and receptors. The investigation has also been designed in consideration of the current site layout and access restrictions, the development proposal and health and safety issues, the rationale behind the location of each exploratory hole is detailed in table 2.1 below:

Table 2.1: Phase II Rationale

Hole ID	Location	Notes
WS1-5	General Grid	CLEA, TPH CWG, VOC & SVOC
S1	Adjacent to former fuel tank	TPH CWG

2.3 LABORATORY ANALYSIS & TESTING

Soil samples were analysed at specialist environmental and geotechnical laboratories or by field monitoring equipment as detailed in the following sections.

2.3.1 Chemical Analysis

A total of 7No. samples of Made Ground and 3No. samples of natural strata (weather Middle Pennine Coal Measures) were sent for analysis at a UKAS/MCERTS accredited laboratory. The scheduled parameters are detailed in table 2.2.

Table 2.2: Soil Analysis

Sample ID	Depth (mbgl)	Strata	Suite
WS1	0.5	MG	CLEA
WS2	0.1	MG	CLEA & TPH CWG
WS2	0.5	MG	CLEA
WS3	0.1	MG	CLEA
WS3	0.7	Middle Pennine Coal Measures	CLEA, TPH CWG, VOC/SVOC, Phenols
WS4	0.1	MG	CLEA
WS4	0.9	Middle Pennine Coal Measures	CLEA, TPH CWG, VOC/SVOC, Phenols
WS4	1.6	Middle Pennine Coal Measures	EPH
WS5	0.7	MG	CLEA
S1	N/A	MG	TPH CWG

2.3.2 Geotechnical Testing

Geotechnical testing was not undertaken as there is no proposed development of the site.

2.3.2 Gas Monitoring and Sampling

Gas monitoring was not undertaken as the proposed site use, as a pre-existing, open and well-ventilated industrial unit was deemed to not be at risk.

3.0 GROUND CONDITIONS

The intrusive investigation has revealed that Made Ground across the site overlies weathered strata of the Middle Pennine Coal Measures. The site-specific observations are detailed in the following sections.

3.1 MADE GROUND

Made ground materials were present at a depth range of 0.6 – 1.0mbgl, with a mean depth of 0.8mbgl. Made Ground generally consisted of sandy gravels, containing brick, ash, clinker and mixed lithologies of natural gravels.

3.2 SUPERFICIAL STRATA

Superficial deposits were not observed.

3.3 SOLID STRATA

Weathered top horizons of Middle Pennine Coal Measures were encountered from a minimum depth of 0.6mbgl. These generally consisted of a firm sandy gravelly clay. Gravels were sandstone. With increasing depth the strata became increasingly consolidated and firmer, with coarser more frequent gravels of sandstone.

3.4 FIELD OBSERVATIONS

Table 3.1 illustrates the pertinent geological and contamination observations made during the intrusive investigation.

Table 3.1: Fieldwork Observations

Location	Depth/Strata	Observation
WS4	Middle Pennine Coal Measures 0.9mbgl	Strong odour noted, possibly hydrocarbon

3.5 GROUNDWATER

Groundwater was not encountered in any of the advanced Window Samples.

4.0 CONTAMINATION ASSESSMENT

The guidance detailed in section 1.4 has been followed to ensure that the risk posed to identified receptors, as detailed in the conceptual site model, is reported according to accepted compliance criteria.

The Contaminated Land Exposure Assessment (CLEA) guidance and published Soil Guideline Values (SGV) have been incorporated with Generic Assessment Criteria (GAC), for determinands which do not have a published SGV, to provide a competent Tier 1 Assessment. The GAC and methodology references are contained in Appendix D.

4.1 HUMAN HEALTH

The results contained within Appendix C have revealed that for the majority of locations contaminants were not observed in concentrations above accepted safe levels for an industrial/commercial end use except in one instance.

Contamination in the form of Benzo(a)pyrene was observed in WS2 at 0.1mbgl at concentrations of 45.5g/kg. The accepted safe threshold contained within our GAC's is 14.4mg/kg. This is likely associated with the ash and clinker which were observed within WS2 and should therefore be assumed to be present in hazardous concentrations to a minimum of 0.4mbgl.

It is noted that the samples were taken on the 18th April 2019 and a sample receipt was issued on the 23rd April 2019. The delay was caused due to the lab requiring further instruction to undertake an asbestos quantification. All other analysis was undertaken prior to this (samples were received along with initial instruction by the lab on the 19th of April). There was no negative impact on the samples nor the validity of the results.

An odour was noted in WS4 at 0.9mbgl which was initially recorded as being a hydrocarbon odour. There was no visible staining and the material was natural strata. The odour was not recorded at any other depths or any other locations. Laboratory results taken from this samples did not detect any banding of petroleum hydrocarbons. The source of this odour has not been identified; however, it is not considered to pose a risk.

4.1.1 Asbestos Contamination

Asbestos fibres were detected in samples WS1, WS2 & WS3. The analysis results are contained in Appendix C and are summarised in Table 4.1.

Table 4.1. Asbestos Contamination Summary

Sample Location	Depth	Percentage asbestos by weight
WS1	0.5	0.001
WS2	0.5	0.003
WS3	0.1	<0.001
WS3	0.7	0.002

The concentrations of asbestos are above safe levels for human health and will therefore need remediating.

The asbestos is present in 3No. locations and should therefore be assumed to be present across the site where Made Ground is found.

4.2 CONTROLLED WATERS

The site is underlain by the Middle Pennine Coal Measures which are cohesive and thus impermeable. The risk to controlled waters is therefore considered negligible.

5.0 PHASE II CONCEPTUAL SITE MODEL

The conceptual model for the site considers the proposed change of use to commercial/industrial end use.

The site's former use are considered in respect to potential contaminative sources.

Contaminants of concern for the end user include PAH's (Benzo(a)pyrene) and asbestos.

Pathways for the end user of the site include the ingestion of contaminated soil and contaminated vegetables, direct contact (dermal) with contaminated soil and soil dust; ingestion and inhalation of contaminated soil dust.

The primary receptors for the site are end users of the site (workers). The risk posed to human health receptors is considered moderate, therefore remediation will be required.

For the environment (controlled waters) the primary receptor is the Secondary A Aquifer (Middle Pennine Coal Measures) underlying the site.

Contaminants of concern for the environment include PAH's.

The primary pathway for controlled waters is the leaching and vertical migration of contaminants through the vadose zone to the saturated zone.

The risk posed to controlled waters (non aquifer) by contaminated made ground and natural strata is considered to be negligible due to the impermeable nature of the Pennine Middle Coal Measures.

The development of the conceptual model is illustrated on Figure 5.1.

Figure 5.1: Phase II Conceptual Site Model

HUMAN HEALTH			
SOURCE	**PATHWAY**	**RECEPTOR**	**SOLUTION**
Made ground contaminated with PAH's	Ingestion of contaminated soil and contaminated vegetables, direct contact (dermal) with contaminated soil and soil dust; ingestion and inhalation of contaminated soil dust.	End Users (Residents)	Capping of contaminated soils with a permanent hardstanding cover suitable for heavy vehicles is recommended An annual assessment of the condition of hardstanding is recommended and any damages areas to be fixed. .
Asbestos	Inhalation of fibres	End Users (Residents)	
CONTROLLED WATERS			
Contaminated made ground, contaminants of concern include PAH's	Leaching and vertical migration through the vadose zone to the saturated zone	Secondary A Aquifer (Middle Pennine Coal Measures)	Negligible permeability. No local abstractions or surface water receptors. Negligible risk.

6.0 RISK MANAGEMENT & REMEDIATION

Previous sections have quantified the risk posed to identified receptors which, in some instances, require remediation to protect or reduce levels of risk. The following section details measures and recommendations for dealing with risks associated with soil, gas and groundwater contamination in respect to the development proposal of industrial/commercial end use.

6.1 REMEDIATION TO PROTECT END USERS

Capping of the Made Ground with hardstanding across the site is required due to the presence of asbestos and PAH's.

The hardstanding must be suitable for continued use by heavy vehicles. An annual inspection of the condition needs to be undertaken and any damaged areas fixed.

6.2 REMEDIATION TO PROTECT CONTROLLED WATERS

No remediation is required to protect this receptor.

6.3 REMEDIATION TO PROTECT CONSTRUCTION WORKERS

As no construction will be undertaken as part of the proposal, remediation is not required for construction workers.

6.4 REMEDIATION TO PROTECT CONSTRUCTION MATERIALS

As no construction will be undertaken as part of the proposal, remediation is not required for construction materials.

6.5 WASTE MANAGEMENT

Should removal of materials from site occur, they are likely to attract landfill tax due to high concentrations of heavy metals and PAH's.

Additionally, further WAC (waste acceptance criteria) testing may be required from the waste receiver.

7.0 RECOMMENDATIONS

Recommendations for further assessment of the site include:

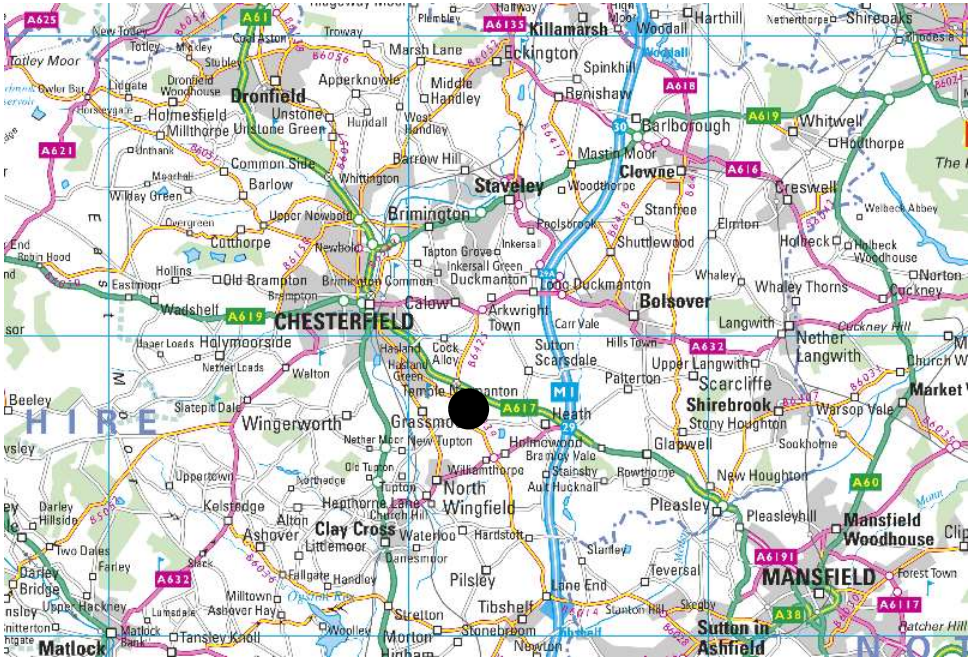
- Should any signs of organic contamination (solvents/oils/fuels) be observed, a qualified environmental specialist should be consulted to assess the risk posed to end users and the environment.
- The contaminated soils on site will require capping by hardstanding suitable for heavy vehicles. Continued inspection and maintenance of hardstanding will be required.

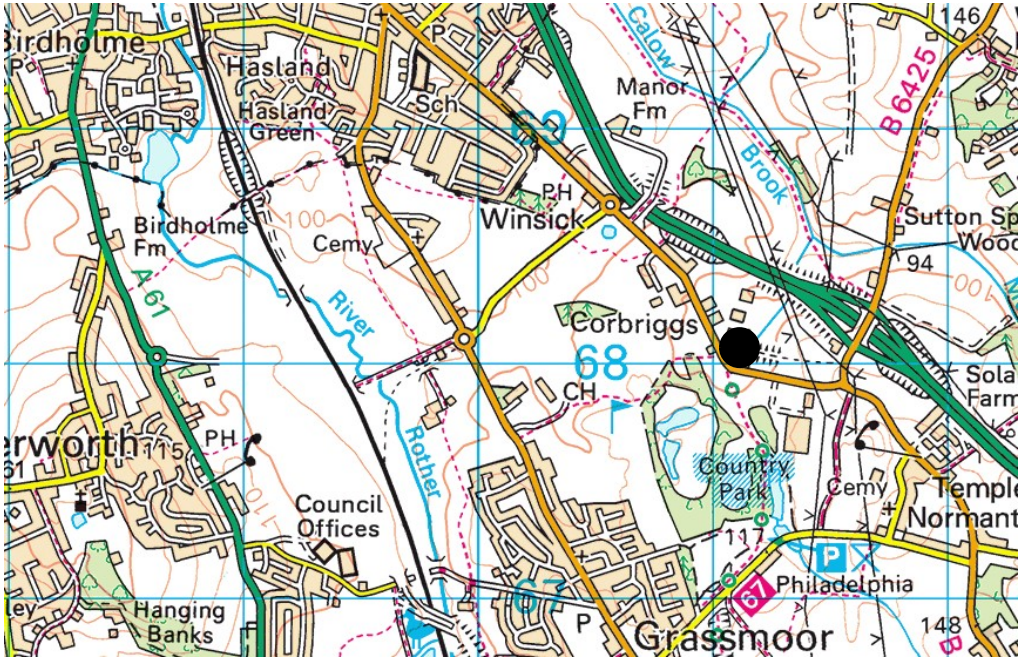
8.0 CONCLUSIONS

The Phase II Assessment and the recommendations contained within has illustrated that the proposed development of the site for industrial/commercial use does pose a risk to end users of the site or the environment. Made Ground across the site will need to be remediated due to the presence of asbestos and localised PAH. Remediation can be undertaken by capping with hardstanding or tarmac.

However, if the recommendations of this report are carried out to mitigate or remove all hazards presented in the conceptual model, the site can be made suitable for the proposed use.

APPENDIX A





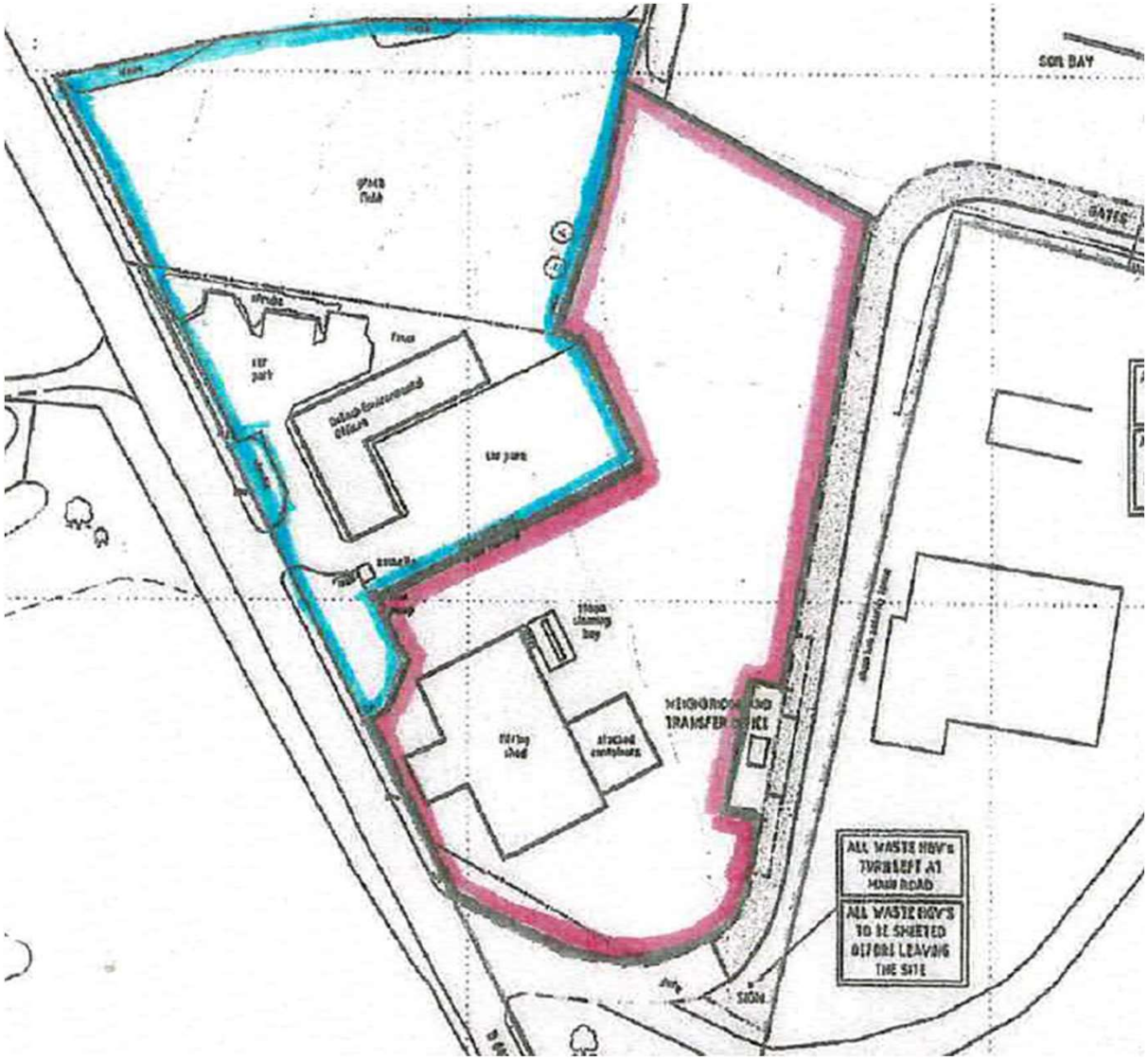
KEY:

● Approximate Site Location

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE:	Site Location Plan
PROJECT:	Land at Mansfield Road, Corbrigg
PROJECT No:	IV.95.22
DATE:	05/2022
SCALE :	NTS
DRAWN :	DW
DWG No:	Figure 1



N

KEY:

Site Boundary

DO NOT SCALE

IVY HOUSE environmental

Scotland Farm, Ockbrook, Derby, DE72 3RX

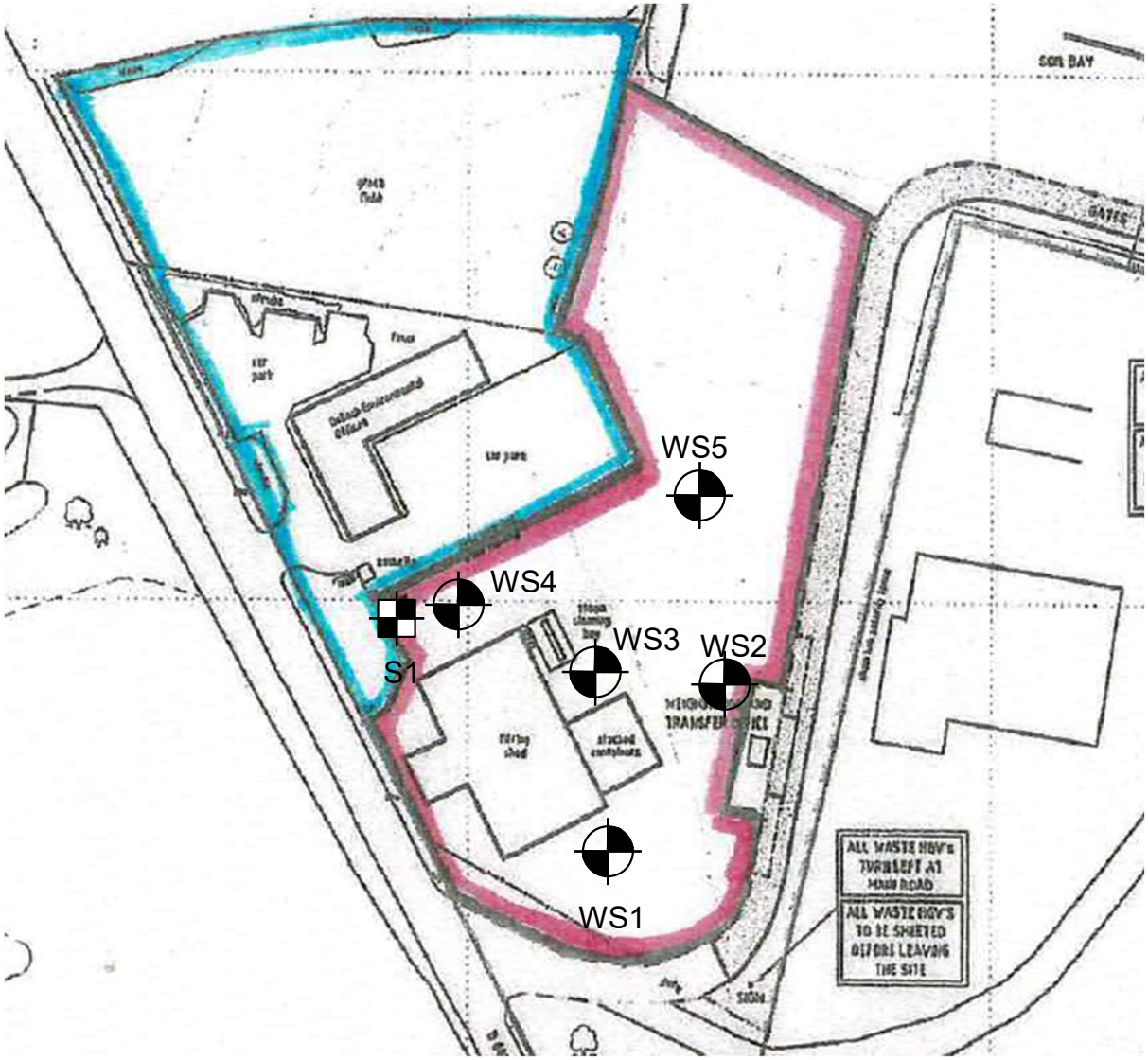
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE: Site Layout

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No:	DATE:
IV.95.22	05/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 2



KEY:

WS Borehole

Hand Dug Sample

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE: Borehole Location Plan

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No: IV.95.22

DATE: 05/2022

SCALE : NTS

DRAWN : DW

DWG No: Figure 3

1.

N

2.

KEY:

1. Facing south, towards site access.
2. Facing west, towards building, showing portakabin

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE:	Site Photographs
PROJECT:	Land at Mansfield Road, Corbrigg
PROJECT No:	IV.95.22
DATE:	05/2022
SCALE :	NTS
DRAWN :	DW
DWG No:	Figure 4

1.

2.

KEY:

1. Facing north
2. Inside building, showing transfer locations

DO NOT SCALE

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TITLE:	Site Photographs
PROJECT:	Land at Mansfield Road, Corbrigg
PROJECT No:	IV.95.22
DATE:	05/2022
SCALE :	NTS
DRAWN :	DW
DWG No:	Figure 5

1.

N

2.

KEY:

1. Historical fuelling point, western boundary
2. Facing building, showing drainage intercepting point

DO NOT SCALE

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TITLE:	Site Photographs
PROJECT:	Land at Mansfield Road, Corbrigg
PROJECT No:	IV.95.22
DATE:	05/2022
SCALE :	NTS
DRAWN :	DW
DWG No:	Figure 6

APPENDIX B

IVY HOUSE environmental
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Site	Number
Land at Mansfield Road, Corbrigg	WS1

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Silva Recycling Limited	IV.116.19
	Location	**Dates** 01/05/2019	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Dark grey sandy GRAVEL.		
					(0.30) 0.40	MADE GROUND: Firm dark grey mottled brown sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded mixed lithologies including brick.		
0.50	ES1				(0.20) 0.60	MADE GROUND: Dark grey gravelly SAND. Gravel is fine to coarse, angular to subrounded mixed lithologies including brick and ash.		
					(0.10) 0.70	MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse, angular to subrounded mixed lithologies including brick and ash.		
0.85	ES2				(0.30) 1.00	Very stiff brown sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded sandstone. (MIDDLE PENNINE COAL MEASURES)		
1.00-1.45	SPT N=28		2,3/4,8,8,8			Sandstone cobble at 0.9mbgl.		
					(0.20) 1.20	Light brown sandy GRAVEL. Gravel is fine to coarse, angular to subrounded sandstone. (MIDDLE PENNINE COAL MEASURES)		
					(0.90) 2.10	Very stiff light brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded sandstone. (MIDDLE PENNINE COAL MEASURES)		
2.00-2.45	SPT N=23		5,4/5,6,6,6			Sand and gravel band from 2.0mbgl.		
					(0.90) 3.00	Light brown sandy GRAVEL. Gravel is fine to coarse, angular to subrounded sandstone and mudstone. (MIDDLE PENNINE COAL MEASURES)		
3.00-3.45	SPT N=50		3m SPT refused. 12,13/15,16,17,2			Terminated at 3.00m		

Remarks
No groundwater encountered.
No visual or olfactory evidence of contamination.
Window sample refused at 3m SPT.

Scale (approx)	Logged By
1:25	DW

Figure No. IV.116.19.WS1

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Site	Number
Land at Mansfield Road, Corbrigg	WS2

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Silva Recycling Limited	IV.116.19
	Location	**Dates** 18/04/2019	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Dark grey sandy GRAVEL. Gravel is fine to coarse, angular to subrounded ash and clinker.		
0.10	ES1				(0.10) 0.20	MADE GROUND: Dark grey sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded mixed lithologies including ash and clinker.		
					(0.40)	MADE GROUND: Orange sandy GRAVEL. Gravel is fine to coarse, angular to subrounded crushed brick.		
0.50	ES2				0.60	Very stiff light brownish grey mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to coarse, angular to subrounded sandstone, mudstone and occassional carbonaceous material. (MIDDLE PENNINE COAL MEASURES)		
1.00-1.45	SPT N=38		2,1/14,13,7,4		(0.60)			
					1.20	Stiff light brown sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded sandstone. (MIDDLE PENNINE COAL MEASURES)		
2.00-2.45	SPT N=12		4,3/2,3,3,4		(1.80)			
						...becoming mottled grey from 2.5mbgl.		
			Refusal on hard clay at 3.0mbgl.		3.00	Terminated at 3.00m		
3.00-3.45	SPT N=50		11,12/13,13,13,11					

Remarks
Window sample refused at 3.0mbgl
No visual or olfactory evidence of contamination.
No groundwater encountered.

Scale (approx)	Logged By
1:25	DW

Figure No. IV.116.19.WS2

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Site	Number
Land at Mansfield Road, Corbrigg	WS3

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Silva Recycling Limited	IV.116.19
	Location	**Dates** 18/04/2019	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	MADE GROUND: Dark grey sandy GRAVEL. Gravel is fine to coarse, angular to subrounded mixed lithologies including ash.		
0.10	ES1				0.20			
					(0.40)	MADE GROUND: Light brownish grey sandy gravelly CLAY. Gravel is fine to coase, angular to subrounded mixed lithologies.		
					0.60			
0.70	ES2				(0.30)	MADE GROUND: Dark greyish brown sandy GRAVEL. Gravel is fine to coarse, angular to subrounded ash and clinker.		
					0.90			
1.00-1.45	SPT N=4		1,1/1,1,1,1		(0.70)	Soft to firm dark grey sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded mudstone and carbonaceous material. (PENNINE MIDDLE COAL MEASURES)		
					1.60			
2.00-2.45	SPT N=13		2,2/2,3,4,4		(1.40)	Stiff light brown sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded sandstone and mudstone. (PENNINE MIDDLE COAL MEASURES) ...becoming mottled grey from 2.1mbgl.		
					3.00			
3.00-3.45	SPT N=50		Window sample terminated at 3.0mbgl on hard clay. 10,13/13,13,12,12			Terminated at 3.00m		

Remarks
Window sample terminated at 3.0mbgl on hard clay.
No visual or olfactory evidence of contamination.
No groundwater encountered.

Scale (approx)	Logged By
1:25	DW

Figure No. IV.116.19.WS3

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Site	Number
Land at Mansfield Road, Corbrigg	WS4

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Silva Recycling Limited	IV.116.19
	Location	**Dates** 18/04/2019	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	MADE GROUND: TARMAC		
					(0.15)			
0.10	ES1				0.20	MADE GROUND: Black sandy GRAVEL. Gravel is fine to coarse, angular to subrounded ash and clinker.		
					(0.40)	MADE GROUND: Orange crushed BRICK.		
					0.60			
0.70	ES2				(0.20)	MADE GROUND: Black sandy GRAVEL. Gravel is fine to coarse, angular to subrounded ash and clinker.		
					0.80			
0.90	ES3		Strong odour, possibly hydrocarbon, noted at 0.9mbgl.			Soft to firm grey sandy CLAY. (MIDDLE PENNINE COAL MEASURES) ...strong odour, possibly hydrocarbon, from 0.9mbgl.		
1.00-1.45	SPT N=2		1,0/1,0,1,0		(0.70)			
						...becoming wet at 1.4mbgl.		
					1.50			
1.60	ES4					Firm orangish brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded sandstone, mudstone and carbonaceous material. (MIDDLE PENNINE COAL MEASURES)		
2.00-2.45	SPT N=17		3,3/3,4,5,5		(1.50)			
						...becoming stiff from 2.5mbgl.		
					3.00			
3.00-3.45	SPT N=50		11,14/14,15,21			Terminated at 3.00m		

Remarks
Olfactory evidence of contamination, possibly hydrocarbon, at 0.9mbgl.
Groundwater encountered at 1.4mbgl.
Window sample refused at 3.0mbgl on hard clay.

Scale (approx)	Logged By
1:25	DW

Figure No. IV.116.19.WS4

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Site	Number
Land at Mansfield Road, Corbrigg	WS5

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Silva Recycling Limited	IV.116.19
	Location	**Dates** 18/04/2019	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.50)	MADE GROUND: Dark grey sandy GRAVEL.		
					0.50			
					(0.20)	MADE GROUND: Dark grey mottled brown sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded crushed brick.		
0.70	ES1				0.70			
					(0.30)	MADE GROUND: Black SAND.		
					1.00			
					(2.00)	Firm dark grey gravelly CLAY. Gravel is fine to coarse, angular to subrounded mudstone (MIDDLE PENNINE COAL MEASURES)		
					3.00	Complete at 3.00m		

Remarks
No visual or olfactory evidence of contamination.
No groundwater encountered.

Scale (approx)	Logged By
1:25	DW

Figure No. IV.116.19.WS5

APPENDIX C

Dan Wade
Ivy House Environmental Ltd
Scotland Farm
Ockbrook
Derby
DE72 3RX

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 19-05639

Site Reference:	Ward Recycling, Corbrigg, Chesterfield
Project / Job Ref:	IV.116.19
Order No:	IV.116.19/DW
Sample Receipt Date:	23/04/2019
Sample Scheduled Date:	23/04/2019
Report Issue Number:	1
Reporting Date:	29/04/2019

Authorised by:

Dave Ashworth
Deputy Quality Manager

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19	18/04/19	18/04/19	18/04/19
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS1	WS2	WS2	WS3	WS3
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: IV.116.19/DW	**Depth (m)**	0.50	0.10	0.50	0.10	0.70
Reporting Date: 29/04/2019	**DETS Sample No**	403823	403824	403825	403826	403827

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Detected	Not Detected	Detected	Detected	Detected
Sample Matrix (S)	Material Type	N/a	NONE	Chrysotile present as fibre bundles		Chrysotile present as fibre bundles	Chrysotile present as fibre bundles	Chrysotile present as fibre bundles
Asbestos Type (S)	PLM Result	N/a	ISO17025	Chrysotile		Chrysotile	Chrysotile	Chrysotile
pH	pH Units	N/a	MCERTS	7.1	7.3	7.7	8.1	7.2
Total Sulphate as SO_4	mg/kg	< 200	NONE	995	7845	2192	2447	2575
Total Sulphate as SO_4	%	< 0.02	NONE	0.10	0.78	0.22	0.24	0.26
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	305	706	161	172	497
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.31	0.71	0.16	0.17	0.50
Organic Matter	%	< 0.1	MCERTS	3.7	7.4	1.1	6.4	5.3
Arsenic (As)	mg/kg	< 2	MCERTS	14	5	37	17	122
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.4	0.7	1.3	1.8
Chromium (Cr)	mg/kg	< 2	MCERTS	21	193	17	50	112
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	73	31	28	66	1750
Lead (Pb)	mg/kg	< 3	MCERTS	24	25	107	79	2140
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	36	18	12	29	157
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 2	NONE	43	85	22	51	229
Zinc (Zn)	mg/kg	< 3	MCERTS	40	52	89	113	336
Total Phenols (monohydric)	mg/kg	< 2	NONE					< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
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Soil Analysis Certificate						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19	18/04/19	18/04/19	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS4	WS5	WS4	WS4	
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: IV.116.19/DW	**Depth (m)**	0.10	0.70	0.90	1.60	
Reporting Date: 29/04/2019	**DETS Sample No**	403828	403829	403831	403832	

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
Sample Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	ISO17025					
pH	pH Units	N/a	MCERTS	7.4	7.4	6.4		
Total Sulphate as SO_4	mg/kg	< 200	NONE	1417	< 200	374		
Total Sulphate as SO_4	%	< 0.02	NONE	0.14	< 0.02	0.04		
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	166	13	23		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.17	0.01	0.02		
Organic Matter	%	< 0.1	MCERTS	4.7	0.5	2.5		
Arsenic (As)	mg/kg	< 2	MCERTS	53	< 2	9		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.9	< 0.2	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	25	2	26		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	175	< 4	27		
Lead (Pb)	mg/kg	< 3	MCERTS	73	11	59		
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	61	< 3	24		
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3		
Vanadium (V)	mg/kg	< 2	NONE	65	3	33		
Zinc (Zn)	mg/kg	< 3	MCERTS	78	6	92		
Total Phenols (monohydric)	mg/kg	< 2	NONE			< 2		
EPH (C10 - C40)	mg/kg	< 6	MCERTS				< 6	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{O}C
Subcontracted analysis (S)

DETS Ltd
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Soil Analysis Certificate - Speciated PAHs							
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19	18/04/19	18/04/19	18/04/19
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS1	WS2	WS2	WS3	WS3
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: IV.116.19/DW	**Depth (m)**	0.50	0.10	0.50	0.10	0.70
Reporting Date: 29/04/2019	**DETS Sample No**	403823	403824	403825	403826	403827

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	0.73	2.92	< 0.1	0.64	0.61
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.34	< 0.1	< 0.1	0.53
Acenaphthene	mg/kg	< 0.1	MCERTS	0.38	21.90	< 0.1	0.55	0.17
Fluorene	mg/kg	< 0.1	MCERTS	0.54	20	< 0.1	0.43	0.44
Phenanthrene	mg/kg	< 0.1	MCERTS	5.98	191	0.40	4.02	4.46
Anthracene	mg/kg	< 0.1	MCERTS	1.71	35.80	0.17	0.86	1.03
Fluoranthene	mg/kg	< 0.1	MCERTS	7.13	253	0.87	4.47	6.30
Pyrene	mg/kg	< 0.1	MCERTS	6.15	197	0.72	4.21	5.03
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	2.32	56.40	0.59	2.09	2.50
Chrysene	mg/kg	< 0.1	MCERTS	2.06	57.70	0.23	1.80	2.39
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.81	56.50	0.31	2.13	2.83
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.65	18.50	< 0.1	0.51	0.84
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.61	45.50	0.27	1.49	2.18
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.87	24.30	0.34	0.97	1.50
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	3.29	< 0.1	0.18	0.24
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.68	17.10	0.16	0.74	1.17
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	32.6	1000	4.1	25.1	32.2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{o}C

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19	18/04/19		
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS4	WS5	WS4		
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: IV.116.19/DW	**Depth (m)**	0.10	0.70	0.90		
Reporting Date: 29/04/2019	**DETS Sample No**	403828	403829	403831		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	0.49	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	0.26	< 0.1	< 0.1		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	0.23	0.12	< 0.1		
Pyrene	mg/kg	< 0.1	MCERTS	0.23	0.10	< 0.1		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.39	< 0.1	< 0.1		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.6	< 1.6	< 1.6		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{o}C

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
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Tel : 01622 850410

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19	18/04/19	18/04/19	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS2	WS3	S1	WS4	
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: IV.116.19/DW	**Depth (m)**	0.10	0.70	None Supplied	0.90	
Reporting Date: 29/04/2019	**DETS Sample No**	403824	403827	403830	403831	

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	25	< 3	< 3	< 3	
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	114	3	< 3	< 3	
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	807	186	109	< 10	
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	946	189	109	< 21	
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	4	
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	6	< 2	< 2	6	
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	144	12	< 2	9	
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	899	52	5	< 3	
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	2573	370	612	< 10	
Aromatic (C5 - C35)	mg/kg	< 21	NONE	3622	434	617	< 21	
Total >C5 - C35	mg/kg	< 42	NONE	4568	623	726	< 42	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{O}C

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19	18/04/19	18/04/19	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS2	WS3	S1	WS4	
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: IV.116.19/DW	**Depth (m)**	0.10	0.70	None Supplied	0.90	
Reporting Date: 29/04/2019	**DETS Sample No**	403824	403827	403830	403831	

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	4	< 2	< 2	
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	3	
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{o}C

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Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19			
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS3	WS4			
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied			
Order No: IV.116.19/DW	**Depth (m)**	0.70	0.90			
Reporting Date: 29/04/2019	**DETS Sample No**	403827	403831			

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5			
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5			
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10			
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10			
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
MTBE	ug/kg	< 5	MCERTS	< 5	< 5			
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5			
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10			
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5			
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
Benzene	ug/kg	< 2	MCERTS	4	< 2			
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5			
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5			
TAME	ug/kg	< 5	MCERTS	< 5	< 5			
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5			
Toluene	ug/kg	< 5	MCERTS	< 5	< 5			
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10			
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5			
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
m,p-Xylene	ug/kg	< 2	MCERTS	< 2	3			
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2			
Styrene	ug/kg	< 5	MCERTS	< 5	< 5			
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10			
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5			
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5			
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5			
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10			
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30^{0}C

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 19-05639	**Date Sampled**	18/04/19	18/04/19			
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS3	WS4			
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied			
Order No: IV.116.19/DW	**Depth (m)**	0.70	0.90			
Reporting Date: 29/04/2019	**DETS Sample No**	403827	403831			

Determinand	Unit	RL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15			
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15			
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15			
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
4-Chloroanaline	mg/kg	< 0.15	NONE	< 0.15	< 0.15			
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15			
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 19-05639
Ivy House Environmental Ltd
Site Reference: Ward Recycling, Corbrigg, Chesterfield
Project / Job Ref: IV.116.19
Order No: IV.116.19/DW
Reporting Date: 29/04/2019

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
403823	WS1	None Supplied	0.50	18	Black sandy gravel with stones
403824	WS2	None Supplied	0.10	1.9	Black gravelly sand with stones
403825	WS2	None Supplied	0.50	12.5	Red gravelly sand with brick and stones
403826	WS3	None Supplied	0.10	6.3	Black gravelly sand with stones
403827	WS3	None Supplied	0.70	12.6	Black gravelly sand with stones
403828	WS4	None Supplied	0.10	13	Black gravelly sand with stones
403829	WS5	None Supplied	0.70	4.5	Black sand
403830	S1	None Supplied	None Supplied	11.6	Brown sandy gravel with stones
403831	WS4	None Supplied	0.90	24.7	Brown clayey sand
403832	WS4	None Supplied	1.60	12.3	Brown clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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UKAS TESTING 4480

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 19-05639
Ivy House Environmental Ltd
Site Reference: Ward Recycling, Corbrigg, Chesterfield
Project / Job Ref: IV.116.19
Order No: IV.116.19/DW
Reporting Date: 29/04/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Dan Wade
Ivy House Environmental Ltd
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Ockbrook
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DETS Report No: 19-06008

Site Reference:	Ward Recycling, Corbrigg, Chesterfield
Project / Job Ref:	IV.116.19
Order No:	IV.116.19/DW
Sample Receipt Date:	30/04/2019
Sample Scheduled Date:	30/04/2019
Report Issue Number:	1
Reporting Date:	07/05/2019

Authorised by:

Dave Ashworth
Deputy Quality Manager

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Soil Analysis Certificate						
DETS Report No: 19-06008	**Date Sampled**	18/04/19	18/04/19	18/04/19	18/04/19	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Ward Recycling, Corbrigg, Chesterfield	**TP / BH No**	WS1	WS2	WS3	WS3	
Project / Job Ref: IV.116.19	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: IV.116.19/DW	**Depth (m)**	0.50	0.50	0.10	0.70	
Reporting Date: 07/05/2019	**DETS Sample No**	405306	405307	405308	405309	

Determinand	Unit	RL	Accreditation					
Asbestos Quantification (S)	%	< 0.001	ISO17025	0.001	0.003	< 0.001	0.002	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 19-06008
Ivy House Environmental Ltd
Site Reference: Ward Recycling, Corbrigg, Chesterfield
Project / Job Ref: IV.116.19
Order No: IV.116.19/DW
Reporting Date: 07/05/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX D

IVY HOUSE environmental

Tier 1 Generic Assessment Criteria

	Residential With Produce	Residential Without Produce	Allotments	Commercial (office)	Commercial (warehouse)
Arsenic	32.40	35.00	43.00	635.00	635.00
Cadmium	5.17	17.70	1.05	230.00	230.00
Mercury, elemental	1.02	1.02	316.00	109.00	83.40
Mercury, inorganic	169.00	238.00	80.30	3640.00	3640.00
Mercury, methyl	11.40	14.10	7.97	407.00	409.00
Selenium	350.00	595.00	121.00	13000.00	13000.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toluene	611.00	2710.00	118.00	189000.00	166000.00
Lead	210.00	210.00	84.00	2300.00	2300.00
Nickel	130.00	130*	180.00	980.00	980.00
Total Cyanide	34.00	34.00			
Benzo(a)pyrene	3.00	3.20	3.50	36.00	14.40
Dibenzo(a,h)anthracene	0.30	0.32	0.43	3.60	13.00
Acenapthene	1100.00	6000.00	200.00	100000.00	103000.00
Acenapthylene	920.00	6000.00	160.00	100000.00	103000.00
Anthracene	11000.00	37000.00	2200.00	540000.00	542000.00
Benzo(a)anthracene	13.00	15.00	13.00	180.00	97.50
Benzo(b)fluoranthene	3.70	4.00	3.90	45.00	103.00
Benzo(g,h,i)perylene	350.00	360.00	640.00	4000.00	661.00
Benzo(k)fluoranthene	100.00	110.00	130.00	1200.00	144.00
Chrysene	27.00	32.00	19.00	350.00	143.00
Fluoranthene	890.00	1600.00	290.00	23000.00	22700.00
Fluorene	860.00	4500.00	160.00	71000.00	70700.00
Indeno(1,2,3-c,d)pyrene	41.00	46.00	39.00	510.00	61.70
Phenathrene	440.00	1500.00	90.00	23000.00	22600.00
Pyrene	2000.00	3800.00	620.00	54000.00	54500.00
Napthalene	13.00	13.00	24.00	1100.00	875.00
Chromium VI	3.38	4.12	2.11	34.20	34.20
Chromium III	627.00	627.00	15300.00	8840.00	8840.00
Copper	2330.00	6200*	524.00	71700.00	71700.00
Vanadium	79.00	226.00	17.90	5590.00	5590.00
Zinc	3750.00	40400*	618.00	665000.00	665000.00

Note:
All figures are in mg/kg
Values calculated using CLEA v1.071
Soil type chosen is sandy loam, pH 7
All organic determinands calculated using 6% SOM
PAH = S4UL (except warehouse model - CLEAv1.071)
* Phytotoxic assessment based on pH range of <6.0 to >7.0
Copper = 100 - 200mg/kg
Nickel = 60 - 110mg/kg
Zinc = 200 - 300mg/kg

Generic Assessment Criteria

Contaminants	Land Use Scenario				
	Residential With Produce	Residential Without Produce	Allotments	Commercial (office)	Commercial (warehouse)
Benzene	0.33	1.00	0.07	94.70	80.30
Ethylbenzene	354.00	843.00	91.20	65700.00	55600.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toluene	611.00	2710.00	118.00	189000.00	166000.00
Xylene, o-	246.00	321.00	159.00	34600.00	27600.00
Xylene, m-	240.00	302.00	175.00	32700.00	26100.00
Xylene, p-	228.00	288.00	164.00	31400.00	25100.00
Aliphatic C5 - C6	113.00	113.00	3910.00	12800.00	10800.00
Aliphatic C6 - C8	48.10	48.20	13300.00	5470.00	4620.00
Aliphatic C8 - C10	108.00	109.00	1710.00	11900.00	10200.00
Aliphatic C10 - C12	537.00	538.00	7280.00	49300.00	43700.00
Aliphatic C12 - C16	3030.00	3040.00	13400.00	90500.00	89600.00
Aliphatic C16 - C35	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aliphatic C35 - C44	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aromatic C5 - C7	275.00	978.00	57.30	89900.00	76800.00
Aromatic C7 - C8	611.00	2710.00	118.00	189000.00	166000.00
Aromatic C8 - C10	151.00	189.00	50.50	17800.00	15700.00
Aromatic C10 - C12	346.00	866.00	73.80	34500.00	33800.00
Aromatic C12 - C16	593.00	1710.00	134.00	37800.00	37800.00
Aromatic C16 - C21	770.00	1340.00	260.00	28600.00	28600.00
Aromatic C21 - C35	1230.00	1340.00	1550.00	28600.00	28600.00
Aromatic C35 - C44	1230.00	1340.00	1550.00	28600.00	28600.00
Combined Ali & Aro C44 - C70	1300.00	1340.00	2950.00	28600.00	28600.00

Note:
All figures are in mg/kg
Values calculated using CLEA v1.071
Soil type chosen is sandy loam, pH 7
All organic determinands calculated using 6% SOM

APPENDIX 2

Phase I & II Site Investigation Report 2022

PRELIMINARY RISK ASSESSMENT & GEO-ENVIRONMENTAL ASSESSMENT (PHASE I & II)

LAND AT MANSFIELD ROAD, CORBRIGGS, CHESTERFIELD

SILVA RECYCLING LIMITED

AUGUST 2022

IVY HOUSE environmental

SUMMARY TABLE: PRELIMINARY RISK ASSESSMENT & GEO-ENVIRONMENTAL ASSESSMENT	
SITE:	Land at Mansfield Road, Corbriggs, Chesterfield, S41 0JW
CLIENT:	Silva Recycling Limited
DATE:	August 2022
REFERENCE:	IV.95.22
DEVELOPMENT PROPOSAL:	Change of use of an unused office unit with parking, to a waste transfer facility with raised buildings
HUMAN HEALTH:	No remediation necessary
CONTROLLED WATERS:	No remediation necessary
GAS RISK:	The temporary structures will need to be elevated with sufficient ventilation beneath. If permanent structures are to be built in the future, CS2 ground gas protection will be required
RADON GAS:	No protection required
MINE ENTRIES:	441368-001 – Trial trenches excavated. No sign of mine entry observed. 440368-004 – Present under existing building. This will need to be investigated post demolition of the building. Recommendations have been provided to mitigate long term risks which should be followed

Written:		Daniel Wade Senior Geo-environmental Engineer
Authorised:		David Johnson BSc (Hons) MSc (Eng) *Technical Director*
Date:	August 2022	
Version:	1.0	

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CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 PREAMBLE

This Preliminary Risk Assessment and Geo-Environmental Assessment (Phase I & II) has been produced for Silva Recycling Limited to provide a pre-development contamination and geotechnical assessment of the site known as Land at Mansfield Road, Corbriggs, Chesterfield, S41 0JW. The site use is proposed to be changed from an unused office unit with parking areas into a waste transfer facility.

1.2 SITE LOCATION

The site is located approximately 3.9 km south-west of Chesterfield town centre, comprising an area of approximately 0.8 Ha. The National Grid Reference (NGR) for the approximate centre of the site is SK 409 682. The site location, development proposal and site layout are illustrated in Appendix A.

1.3 PROJECT BRIEF

The brief for the Preliminary Risk Assessment and Environmental Assessment (Phase I & II) incorporates:

- A review and assessment of the site history, with reference to potentially contaminative uses.
- A review of regulatory authority and environmental data relating to the site and its environs.
- A site inspection.
- An appraisal of potential environmental risks.
- Development of a Phase I Conceptual Model.
- Provide a strategy for, and to implement, a Generic Quantitative and Geotechnical Assessment.
- Development of the Revised Conceptual Model.
- To provide recommendations to mitigate against environmental risks.
- Provide geotechnical design criteria for the proposed development.

1.4 DATA REFERENCES

- Environmental Search Data (Supplied by Emapsite Ltd).
- Historical Ordnance Survey (OS) Mapping (Supplied by Emapsite Ltd).
- British Geological Survey Online Geological Mapping.
- Zetica Online Risk Mapping.
- Information provided by North East Derbyshire District Council
- BSI (2011), BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites – Code of Practice.
- BSI (2015), BS 5930:2015+A1:2020 Code of practice for ground investigations.
- BSI (2015), BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
- EA (2020), Land Contamination Risk Management (LCRM).

1.5 LIMITATIONS

This report has been produced in accordance with industry best practice at the time of writing.

Ivy House Environmental Ltd has, in the production of this report, relied upon information provided by third parties. Ivy House Environmental Ltd does not warrant the accuracy of this information and will not be responsible for any opinions which Ivy House Environmental has expressed, or conclusions which it has drawn, in reliance upon information which is subsequently proven to be inaccurate.

All statements and opinions provided in this report have been reported in good faith and are based on the information gained during, and restrictions imposed by, site investigation

techniques used at the time. Ivy House Environmental cannot be held responsible for conditions not revealed by the investigation.

This report has been prepared for the sole use of the client and shall not be relied upon or transferred to third parties without the express written consent of Ivy House Environmental. Unauthorised third parties rely upon the information contained within this report at their own risk.

2.0 PRELIMINARY RISK ASSESSMENT (PHASE I)

2.1 SITE DESCRIPTION

The site currently comprises a derelict L-shaped office building known as Alexander House in the south of the site, with associated hardstanding car parking areas to the south-east and north-west. An overgrown disused paddock area occupies the northern area of the site, surrounded by numerous mature trees.

The site is bounded to the west by Mansfield Road (B6039), to the north by a larger paddock area, and to the east and south by a former industrial site.

2.2 DEVELOPMENT PROPOSAL

The site use is proposed to be changed from an unused office unit with parking, into a waste transfer facility comprising of temporary, portable freestanding structures. It is also understood that all, or most, of the site will be covered with a permanent cap.

2.3 ACCESS

Access to the site will be from the existing access off Mansfield Road.

2.4 HISTORICAL REVIEW: SITE DEVELOPMENT

Ordnance Survey maps have been reviewed between the years 1877 - 2022. The historical development of the site and the locality are detailed below. Copies of the OS maps are contained in Appendix C.

1877 – The site is illustrated as agricultural land. A railway line is present 200 m south-west of the site. A quarry and gasometer are present 300 m south of the site. Grassmoor Colliery is located 500 m to the south. The centre of 'Corbridge' village is located approximately 200 m south.

1898 – The south of the site is occupied by a colliery, including two shafts and a railway line which connects to Grassmoor Station 100 m to the north-west. The gasometer to the south is no longer present, and the adjacent quarry is identified as a clay pit accompanied by a brick kiln. A sewage tank is present 500 m to the north-west.

1918 – A railway line and sidings occupy the northern region of the site, running east to west. The former colliery and shafts in the south are marked as 'old' and are presumably disused. The village name has changed to Corbriggs.

1921 – A sewage works is present 500 m to the north-west.

1962 – A garage is present immediately south of the site. The railway in the north of the site appears to be dismantled, however the sidings remain. Opencast workings are located 250 m north of the site.

1967 – Grassmoor Colliery to the south is no longer present, replaced by a sports ground and a mine.

1976 – Much of the nearby railway, including Grassmoor Station, have been dismantled or are no longer present. A large area of disused tips is marked 500 m to the south-west.

1980 – The sewage works in the north-west are no longer present.

1981 – A scrap yard is present 50 m to the west.

1992 – The site appears to reflect the present-day layout, comprising an L-shaped office building. Opencast workings are located 250 m west. The garage to the immediate south is now labelled as a depot.

2.4.1 SUMMARY

The site originally comprised agricultural land prior to its development in 1898, with a section of railway in the north and part of a colliery in the south. Two mine shafts were present on site as part of the colliery. This colliery was disused by 1918, and the railway was dismantled circa 1962. The layout of the site has remained unchanged since 1992.

The surrounding area has been subject to commercial uses, including a quarry, gasometer, sewage works, garage, opencast workings, railway station, and scrapyard within 500 m of the site.

2.5 ANTICIPATED GEOLOGY

The BGS Geology Viewer illustrates bedrock of the Pennine Middle Coal Measures Formation in the south of the site, and Top Hard Rock (Sandstone) in the far north.

No superficial deposits are indicated to be present at the site.

A significant amount of Made Ground is anticipated considering the site history.

2.6 HYDROGEOLOGY & HYDROLOGY

2.6.1 Hydrogeology;

Both the Pennine Middle Coal Measures Formation and Top Hard Rock (Sandstone) are classified by the Environment Agency as Secondary A Aquifers of variable permeability, important for local supplies and supplying base flow to rivers.

There are no licensed groundwater abstractions within 500 m of the site, and the site is not located within a groundwater Source Protection Zone (SPZ). No information on groundwater levels is available for the site.

2.6.2 Hydrology;

The nearest surface water body (Unnamed river) is located approximately 115 m south-east of the site.

Environment Agency data suggests that the site does not lie within an indicative fluvial floodplain.

2.7 COAL FIELDS

A Coal Mining Risk Assessment (CMRA) has been undertaken by Ivy House Environmental. The CMRA should be read in conjunction with this report.

The summary of the risk assessment are detailed below;

Coal Mining Issue	**Yes**	**No**	**Risk Assessment**
Underground mining (recorded at shallow depths)		No	Negligible – Top Hard is known to have been worked but is of sufficient depth to not pose a risk to the development
Underground mining (unrecorded probable at shallow depths)		No	Negligible
Recorded Mine entries (shafts and adits)	Yes		High - Two mine entries are reported to be present on site. These will require further investigation to determine the condition prior to development of the site.
Unrecorded Mine entries (shafts and adits)	Yes		Low Risk – may be reduced to negligible by following recommendations in Section 6.
Mining geology (fissures)		No	Negligible
Record of past mine gas emissions		No	Negligible
Surface mining (opencast workings)		No	Negligible

2.8 MINERAL RESOURCES

Two sites of potential small scale underground iron ore mining may have occurred, one on site, one approximately 920 m to the west. These are anticipated to be localised and unlikely to have resulted in difficult ground conditions.

2.9 POTENTIALLY CONTAMINATIVE LAND USES

Environmental search data supplied by Environmental Data Ltd (Appendix E) states that:

- There is one historical landfill (Refuse Tip) located 160 m to the south-west of the site, dated 1961.
- There are 2 No. licensed waste treatment facilities located 35 m east and 80 m south of the site, known as Trebelar Regeneration Limited and Ward Recycling respectively. Both facilities are noted to be active (it is known however, through anecdotal evidence that the Ward Recycling facility is not operational).
- There are 4 No. discharge consents within 250 m of the site.
  - 95 m to the east: Site drainage comprising contaminated surface waters from Plant Yard Development. Revoked in 2010.
  - 145 m to the south-east: Unspecified trade discharges from Avenue Coking Works. Revoked in 1991.
  - 230 m to the north-west: Treated sewage effluent from Hornbeam & Other House.
  - 240 m to the south: Unspecified trade discharges from Avenue Coking Works.
- There are no hazardous substance or IPC consents located within 250 m of the site.
- There are no fuel sites located within 500 m of the site. A garage was present immediately south of the site, dated 1961.

2.10 UNEXPLODED ORDANANCE (UXO) RISK

A review of online risk mapping provided by Zetica has identified that there is a low risk of unexploded ordnance (UXO) at the site.

2.11 ASBESTOS

No Asbestos containing materials are used or were observed on site, however it is possible that ACMs may be present within the building structure.

2.12 RADON GAS ASSESSMENT

The site has been assessed following the guidelines in “Radon: guidance on protective measures for new buildings” (BR 211 - BRE, 2015).

The site is not within an area recorded to require basic or full Radon precautions, as shown by a statistical analysis of Radon in houses by the National Radiological Protection Board (Annex A BRE211).[reference should updated to 'Public Health England' - can't verify without copy of BR211, 2015]

The Joint Indicative Atlas of Radon in Great Britain published by Public Health England/British Geological Survey (2011), indicates that the site has less than 1% of houses exceeding the Action level for Radon.

2.13 PLANNING REVIEWS

The Online Planning Portal for North East Derbyshire District Council was accessed on 4th August 2022 to review planning applications pertaining to the site in order to identify any potentially contaminative activities or potential planning constraints.

No potentially contaminative activities or other information pertinent to this assessment was identified from the historical planning records.

2.14 PREVIOUS REPORTS

Ivy House Environmental has obtained the following report relating to the Site:

- Ivy House Environmental, Phase II Environmental Assessment, Land at Mansfield Road, Corbriggs, Chesterfield (Ref. IV.95.22 PHII), dated February 2020.

This report relates to the area immediately to the east and south of the site, revealing Asbestos presence across the site within Made Ground, alongside localised elevated concentrations of PAHs. It is stated that remediation is required, via hotspot removal or the installation of a capping layer. A negligible risk to controlled waters was identified, and no risk of hazardous ground gases.

3.0 PRELIMINARY RISK ASSESSMENT CONCEPTUAL MODEL

3.1 SOURCE-PATHWAY-RECEPTOR

The conceptual model for the site considers the development proposal for industrial/commercial use and the preceding information.

The site's former uses as a railway in the north and colliery in the south are considered in respect to potential contaminative sources.

Potential contaminants of concern for the end user include Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons, and Asbestos.

Pathways for the end user of the site include direct contact (dermal) with potentially contaminated soil dust, ingestion and inhalation of potentially contaminated soil dust, and inhalation of potential ground gas.

The primary receptors for the site are construction workers and end users of the site.

For the environment (controlled waters) the primary receptor are the Secondary A Aquifers underlying the site, and the nearby unnamed river located 115 m to the south-east.

Potential contaminants of concern for controlled waters include Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAHs), and Total Petroleum Hydrocarbons.

The primary pathway for controlled waters is the leaching and vertical migration of potential contaminants through the vadose zone to the saturated zone.

The development of the conceptual model is illustrated on Figure 3.1.

On the basis of the risks identified within this preliminary risk assessment and the associated conceptual model, it is considered that further assessments are required, including an intrusive ground investigation to inform a Generic Quantitative Risk Assessment for the site.

Figure 3.1: Conceptual Site Model

HUMAN HEALTH			
SOURCE	**PATHWAY**	**RECEPTOR**	**SOLUTION**
Potentially contaminated Made Ground from historical site use (Railway and Colliery). Potential contaminants of concern include Heavy Metals, PAHs, TPH, and Asbestos	Dermal contact with potentially contaminated soil dust, ingestion and inhalation of potentially contaminated soil dust	Construction Workers	Basic PPE for all workers (overalls, gloves, dust mask if required) and wash facilities/personal hygiene
		End Users	Geo-Environmental Assessment (Phase II) required in order to further assess the potential risks posed to end users
	Inhalation of potential ground gas		Ground gas monitoring recommended
Asbestos-containing materials (ACMs)	Inhalation of fibres	Construction Workers	Appropriate PPE for all workers as per HSE Regs. Screening and removal of any identified ACMs as part of an appropriate Asbestos Management Plan. Removal or encapsulation of material that may release asbestos fibres.
		End Users	
Potentially contaminated Made Ground and natural strata	Leaching into water supply pipes	Water Supply/End Users	Aluminium sheathed or steel water pipes may be required. Geo-Environmental Assessment (Phase II) required in order to further assess the potential risks posed to end users

CONTROLLED WATERS			
Potentially contaminated Made Ground from historical site use (Railway and Colliery). Potential contaminants of concern include Heavy Metals, PAHs, and TPH	Leaching and vertical migration through the vadose zone to the saturated zone	Secondary A Aquifers	Geo-Environmental Assessment (Phase II) required in order to further assess the potential risks posed to controlled waters
	Leaching and horizontal migration to surface waters	Surface Waters (unnamed river)	

4.0 ENVIRONMENTAL ASSESSMENT FIELDWORK

4.1 INTRODUCTION

The intrusive investigation was undertaken between the dates 6th July and 29th July 2022 under the supervision of a suitably qualified Ivy House Environmental engineer and in general accordance with the Code of Practice for Site Investigations BS5930: 2015+A1:2020.

The intrusive investigation incorporated the following:

- The advancing of 5No. window sample boreholes to a maximum depth of 2.0mbgl.
- The excavation of 4No. trial pits to a maximum depth of 3.0mbgl.
- The excavation of 1No. trial trench, looking for mine entry 441368-001
- The analysis of 7No. samples for a standard 'CLEA' screening suite and selected site specific determinands.

Exploratory Hole logs are contained within Appendix

4.2 RATIONALE

The intrusive investigation has been designed to facilitate an assessment of the general ground conditions across the site, including contaminant sources, pathways and receptors. The investigation has also been designed in consideration of the current site layout and access restrictions, the development proposal and health and safety issues, the rationale behind the location of each exploratory hole is detailed in table 4.1 below:

Table 4.1: Phase II Rationale

Hole ID	Location	Notes
TPA-TPD	General Grid	-
WSA-WSE	General Grid	-
TT1	Grid Reference - 441001 368220	Search for mine entry

4.3 LABORATORY ANALYSIS & TESTING

Selected soil samples were taken in sufficient quantities and placed in appropriate containers for the anticipated testing suites. Samples analysed at specialist UKAS/MCERTS accredited environmental and geotechnical laboratories or by field monitoring equipment as detailed in the following sections.

4.3.1 Chemical Analysis

A total of 6No. samples of Made Ground and 1No. sample of natural strata were sent for analysis at a UKAS/MCERTS accredited laboratory. The scheduled parameters are detailed in Table 4.2.

Table 4.2: Soil Analysis

Sample ID	Depth (mbgl)	Strata	Suite
WSA	0.2	Made Ground	CLEA
WSB	0.7	Pennine Middle Coal Measures	CLEA
WSC	0.2	Made Ground	CLEA
WSC	0.6	Made Ground	CLEA, TPH CWG, PCB & VOC
WSC	0.4	Made Ground	CLEA, TPH CWG
TTA	0.8	Made Ground	CLEA, TPH CWG
TPA	0.2	Made Ground	CLEA

The soil analysis results are contained in Appendix F.

4.3.2 Gas Monitoring

Monitoring installations were installed in borehole WSD; gas monitoring was undertaken using a GA5000 gas analyser on 3No. separate visits between the dates of 15th July and 15th August 2022. The analyser detects concentration by volume (%v/v) of Methane (CH4), Carbon Dioxide (CO2) and Oxygen (O2) and flow rate and air pressure.

The gas monitoring results are contained in Appendix G.

5.0 GROUND CONDITIONS

The intrusive investigation has revealed that Made Ground across the site overlies by the solid strata of the Pennine Middle Coal Measures.

5.1 MADE GROUND

Made ground materials were present at all locations. The depth and composition varied greatly.

In the paddock area and the northern car park (WSA, WSB, WSC, WSD, TPA, TPB & TPC) Made Ground was typically between 0.5 and 0.8m thick and comprised of reworked natural strata was occasional fragments of brick, concrete, tarmac and other natural gravels.

In the car park to the south of the building, Made Ground in WSE and TTA was observed to extend to 2.3mbgl. This also comprised reworked natural strata, however is thought to be associated with the former colliery activities at the site.

5.2 SOLID STRATA

Solid strata of the Pennine Lower Coal Measures were observed across the site, underlying the Made Ground.

In the paddock, a firm becoming stiff light brown slightly gravelly clay was observed. The gravels were a mix of mudstone and sandstone. In the central and southern car park however, the solid strata was a bluish grey slightly gravelly Clay, which were predominantly weathered mudstone gravels.

5.3 GROUNDWATER

Groundwater was only encountered during the initial site investigation in TTA at 2.0mbgl. This is thought to be perched water within the Made Ground, sat above the cohesive natural strata beneath.

5.4 MINE ENTRIES

A Coal Authority permit (permit number 25251) was granted to allow for exploratory activities to search for the reported mine entries, reference numbers 441368-001 and 440368-004.

A surveyor was employed to mark out the locations of both mine entries. The existing building was present above 440368-004 and therefore it was not possible to undertake exploratory activities for this mine entry.

A trial trench, TTA, was advanced at the marked-out location of 441368-001. The trench was excavated through Made Ground, until natural strata was encountered, at 2.3mbgl. The trench extended approximately 7m either side of the marked out location.

No features indicative of the reported mine entry were noted.

Given the likely inaccuracy of the reported co-ordinates and the significant volume of Made Ground encountered, it is not considered practical to extend the trial trench to further investigate for the presence of the mine entry.

It is understood that the future use of this area of the site includes replacing the existing car park surface with a permanent cap suitable for the passing of HGVs. In order to minimise risks to the future users of the site, the following proposals are recommended to mitigate any risks;

- During development, all contractors should be briefed on the possible presence of the mine entry and its recorded location.
- A watching brief is to be maintained by all contractors, looking out for potential features that could be associated with the mine entry—eg deeper conicle made

ground/brick lined circular feature. Should any features be identified, a geo-environmental engineer should be contacted immediately to inspect the feature and the area cordoned off.

- During construction of the permanent cap in the reported location of 441368-001, extra care should be taken.
- The permanent cap should be designed to be more robust in this general area (i.e. thicker capping layer, consideration to the use reinforcements).
- The proposed end use of this area should be designed to minimise vehicle movements and should be used for lightly loaded items only.

In addition, once the existing building has been demolished, a second round of exploratory works should be undertaken in search for mine entry 440368-004.

The Coal Authority may be consulted during the planning process and may provide comment on the activities undertaken to date.

6.0 GENERIC QUANTITATIVE RISK ASSESSMENT

The guidance detailed in section 1.4 has been followed to ensure that the risk posed to identified receptors, as detailed in the conceptual site model, is reported according to accepted compliance criteria.

The Contaminated Land Exposure Assessment (CLEA) guidance and published Soil Guideline Values (SGV) have been incorporated with Generic Assessment Criteria (GAC), for determinands which do not have a published SGV, to provide a competent Tier 1 Assessment. The GAC and methodology references are contained in Appendix H.

6.1 HUMAN HEALTH

When compared against the GAC for a commercial (warehouse) with hard standing end use there are no recorded contaminant exceedances.

6.1.1 Hydrocarbon Contamination

When compared against the GAC for a commercial (warehouse) with hard standing end use there are no recorded hydrocarbon exceedances.

6.1.2 Asbestos Contamination

Asbestos fibres were not detected in any of the soil samples.

6.2 CONTROLLED WATERS

The site is underlain by a Secondary A Aquifer.

The site investigation has shown negligible levels of contamination and cohesive strata being present across the site. As such the risk of contamination entering the aquifer is considered negligible.

6.3 GROUND GAS

A summary of the ground gas monitoring data is shown below.

Table 6.1 Ground Gas and Soil Vapour Summary

Sample Location	Peak Flow Rate (l/hr)	Peak Methane (%v/v)	Peak Carbon Dioxide (%v/v)	Peak GSV (l/hr)
WSD	0.1	1.5	15.1	0.0151

Concentrations of carbon dioxide and methane have been compared to the criteria outlined in CIRIA C665 where the gas screening value (GSV) (litres of gas per hour) is calculated.

The GSV is then assessed against the criteria within Table 8.5 of CIRIA C665. In adopting a worst-case assessment, using the highest gas concentration (carbon dioxide) of 15.1% v/v and maximum flow of 0.1l/hr, a GSV of 0.0151 l/hr is derived.

This preliminary assessment places the site within ‘Characteristic Gas Situation 1’ (based upon modified Wilson and Card methodology). However, due to high concentrations of Carbon Dioxide encountered (>5%v/v) the site is classified as being within ‘Characteristic Gas Situation 2’ and structures will therefore require gas protection measures.

Given that the site proposal is for temporary, free-standing structures which will be elevated from the ground to allow for ventilation, no remediation will be necessary.

7.0 REVISED CONCEPTUAL SITE MODEL

The conceptual model for the site considers the development proposal for industrial/commercial use and the preceding information.

The site's former uses as a railway in the north and colliery in the south are considered in respect to potential contaminative sources.

There have been no contaminants of concern identified during the site investigation.

Pathways for the end user of the site include the ingestion of soil and vegetables, direct contact (dermal) with soil and soil dust; ingestion and inhalation of soil dust; inhalation of soil vapours and ground gas.

The primary receptors for the site are construction workers and end users of the site.

No remediation is necessary to make the site safe for the proposed end use, other than to ensure that the temporary structures are elevated with sufficient ventilation beneath.

For the environment (controlled waters) the primary receptor is the Secondary A Aquifer (Pennine Middle Coal Measures) underlying the site.

There have been no contaminants of concern identified during the site investigation.

The primary pathway for controlled waters is the leaching and vertical migration of contaminants through the vadose zone to the saturated zone

The risk posed to controlled waters is considered negligible.

The development of the conceptual model is illustrated on Figure 7.1.

Figure 7.1: Revised Conceptual Site Model

HUMAN HEALTH			
SOURCE	**PATHWAY**	**RECEPTOR**	**SOLUTION**
No source identified	Ingestion of soil and vegetables, direct contact (dermal) with soil and soil dust; ingestion and inhalation of soil dust.	Construction Workers	No remediation required
		End Users (Residents)	
Ground Gases	Inhalation of gases	End Users (Residents)	Structures are proposed to be elevated and temporary buildings. Sufficient ventilation will be provided as a result – no further action required.
CONTROLLED WATERS			
No source identified	Leaching and vertical migration through the vadose zone to the saturated zone	Secondary A Aquifers	No remediation required
	Leaching and horizontal migration to surface waters	Surface Waters (unnamed river)	

8.0 RISK MANAGEMENT & REMEDIATION

Previous sections have quantified the risk posed to identified receptors which, in some instances, require remediation to protect or reduce levels of risk. The following section details measures and recommendations for dealing with risks associated with soil, gas and groundwater contamination in respect to the development proposal of waste transfer facility comprising of temporary, portable freestanding structures.

8.1 REMEDIATION TO PROTECT END USERS

No remediation is required to protect this receptor.

All temporary structures will need to be elevated above current ground level to ensure ventilation and no ingress of possible ground gas. The proposed temporary portable structures are therefore suitable, however if in the future, permanent buildings are constructed, gas protection measures in the form of CS2 mitigation measures will be necessary.

8.2 REMEDIATION TO PROTECT CONTROLLED WATERS

No remediation is required to protect this receptor.

8.3 REMEDIATION TO PROTECT CONSTRUCTION WORKERS

Basic PPE for all workers (overalls, gloves, dust/vapour mask if required) and wash facilities/personal hygiene.

Specifics relating to asbestos if required.

9.0 RECOMMENDATIONS

Recommendations for further assessment of the site include:

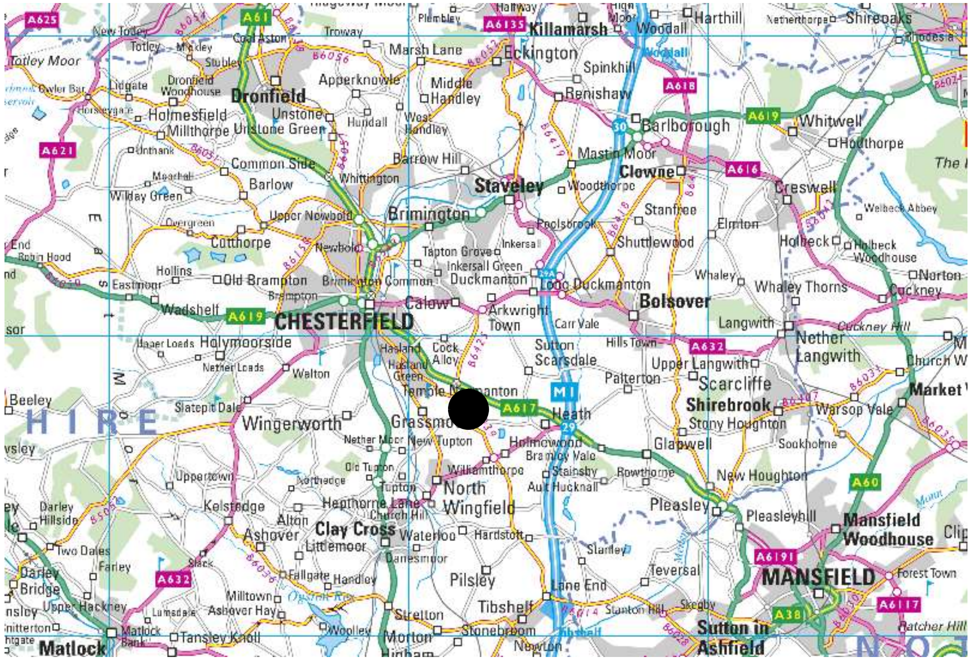
- Once the building has been demolished, the second mine entry (440368-004) should be investigated for under supervision of a suitably qualified person.
- The recommendations relating to mine entry 441368-001 should be followed (see Section 5.4).
- No remediation is required; however, any temporary structures are required to be raised to allow sufficient ventilation. Should permanent buildings be constructed in the future, CS2 ground gas protections will be required.

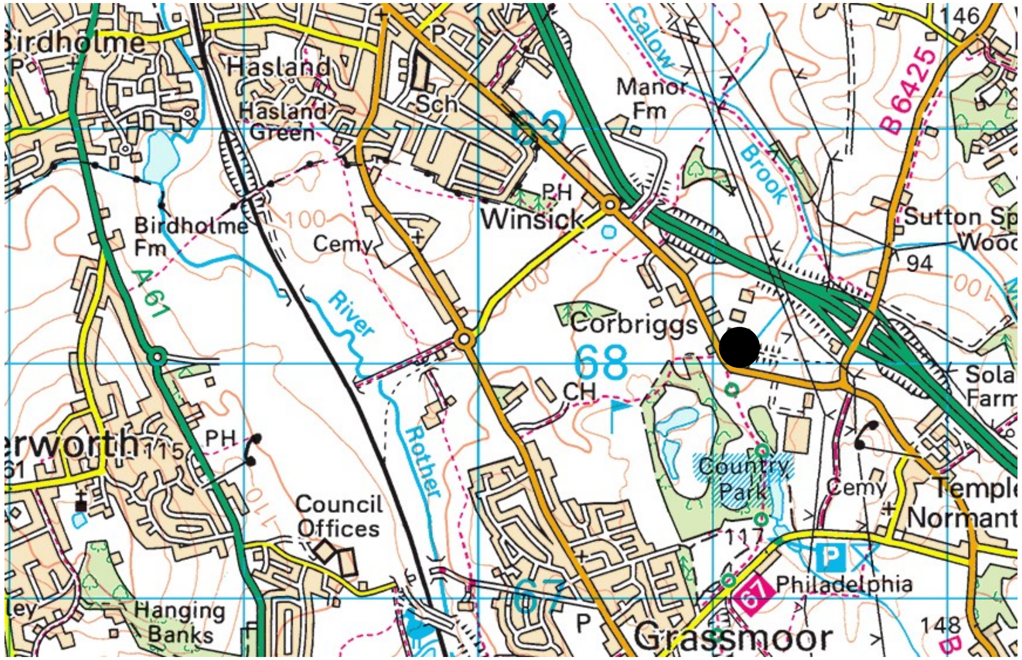
10.0 CONCLUSIONS

The Phase I and Phase II Assessment and the recommendations contained within has illustrated that the proposed development of the site for industrial use does not pose a risk to end users of the site or the environment.

It is considered that is the recommendations in Section 9 are followed the site can be made suitable for the proposed end use.

APPENDIX A





N

KEY:

● Approximate Site Location

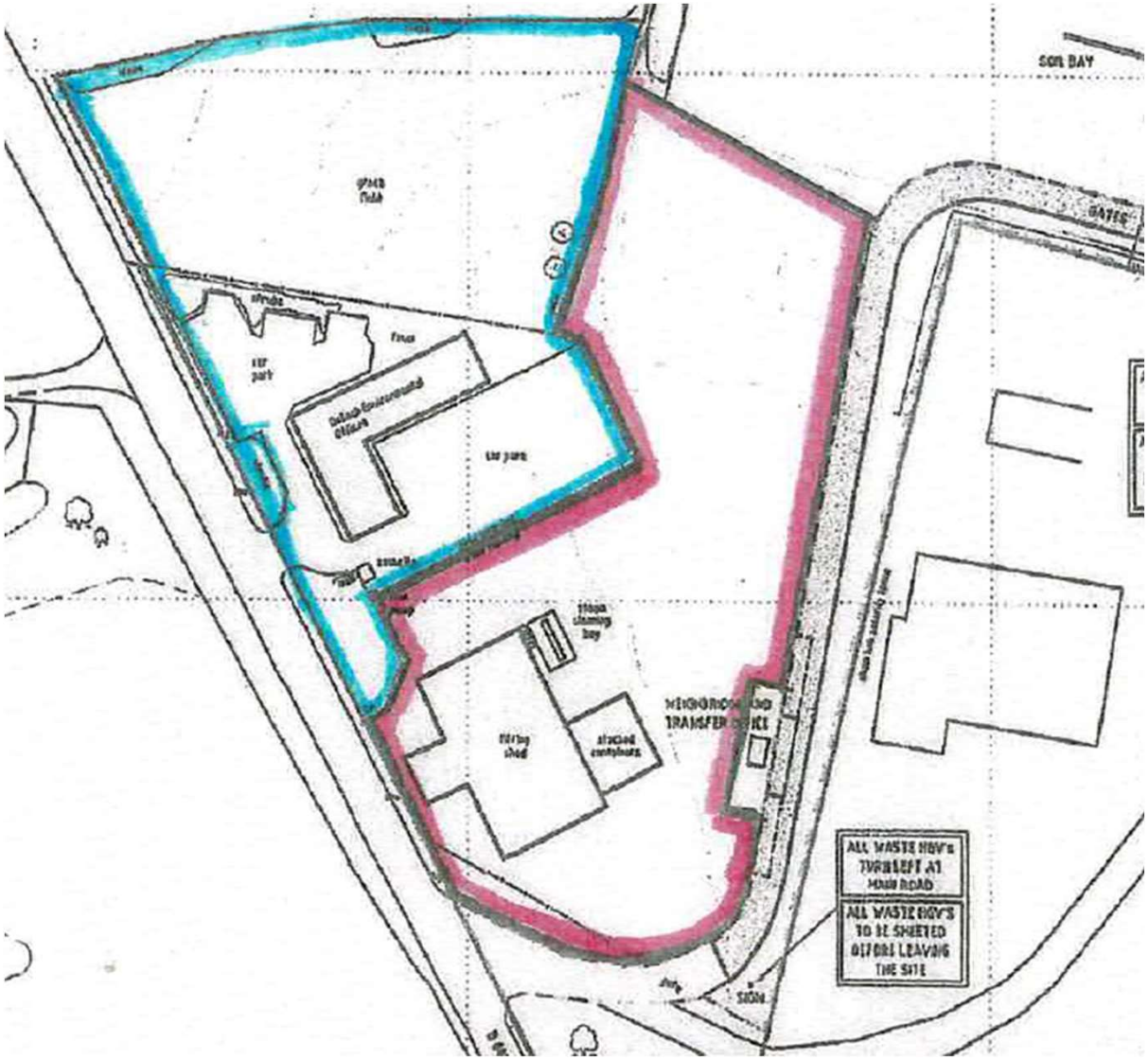
DO NOT SCALE

IVY HOUSE environmental

Scotland Farm, Ockbrook, Derby, DE72 3RX

rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE:	Site Location Plan
PROJECT:	Land at Mansfield Road, Corbrigg
PROJECT No:	IV.95.22
DATE:	08/2022
SCALE:	NTS
DRAWN:	DW
DWG No:	Figure 1



N

KEY:

New Application Site

Original Investigation Site

DO NOT SCALE

IVY HOUSE environmental

Scotland Farm, Ockbrook, Derby, DE72 3RX

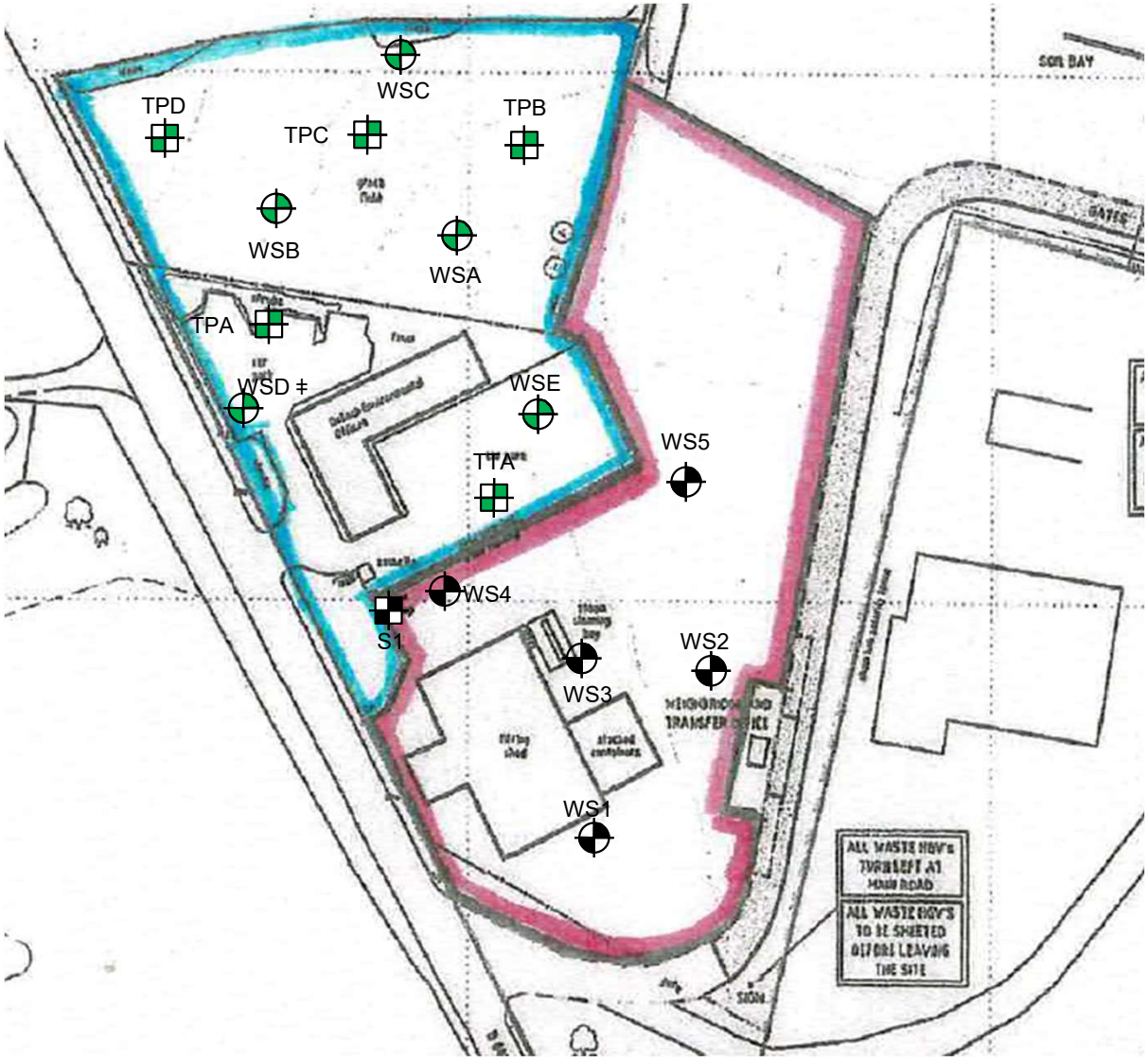
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE: Existing Site Layout

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No:	DATE:
IV.95.22	08/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 2



KEY:

- 2020 - WS Borehole
- 2020 - Hand Dug Sample
- 2022 - WS Borehole
  ‡ Denotes install
- 2022 – Trial Pit/Trench
  * Denotes mine entry

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TITLE: Borehole Location Plan

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No:	DATE:
IV.95.22	08/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 3

KEY:

DO NOT SCALE

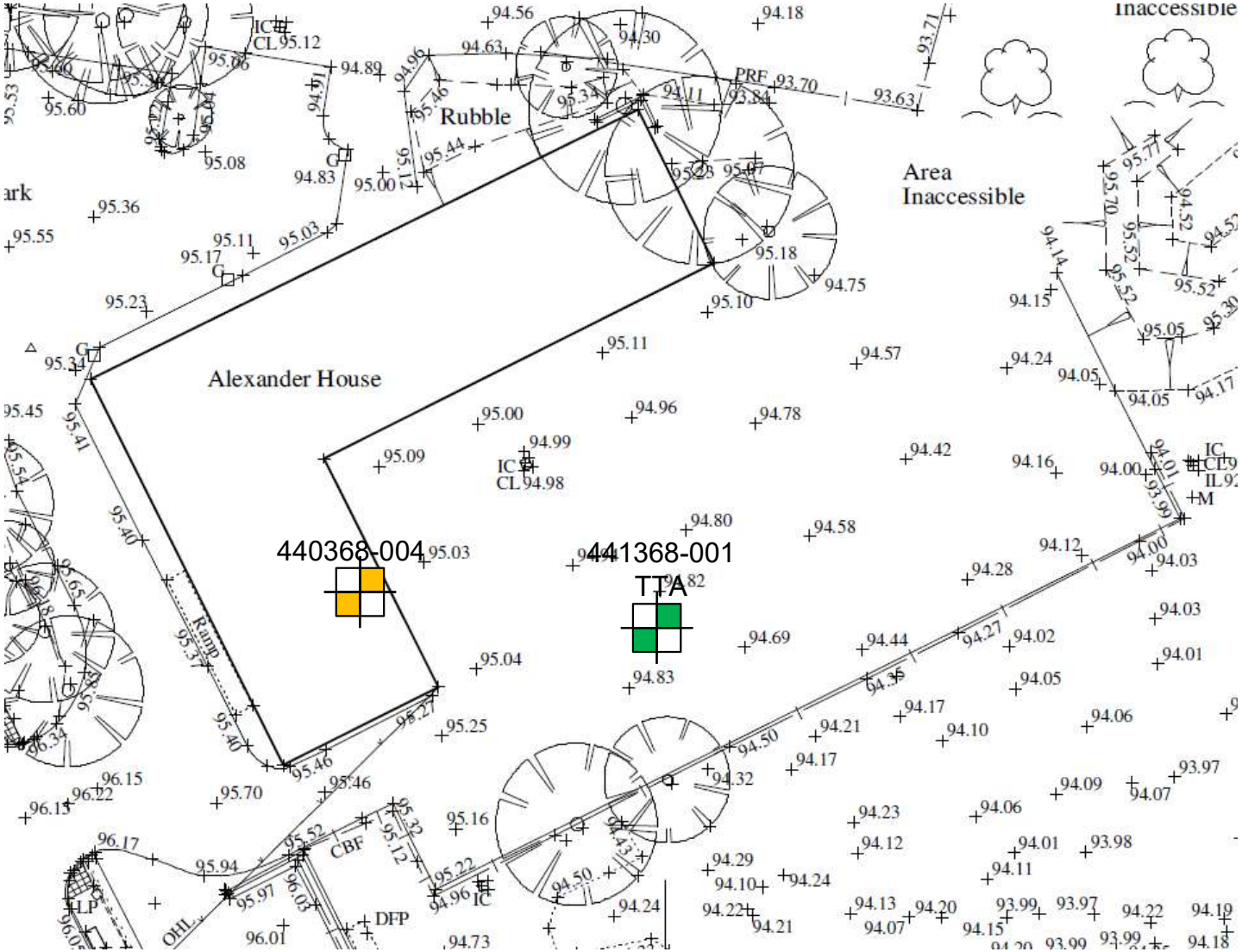
IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE: Site Topography

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No:	DATE:
IV.95.22	08/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 4



KEY:

Trial Trench Location

Future Trial Trench Location

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE: Approximate location of Mine Shafts

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No:	DATE:
IV.95.22	08/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 5

1.

2.

KEY:

1. Red X – marking location TTA (mine entry 441368-001)
2. Start of trial trench

DO NOT SCALE

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TITLE: Approximate location of Mine Shafts

PROJECT: Land at Mansfield Road, Corbrigg

PROJECT No:	DATE:
IV.95.22	08/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 6

3.

4.

KEY:

3. TTA – base of fill encountered
4. TTA – base of fill encountered

DO NOT SCALE

IVY HOUSE environmental
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rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 661 987

TITLE: Approximate location of Mine Shafts

PROJECT: Land at Mansfield Road, Corbrigg

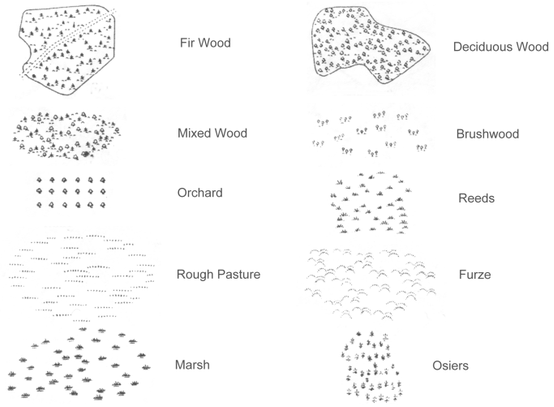
PROJECT No:	DATE:
IV.95.22	08/2022

SCALE :	DRAWN :	DWG No:
NTS	DW	Figure 7

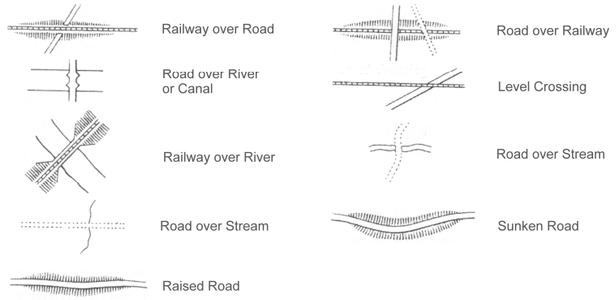
APPENDIX B

County Series 1:10,560 scale

VEGETATION

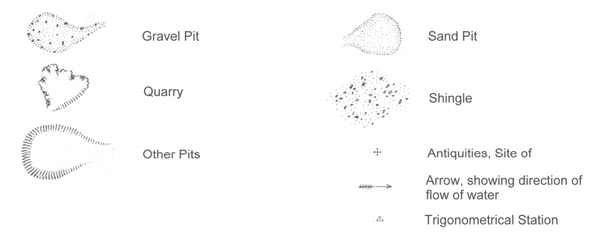


ROADS



RAILWAYS

GENERAL FEATURES



BOUNDARIES

National Grid 1:10,000 scale

HEIGHTS (METRES)

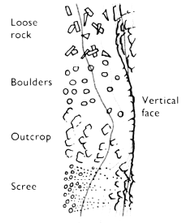
Values are given in metres above mean sea level at Newlyn.

Surface heights determined by: ground survey • 163m; air survey

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

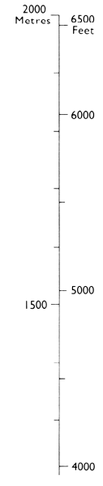
Contours are at 5 metres vertical interval.

ROCK FEATURES



CONVERSION SCALE

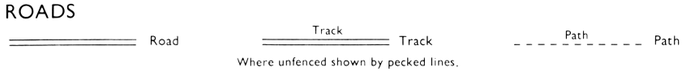
Metres - Feet



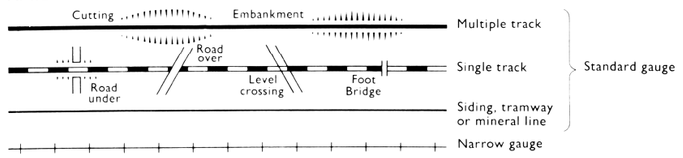
ABBREVIATIONS

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

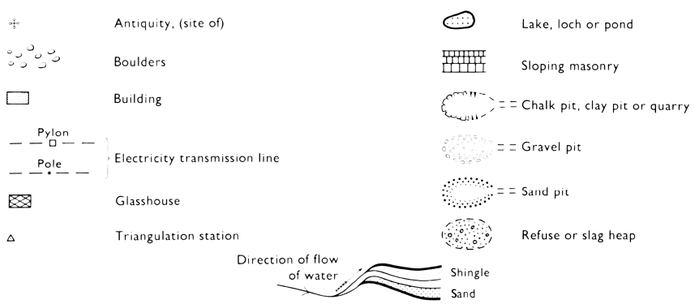
ROADS



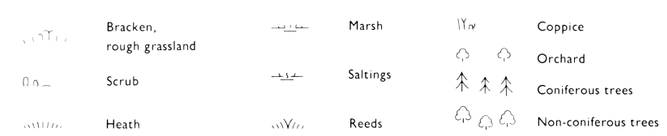
RAILWAYS



GENERAL FEATURES



VEGETATION



In some areas bracken ( ) and rough grassland ( ) are shown separately.

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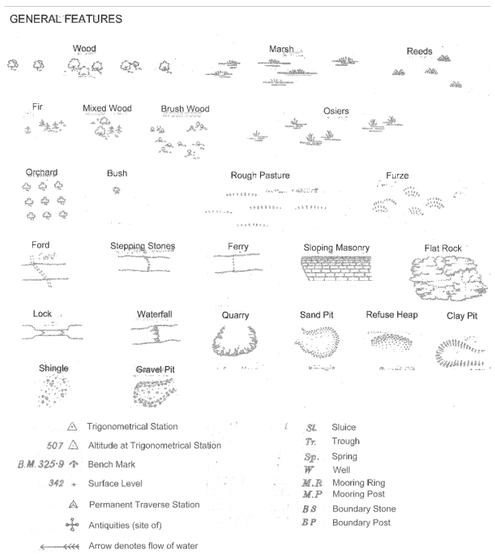

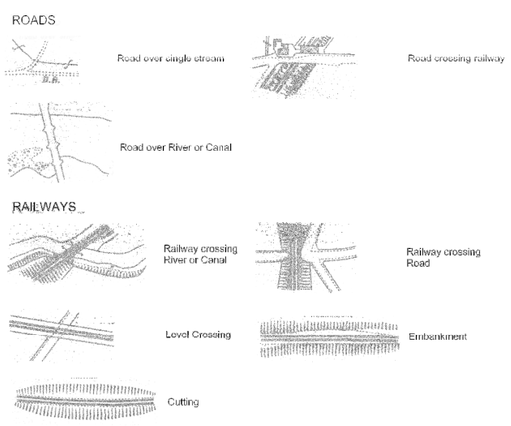

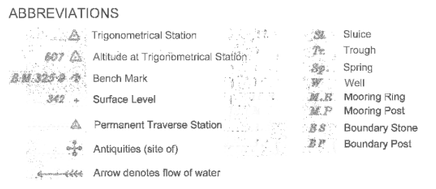

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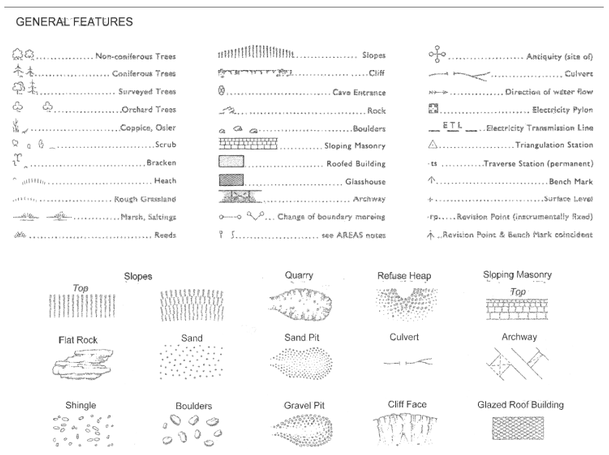

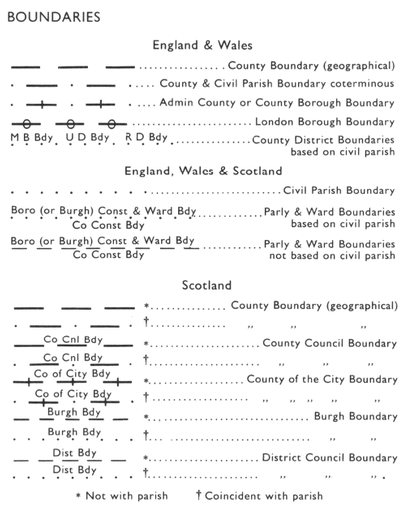

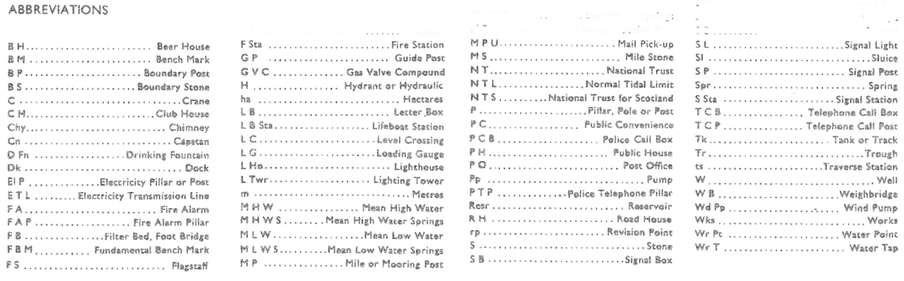

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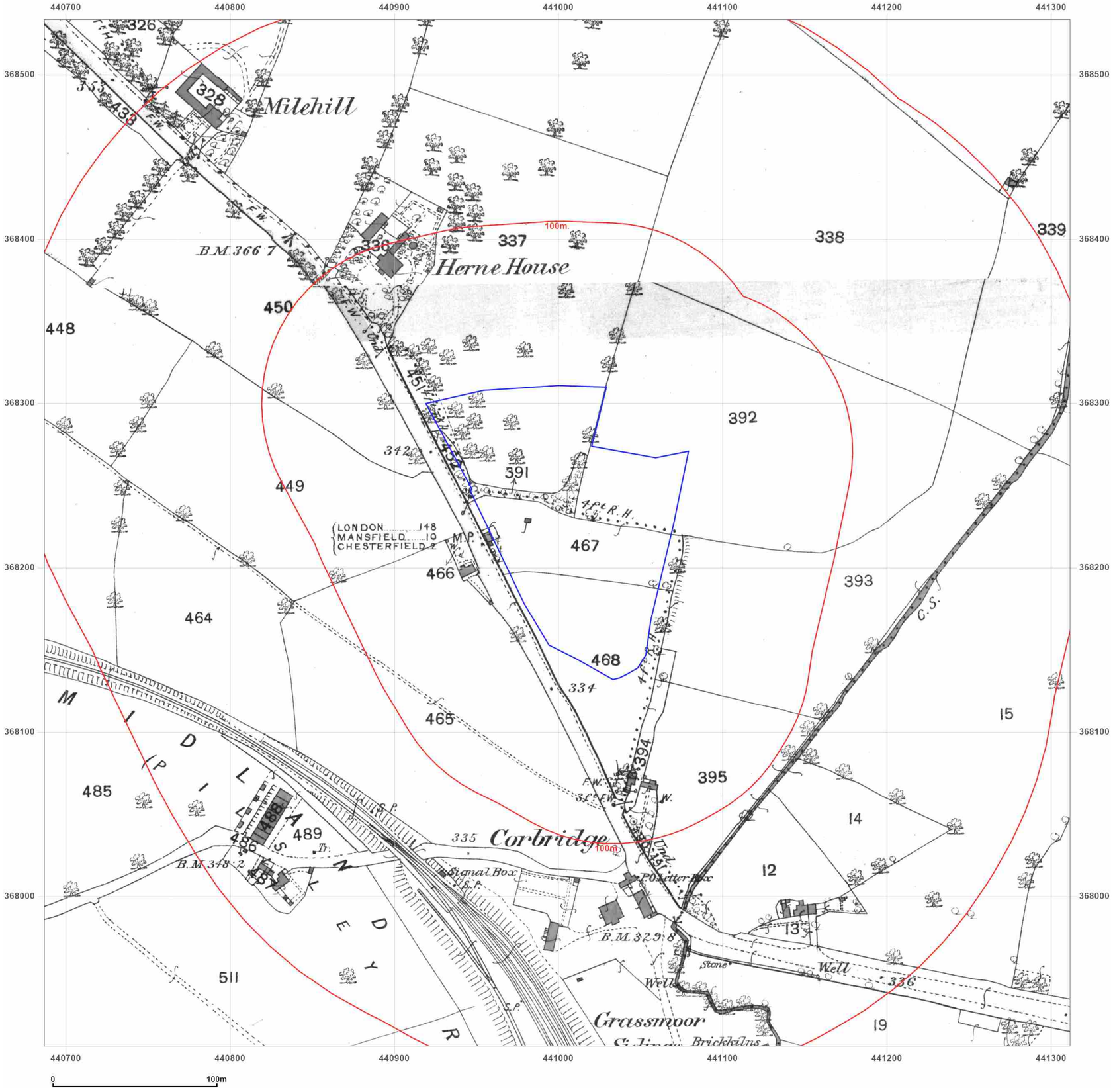

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1880-1882**

Scale: 1:2,500

Printed at: 1:2,500

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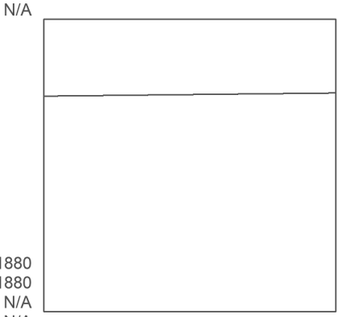
W E
S

Surveyed 1882
Revised 1882
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1880
Revised 1880
Edition N/A
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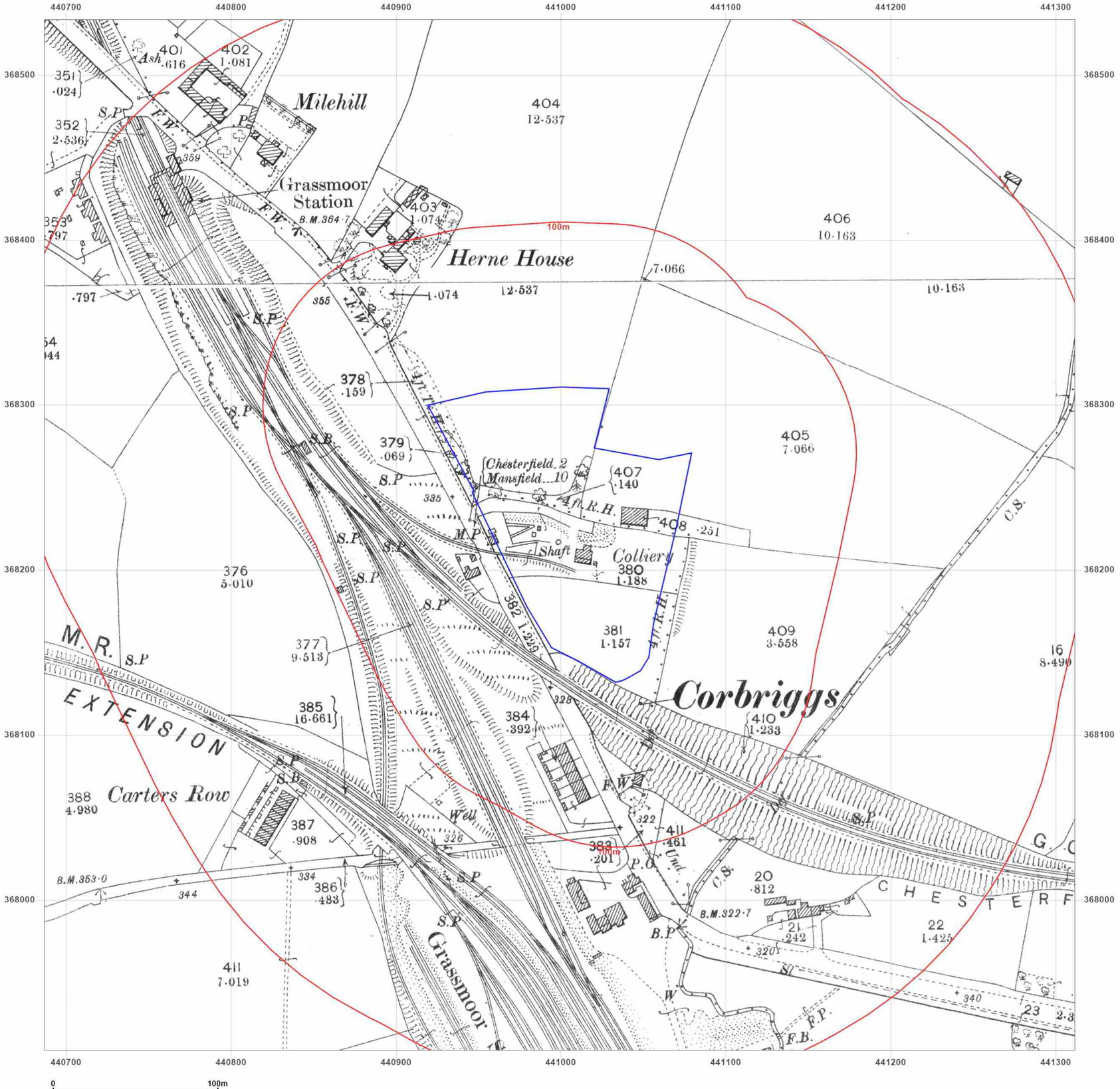

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Alexander House, Mansfield Road, Corbriggs

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Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

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Map date: **1898**

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W E
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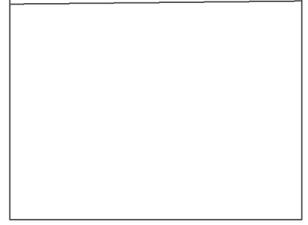
Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A



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Edition N/A
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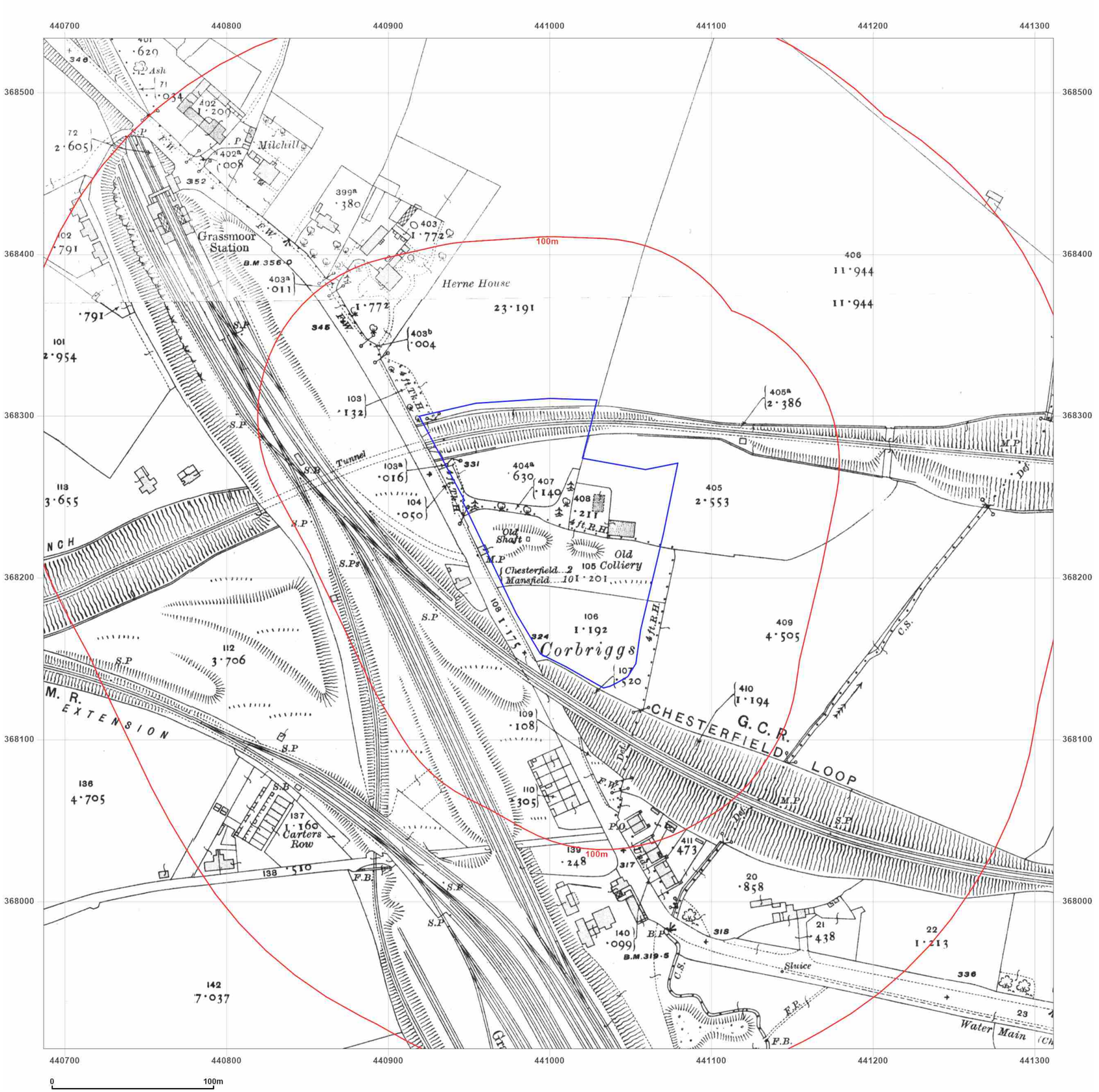

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Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1918**

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Printed at: 1:2,500

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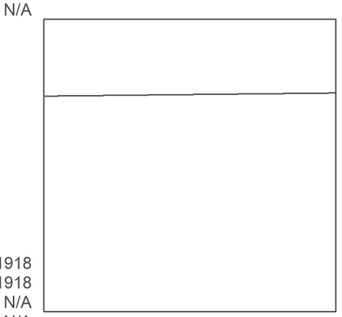
Surveyed 1918
Revised 1918
Edition N/A
Copyright N/A
Levelled N/A



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

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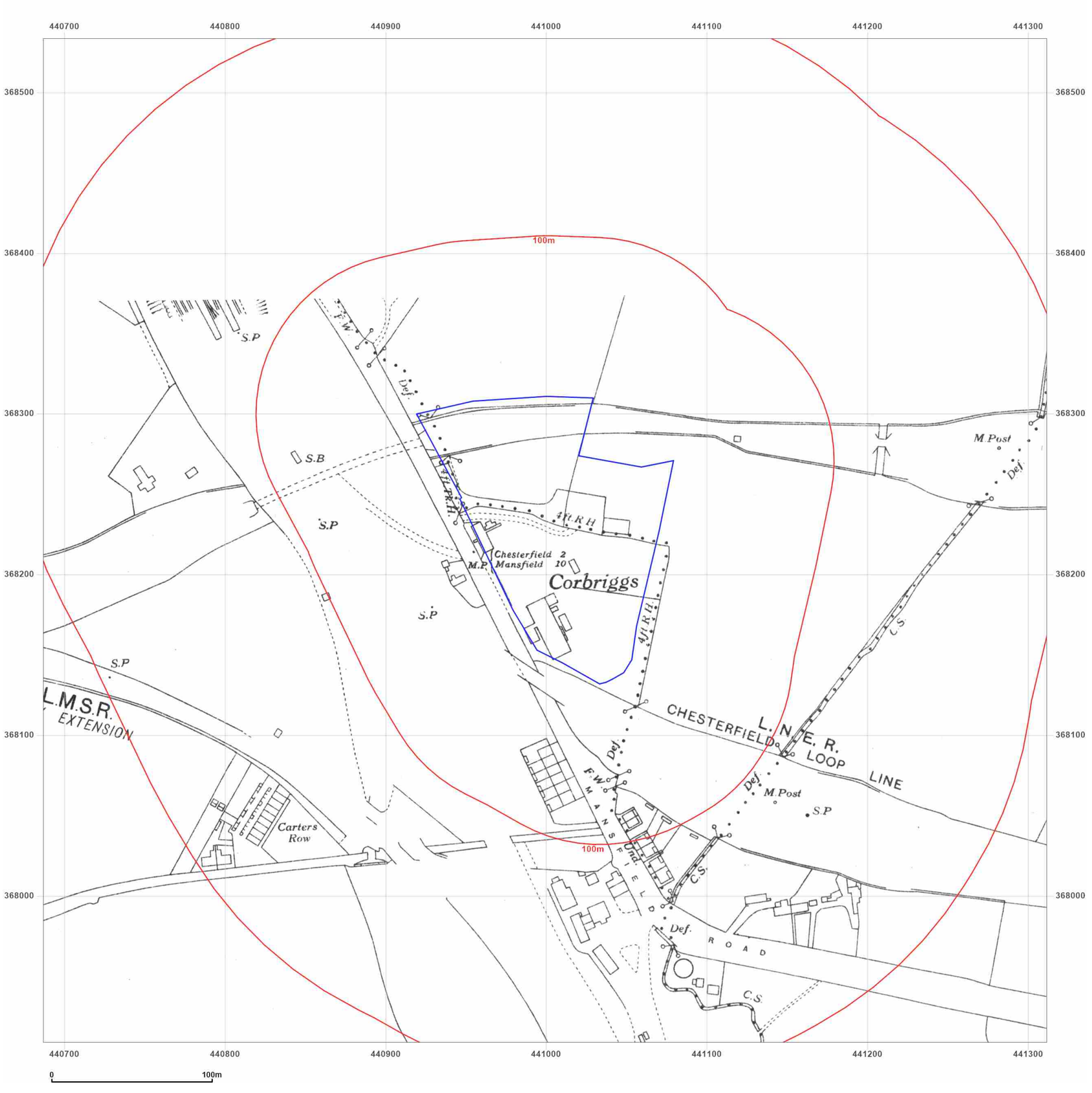

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1938**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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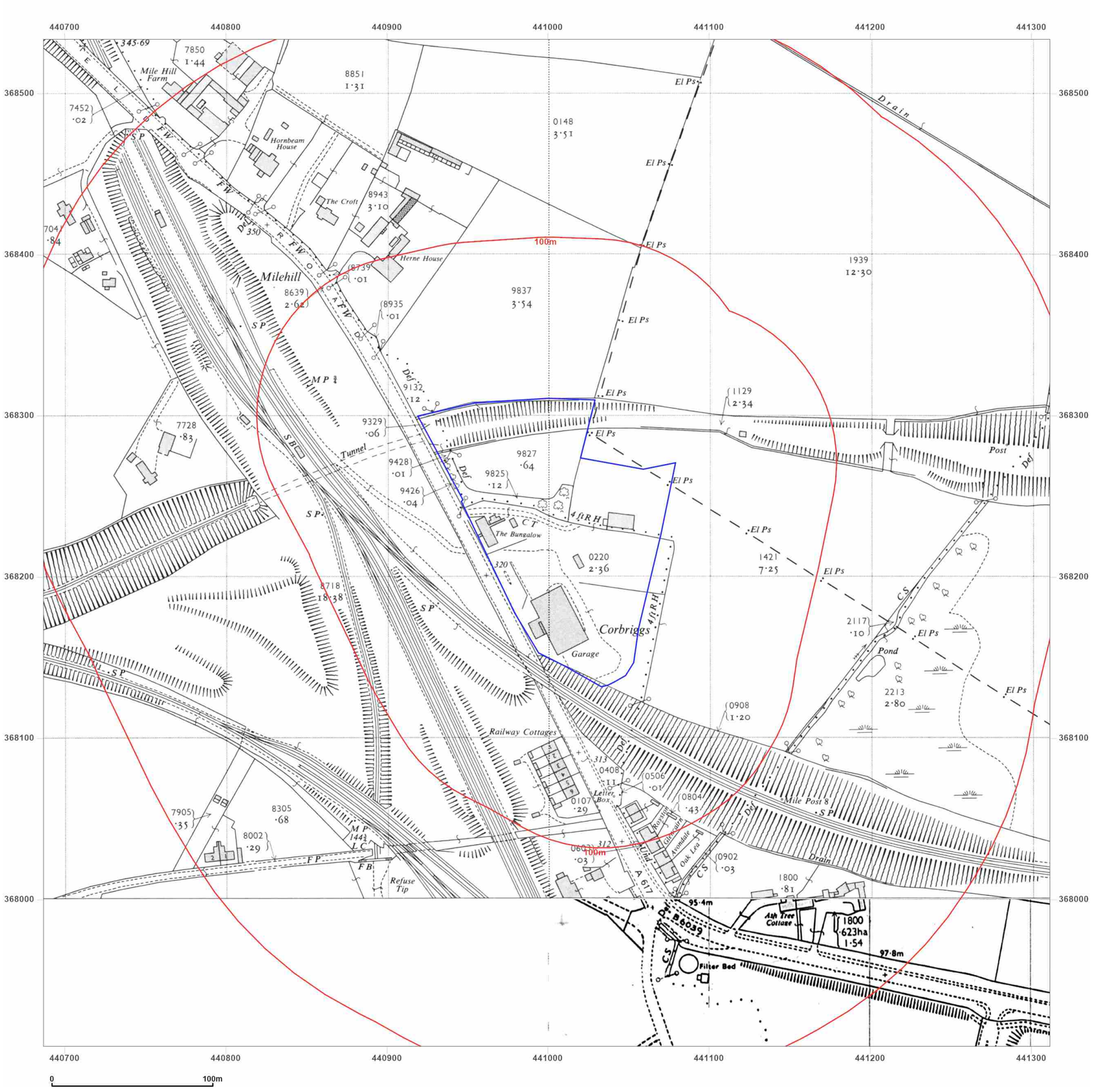

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1961-1962**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1961
Revised 1961
Edition N/A
Copyright 1962
Levelled 1949

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

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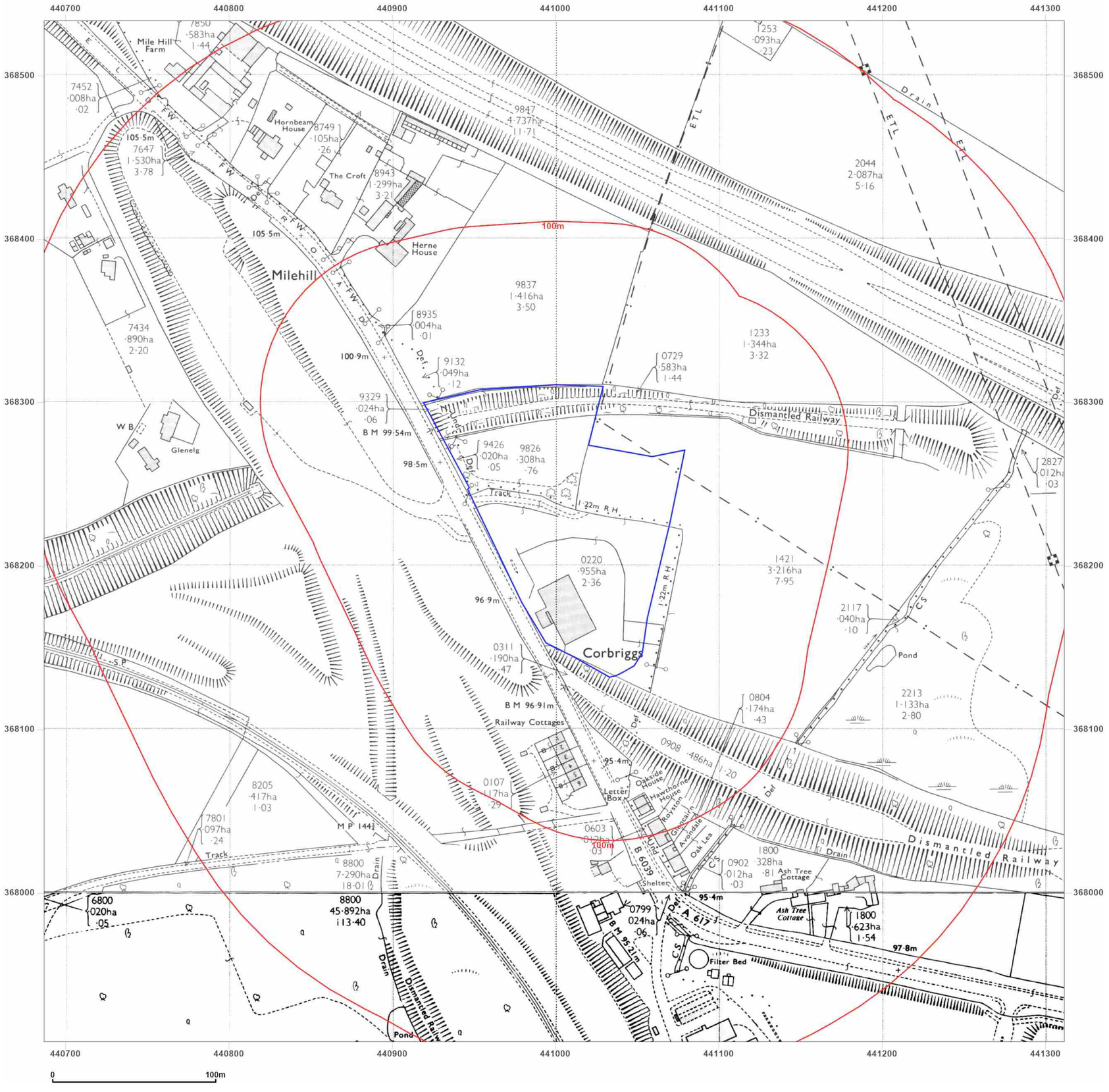

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1970-1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled N/A

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1970
Levelled N/A

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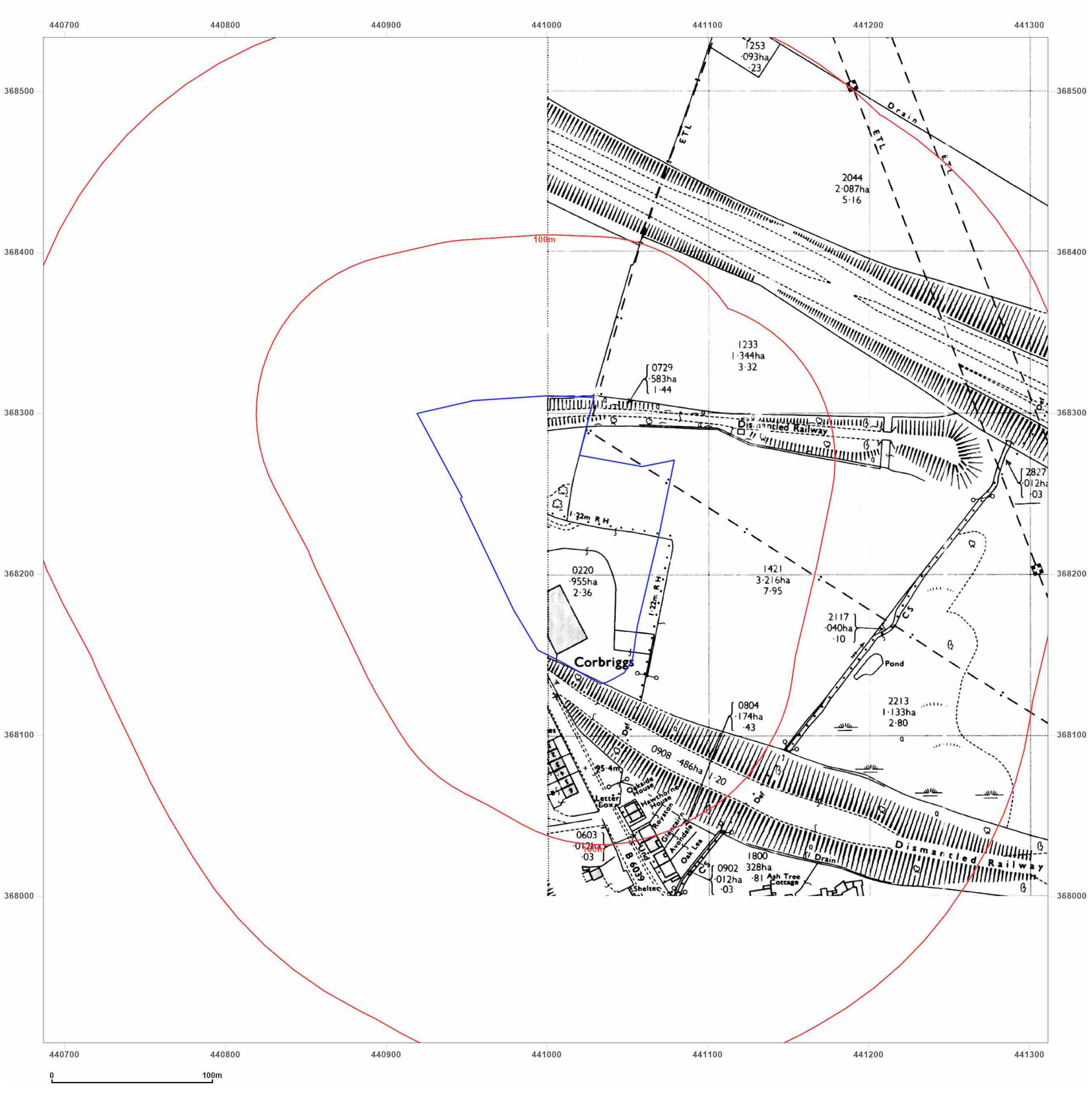

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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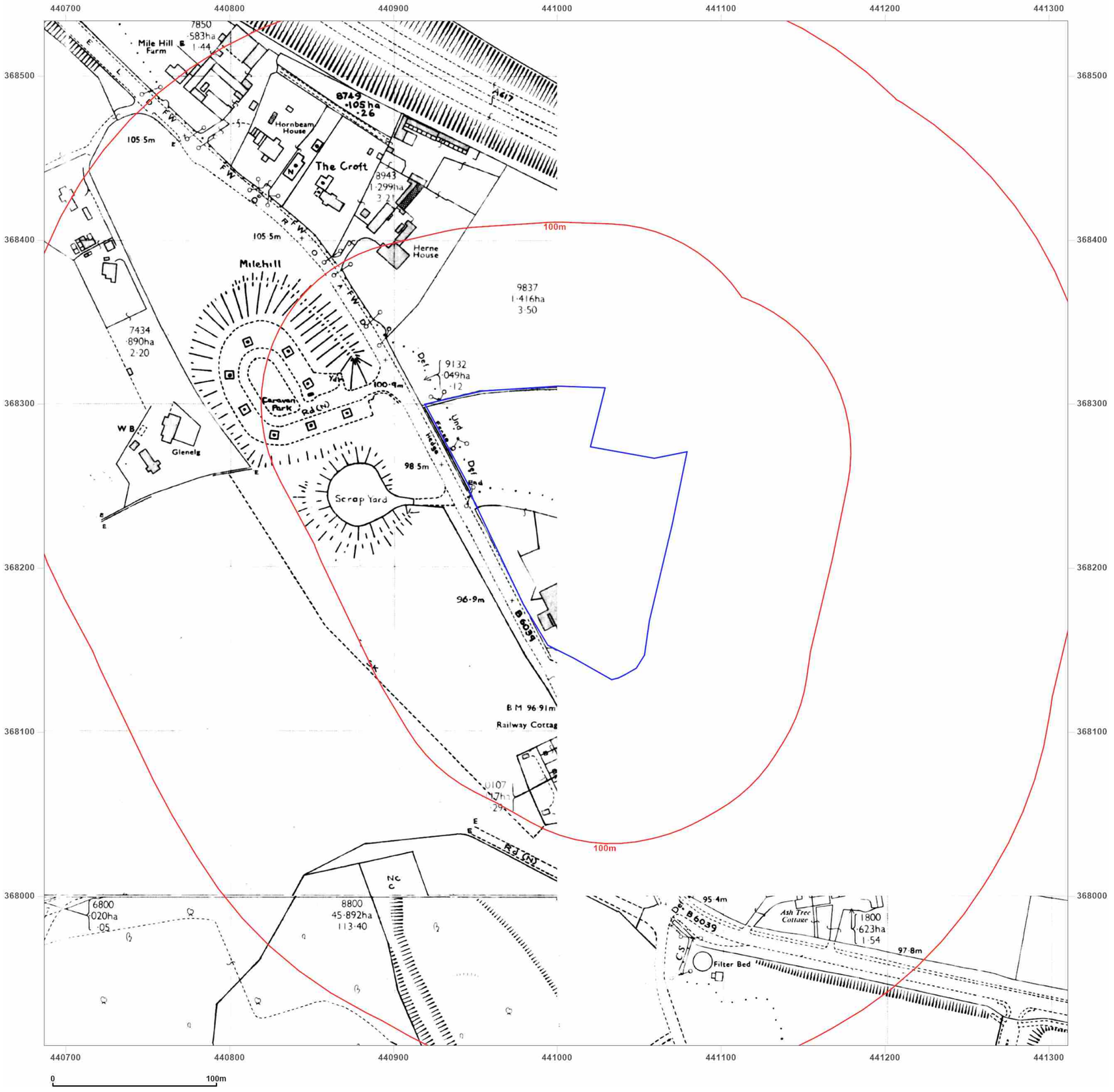

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1978-1981**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

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

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Revised N/A
Edition N/A
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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1979-1983**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1961

Surveyed 1982
Revised 1982
Edition N/A
Copyright 1983
Levelled 1961

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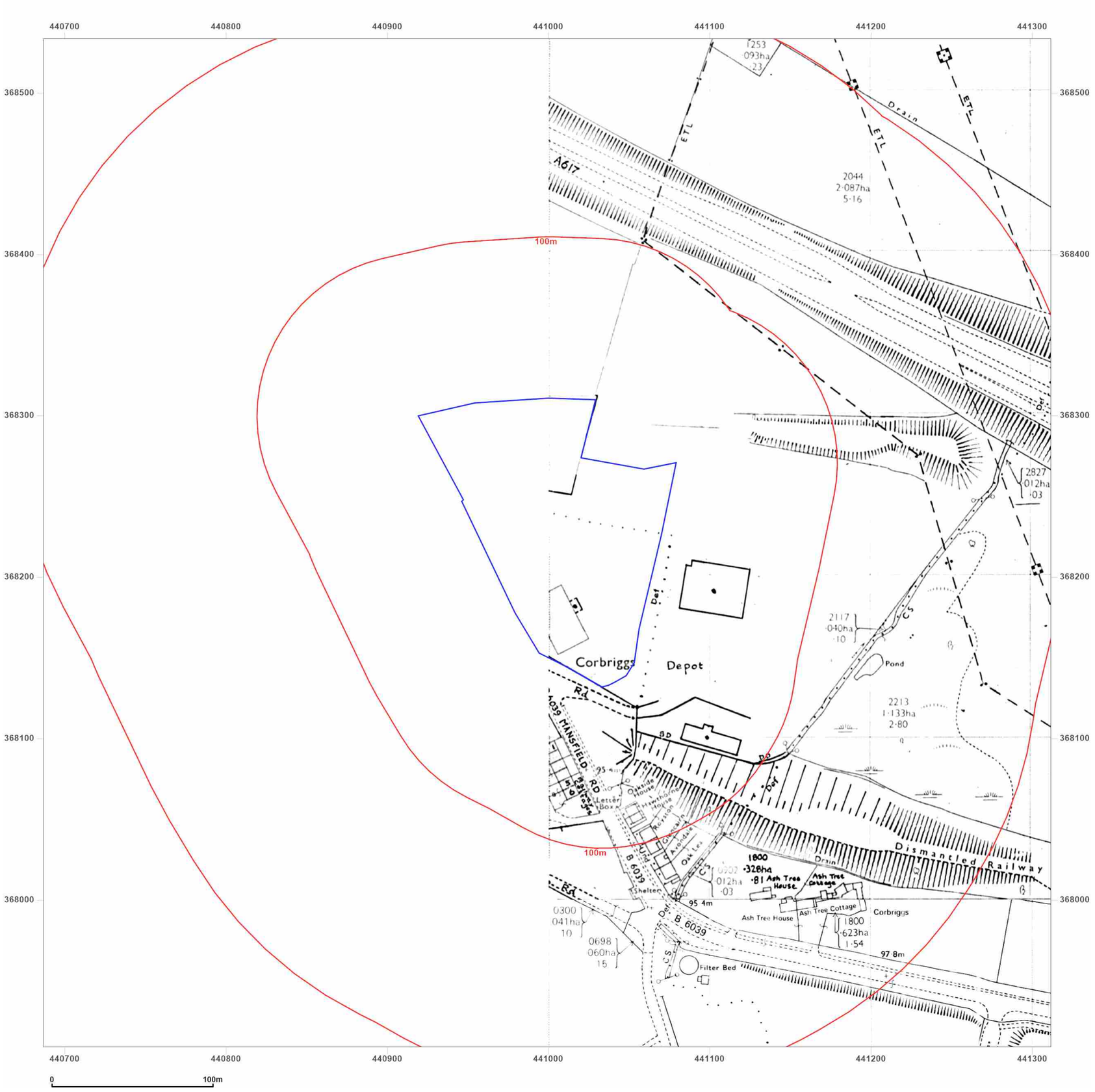


Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

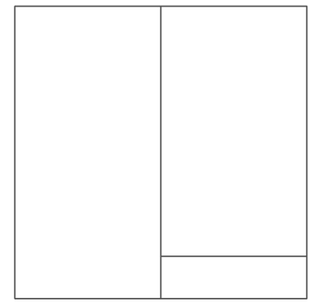
Map Name: National Grid

Map date: **1983-1985**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



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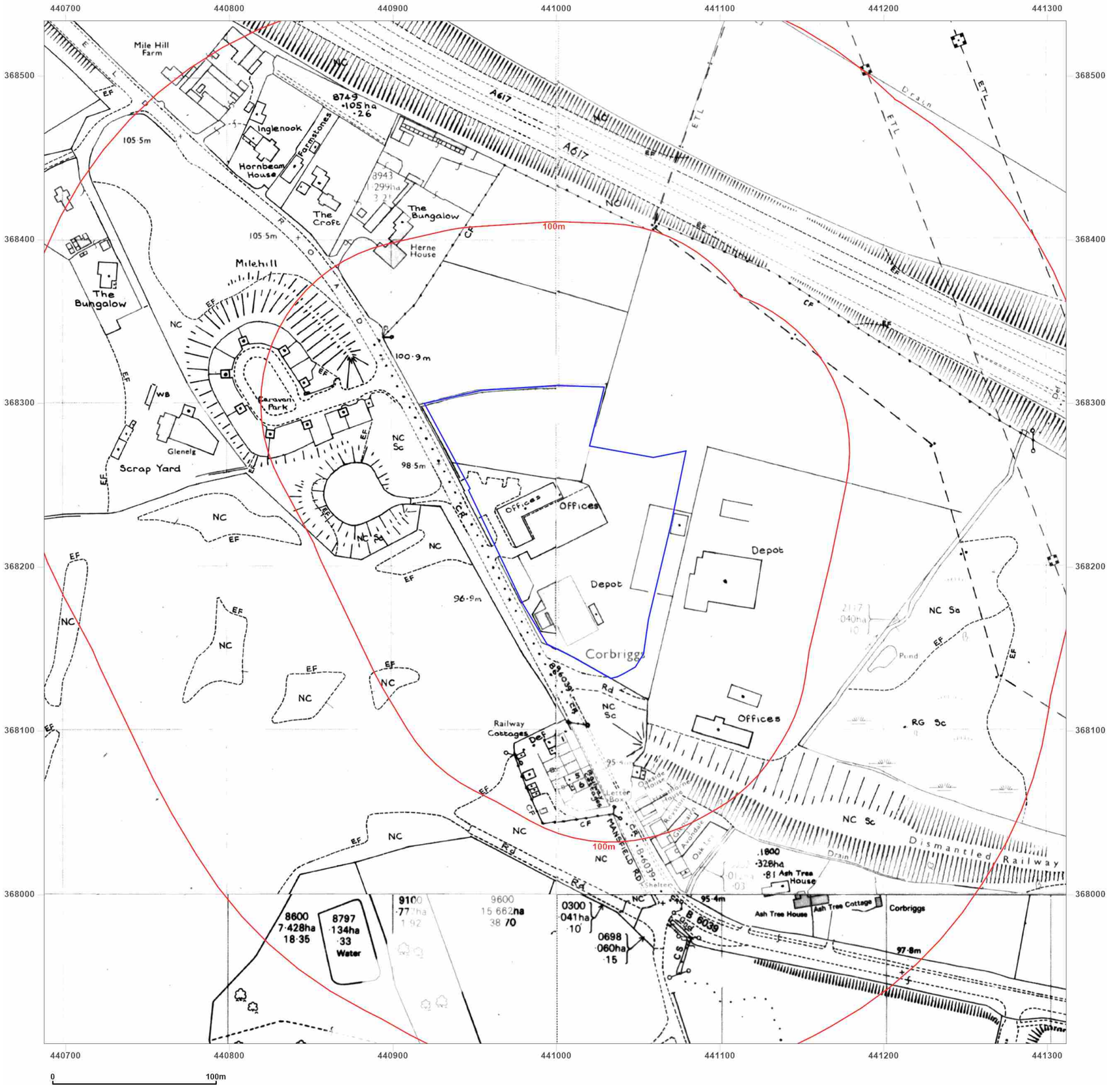

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1989-1992**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

Surveyed 1982
Revised 1982
Edition N/A
Copyright 1989
Levelled N/A

Surveyed 1961
Revised 1982
Edition N/A
Copyright 1992
Levelled 1961

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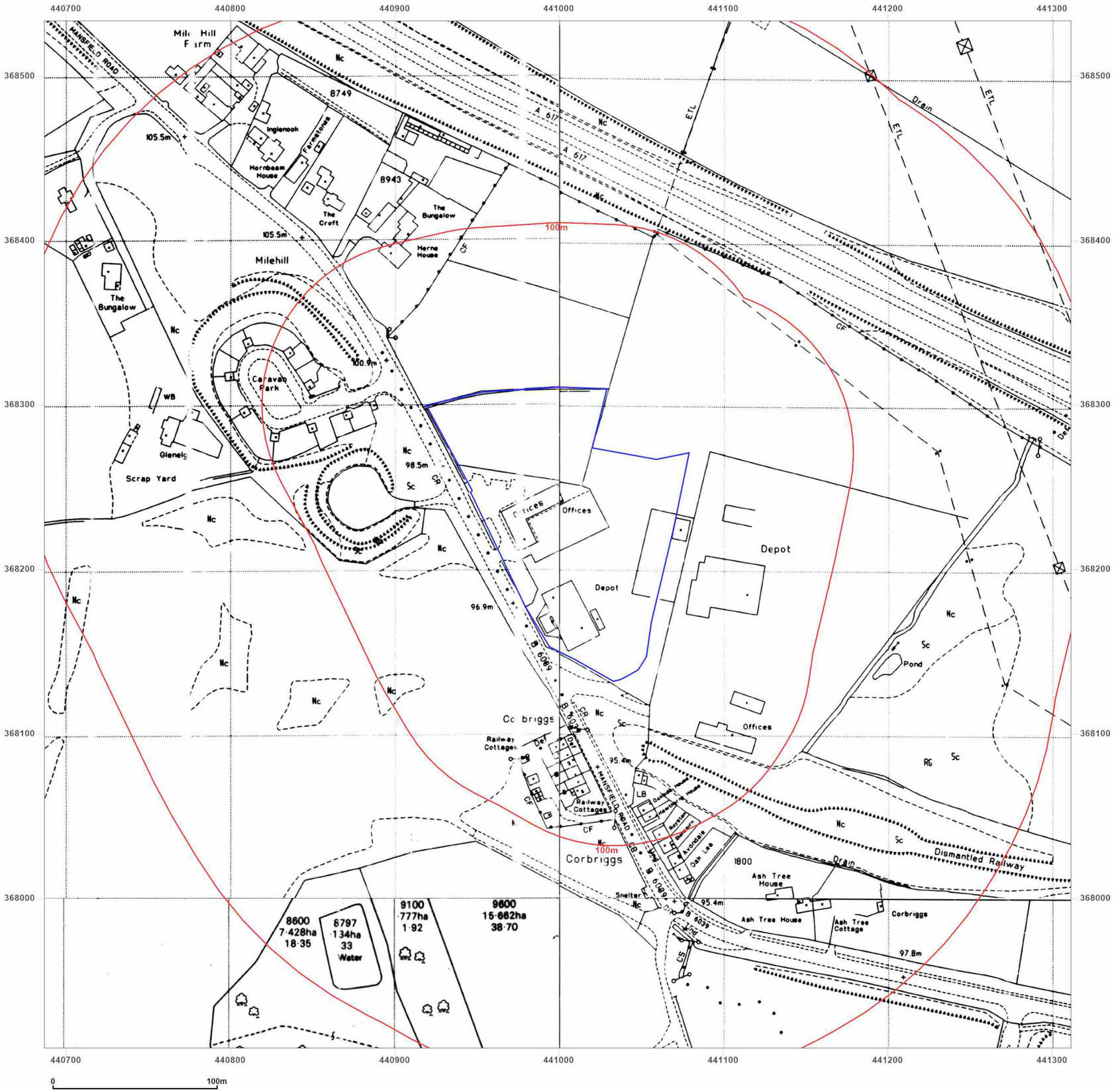

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1989-1993**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

Surveyed 1961
Revised 1982
Edition N/A
Copyright 1989
Levelled 1961

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

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Site Details:

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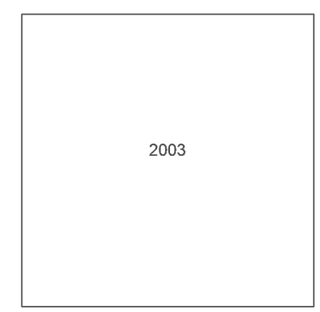
Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

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

N
W E
S



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Site Details:

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Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1877**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A

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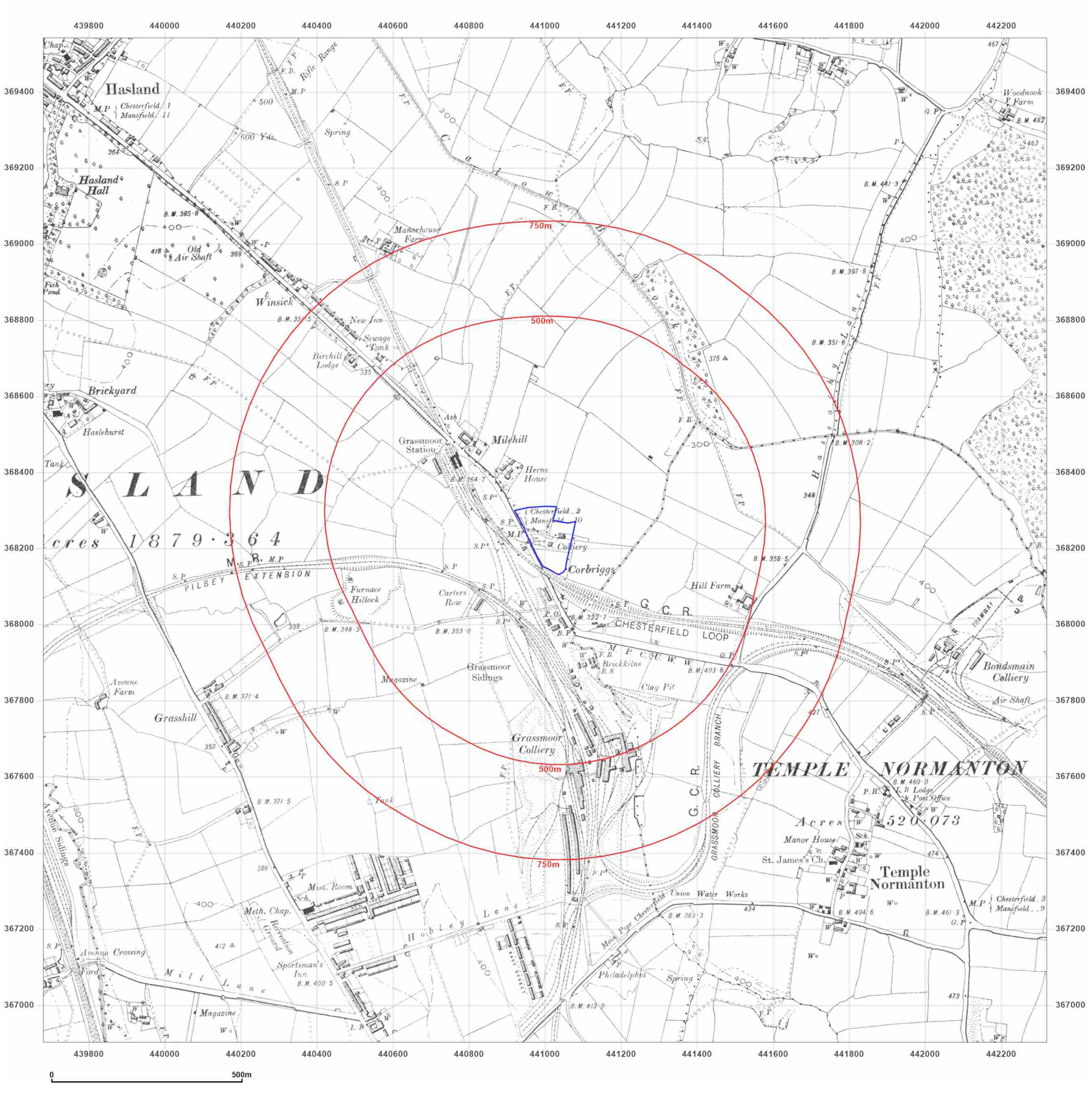

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1876
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

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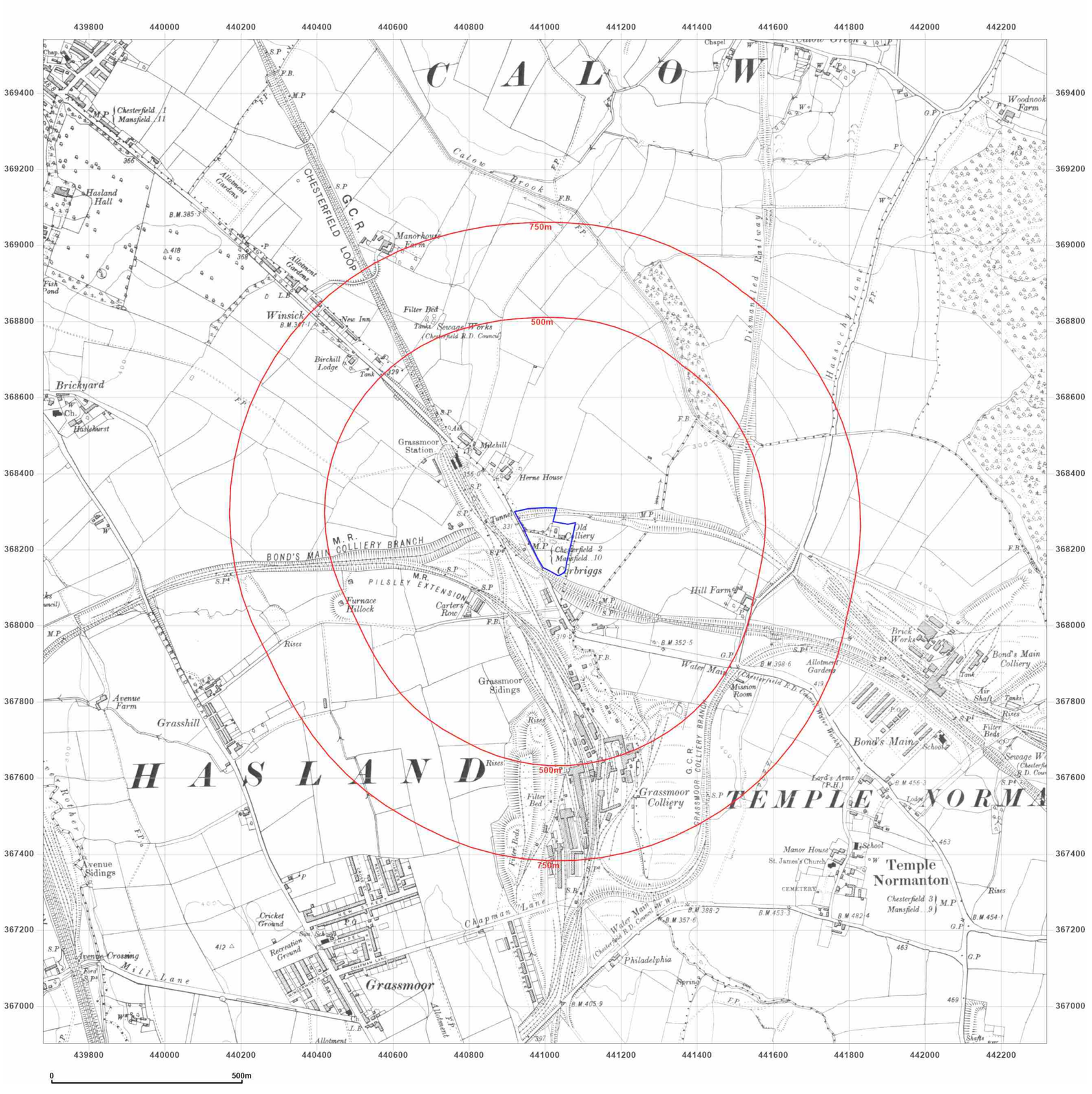

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1876
Revised 1921
Edition 1921
Copyright N/A
Levelled N/A

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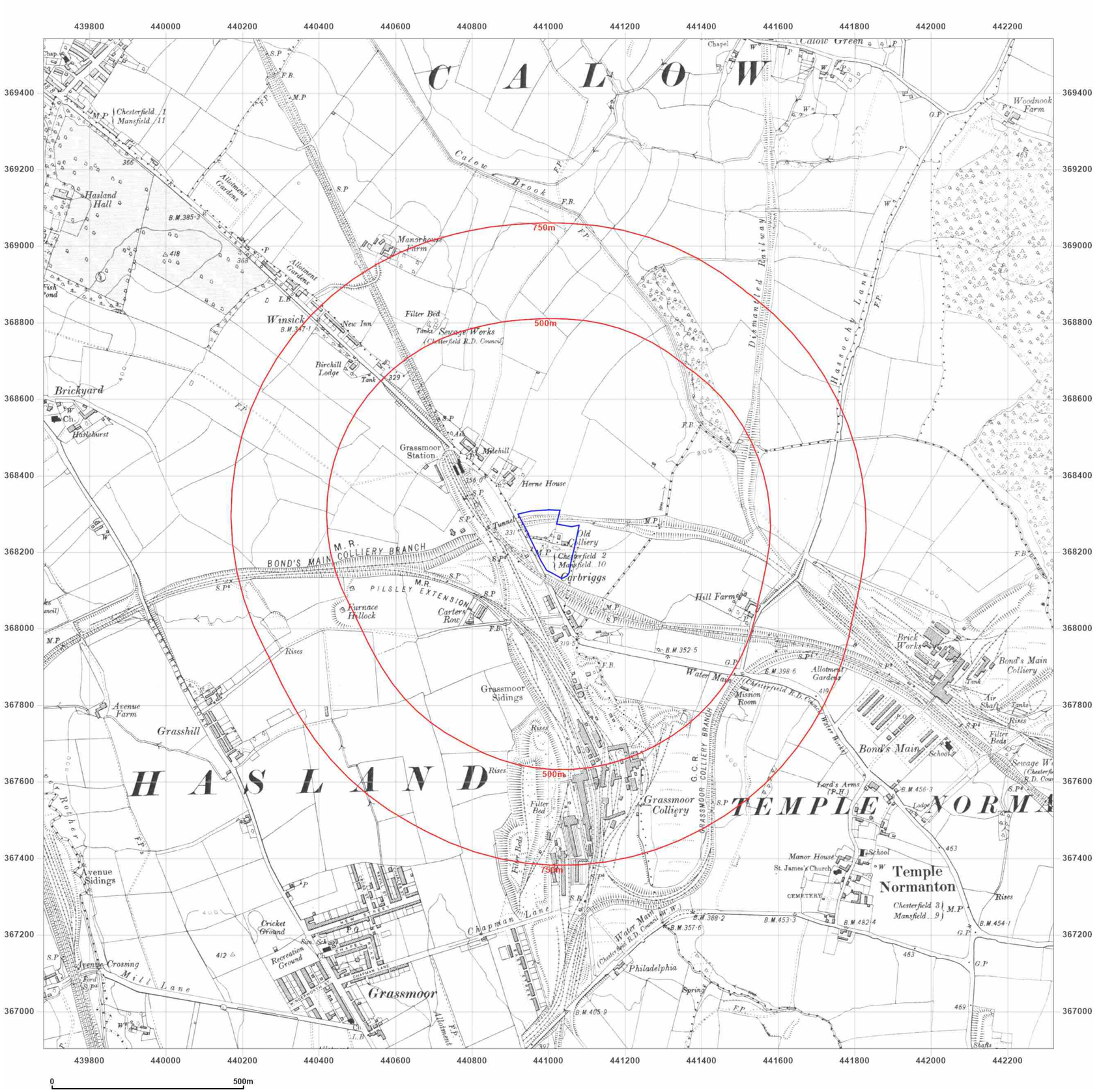

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1876
Revised 1921
Edition 1921
Copyright N/A
Levelled 1915

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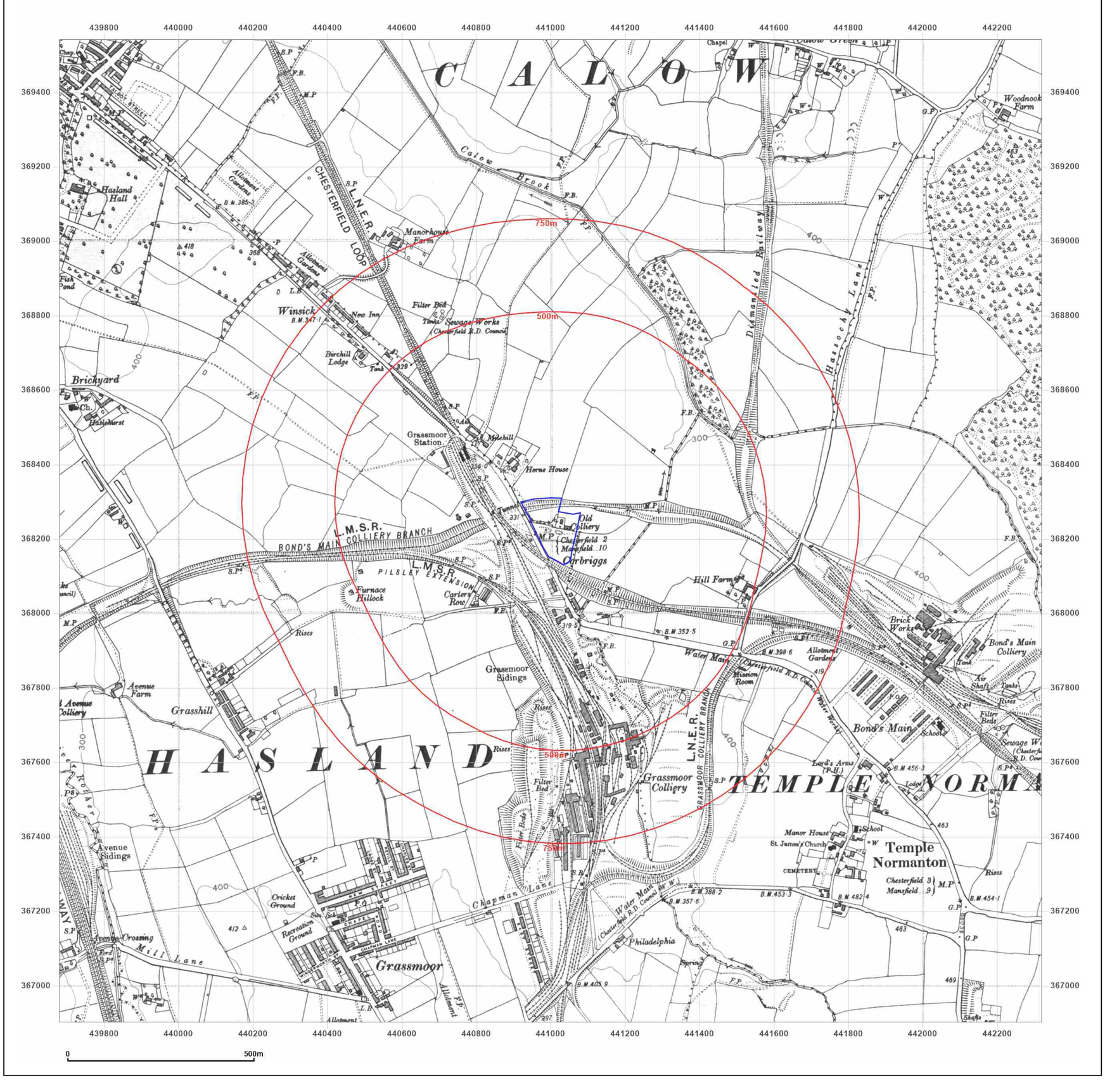

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1876
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

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Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: Provisional
Map date: **1950-1955**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed N/A
Revised 1954
Edition 1955
Copyright N/A
Levelled N/A

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

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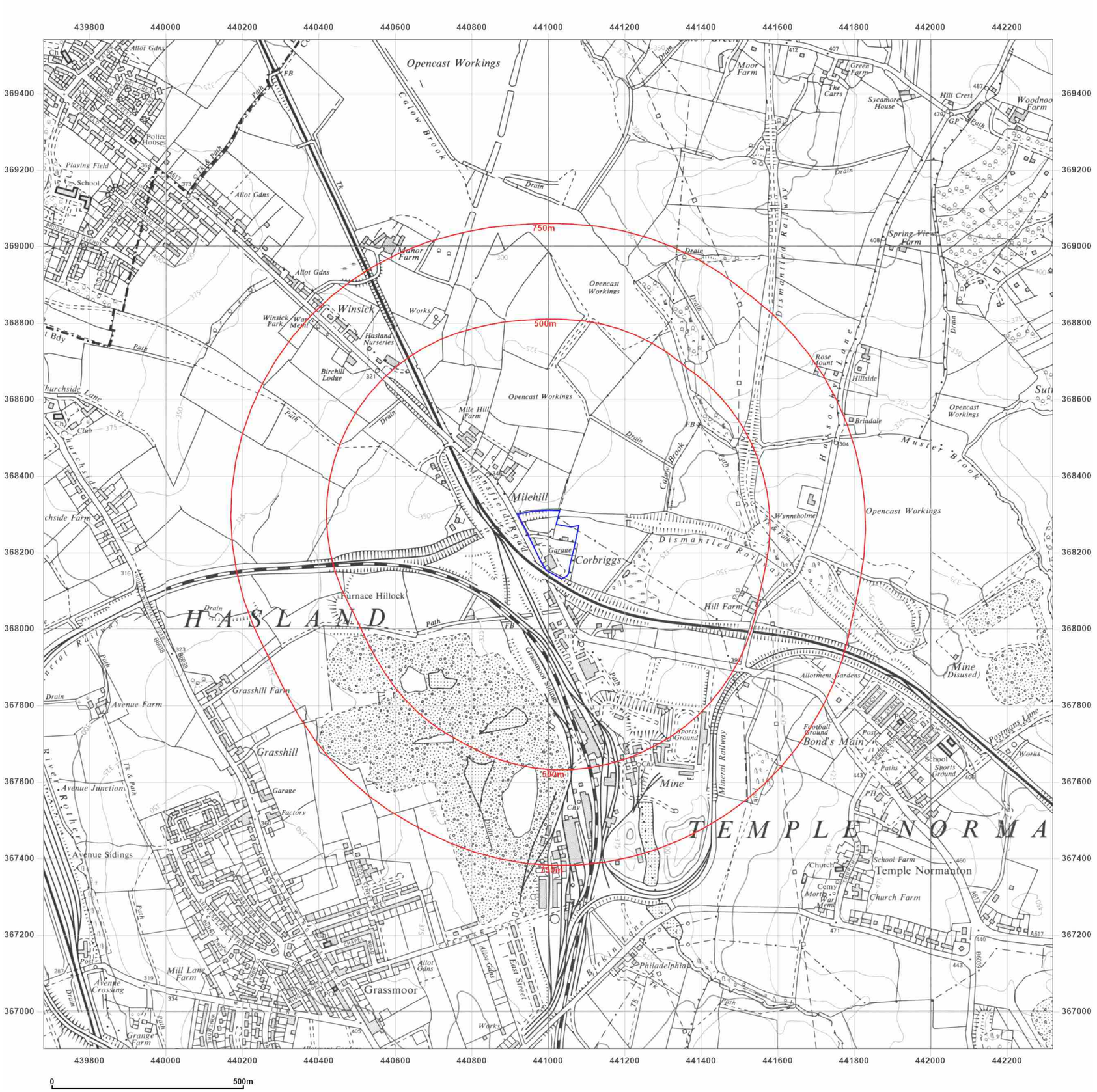

Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: Provisional

Map date: **1967**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

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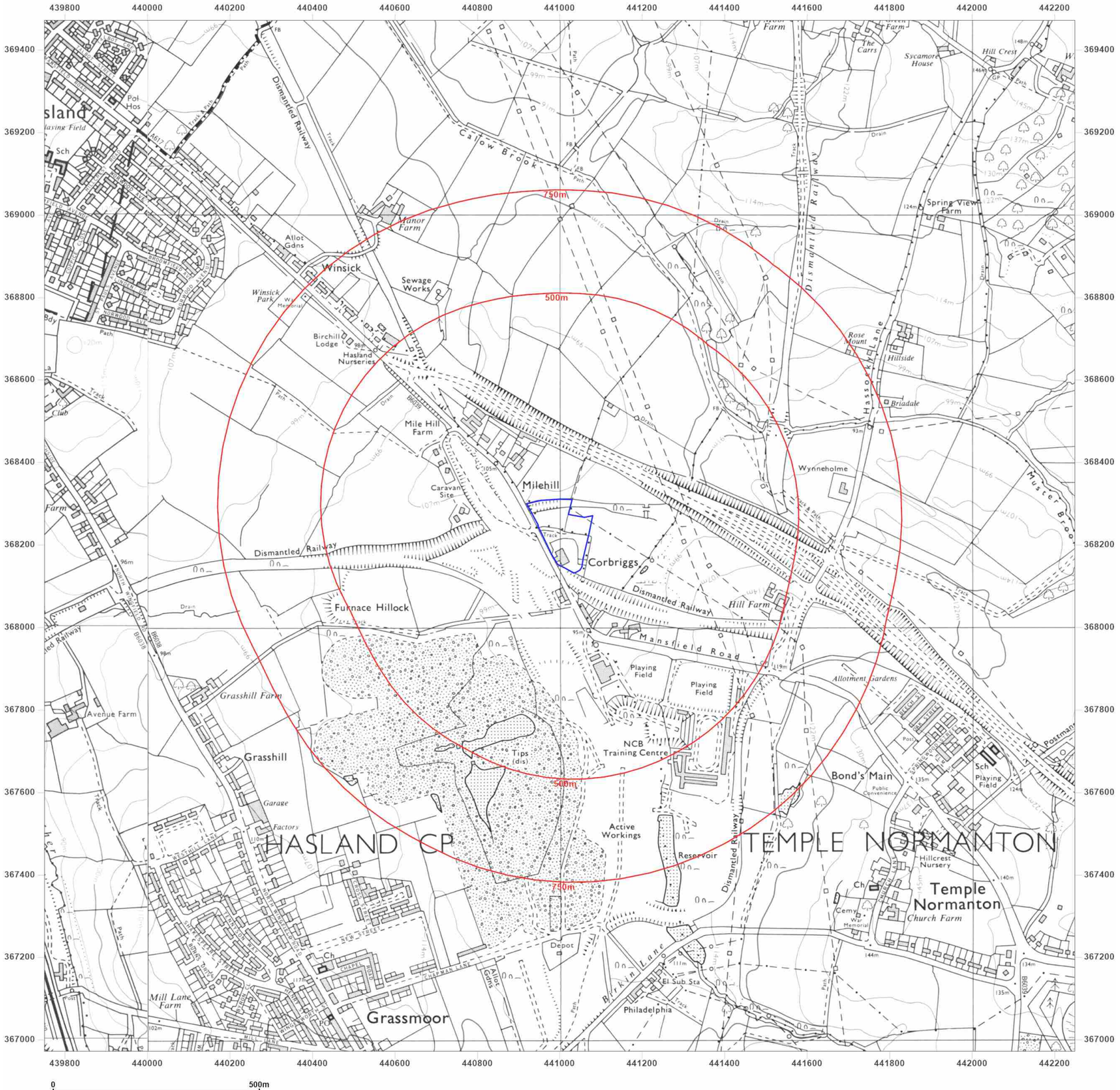

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1974-1976**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

Surveyed 1974
Revised 1974
Edition N/A
Copyright 1974
Levelled 1973

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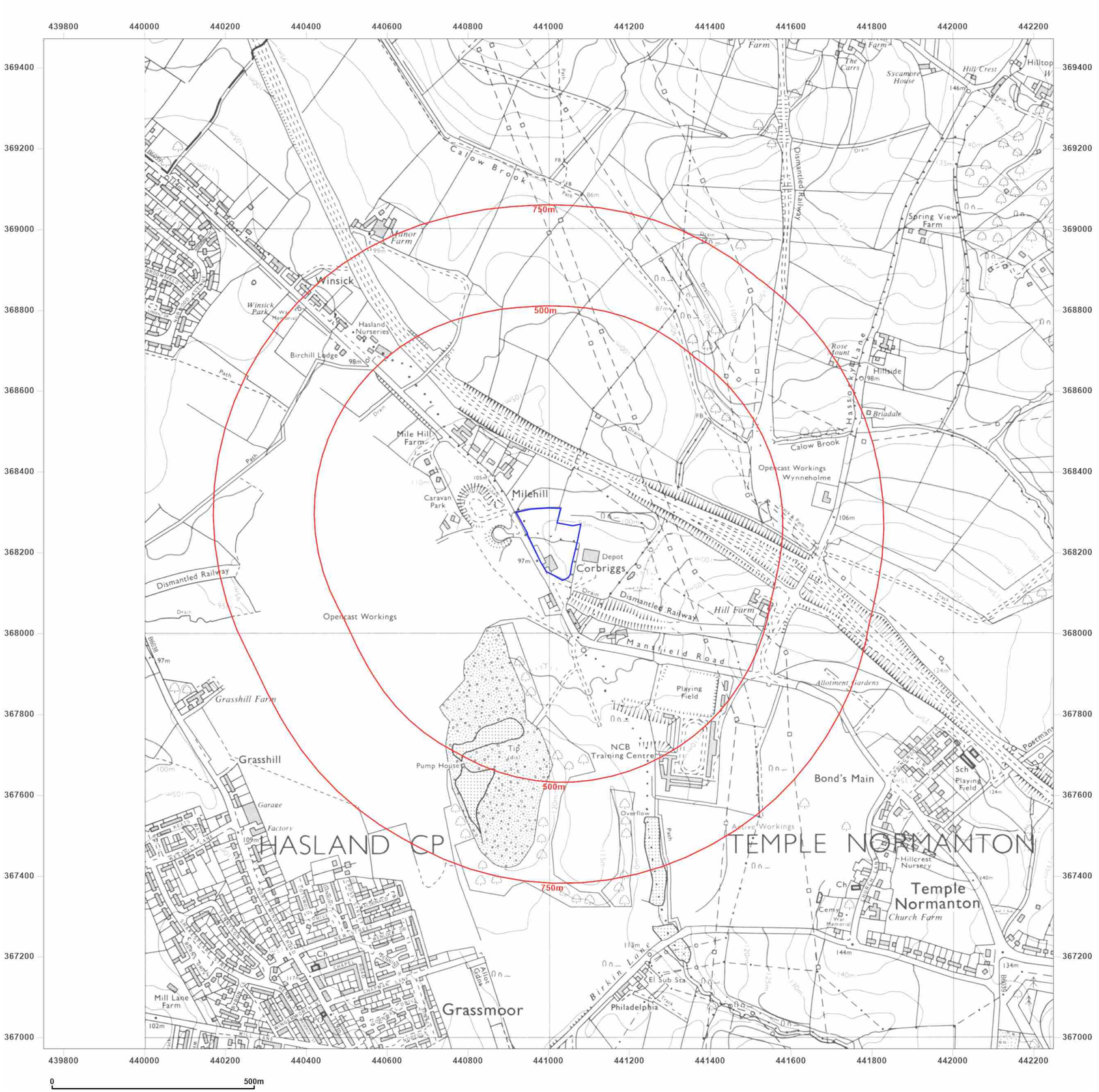

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1980**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1976
Revised 1980
Edition N/A
Copyright 1980
Levelled 1981

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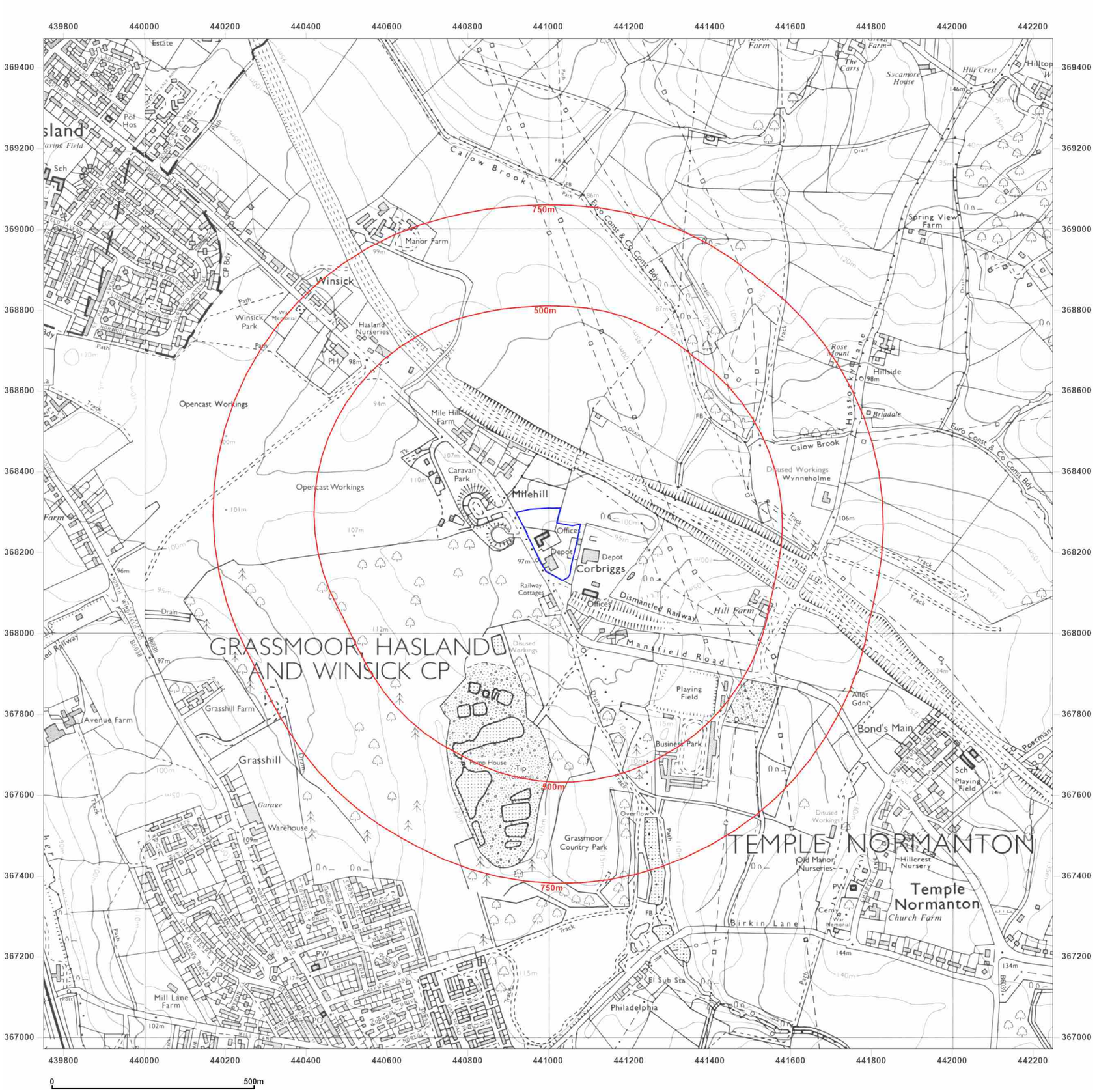

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **1987-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1984
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1976
Revised 1992
Edition N/A
Copyright 1992
Levelled 1981

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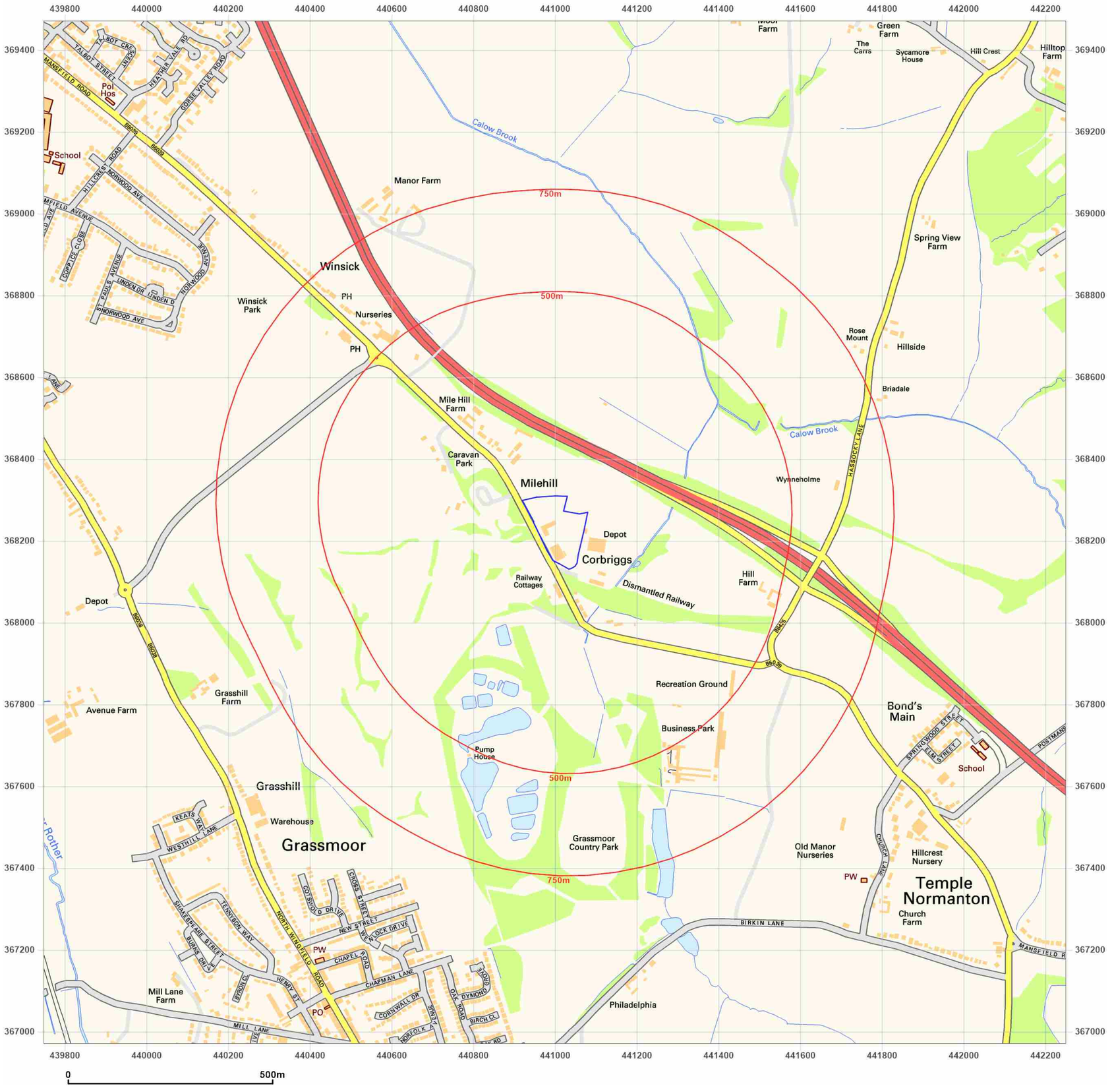

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref:	EMS_790617_981007
Report Ref:	EMS-790617_1019776
Grid Ref:	440999, 368221
Map Name:	National Grid
Map date:	2001
Scale:	1:10,000
Printed at:	1:10,000

N
W E
S

2001

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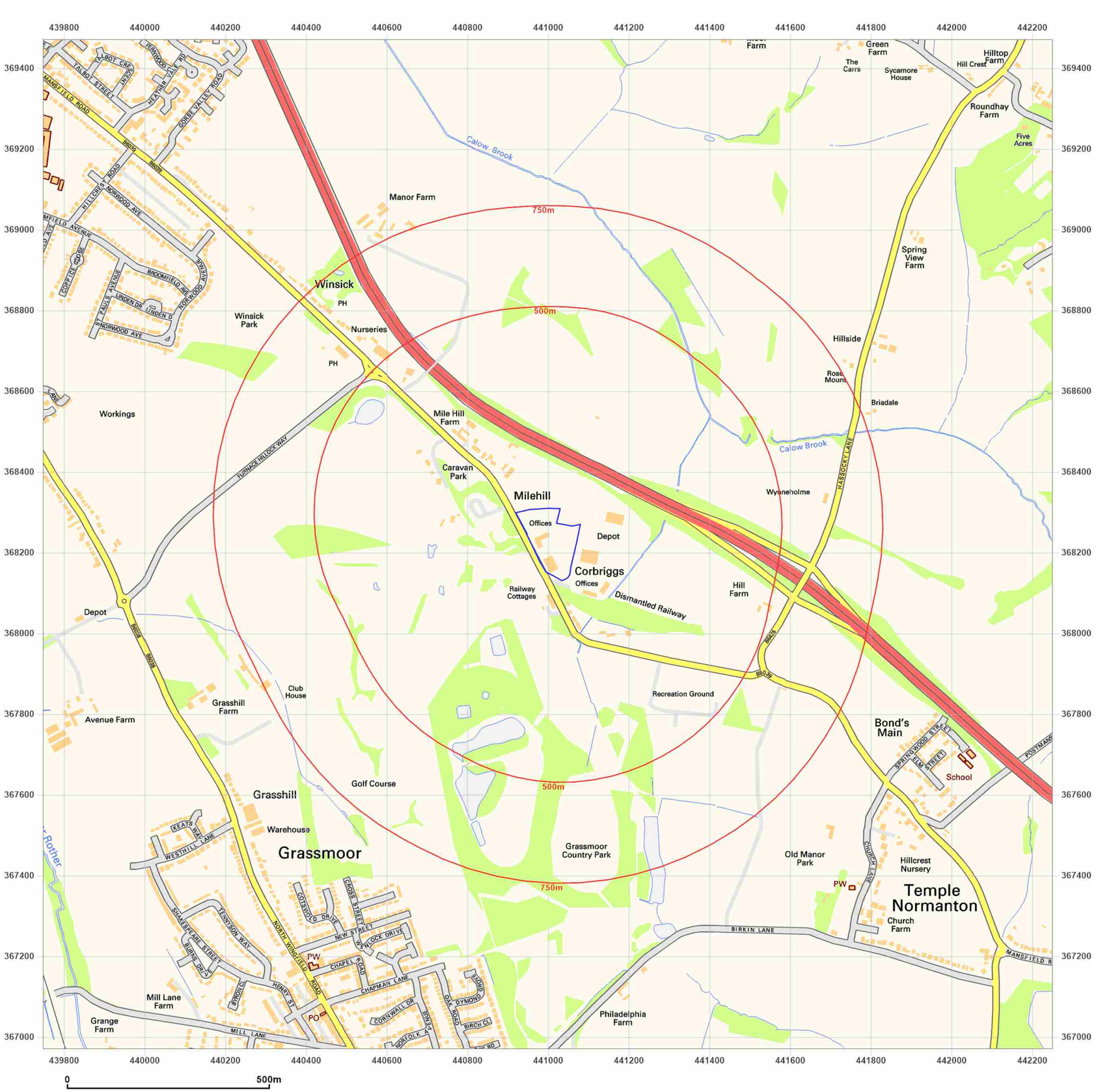

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

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

N
W E
S

2010

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Map legend available at:
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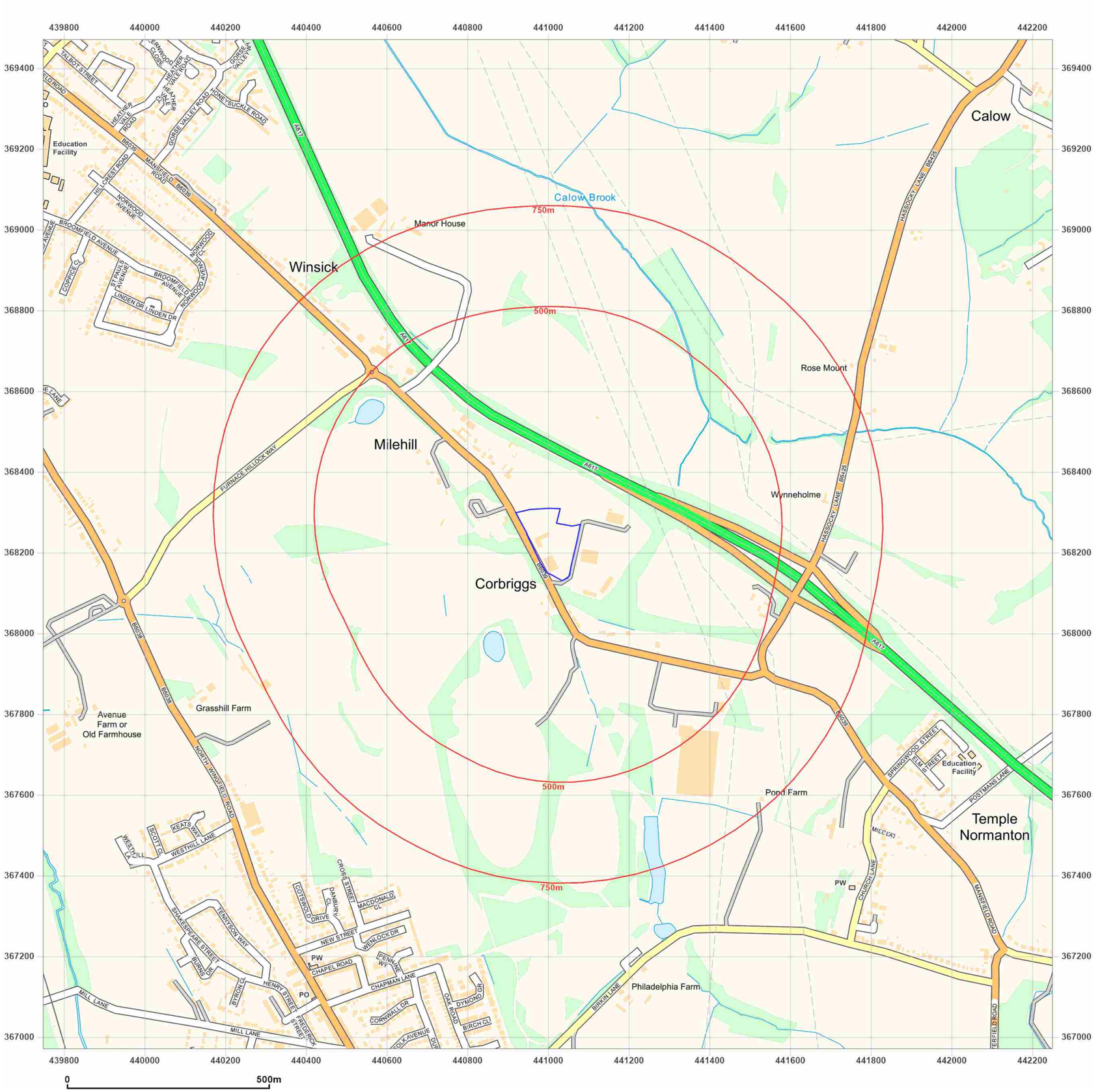

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Site Details:

Alexander House, Mansfield Road, Corbriggs

Client Ref: EMS_790617_981007
Report Ref: EMS-790617_1019776
Grid Ref: 440999, 368221

Map Name: National Grid

Map date: **2022**

Scale: 1:10,000

Printed at: 1:10,000

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2022

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Production date: 27 June 2022

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APPENDIX C

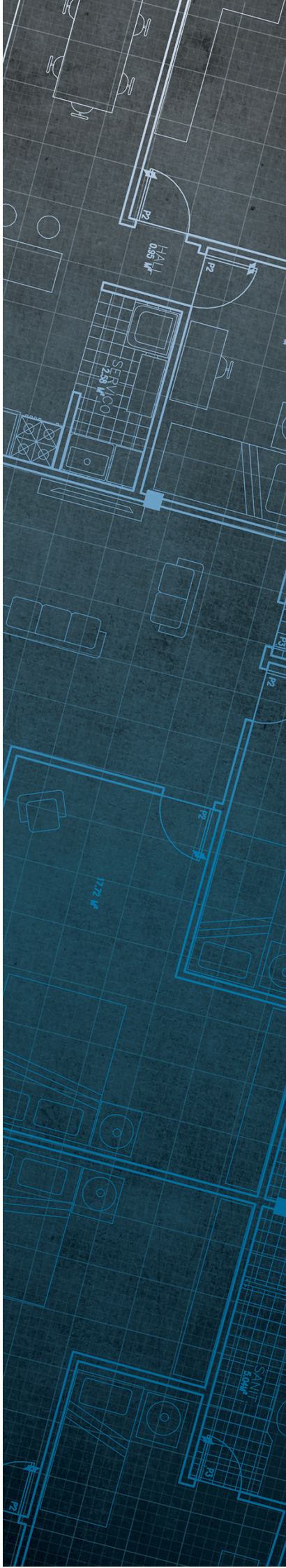
The Coal Authority

Consultants

Coal Mining Report

Alexander House
Mansfield Road
Corbriggs
Derbyshire
S41 0JW

Date of enquiry:	**27 June 2022**
Date enquiry received:	**27 June 2022**
Issue date:	**27 June 2022**
Our reference:	**51003214066001**
Your reference:	**IV.95.22.DW**



Consultants

Coal Mining Report

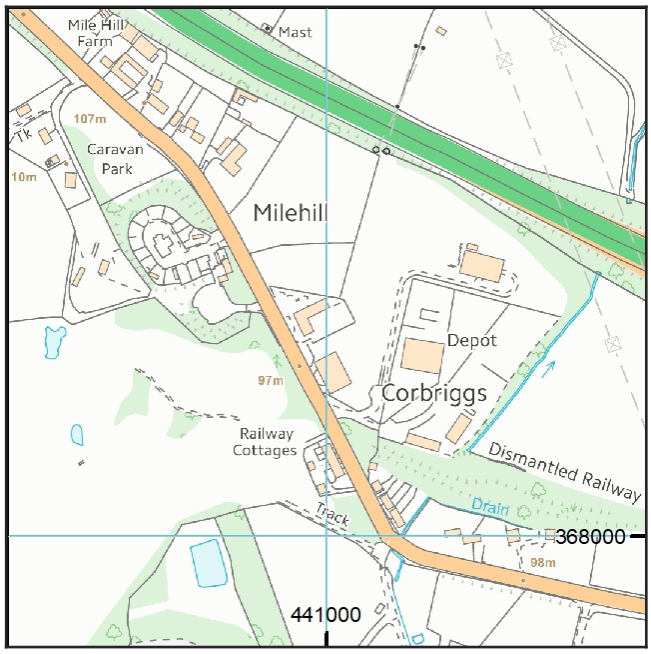
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Ivy House Environmental Ltd

Enquiry address

Alexander House
Mansfield Road
Corbriggs
Derbyshire
S41 0JW



Approximate position of property

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How to contact us

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+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

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

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
GRASSMOOR	TOP HARD	Coal	4WOY	27	Beneath Property	6.3	East	131	1898
GRASSMOOR	SECOND WATERLOO	Coal	4WRF	84	Beneath Property	4.1	East	175	1942
GRASSMOOR	1ST ELL	Coal	4WRJ	138	Beneath Property	3.6	East	69	1941
GRASSMOOR	SECOND ELL	Coal	4WRK	149	South-West	4.5	East	104	1890
GRASSMOOR	SECOND ELL	Coal	4WRL	151	Beneath Property	2.7	South-East	104	1890
GRASSMOOR	DEEP SOFT	Coal	4WRO	202	South-West	4.6	East	130	1930
GRASSMOOR	DEEP SOFT	Coal	4WRN	204	Beneath Property	3.9	South-East	130	1930
GRASSMOOR	DEEP SOFT	Coal	4WPE	220	South	5.7	East	130	1900
GRASSMOOR	DEEP SOFT	Coal	4WPH	220	South	3.5	East	130	1900
GRASSMOOR	DEEP SOFT	Coal	4WPG	226	South	3.8	South	130	1900
GRASSMOOR	DEEP HARD	Coal	4WRP	248	Beneath Property	3.4	South-East	168	1927
GRASSMOOR	DEEP HARD	Coal	4WPJ	261	South	4.9	East	168	1927
GRASSMOOR	FIRST PIPER	Coal	4WRV	276	Beneath Property	3.3	South-East	94	1945
GRASSMOOR	FIRST PIPER	Coal	4WRU	276	South-West	3.8	South-East	91	1940
GRASSMOOR	FIRST PIPER	Coal	4WPN	279	South-West	4.7	North-East	91	1938
GRASSMOOR	FIRST PIPER	Coal	4WPW	281	South	4.7	North-East	89	1940
GRASSMOOR	FIRST PIPER	Coal	4WRY	283	South-East	3.3	South-East	94	1940
GRASSMOOR	SECOND PIPER	Coal	4WS3	286	Beneath Property	3.9	East	107	1970
GRASSMOOR	LOW MAIN/THORNCLIFFE	Coal	4WS4	288	Beneath Property	4.2	South-East	140	1906
GRASSMOOR	SECOND PIPER	Coal	4WS1	291	South-West	4.7	East	112	1969
GRASSMOOR	SECOND PIPER	Coal	4WPK	300	South	4.5	East	107	1969
BONDS MAIN	THREE QUARTER	Coal	4WS8	303	North-East	25.6	South-West	84	1942

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
GRASSMOOR	THREE QUARTER	Coal	4WS7	312	Beneath Property	3.3	South-East	86	1951
GRASSMOOR	LOW MAIN/THORNCLIFFE	Coal	4WPY	317	South	2.7	South-East	140	1915
BONDS MAIN	LOW MAIN/THORNCLIFFE	Coal	4WS5	319	North-East	21.4	South-West	124	1948
GRASSMOOR	THREE QUARTER	Coal	4WS6	320	South-West	4.9	East	86	1887
GRASSMOOR	LOW MAIN/THORNCLIFFE	Coal	4WPX	323	South	6.8	North-East	140	1909
GRASSMOOR	THREE QUARTER	Coal	4WQ0	330	South-West	6.1	North-East	86	1885
GRASSMOOR	THREE QUARTER	Coal	4WQ1	335	South-East	2.0	South-East	87	1940
GRASSMOOR	BLACKSHALE	Coal	4WSA	357	Beneath Property	3.4	South	170	1935
GRASSMOOR	BLACKSHALE	Coal	4WS9	358	South-West	5.8	East	170	1925
BONDS MAIN	BLACKSHALE	Coal	4WSB	374	East	21.2	South-West	147	1913
GRASSMOOR	BLACKSHALE	Coal	4WQ4	379	South	6.1	North-East	188	1939

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

Distance to spine roadway (m)	Direction to spine roadway
Within	N/A

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	440368-004	440982 368221	was filled to an unknown specification in 1919	Coal	
Shaft	441368-001	441001 368220		Coal	

Abandoned mine plan catalogue numbers

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

EM93	178	11396
5373	EM1366OC	13703
13702	EM622	12242

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations
None recorded within 50 metres of the enquiry boundary.

Remediated sites
None recorded within 50 metres of the enquiry boundary.

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

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

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

Mine gas
None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes
None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

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

Court orders
None recorded.

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

Withdrawal of support notices
The property is in an area where notices to withdraw support were given in 1943 and 1946.

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

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

Section 4 – Further information

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

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

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

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

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

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

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

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

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

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

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

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

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

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

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

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

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

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

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

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

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

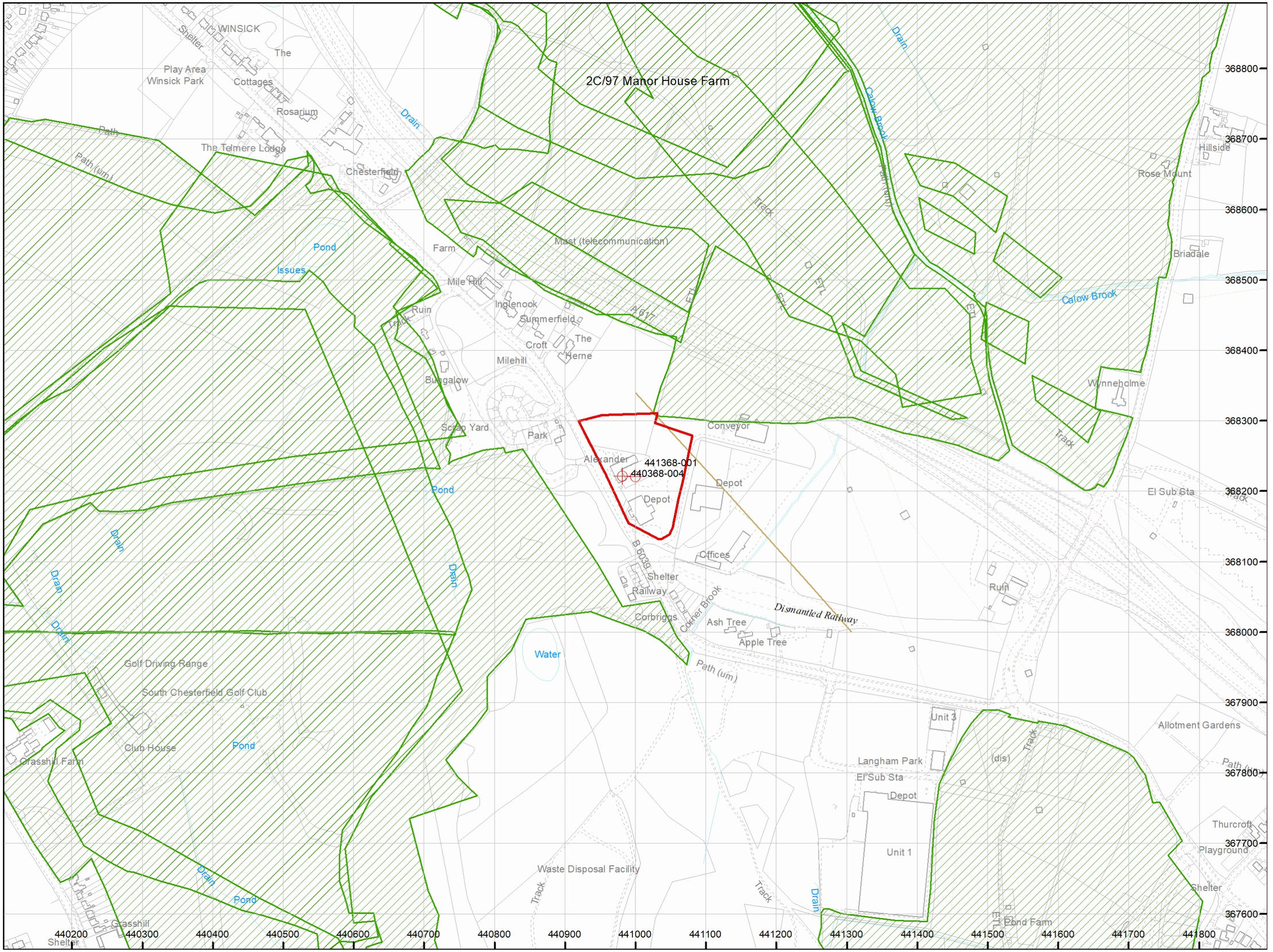
The Coal Authority

Summary of findings

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

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Geological faults
- Opencast mine licence area
- Unlicensed opencast site



How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

APPENDIX D

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

Alexander House, Mansfield Road, Corbriggs

Order Details

Date: 27/06/2022

Your ref: EMS_790617_981007

Our Ref: EMS-790617_1019777

Site Details

Location: 441006 368232

Area: 1.64 ha

Authority: North East Derbyshire District 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	19	16	50	47	-
19	1.2	Historical tanks	0	0	2	4	-
20	1.3	Historical energy features	0	0	0	1	-
20	1.4	Historical petrol stations	0	0	0	0	-
21	1.5	Historical garages	1	0	0	0	-
21	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
22	2.1	Historical industrial land uses	25	19	60	62	-
29	2.2	Historical tanks	0	0	3	4	-
29	2.3	Historical energy features	0	0	0	1	-
30	2.4	Historical petrol stations	0	0	0	0	-
30	2.5	Historical garages	1	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
31	3.1	Active or recent landfill	0	0	0	0	-
31	3.2	Historical landfill (BGS records)	0	0	0	0	-
32	3.3	Historical landfill (LA/mapping records)	0	0	1	0	-
32	3.4	Historical landfill (EA/NRW records)	0	0	0	1	-
32	3.5	Historical waste sites	1	2	3	0	-
35	3.6	Licensed waste sites	3	5	2	0	-
38	3.7	Waste exemptions	0	1	4	1	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
40	4.1	Recent industrial land uses	1	0	5	-	-
41	4.2	Current or recent petrol stations	0	0	0	0	-
41	4.3	Electricity cables	0	0	0	0	-
41	4.4	Gas pipelines	0	0	0	0	-
41	4.5	Sites determined as Contaminated Land	0	0	0	0	-

42	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
42	4.7	Regulated explosive sites	0	0	0	0	-
42	4.8	Hazardous substance storage/usage	0	0	0	0	-
42	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
42	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
43	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
43	4.12	Radioactive Substance Authorisations	0	0	0	0	-
43	**4.13**	**Licensed Discharges to controlled waters**	0	0	4	2	-
44	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
44	4.15	Pollutant release to public sewer	0	0	0	0	-
44	4.16	List 1 Dangerous Substances	0	0	0	0	-
45	4.17	List 2 Dangerous Substances	0	0	0	0	-
45	**4.18**	**Pollution Incidents (EA/NRW)**	0	1	1	2	-
45	4.19	Pollution inventory substances	0	0	0	0	-
46	4.20	Pollution inventory waste transfers	0	0	0	0	-
46	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
47	**5.1**	**Superficial aquifer**	Identified (within 500m)				
48	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
49	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
50	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
50	5.5	Groundwater vulnerability- local information	None (within 0m)				
51	**5.6**	**Groundwater abstractions**	0	0	0	0	4
53	**5.7**	**Surface water abstractions**	0	0	0	0	7
55	5.8	Potable abstractions	0	0	0	0	0
55	5.9	Source Protection Zones	0	0	0	0	-
55	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
56	**6.1**	**Water Network (OS MasterMap)**	0	0	13	-	-

58	6.2	Surface water features	0	0	4	-	-
58	6.3	WFD Surface water body catchments	1	-	-	-	-
58	6.4	WFD Surface water bodies	0	0	1	-	-
59	6.5	WFD Groundwater bodies	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
60	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
60	7.2	Historical Flood Events	0	0	0	-	-
60	7.3	Flood Defences	0	0	0	-	-
61	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
61	7.5	Flood Storage Areas	0	0	0	-	-
62	7.6	Flood Zone 2	None (within 50m)				
62	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
63	8.1	Surface water flooding	1 in 30 year, 0.3m - 1.0m (within 50m)

Page	Section	Groundwater flooding	
65	9.1	Groundwater flooding	Negligible (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
66	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
67	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
67	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
67	10.4	Special Protection Areas (SPA)	0	0	0	0	0
67	10.5	National Nature Reserves (NNR)	0	0	0	0	0
68	10.6	Local Nature Reserves (LNR)	0	0	0	0	1
68	10.7	Designated Ancient Woodland	0	0	0	0	6
68	10.8	Biosphere Reserves	0	0	0	0	0
69	10.9	Forest Parks	0	0	0	0	0
69	10.10	Marine Conservation Zones	0	0	0	0	0
69	10.11	Green Belt	0	1	0	0	1
69	10.12	Proposed Ramsar sites	0	0	0	0	0

70	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
70	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
70	10.15	Nitrate Sensitive Areas	0	0	0	0	0
70	**10.16**	**Nitrate Vulnerable Zones**	1	0	0	0	0
72	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
73	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
74	11.1	World Heritage Sites	0	0	0	-	-
74	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
74	11.3	National Parks	0	0	0	-	-
74	11.4	Listed Buildings	0	0	0	-	-
75	11.5	Conservation Areas	0	0	0	-	-
75	11.6	Scheduled Ancient Monuments	0	0	0	-	-
75	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
76	**12.1**	**Agricultural Land Classification**	Grade 4 (within 250m)				
77	12.2	Open Access Land	0	0	0	-	-
77	12.3	Tree Felling Licences	0	0	0	-	-
77	**12.4**	**Environmental Stewardship Schemes**	0	0	1	-	-
78	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
79	**13.1**	**Priority Habitat Inventory**	0	1	6	-	-
80	13.2	Habitat Networks	0	0	0	-	-
80	13.3	Open Mosaic Habitat	0	0	0	-	-
80	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
81	**14.1**	**10k Availability**	Identified (within 500m)				
82	14.2	Artificial and made ground (10k)	0	0	0	0	-
83	14.3	Superficial geology (10k)	0	0	0	0	-

83	14.4	Landslip (10k)	0	0	0	0	-
84	14.5	Bedrock geology (10k)	0	0	0	0	-
84	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
85	15.1	50k Availability	Identified (within 500m)				
86	15.2	Artificial and made ground (50k)	0	1	4	5	-
87	15.3	Artificial ground permeability (50k)	0	1	-	-	-
88	15.4	Superficial geology (50k)	0	0	0	1	-
89	15.5	Superficial permeability (50k)	None (within 50m)				
89	15.6	Landslip (50k)	0	0	0	0	-
89	15.7	Landslip permeability (50k)	None (within 50m)				
90	15.8	Bedrock geology (50k)	4	0	0	2	-
91	15.9	Bedrock permeability (50k)	Identified (within 50m)				
91	15.10	Bedrock faults and other linear features (50k)	1	0	5	14	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
93	16.1	BGS Boreholes	0	0	8	-	-
Page	Section	Natural ground subsidence					
95	17.1	Shrink swell clays	Very low (within 50m)				
96	17.2	Running sands	Very low (within 50m)				
98	17.3	Compressible deposits	Very low (within 50m)				
100	17.4	Collapsible deposits	Very low (within 50m)				
101	17.5	Landslides	Very low (within 50m)				
102	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
104	18.1	Natural cavities	0	0	0	0	-
105	18.2	BritPits	0	0	0	4	-
106	18.3	Surface ground workings	20	8	49	-	-
109	18.4	Underground workings	4	4	5	1	5
110	18.5	Historical Mineral Planning Areas	0	1	0	0	-

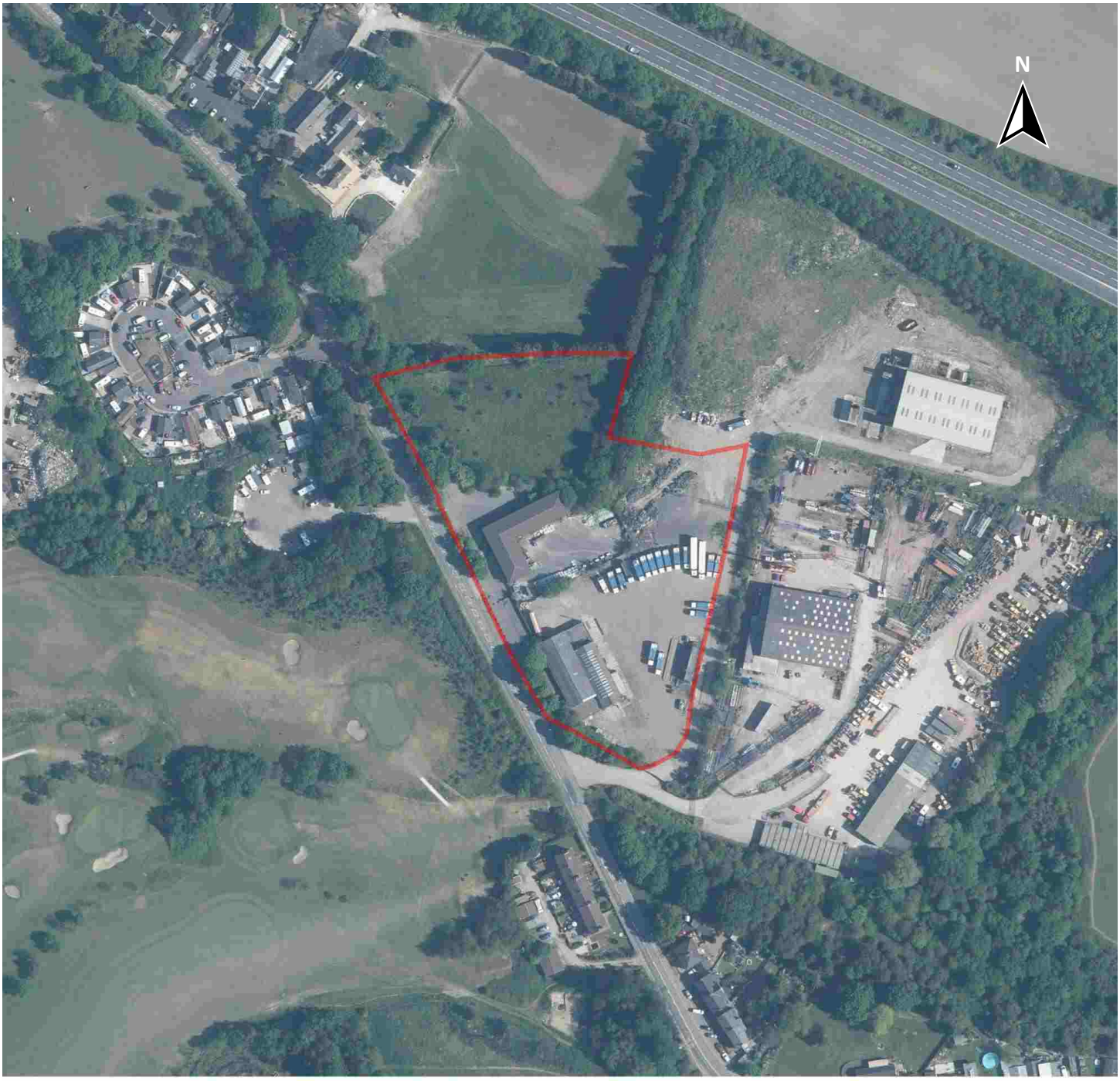
110	**18.6**	**Non-coal mining**	1	0	0	0	1
111	18.7	Mining cavities	0	0	0	0	0
111	18.8	JPB mining areas	None (within 0m)				
111	**18.9**	**Coal mining**	Identified (within 0m)				
111	18.10	Brine areas	None (within 0m)				
112	18.11	Gypsum areas	None (within 0m)				
112	18.12	Tin mining	None (within 0m)				
112	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
113	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
114	**20.1**	**BGS Estimated Background Soil Chemistry**	10	4	-	-	-
115	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
115	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
116	21.1	Underground railways (London)	0	0	0	-	-
116	21.2	Underground railways (Non-London)	0	0	0	-	-
117	21.3	Railway tunnels	0	0	0	-	-
117	**21.4**	**Historical railway and tunnel features**	4	12	14	-	-
118	21.5	Royal Mail tunnels	0	0	0	-	-
118	**21.6**	**Historical railways**	0	2	0	-	-
119	21.7	Railways	0	0	0	-	-
119	21.8	Crossrail 1	0	0	0	0	-
119	21.9	Crossrail 2	0	0	0	0	-
119	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 31/05/2020

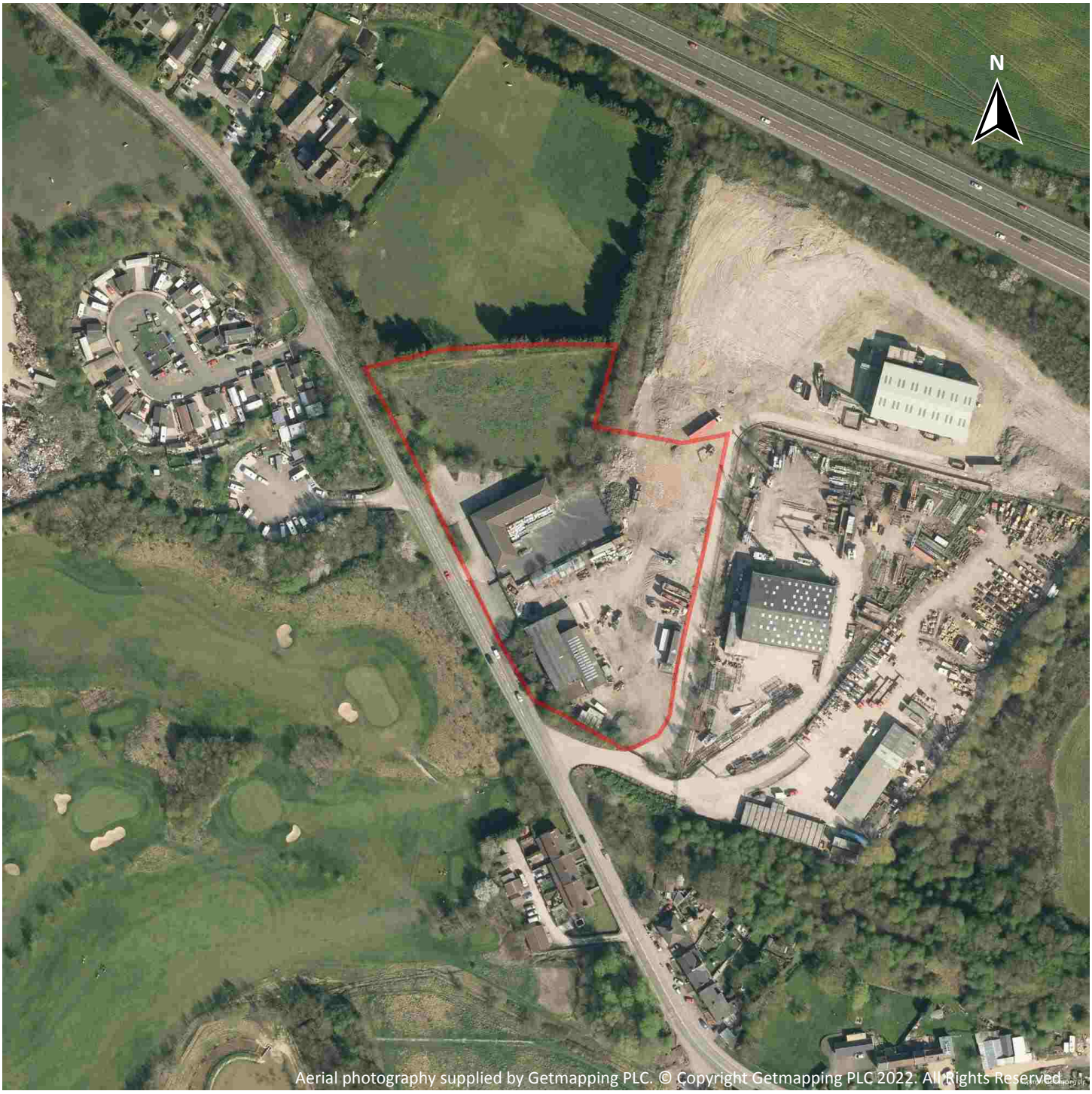
Site Area: 1.64ha

Recent site history - 2019 aerial photograph

Capture Date: 20/04/2019

Site Area: 1.64ha

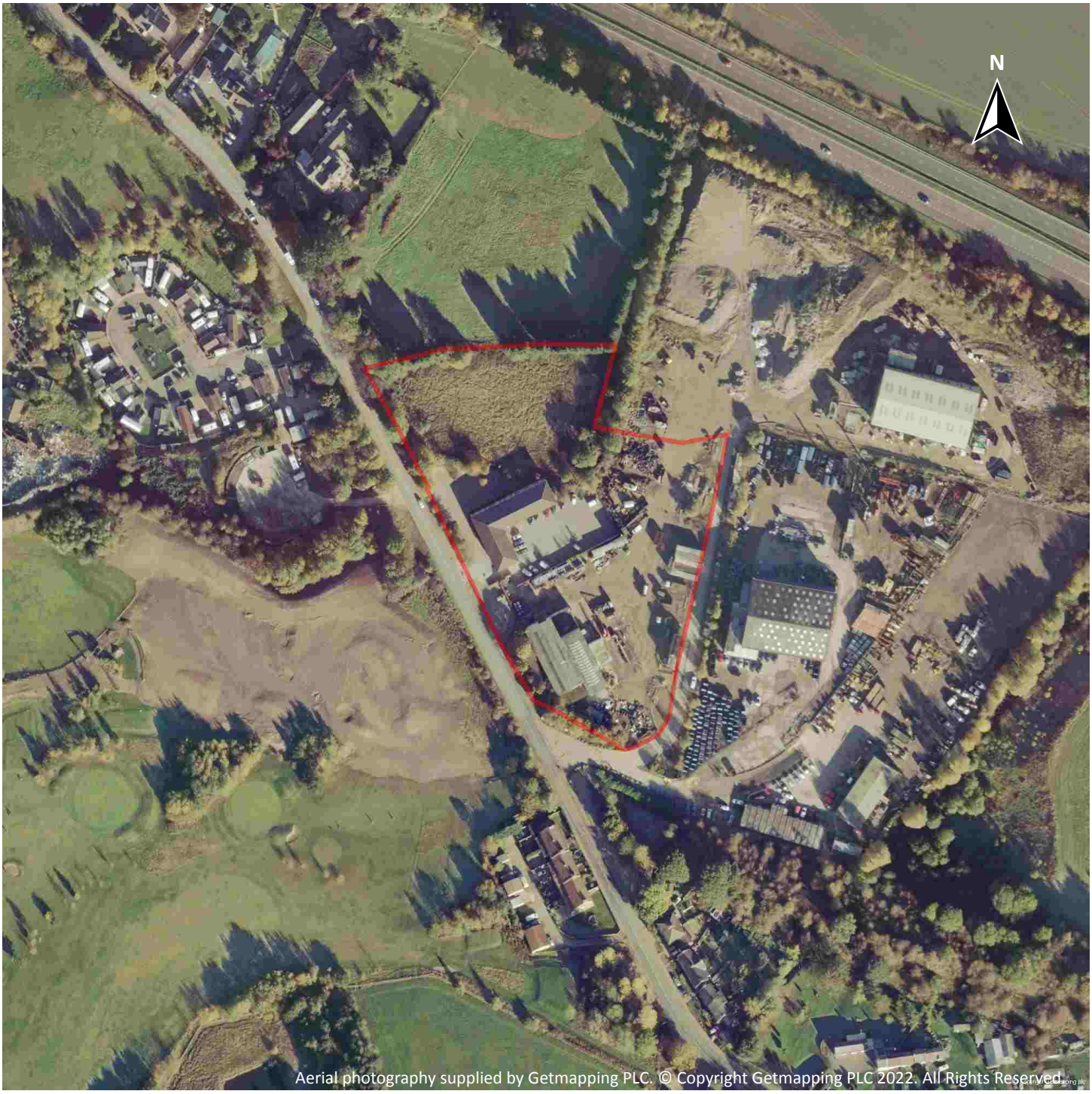
Recent site history - 2017 aerial photograph



Capture Date: 08/04/2017

Site Area: 1.64ha

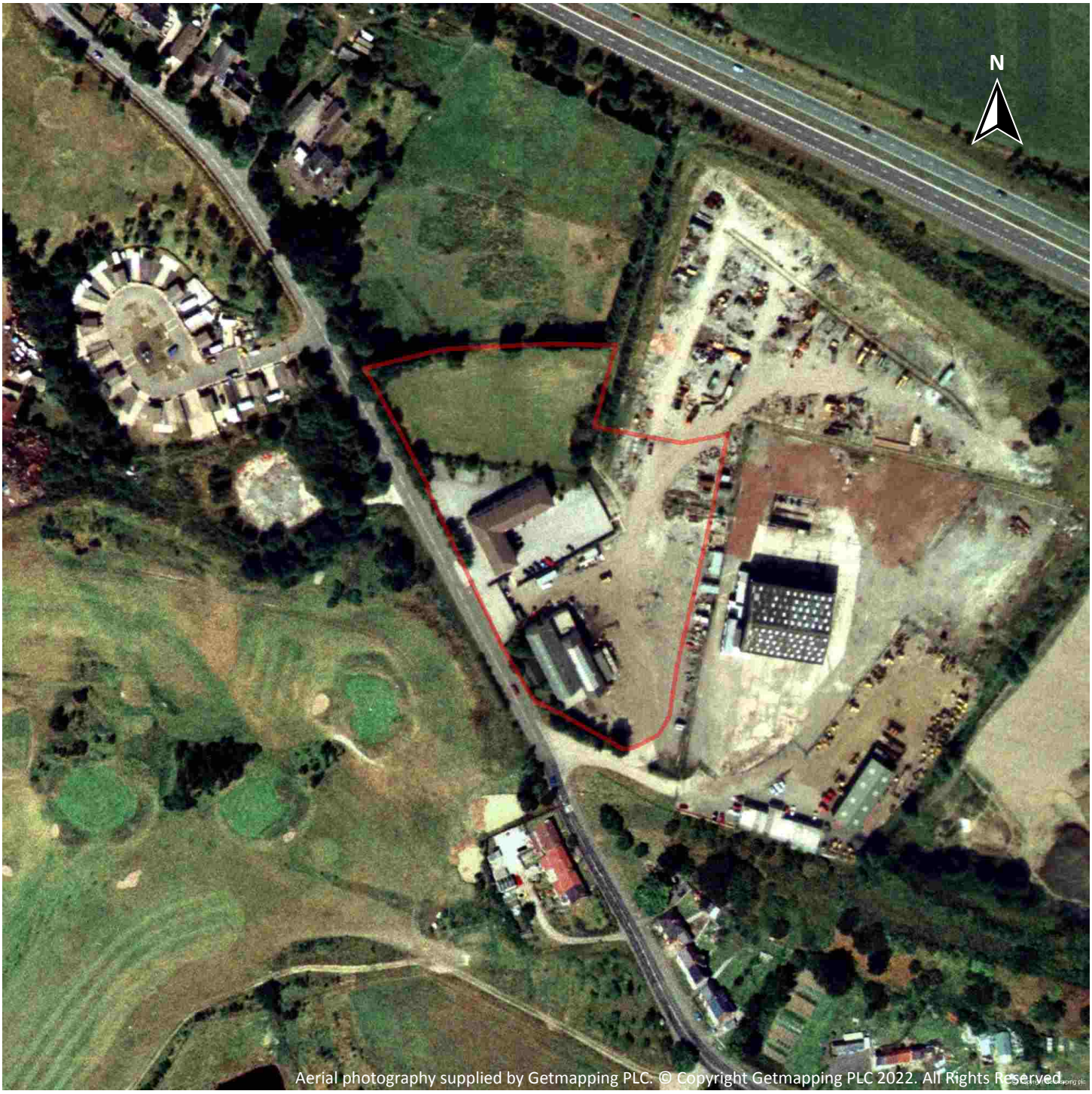
Recent site history - 2010 aerial photograph



Capture Date: 25/10/2010

Site Area: 1.64ha

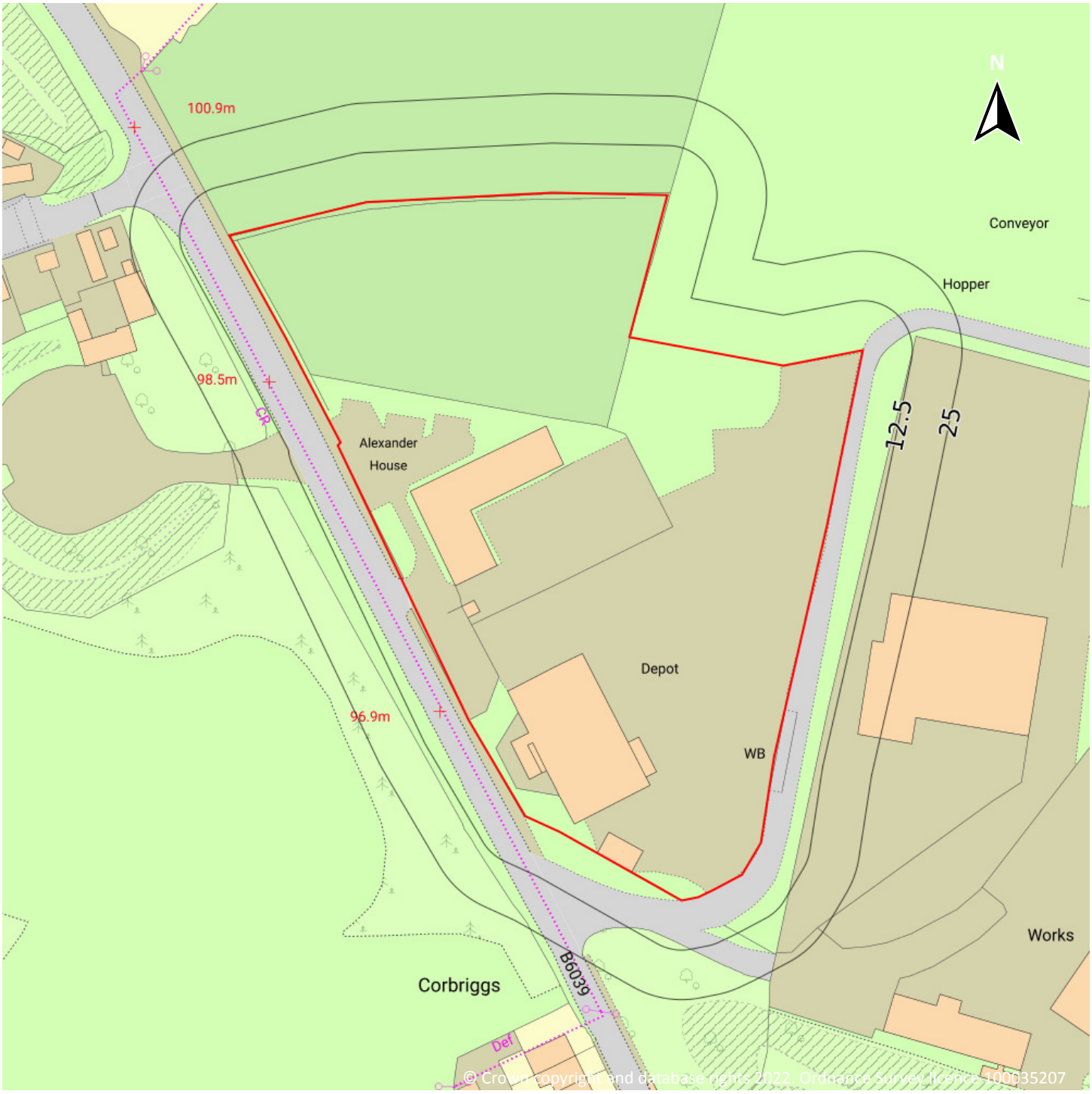
Recent site history - 1999 aerial photograph



Capture Date: 06/11/1999

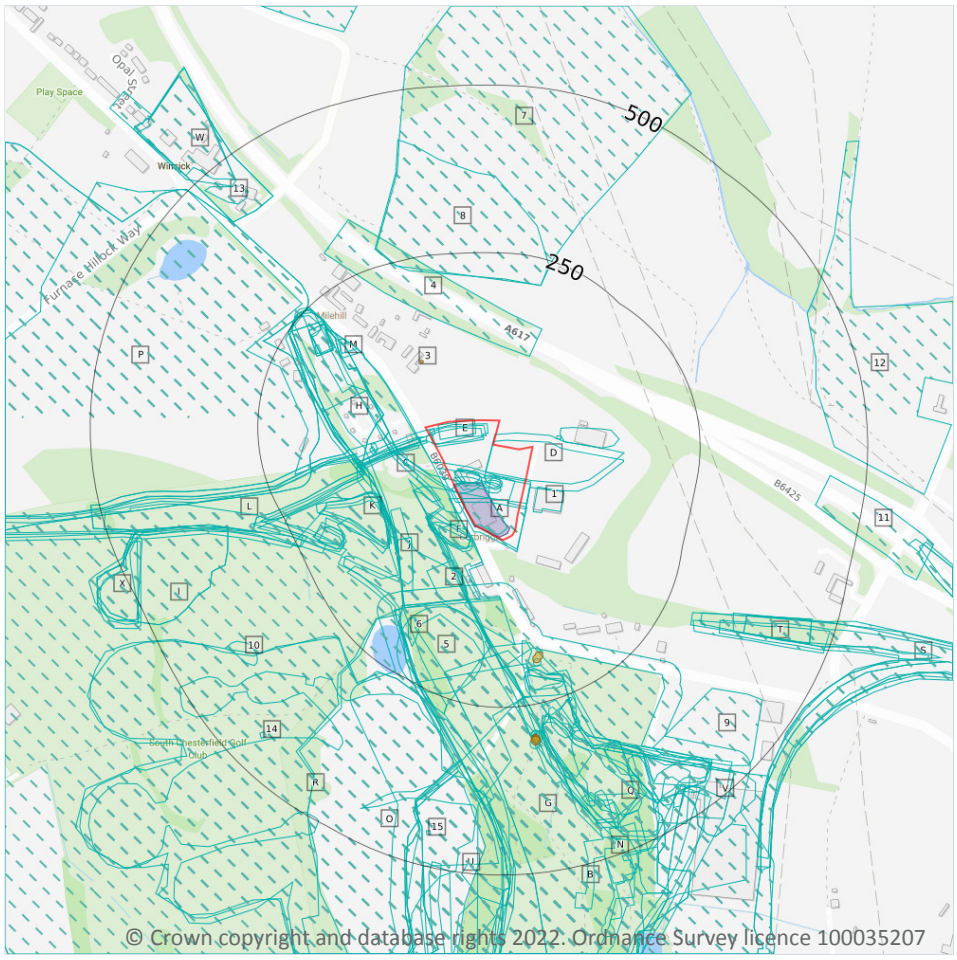
Site Area: 1.64ha

OS MasterMap site plan



Site Area: 1.64ha

1 Past land use



1.1 Historical industrial land uses

Records within 500m	132

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
A	**On site**	**Unspecified Depot**	**1992**	**1583449**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Unspecified Heaps**	**1921**	**1599520**
A	**On site**	**Garage**	**1967**	**1613484**
A	**On site**	**Unspecified Heap**	**1921**	**1627953**
A	**On site**	**Old Colliery**	**1950**	**1641498**
A	**On site**	**Unspecified Heap**	**1938**	**1654766**
A	**On site**	**Unspecified Heap**	**1938 - 1950**	**1656474**
A	**On site**	**Refuse Heap**	**1921**	**1677850**
A	**On site**	**Unspecified Heap**	**1950**	**1733180**
B	**On site**	**Railway Sidings**	**1898**	**1622336**
B	**On site**	**Railway Sidings**	**1938**	**1744419**
C	**On site**	**Old Colliery**	**1938**	**1643158**
C	**On site**	**Tunnel**	**1967**	**1693871**
D	**On site**	**Old Colliery**	**1921**	**1646369**
D	**On site**	**Old Colliery**	**1921**	**1707476**
E	**On site**	**Cuttings**	**1921**	**1661031**
E	**On site**	**Cuttings**	**1950**	**1691199**
E	**On site**	**Cuttings**	**1938**	**1694787**
E	**On site**	**Cuttings**	**1967 - 1974**	**1728219**
C	5m SW	Tunnel	1938	1644913
C	8m SW	Tunnel	1950	1750445
B	12m SW	Railway Sidings	1967	1647281
C	14m SW	Colliery	1898	1739520
F	14m SW	Unspecified Heap	1898	1747370
C	15m SW	Tunnel	1921	1684990
F	18m SW	Unspecified Heap	1938	1739044
F	20m SW	Unspecified Heap	1921	1664547
1	20m E	Unspecified Depot	1980 - 1992	1616504
C	23m SW	Tunnel	1921	1717838

ID	Location	Land use	Dates present	Group ID
F	24m SW	Unspecified Heap	1974	1743423
B	28m SW	Railway Sidings	1950	1680404
B	28m SW	Railway Sidings	1921	1674197
B	33m SW	Railway Sidings	1921	1668122
D	38m E	Railway Building	1938	1585233
D	45m NE	Unspecified Heap	1921	1686207
C	55m W	Cuttings	1950	1675869
2	61m SW	Unspecified Heap	1974	1569378
G	64m S	Colliery	1938	1679704
H	65m W	Cuttings	1974	1696822
H	65m W	Cuttings	1967	1749237
I	74m SW	Opencast Workings	1980	1577135
C	78m SW	Railway Building	1938 - 1950	1724179
C	82m SW	Railway Building	1921	1710080
J	87m SW	Cuttings	1950 - 1967	1673340
J	92m SW	Unspecified Pit	1974	1609668
G	103m SW	Colliery	1898	1716373
4	105m N	Cuttings	1974 - 1992	1680155
K	108m SW	Unspecified Heap	1921	1736147
K	110m SW	Unspecified Heap	1938	1623637
L	111m SW	Cuttings	1921	1615206
K	111m SW	Unspecified Heaps	1967 - 1974	1699375
L	111m SW	Cuttings	1938	1641818
K	112m SW	Unspecified Heap	1950	1647698
K	114m SW	Unspecified Heaps	1921	1711737
L	114m SW	Cuttings	1950	1652593
L	117m SW	Cuttings	1921	1658551
5	124m SW	Disused Workings	1992	1581002

ID	Location	Land use	Dates present	Group ID
G	142m SW	Railway Sidings	1877	1641928
M	150m NW	Unspecified Heap	1950	1710838
N	154m S	Colliery	1950	1726213
M	155m NW	Unspecified Heap	1921	1712001
O	157m S	Unspecified Mine	1967	1611743
P	159m W	Opencast Workings	1992	1613963
P	159m W	Opencast Workings	1992	1613964
6	164m SW	Unspecified Ground Workings	1921	1680233
G	166m S	Colliery	1877	1725822
O	176m SW	Unspecified Disused Tip	1980 - 1992	1712045
M	180m NW	Railway Station	1898	1633070
M	180m NW	Railway Station	1921	1671352
M	180m NW	Railway Station	1938	1702079
K	180m SW	Unspecified Heap	1921	1682825
M	181m NW	Railway Station	1921	1668993
K	181m SW	Unspecified Heap	1938	1716185
K	184m SW	Unspecified Heap	1950	1716714
B	184m S	Unspecified Tank	1950	1593411
M	184m NW	Railway Building	1950	1585234
L	187m SW	Cuttings	1877 - 1898	1657913
G	188m S	Colliery	1921	1643272
M	192m NW	Goods Station	1950	1586907
B	197m S	Unspecified Heap	1921	1697154
B	199m S	Unspecified Heap	1938	1621959
Q	206m S	Unspecified Heap	1921	1745917
7	208m N	Opencast Workings	1967	1577142
8	209m N	Opencast Workings	1967	1577141
G	236m S	Colliery	1921	1693497

ID	Location	Land use	Dates present	Group ID
B	256m S	Brick Kilns	1898	1595820
Q	256m S	Unspecified Heaps	1921	1661750
R	257m SW	Unspecified Disused Tips	1974	1576091
B	257m S	Unspecified Heap	1938 - 1950	1740696
B	260m S	Unspecified Quarry	1877	1581878
Q	269m S	Unspecified Heaps	1938	1732971
R	274m SW	Refuse Heap	1950	1645187
Q	276m S	Refuse Heap	1898	1741441
B	280m S	Refuse Heap	1950	1747452
B	288m S	Unspecified Tank	1898	1714164
B	289m S	Unspecified Tank	1921	1730816
B	290m S	Gasometer	1877	1574533
S	292m SE	Cuttings	1938	1681985
B	293m S	Unspecified Tank	1938	1664178
T	297m SE	Cuttings	1921	1695407
B	301m S	Unspecified Tank	1921	1639170
S	304m SE	Cuttings	1921	1627934
Q	305m S	Refuse Heap	1877	1640643
I	331m SW	Unspecified Heap	1877 - 1898	1725738
I	331m SW	Unspecified Heap	1938	1731496
U	333m S	Refuse Heap	1898	1642847
S	334m SE	Cuttings	1950	1626096
U	339m S	Unspecified Ground Workings	1938	1697182
Q	343m SE	Clay Pit	1898	1595696
V	347m SE	Refuse Heap	1950	1637382
S	348m E	Cuttings	1898	1748360
U	351m S	Unspecified Heap	1921	1569379
U	359m S	Unspecified Ground Workings	1921	1635128

ID	Location	Land use	Dates present	Group ID
T	368m E	Cuttings	1967	1632756
T	368m E	Cuttings	1974	1728911
9	372m SE	Unspecified Pit	1967 - 1992	1716179
10	378m SW	Unspecified Old Quarry	1877	1601115
W	411m NW	Nurseries	1992	1671160
W	411m NW	Nurseries	1980	1738598
11	431m E	Cuttings	1974 - 1992	1627690
12	432m E	Opencast Workings	1980 - 1992	1654052
13	434m NW	Unspecified Pit	1974	1609669
14	440m SW	Magazine	1898	1595258
15	447m S	Magazine	1877	1595284
X	447m W	Unspecified Ground Workings	1921	1692165
V	449m SE	Unspecified Pit	1921	1677751
X	454m W	Unspecified Heap	1967 - 1974	1652835
X	458m W	Unspecified Heap	1921	1703285
X	460m W	Unspecified Heap	1950	1660698
W	461m NW	Nurseries	1974	1681009
W	466m NW	Nurseries	1967	1712510
N	474m S	Unspecified Shaft	1877	1579283

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	94m N	Unspecified Tank	1918	254790
B	175m S	Unspecified Tank	1938 - 1962	268469
B	295m S	Gasometer	1880	258927
B	295m S	Unspecified Tank	1898	263977
B	295m S	Unspecified Tank	1918	268306
B	297m S	Unspecified Tank	1938	276047

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**1**

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
B	295m S	Gasometer	1880	147550

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	1

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

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

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Garage**	**1961**	**47271**

This data is sourced from Ordnance Survey / Groundsure.

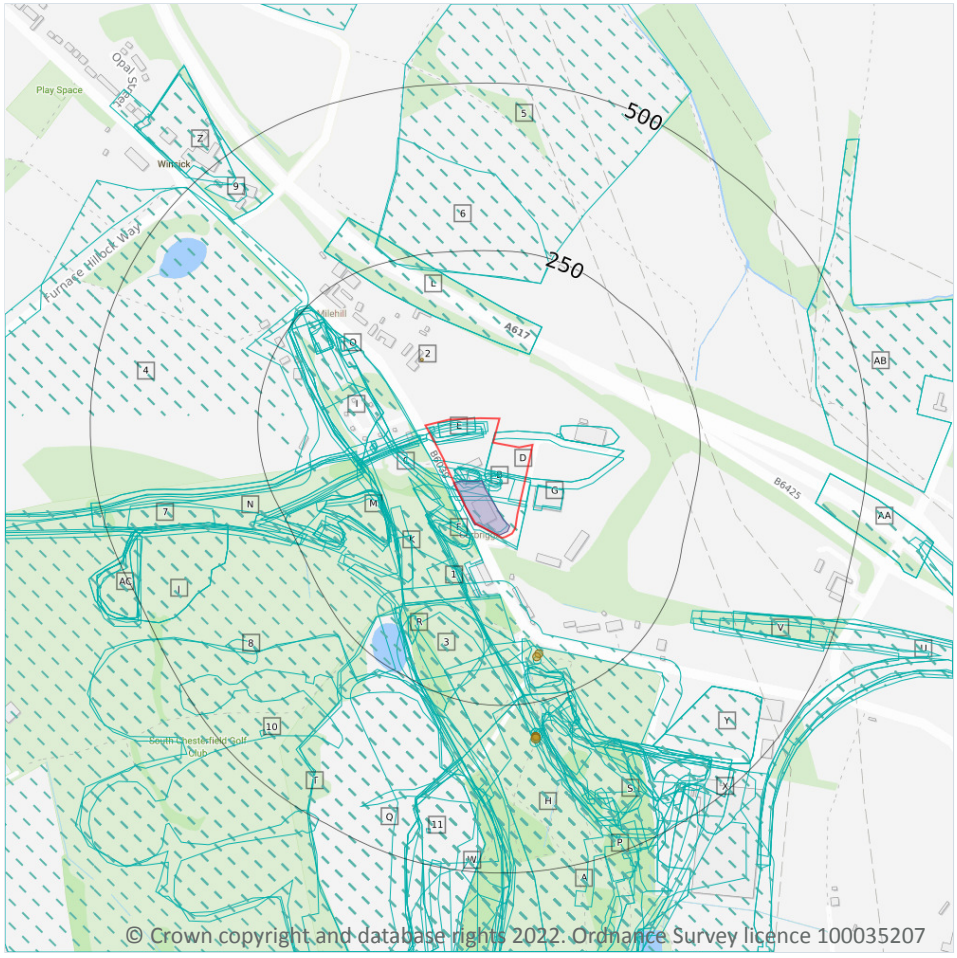
1.6 Historical military land

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

Historical garages

2.1 Historical industrial land uses

Records within 500m	166

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 22**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Railway Sidings**	**1938**	**1744419**
A	**On site**	**Railway Sidings**	**1898**	**1622336**
B	**On site**	**Unspecified Heap**	**1938**	**1654766**

ID	Location	Land Use	Date	Group ID
B	**On site**	**Unspecified Heap**	**1938**	**1656474**
B	**On site**	**Unspecified Heaps**	**1921**	**1599520**
B	**On site**	**Unspecified Heap**	**1921**	**1627953**
B	**On site**	**Refuse Heap**	**1921**	**1677850**
B	**On site**	**Garage**	**1967**	**1613484**
B	**On site**	**Unspecified Depot**	**1992**	**1583449**
B	**On site**	**Old Colliery**	**1950**	**1641498**
B	**On site**	**Unspecified Heap**	**1950**	**1656474**
B	**On site**	**Unspecified Heap**	**1950**	**1733180**
B	**On site**	**Unspecified Heap**	**1921**	**1627953**
B	**On site**	**Refuse Heap**	**1921**	**1677850**
C	**On site**	**Old Colliery**	**1938**	**1643158**
C	**On site**	**Tunnel**	**1967**	**1693871**
D	**On site**	**Old Colliery**	**1921**	**1707476**
D	**On site**	**Old Colliery**	**1921**	**1646369**
D	**On site**	**Old Colliery**	**1921**	**1646369**
E	**On site**	**Cuttings**	**1938**	**1694787**
E	**On site**	**Cuttings**	**1921**	**1661031**
E	**On site**	**Cuttings**	**1967**	**1728219**
E	**On site**	**Cuttings**	**1974**	**1728219**
E	**On site**	**Cuttings**	**1950**	**1691199**
E	**On site**	**Cuttings**	**1921**	**1661031**
C	5m SW	Tunnel	1938	1644913
C	8m SW	Tunnel	1950	1750445
A	12m SW	Railway Sidings	1967	1647281
C	14m SW	Colliery	1898	1739520
F	14m SW	Unspecified Heap	1898	1747370
C	15m SW	Tunnel	1921	1684990

ID	Location	Land Use	Date	Group ID
F	18m SW	Unspecified Heap	1938	1739044
F	20m SW	Unspecified Heap	1921	1664547
F	20m SW	Unspecified Heap	1921	1664547
G	20m E	Unspecified Depot	1992	1616504
G	21m E	Unspecified Depot	1980	1616504
C	23m SW	Tunnel	1921	1717838
F	24m SW	Unspecified Heap	1974	1743423
A	28m SW	Railway Sidings	1950	1680404
A	28m SW	Railway Sidings	1921	1674197
A	33m SW	Railway Sidings	1921	1668122
D	38m E	Railway Building	1938	1585233
D	45m NE	Unspecified Heap	1921	1686207
D	45m NE	Unspecified Heap	1921	1686207
C	55m W	Cuttings	1950	1675869
1	61m SW	Unspecified Heap	1974	1569378
H	64m S	Colliery	1938	1679704
I	65m W	Cuttings	1967	1749237
I	65m W	Cuttings	1974	1696822
J	74m SW	Opencast Workings	1980	1577135
C	78m SW	Railway Building	1938	1724179
C	80m SW	Railway Building	1950	1724179
C	82m SW	Railway Building	1921	1710080
K	87m SW	Cuttings	1950	1673340
K	92m SW	Cuttings	1967	1673340
K	92m SW	Unspecified Pit	1974	1609668
H	103m SW	Colliery	1898	1716373
L	105m N	Cuttings	1974	1680155
L	105m N	Cuttings	1980	1680155

ID	Location	Land Use	Date	Group ID
L	105m N	Cuttings	1992	1680155
M	108m SW	Unspecified Heap	1921	1736147
M	108m SW	Unspecified Heap	1921	1736147
M	110m SW	Unspecified Heap	1938	1623637
N	111m SW	Cuttings	1921	1615206
M	111m SW	Unspecified Heaps	1967	1699375
M	111m SW	Unspecified Heaps	1974	1699375
N	111m SW	Cuttings	1938	1641818
M	112m SW	Unspecified Heap	1950	1647698
M	114m SW	Unspecified Heaps	1921	1711737
N	114m SW	Cuttings	1950	1652593
N	117m SW	Cuttings	1921	1658551
3	124m SW	Disused Workings	1992	1581002
H	142m SW	Railway Sidings	1877	1641928
O	150m NW	Unspecified Heap	1950	1710838
P	154m S	Colliery	1950	1726213
O	155m NW	Unspecified Heap	1921	1712001
O	155m NW	Unspecified Heap	1921	1712001
Q	157m S	Unspecified Mine	1967	1611743
4	159m W	Opencast Workings	1992	1613963
R	164m SW	Unspecified Ground Workings	1921	1680233
R	164m SW	Unspecified Ground Workings	1921	1680233
H	166m S	Colliery	1877	1725822
Q	176m SW	Unspecified Disused Tip	1980	1712045
O	180m NW	Railway Station	1938	1702079
O	180m NW	Railway Station	1921	1671352
O	180m NW	Railway Station	1898	1633070
M	180m SW	Unspecified Heap	1921	1682825

ID	Location	Land Use	Date	Group ID
M	180m SW	Unspecified Heap	1921	1682825
O	181m NW	Railway Station	1921	1668993
M	181m SW	Unspecified Heap	1938	1716185
M	184m SW	Unspecified Heap	1950	1716714
A	184m S	Unspecified Tank	1950	1593411
O	184m NW	Railway Building	1950	1585234
N	187m SW	Cuttings	1877	1657913
H	188m S	Colliery	1921	1643272
O	192m NW	Goods Station	1950	1586907
A	197m S	Unspecified Heap	1921	1697154
A	197m S	Unspecified Heap	1921	1697154
A	199m S	Unspecified Heap	1938	1621959
S	206m S	Unspecified Heap	1921	1745917
5	208m N	Opencast Workings	1967	1577142
6	209m N	Opencast Workings	1967	1577141
H	236m S	Colliery	1921	1693497
H	236m S	Colliery	1921	1693497
A	256m S	Brick Kilns	1898	1595820
Q	256m SW	Unspecified Disused Tip	1992	1712045
S	256m S	Unspecified Heaps	1921	1661750
S	256m S	Unspecified Heaps	1921	1661750
T	257m SW	Unspecified Disused Tips	1974	1576091
A	257m S	Unspecified Heap	1938	1740696
A	260m S	Unspecified Quarry	1877	1581878
S	269m S	Unspecified Heaps	1938	1732971
A	270m S	Unspecified Heap	1950	1740696
T	274m SW	Refuse Heap	1950	1645187
S	276m S	Refuse Heap	1898	1741441

ID	Location	Land Use	Date	Group ID
A	280m S	Refuse Heap	1950	1747452
A	288m S	Unspecified Tank	1898	1714164
A	289m S	Unspecified Tank	1921	1730816
A	290m S	Gasometer	1877	1574533
U	292m SE	Cuttings	1938	1681985
A	293m S	Unspecified Tank	1938	1664178
V	297m SE	Cuttings	1921	1695407
A	301m S	Unspecified Tank	1921	1639170
U	304m SE	Cuttings	1921	1627934
S	305m S	Refuse Heap	1877	1640643
J	331m SW	Unspecified Heap	1898	1725738
J	331m SW	Unspecified Heap	1877	1725738
J	331m SW	Unspecified Heap	1938	1731496
W	333m S	Refuse Heap	1898	1642847
U	334m SE	Cuttings	1950	1626096
W	339m S	Unspecified Ground Workings	1938	1697182
7	341m W	Cuttings	1898	1657913
S	343m SE	Clay Pit	1898	1595696
X	347m SE	Refuse Heap	1950	1637382
U	348m E	Cuttings	1898	1748360
W	351m S	Unspecified Heap	1921	1569379
W	359m S	Unspecified Ground Workings	1921	1635128
W	359m S	Unspecified Ground Workings	1921	1635128
V	368m E	Cuttings	1967	1632756
V	368m E	Cuttings	1974	1728911
Y	372m SE	Unspecified Pit	1967	1716179
Y	372m SE	Unspecified Pit	1974	1716179
Y	372m SE	Unspecified Pit	1980	1716179

ID	Location	Land Use	Date	Group ID
Y	372m SE	Unspecified Pit	1992	1716179
8	378m SW	Unspecified Old Quarry	1877	1601115
Z	411m NW	Nurseries	1980	1738598
Z	411m NW	Nurseries	1992	1671160
AA	431m E	Cuttings	1974	1627690
AA	431m E	Cuttings	1980	1627690
AA	431m E	Cuttings	1992	1627690
AB	432m E	Opencast Workings	1980	1654052
AB	432m E	Opencast Workings	1992	1654052
9	434m NW	Unspecified Pit	1974	1609669
10	440m SW	Magazine	1898	1595258
11	447m S	Magazine	1877	1595284
AC	447m W	Unspecified Ground Workings	1921	1692165
AC	447m W	Unspecified Ground Workings	1921	1692165
X	449m SE	Unspecified Pit	1921	1677751
X	449m SE	Unspecified Pit	1921	1677751
AC	454m W	Unspecified Heap	1967	1652835
AC	454m W	Unspecified Heap	1974	1652835
AC	458m W	Unspecified Heap	1921	1703285
AC	460m W	Unspecified Heap	1950	1660698
Z	461m NW	Nurseries	1974	1681009
Z	466m NW	Nurseries	1967	1712510
P	474m S	Unspecified Shaft	1877	1579283

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	7

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 22**

ID	Location	Land Use	Date	Group ID
2	94m N	Unspecified Tank	1918	254790
A	175m S	Unspecified Tank	1962	268469
A	179m S	Unspecified Tank	1938	268469
A	295m S	Gasometer	1880	258927
A	295m S	Unspecified Tank	1898	263977
A	295m S	Unspecified Tank	1918	268306
A	297m S	Unspecified Tank	1938	276047

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	1

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 22**

ID	Location	Land Use	Date	Group ID
A	295m S	Gasometer	1880	147550

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	1

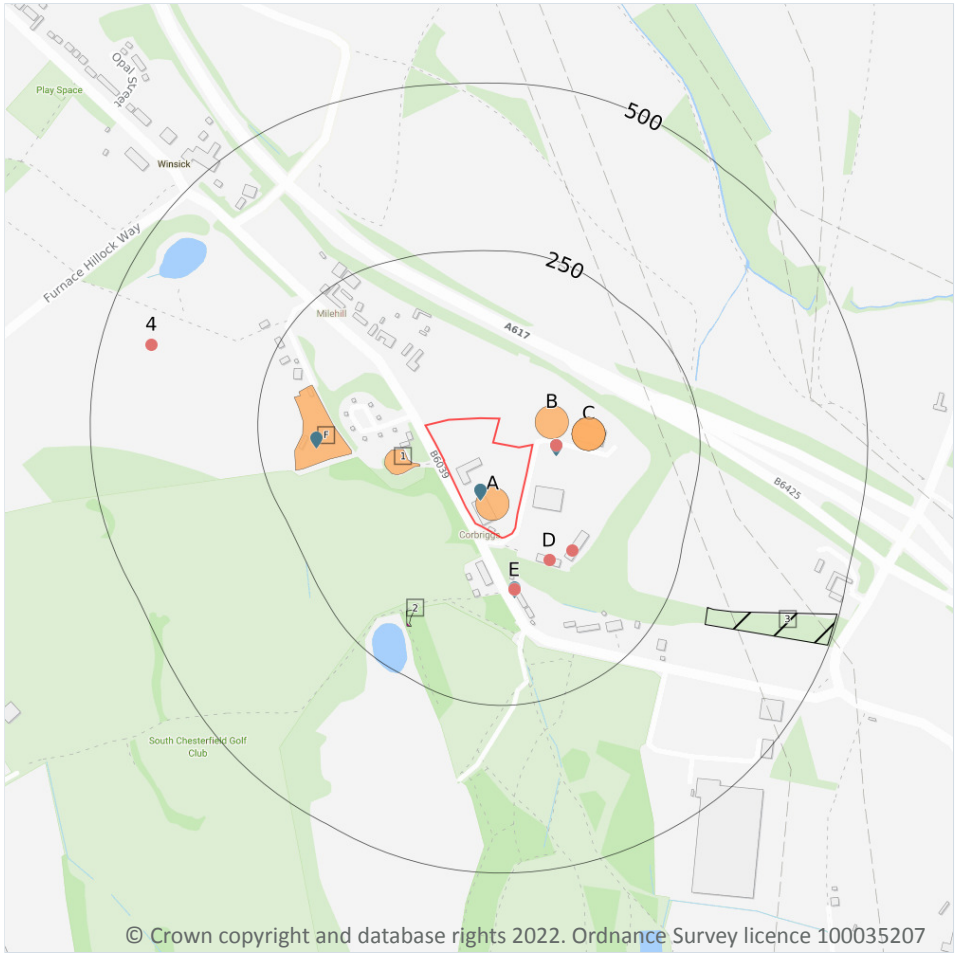
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 22**

ID	Location	Land Use	Date	Group ID
B	**On site**	**Garage**	**1961**	**47271**

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical landfill (LA/OS)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	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 31**

ID	Location	Site address	Source	Data type
2	158m SW	Refuse Tip	1961 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 31**

ID	Location	Details		
3	310m E	Site Address: Dismantled Railway, Hassocky Lane, Milehill Licence Holder Address: -	Waste Licence: Yes Site Reference: 4400/LT06 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 02/03/1978 Licence Surrender: -	Operator: Derbyshire County Council Licence Holder: Derbyshire County Council First Recorded - Last Recorded: -

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

3.5 Historical waste sites

Records within 500m	6

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

Features are displayed on the Waste and landfill map on **page 31**

ID	Location	Address	Further Details	Date
A	**On site**	**Site Address: MXG Waste Transfer Station, Mansfield Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW**	**Type of Site: Waste Transfer Station** **Planning application reference: 19/00837/CM** **Description: Scheme comprises cw4/0819/45 - change of use of land and buildings to a waste transfer station, including the overnight parking of refuse collection vehicles, the installation of a vehicle weighbridge and the siting of a portable cabin.** **Data source: Historic Planning Application** **Data Type: Point**	**20/08/2019**
B	19m NE	Site Address: Hasland Waste Transfer Station, Mansfield Road,Corbriggs, CHESTERFIELD, Derbyshire, S41 0J	Type of Site: Waste Recycling Centre (Extension) Planning application reference: NED/08/01042/CM Description: Scheme comprises CW4/1008/115 DDC consultation for extension to stockyard to implement inert waste recycling to produce secondary aggregates and soils. An application (ref: NED/08/01042/CM) for detailed planning permission was submitted to North East Der byshire D.C. Data source: Historic Planning Application Data Type: Point	-
1	35m SW	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1979

ID	Location	Address	Further Details	Date
C	60m E	Site Address: Corbriggs, Mansfield Road, CHESTERFIELD, Derbyshire, S41	Type of Site: Waste Transfer Station (Refurb) Planning application reference: CW4/1209/177 Description: Scheme comprises refurbishment works to the existing waste transfer station to involve two modular cabins, an additional weighbridge, an external gully waste store and additional container storage. An application (ref: CW4/1209/177) for detailed planni ng permission was granted by North East Derbyshire D.C. MXG Waste Solutions will be undertaking some parts of the work and a civil contractor has been appointed to undertake the rest of the work. The company details have been declined. In December 2008 Derbyshire County Council and Derby City Council selected Resource Recovery Solutions (Derbyshire) Ltd (RRS), a partnership between United Utilities and Interserve, to be preferred bidder for a new Derbyshire Joint Waste Management Contract which will ru n from 1 April 2010 for 27 years. The Corbriggs Waste Transfer Station is operated by MXG, a specialist recycling company for RRS. The existing facility will be upgraded to enable municipal waste to be handled at the site alongside the current handl ing of construction and demolition waste. MXG Waste Solutions will be undertaking some parts of the work and a civil contractor has been appointed to undertake the rest of the work. The company details have been declined. Data source: Historic Planning Application Data Type: Point	18/04/2011
C	60m E	Site Address: Hasland Waste Transfer Station, Mansfield Road,Corbriggs, CHESTERFIELD, Derbyshire, S41 0J	Type of Site: Waste Recycling Centre (Extension) Planning application reference: NED/08/01042/CM Description: Scheme comprises CW4/1008/115 DDC consultation for extension to stockyard to implement inert waste recycling to produce secondary aggregates and soils. An application (ref: NED/08/01042/CM) for detailed planning permission was submitted to North East Der byshire D.C. Data source: Historic Planning Application Data Type: Point	-
F	116m W	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1992

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

3.6 Licensed waste sites

Records within 500m	10

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

Features are displayed on the Waste and landfill map on **page 31**

ID	Location	Details		
A	**On site**	**Site Name: -** **Site Address: Mansfield Road, Hasland, Chesterfield, S41 0JW** **Correspondence Address: Po Box 55, 1 Surrey Street, London, WC2R 2NT**	**Type of Site: Household, Commercial & Industrial Waste T Stn** **Size: Unknown** **Environmental Permitting Regulations (Waste) Licence Number: NSM001** **EPR reference: -** **Operator: N S M Waste Control Limited** **Waste Management licence No: 61964** **Annual Tonnage: 0**	**Issue Date: 29/04/1994** **Effective Date: -** **Modified: -** **Surrendered Date: -** **Expiry Date: -** **Cancelled Date: -** **Status: Expired**
A	**On site**	**Site Name: -** **Site Address: Mansfield Road, Hasland, Chesterfield, Derbyshire, S41 0JW** **Correspondence Address: -**	**Type of Site: Household, Commercial & Industrial Waste T Stn** **Size: 25000 tonnes** **Environmental Permitting Regulations (Waste) Licence Number: NSM001** **EPR reference: EA/EPR/AP3198ZT/A001** **Operator: N S M Waste Control Limited** **Waste Management licence No: 61964** **Annual Tonnage: 25000**	**Issue Date: 29/04/1994** **Effective Date: -** **Modified: -** **Surrendered Date: -** **Expiry Date: -** **Cancelled Date: -** **Status: Expired**

ID	Location	Details		
A	**On site**	**Site Name: -** **Site Address: Mansfield Road, Hasland, Chesterfield, Derbyshire, S41 0JW** **Correspondence Address: -**	**Type of Site: Household, Commercial & Industrial Waste T Stn** **Size: >= 25000 tonnes 75000 tonnes** **Environmental Permitting Regulations (Waste) Licence Number: NSM001** **EPR reference: EA/EPR/AP3198ZT/A001** **Operator: N S M Waste Control Limited** **Waste Management licence No: 61964** **Annual Tonnage: 25000**	**Issue Date: 29/04/1994** **Effective Date: -** **Modified: -** **Surrendered Date: -** **Expiry Date: -** **Cancelled Date: -** **Status: Expired**
B	35m E	Site Name: Trebelar Regeneration Limited Site Address: Alexander House, Corbriggs, Chesterfield, Derbyshire, S41 0JW Correspondence Address: Alexander House, Corbriggs, Chesterfield, Derbyshire, S41 0JW	Type of Site: Material Recycling Treatment Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TRE002 EPR reference: - Operator: Trebelar Regeneration Limited Waste Management licence No: 65240 Annual Tonnage: 0	Issue Date: 31/01/2003 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
B	35m E	Site Name: Trebelar Regeneration Limited Site Address: Trebelar Regeneration Ltd, Mansfield Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW Correspondence Address: -	Type of Site: 75kte HCI Waste TS + treatment + asbestos Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TRE002 EPR reference: EA/EPR/LP3892ZJ/V008 Operator: Trebelar Regeneration Limited Waste Management licence No: 65240 Annual Tonnage: 74999	Issue Date: 31/01/2003 Effective Date: - Modified: 10/12/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

ID	Location	Details		
B	35m E	Site Name: Trebelar Regeneration Limited Site Address: Alexander House, Mansfield Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TRE002 EPR reference: EA/EPR/LP3892ZJ/V005 Operator: Trebelar Regeneration Limited Waste Management licence No: 65240 Annual Tonnage: 71500	Issue Date: 31/01/2003 Effective Date: - Modified: 23/06/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
B	35m E	Site Name: M X G Site Address: Mansfield Road, Alexander Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW Correspondence Address: -	Type of Site: 75kte HCI Waste TS + treatment + asbestos Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIN001 EPR reference: EA/EPR/EB3306TA/T001 Operator: Lindrick Project Management Limited Waste Management licence No: 65240 Annual Tonnage: 74999	Issue Date: 31/01/2003 Effective Date: 05/07/2016 Modified: 10/12/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred
B	35m E	Site Name: M X G Site Address: Mansfield Road, Alexander Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW Correspondence Address: -	Type of Site: 75kte HCI Waste TS + treatment + asbestos Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIN001 EPR reference: EA/EPR/EB3306TA/T001 Operator: Lindrick Project Management Limited Waste Management licence No: 65240 Annual Tonnage: 74999	Issue Date: 31/01/2003 Effective Date: 05/07/2016 Modified: 10/12/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired

ID	Location	Details		
E	80m S	Site Name: Ward Recycling Limited Site Address: WARD RECYCLING LIMITED, Ward Recycling Limited, Mansfield Road, Corbriggs, S41 0JW Correspondence Address: -	Type of Site: 75kte HCI Waste TS Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: - EPR reference: EA/EPR/WE3557AA/V002 Operator: WARD RECYCLING LIMITED Waste Management licence No: 120067 Annual Tonnage: -	Issue Date: 26/09/2019 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
F	164m W	Site Name: J. W. Thompson And Sons Limited - Hasland Site Address: 5, Mile Hill, Mansfield Road, Chesterfield, Derbyshire, S41 0JN Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JWT001 EPR reference: EA/EPR/WP3198ZG/A001 Operator: J W Thompson & Sons Waste Management licence No: 61949 Annual Tonnage: 24999	Issue Date: 01/12/1997 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

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

3.7 Waste exemptions

Records within 500m **6**

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.

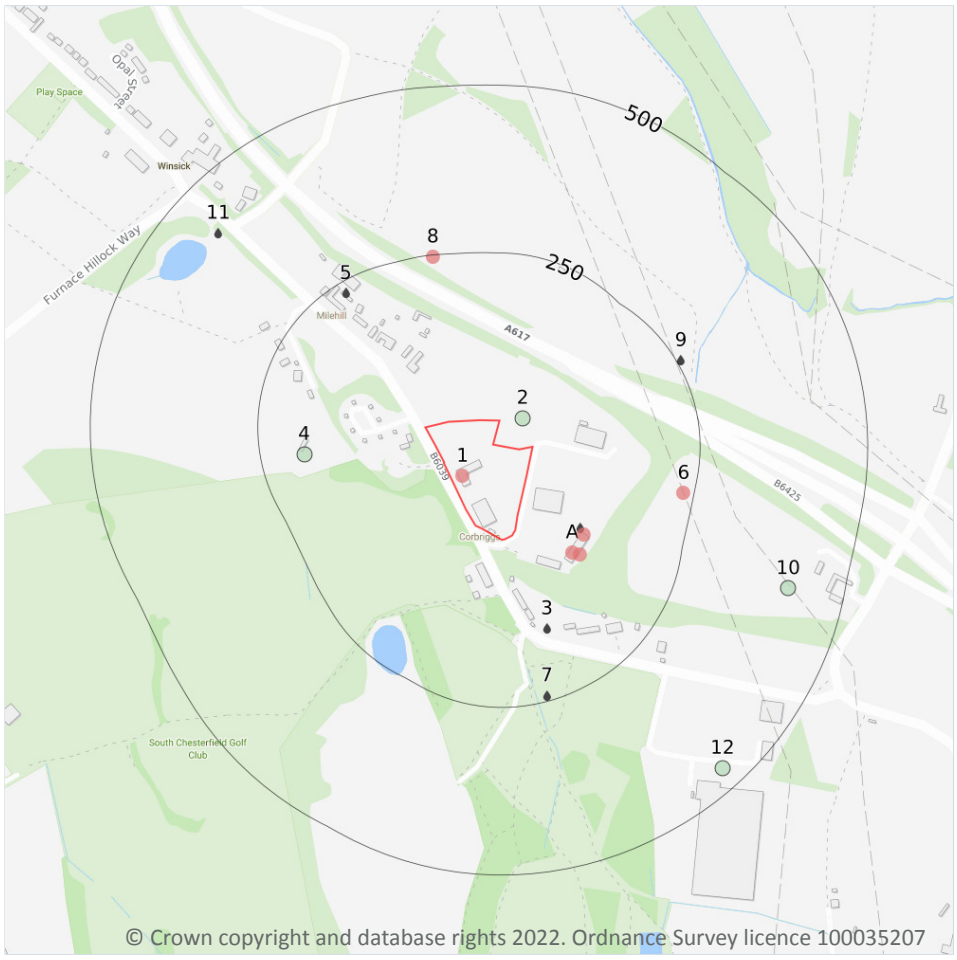
Features are displayed on the Waste and landfill map on **page 31**

ID	Location	Site	Reference	Category	Sub-Category	Description
B	35m E	Land At SK4111468269	EPR/EE5685ZD/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
D	68m SE	MANSFIELD ROAD, CORBRIGGS, CHESTERFIELD, S41 0JW	WEX275635	Storing waste exemption	Not on a farm	Storage of sludge
E	80m S	Ward recycling, Mansfield road, Corbriggs, Chesterfield, S410jw	WEX162567	Storing waste exemption	Not on a Farm	Storage of waste in secure containers

ID	Location	Site	Reference	Category	Sub-Category	Description
E	80m S	ward recycling limited, mansfield road, corbriggs, chesterfield, s41 0jw	WEX185554	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	91m E	MANSFIELD ROAD, CORBRIGGS, CHESTERFIELD, S41 0JW	WEX135410	Storing waste exemption	Not on a farm	Storage of sludge
4	426m W	-	WEX246254	Storing waste exemption	On a farm	Storage of sludge

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

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	6

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 40**

ID	Location	Company	Address	Activity	Category
1	**On site**	**M X G Waste Solutions**	**Alexander House, Mansfield Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW**	**Recycling, Reclamation and Disposal**	**Recycling Services**
A	91m E	Clee Hill	Mansfield Road, Corbriggs, Chesterfield, Derbyshire, S41 0JW	Construction and Tool Hire	Hire Services
A	102m E	Tank	Derbyshire, S41	Tanks (Generic)	Industrial Features

ID	Location	Company	Address	Activity	Category
A	102m E	Works	Derbyshire, S41	Unspecified Works Or Factories	Industrial Features
6	235m E	Pylon	Derbyshire, S41	Electrical Features	Infrastructure and Facilities
8	248m N	Mast (Telecommunication)	Derbyshire, S41	Telecommunications 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	6

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

Features are displayed on the Current industrial land use map on **page 40**

ID	Location	Address	Details	
A	95m E	PLANT YARD DEVELOPMENT, MANSFIELD ROAD, HASLAND, CHESTERFIELD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: WRA7278 Permit Version: 1 Receiving Water: TRIBUTARY OF CALOW BROOK	Status: REVOKED UNDER EPR 2010 Issue date: 28/01/1997 Effective Date: 28/01/1997 Revocation Date: 30/12/2010
3	147m SE	AVENUE COKING WORKS, GRASSMOOR, CHESTERFIELD, DERBYSHIRE, S42 6JJ	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 2427 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: 24/01/1984 Effective Date: 24/01/1984 Revocation Date: 04/06/1991
5	232m NW	HORNBEAM & OTHER HOUSE, MEANSFIELD ROAD, WINSICK, CHESTERFIELD, DERBYSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 2014 Permit Version: 1 Receiving Water: TRIBUTARY OF CALOW BROOK	Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 21/12/1965 Effective Date: 21/12/1965 Revocation Date: -

ID	Location	Address	Details	
7	241m S	AVENUE COKING WORKS, GRASSMOOR, CHESTERFIELD, DERBYSHIRE, S42 6JJ	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 2427 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: 24/01/1984 Effective Date: 24/01/1984 Revocation Date: 04/06/1991
9	256m NE	MANOR HOUSE FARM OCCS, UK	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: WA6485 Permit Version: 1 Receiving Water: -	Status: CONSENT REVOKED - DISCHARGE CEASED (WRA 91, SCHED 10 & 6) Issue date: 21/10/1991 Effective Date: 21/10/1991 Revocation Date: 07/06/1994
11	423m NW	BRITISH COAL CORPORATION OPENCAST E, XECUTIVE FURNACE HILLOCK REMAIND, ER OPENCAST COAL SITE WINSICK	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: C6127 Permit Version: 1 Receiving Water: -	Status: CONSENT REVOKED - DISCHARGE CEASED (WRA 91, SCHED 10 & 6) Issue date: 07/08/1990 Effective Date: 07/08/1990 Revocation Date: 12/07/1995

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	4

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 40**

ID	Location	Details	
2	34m E	Incident Date: 14/02/2002 Incident Identification: 58270 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4	185m W	Incident Date: 04/04/2002 Incident Identification: 68933 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
10	416m E	Incident Date: 22/11/2004 Incident Identification: 285242 Pollutant: Specific Waste Materials Pollutant Description: Electrical Equipment	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)
12	467m SE	Incident Date: 13/10/2003 Incident Identification: 195803 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) 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.

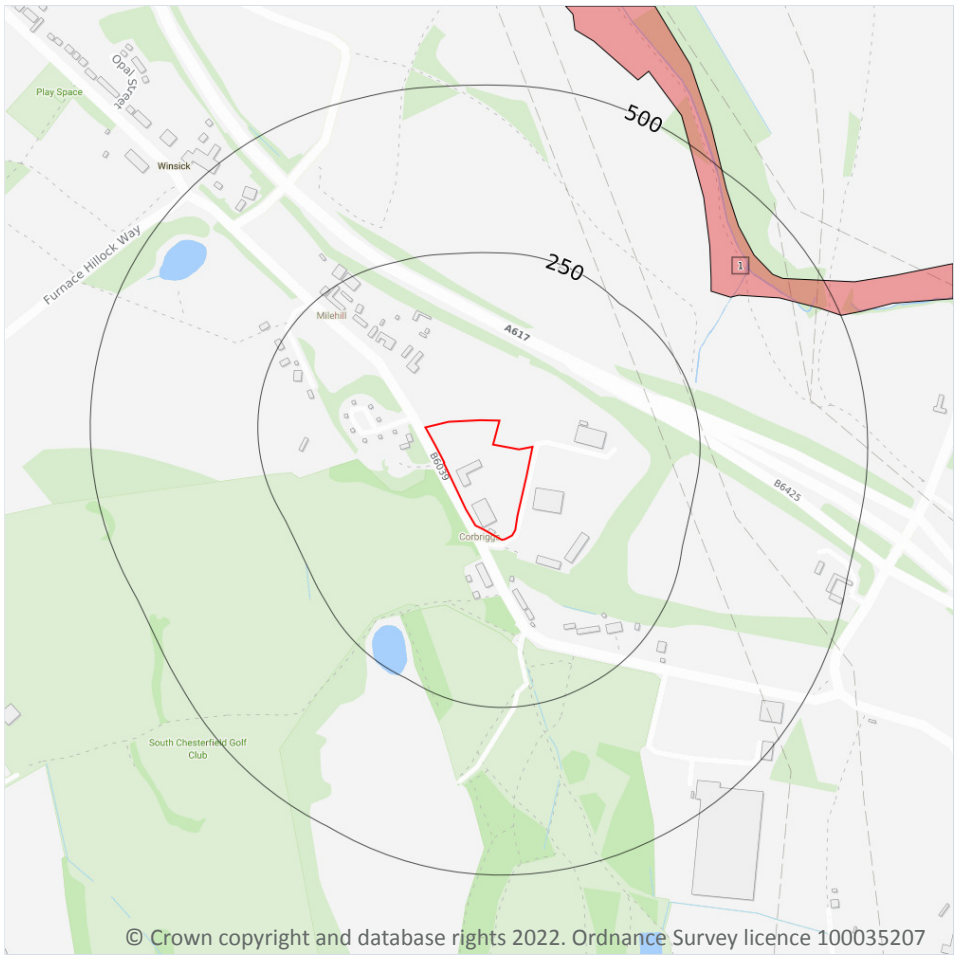
4.21 Pollution inventory radioactive waste

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	1

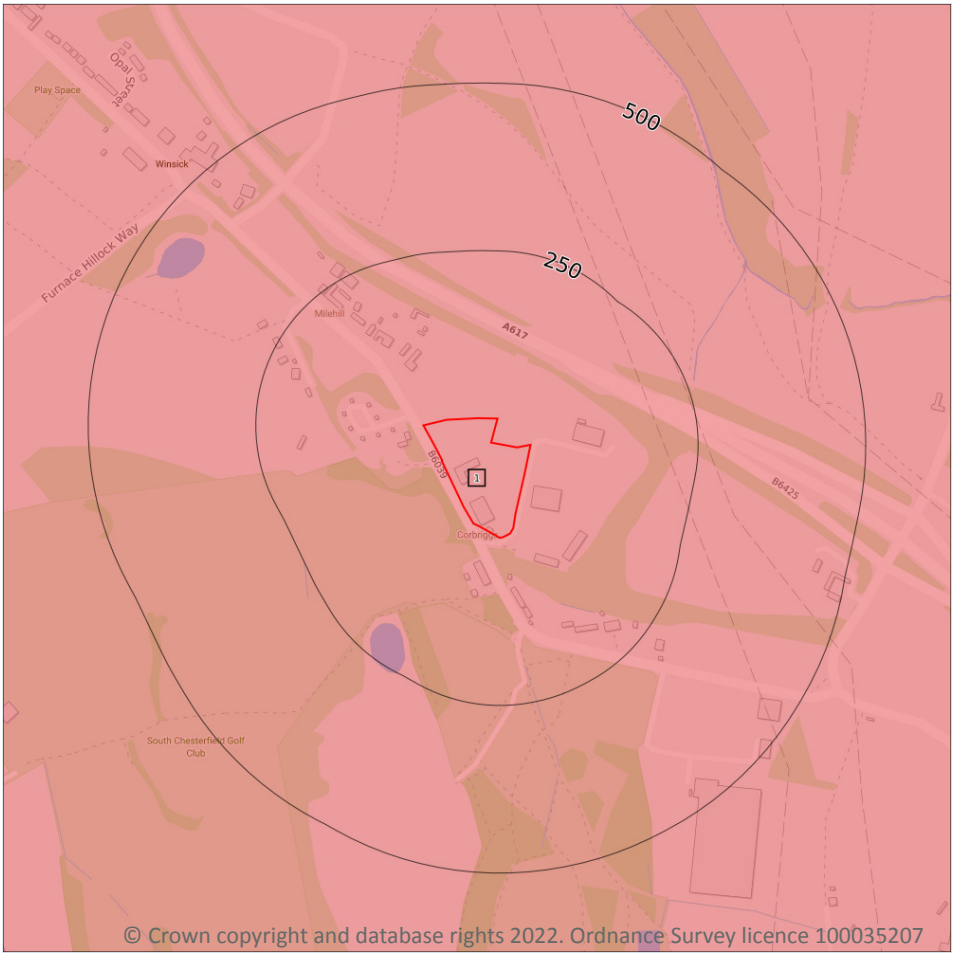
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 47**

ID	Location	Designation	Description
1	353m NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	1

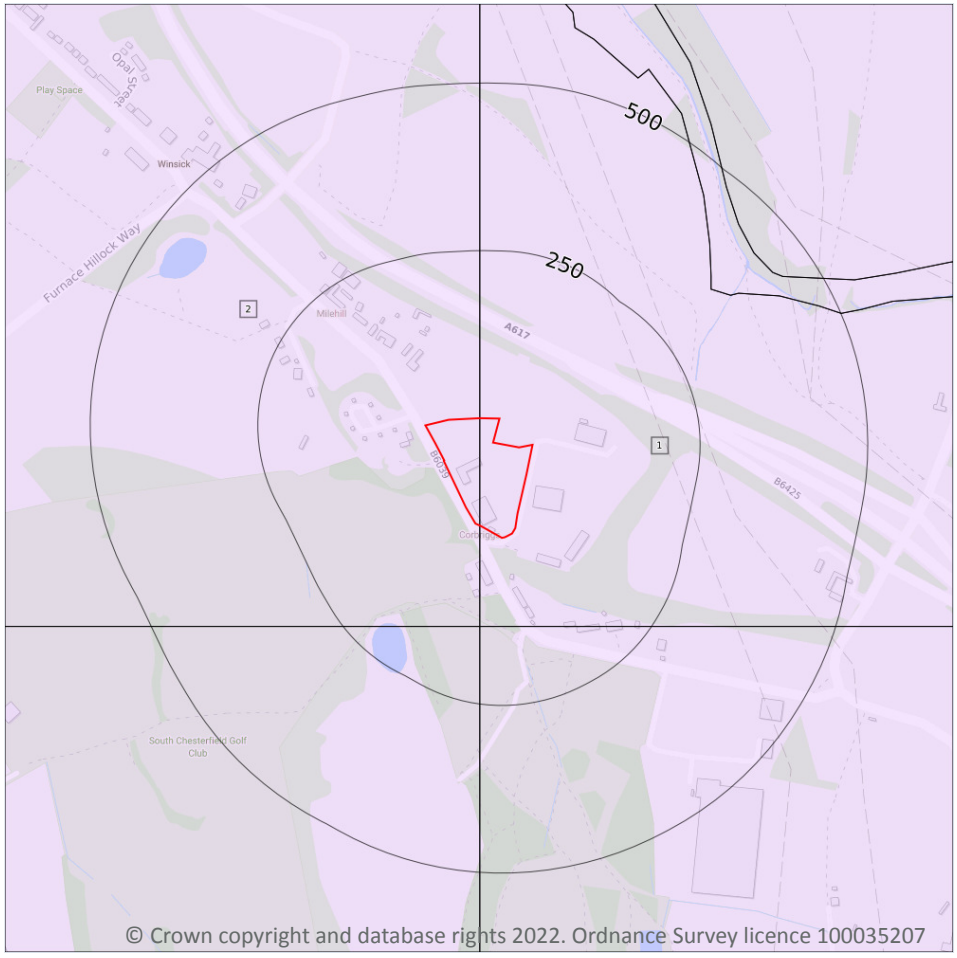
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 48**

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

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

Groundwater vulnerability



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 49**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Medium 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.

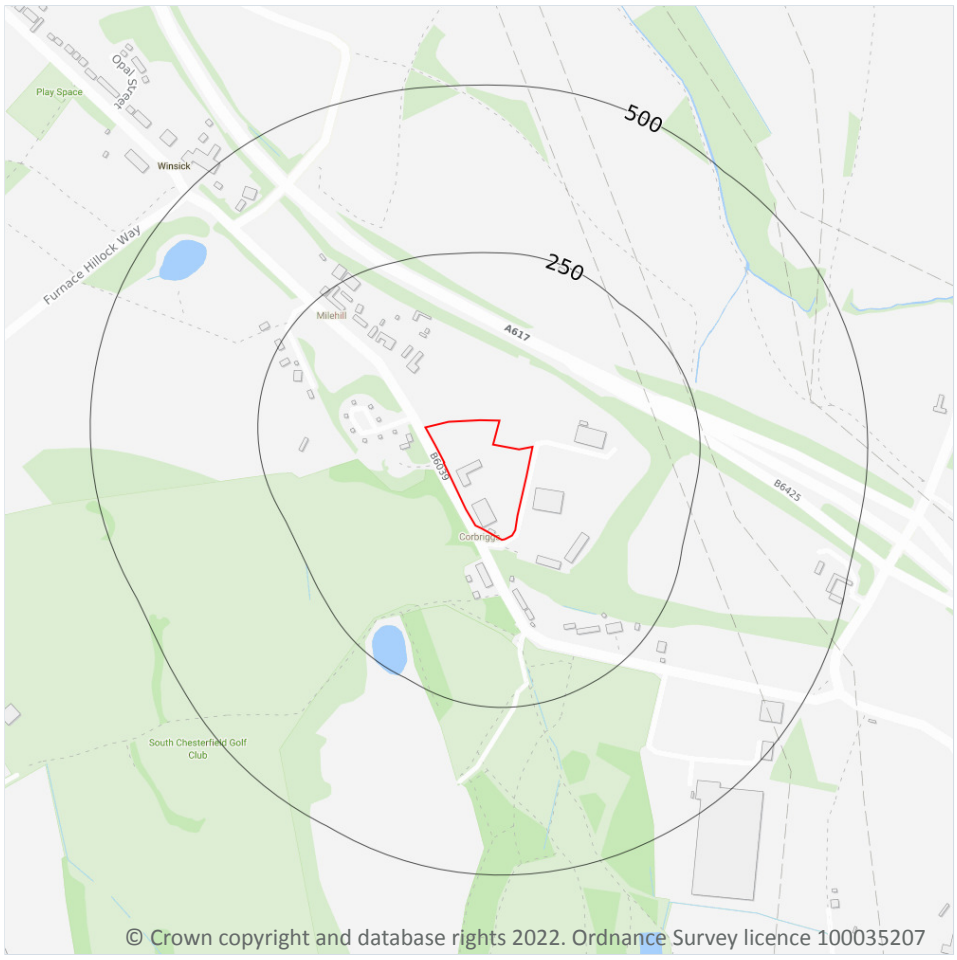
5.5 Groundwater vulnerability- local information

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



Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	4

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 51**

ID	Location	Details	
-	1044m SE	Status: Historical Licence No: 2/27/02/092 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - MIDDLE COAL MEASURES - PLANTWORLD Data Type: Point Name: PLANTWORLD Easting: 441710 Northing: 367330	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/10/2000 Expiry Date: 31/12/2009 Issue No: 1 Version Start Date: 14/10/2000 Version End Date: -
-	1044m SE	Status: Historical Licence No: 2/27/02/092 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - MIDDLE COAL MEASURES - PLANTWORLD Data Type: Point Name: PLANTWORLD Easting: 441710 Northing: 367330	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/10/2000 Expiry Date: 31/12/2009 Issue No: 1 Version Start Date: 14/10/2000 Version End Date: -
-	1691m W	Status: Historical Licence No: NE/027/0002/003 Details: Dust Suppression Direct Source: GROUNDWATERS Point: MINESHAFT-COAL MEASURES-AVENUE COKING WORKS-CHESTERFIELD Data Type: Point Name: VSD AVENUE Easting: 439264 Northing: 367949	Annual Volume (m^3): 93600 Max Daily Volume (m^3): 720 Original Application No: - Original Start Date: 02/06/2014 Expiry Date: 31/03/2017 Issue No: 2 Version Start Date: 03/06/2014 Version End Date: -
-	1716m W	Status: Historical Licence No: NE/027/0002/003 Details: Dust Suppression Direct Source: GROUNDWATERS Point: MINESHAFT-COAL MEASURES-AVENUE COKING WORKS-CHESTERFIELD Data Type: Point Name: VSD AVENUE Easting: 439240 Northing: 367944	Annual Volume (m^3): 93600 Max Daily Volume (m^3): 720 Original Application No: - Original Start Date: 02/06/2014 Expiry Date: 31/03/2017 Issue No: 2 Version Start Date: 03/06/2014 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**7**

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 51**

ID	Location	Details	
-	1493m SW	Status: Historical Licence No: 2/27/02/076B Details: General use relating to Secondary Category (High Loss) Direct Source: SURFACE WATER Point: RIVER ROTHER - WEIR Data Type: Point Name: CORY COAL LIMITED Easting: 439600 Northing: 367600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 09/03/1977 Expiry Date: - Issue No: 100 Version Start Date: 09/03/1977 Version End Date: -
-	1493m SW	Status: Historical Licence No: 2/27/02/076B Details: General use relating to Secondary Category (High Loss) Direct Source: SURFACE WATER Point: RIVER ROTHER - NORTH WINGERFIELD CHESTERFIELD Data Type: Point Name: BENNETT FERGUSSON COAL LTD Easting: 439600 Northing: 367600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 09/03/1977 Expiry Date: - Issue No: 101 Version Start Date: 14/07/2000 Version End Date: -
-	1493m SW	Status: Historical Licence No: 2/27/02/076B Details: Mineral Washing Direct Source: SURFACE WATER Point: RIVER ROTHER - NORTH WINGERFIELD CHESTERFIELD Data Type: Point Name: BENNETT FERGUSSON COAL LTD Easting: 439600 Northing: 367600	Annual Volume (m^3): 30000 Max Daily Volume (m^3): 456 Original Application No: - Original Start Date: 09/03/1977 Expiry Date: - Issue No: 101 Version Start Date: 14/07/2000 Version End Date: -

ID	Location	Details	
-	1787m SW	Status: Active Licence No: NE/027/0002/017 Details: Lake & Pond Throughflow Direct Source: SURFACE WATER Point: REDLEADMILL BROOK-MARSH AREA(NORTH)-CHESTERFIELD A Data Type: Point Name: Land Restoration Trust Easting: 439815 Northing: 366809	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: NPS/WR/024398 Original Start Date: 01/04/2017 Expiry Date: 31/03/2029 Issue No: 1 Version Start Date: 01/04/2017 Version End Date: -
-	1896m SW	Status: Historical Licence No: 2/27/02/096 Details: Lake & Pond Throughflow Direct Source: SURFACE WATER Point: REDLEADMILL BROOK-MARSH AREA(NORTH)-CHESTERFIELD B Data Type: Point Name: Land Restoration Trust Easting: 439724 Northing: 366744	Annual Volume (m^3): 1,094,013 Max Daily Volume (m^3): 24624 Original Application No: - Original Start Date: 24/03/2005 Expiry Date: 31/03/2017 Issue No: 2 Version Start Date: 08/06/2010 Version End Date: -
-	1896m SW	Status: Active Licence No: NE/027/0002/017 Details: Lake & Pond Throughflow Direct Source: SURFACE WATER Point: REDLEADMILL BROOK-MARSH AREA(NORTH)-CHESTERFIELD B Data Type: Point Name: Land Restoration Trust Easting: 439724 Northing: 366744	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: NPS/WR/024398 Original Start Date: 01/04/2017 Expiry Date: 31/03/2029 Issue No: 1 Version Start Date: 01/04/2017 Version End Date: -
-	1945m SW	Status: Historical Licence No: 2/27/02/096 Details: Lake & Pond Throughflow Direct Source: SURFACE WATER Point: REDLEADMILL BROOK-MARSH AREA(NORTH)-CHESTERFIELD Data Type: Point Name: Land Restoration Trust Easting: 439700 Northing: 366700	Annual Volume (m^3): 1,094,013 Max Daily Volume (m^3): 24624 Original Application No: - Original Start Date: 24/03/2005 Expiry Date: 31/03/2017 Issue No: 2 Version Start Date: 08/06/2010 Version End Date: -

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.

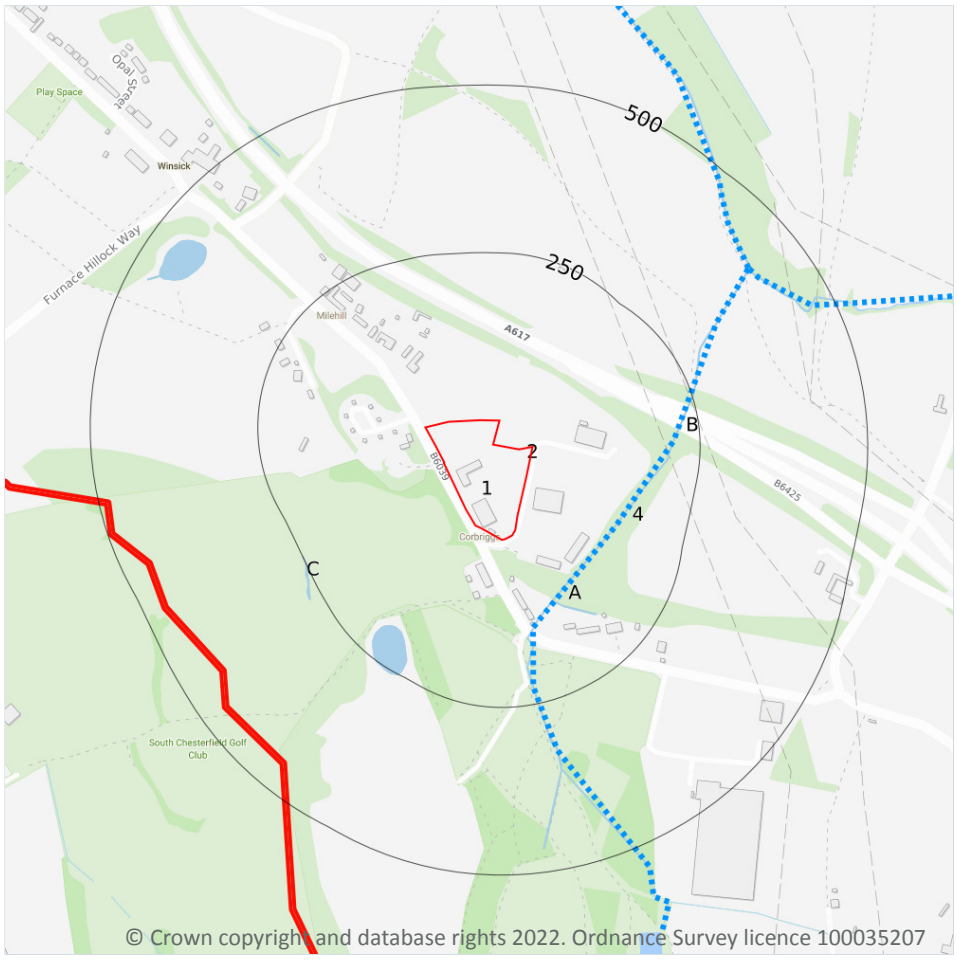
5.10 Source Protection Zones (confined aquifer)

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	**13**

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 56**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	109m SE	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
4	112m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	114m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	115m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	115m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	140m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	151m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	184m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
A	194m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	210m E	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
A	223m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	229m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	249m SW	Lake, loch or reservoir.	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	4

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 56**

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 56**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River**	**Spital/Calow/Muster Brook**	**GB104027057640**	**Rother and Doe Lea**	**Don and Rother**

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 56**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
3	111m SE	River	Spital/Calow/Muster Brook	GB104027057640	Poor	Fail	Poor	2019

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

6.5 WFD Groundwater bodies

Records on site	1

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

Features are displayed on the Hydrology map on **page 56**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Don & Rother Millstone grit & Coal Measures**	**GB40402G992300**	**Poor**	**Poor**	**Good**	**2019**

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

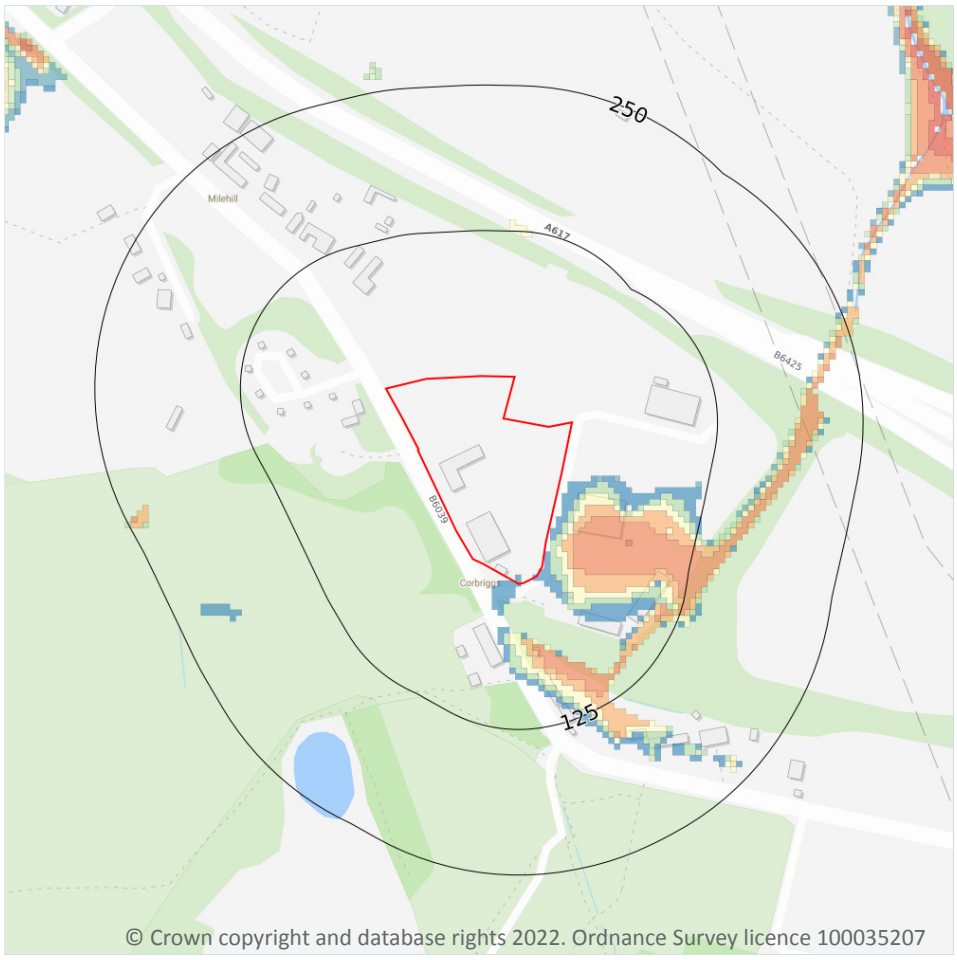
7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

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

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

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

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

8.1 Surface water flooding

Highest risk on site	**1 in 1000 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 63**

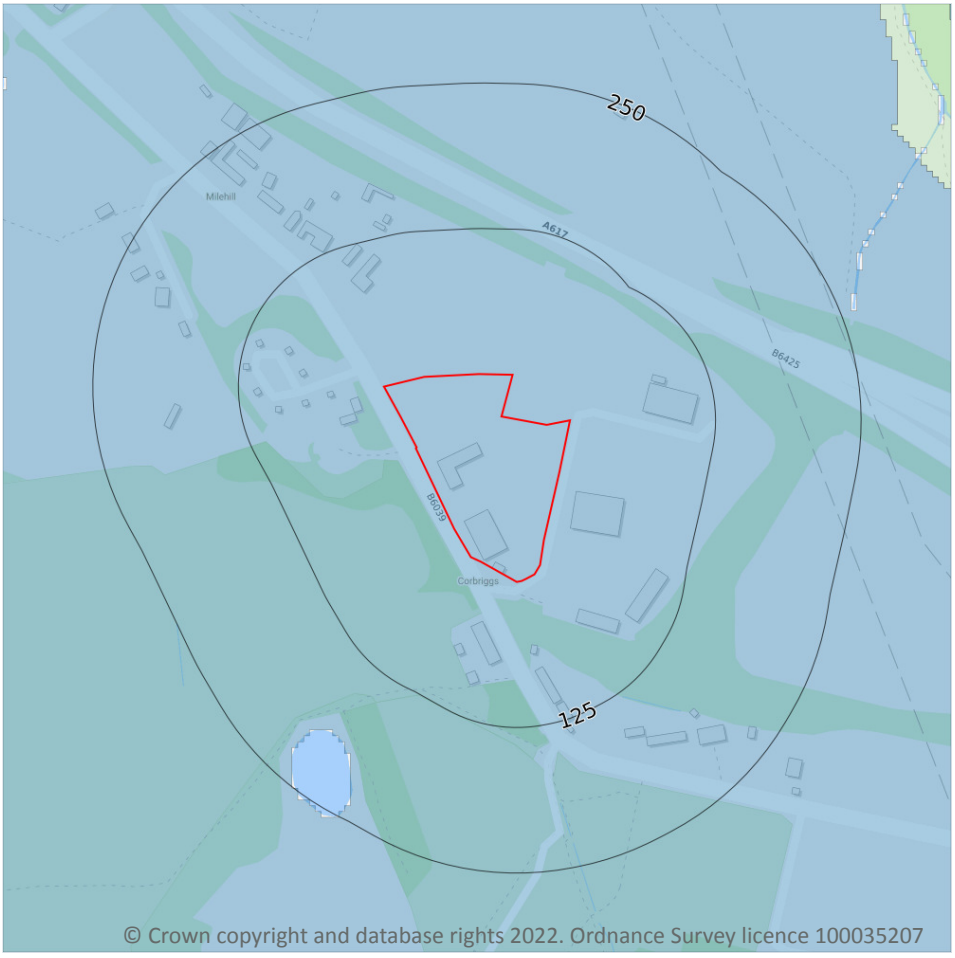
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

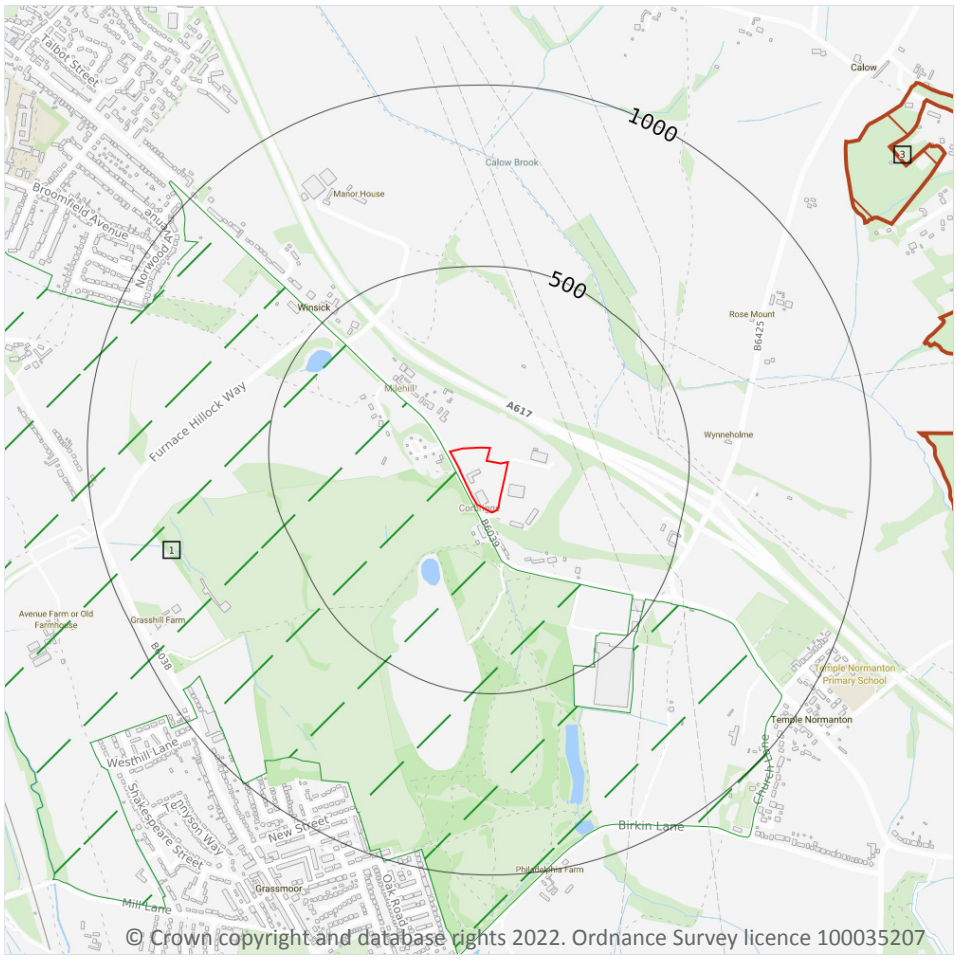
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

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

Features are displayed on the Groundwater flooding map on **page 65**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Local Nature Reserves (LNR)

Designated Ancient Woodland

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	1

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.

Features are displayed on the Environmental designations map on **page 66**

ID	Location	Name	Data source
-	1808m SE	Williamthorpe	Natural England

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

10.7 Designated Ancient Woodland

Records within 2000m	6

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

Features are displayed on the Environmental designations map on **page 66**

ID	Location	Name	Woodland Type
2	1140m E	Unknown	Ancient Replanted Woodland
3	1184m NE	Unknown	Ancient & Semi-Natural Woodland
4	1195m E	Unknown	Ancient & Semi-Natural Woodland
-	1390m E	Unknown	Ancient Replanted Woodland
-	1419m E	Unknown	Ancient & Semi-Natural Woodland
-	1517m E	Unknown	Ancient & Semi-Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

local community.

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	2

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

Features are displayed on the Environmental designations map on **page 66**

ID	Location	Name	Local Authority name
1	9m SW	South and West Yorkshire	North East Derbyshire
-	1601m W	South and West Yorkshire	Chesterfield

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

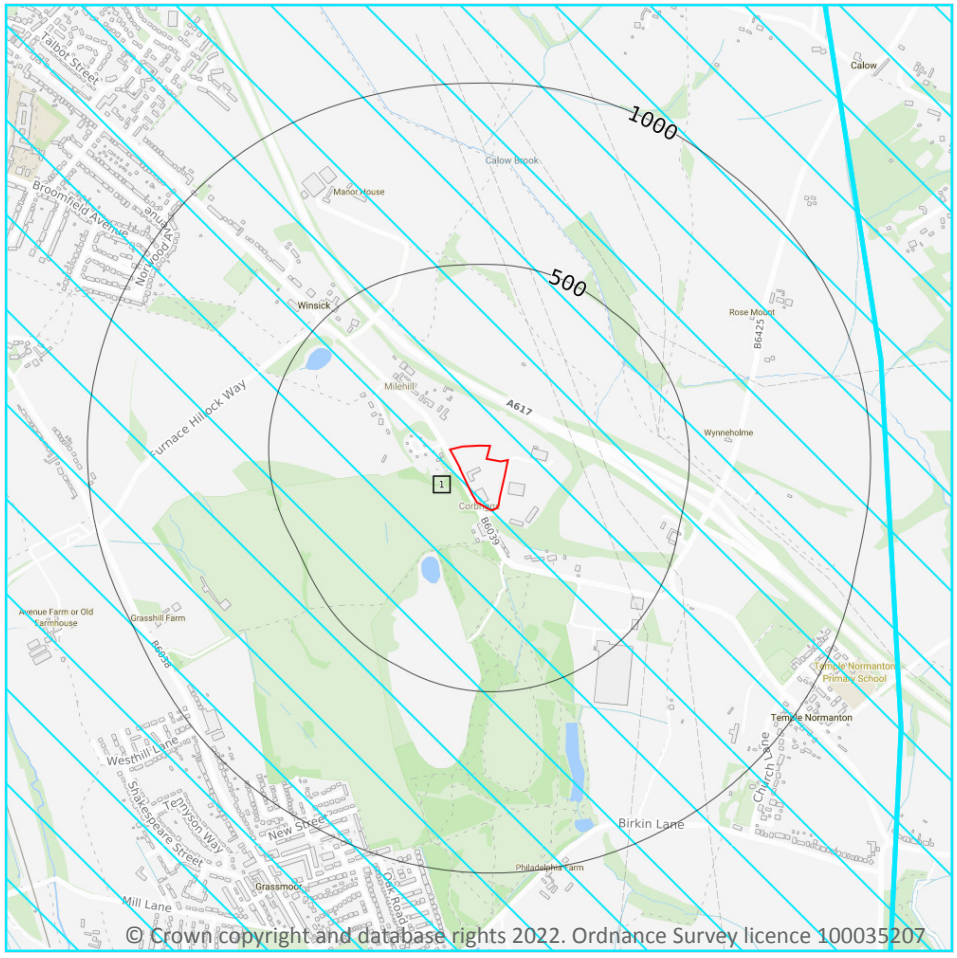
Records within 2000m	1

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.

Location	Name	Type	NVZ ID	Status
On site	**River Rother (source to Don) NVZ**	**Surface Water**	**267**	**Existing**

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

SSSI Impact Zones and Units



10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 72**

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

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	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.

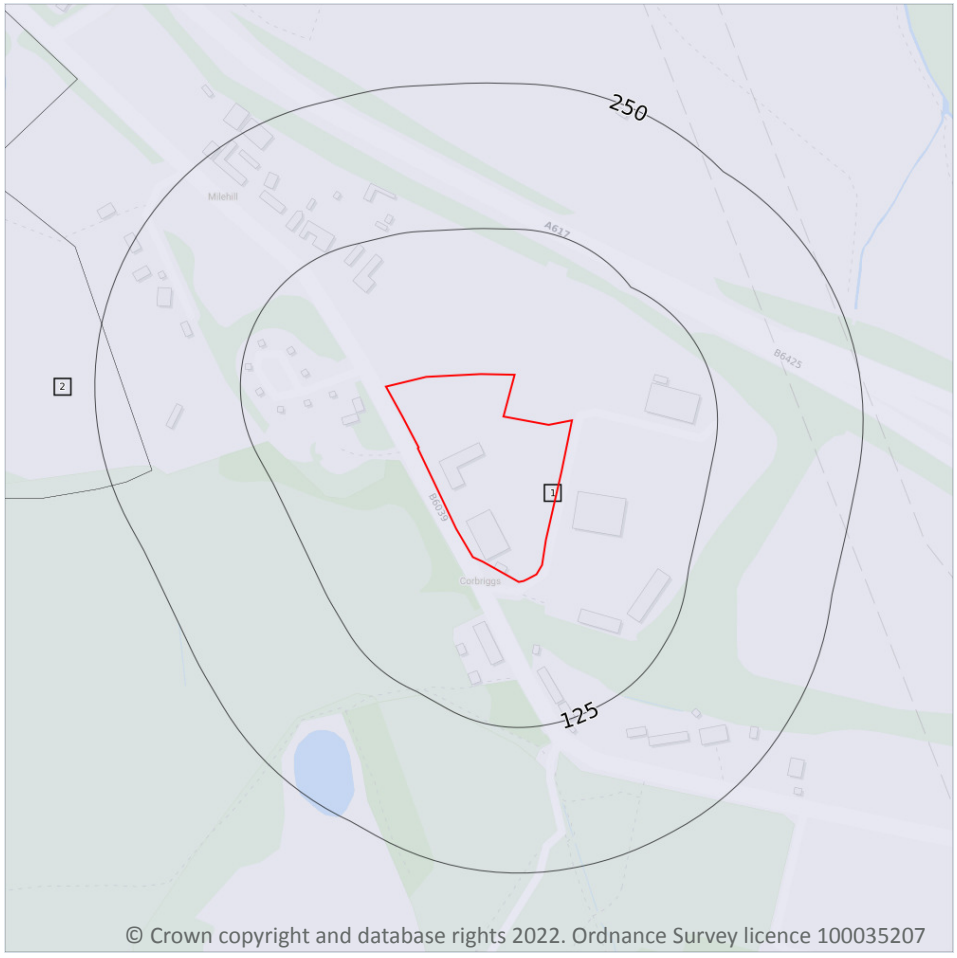
11.7 Registered Parks and Gardens

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	2

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

Features are displayed on the Agricultural designations map on **page 76**

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

ID	Location	Classification	Description
2	213m W	Grade 4	Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

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	**1**

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.

Location	Reference	Scheme	Start Date	End date
125m S	AG00306117	Higher Level Stewardship	01/09/2010	31/08/2020

This data is sourced from Natural England.

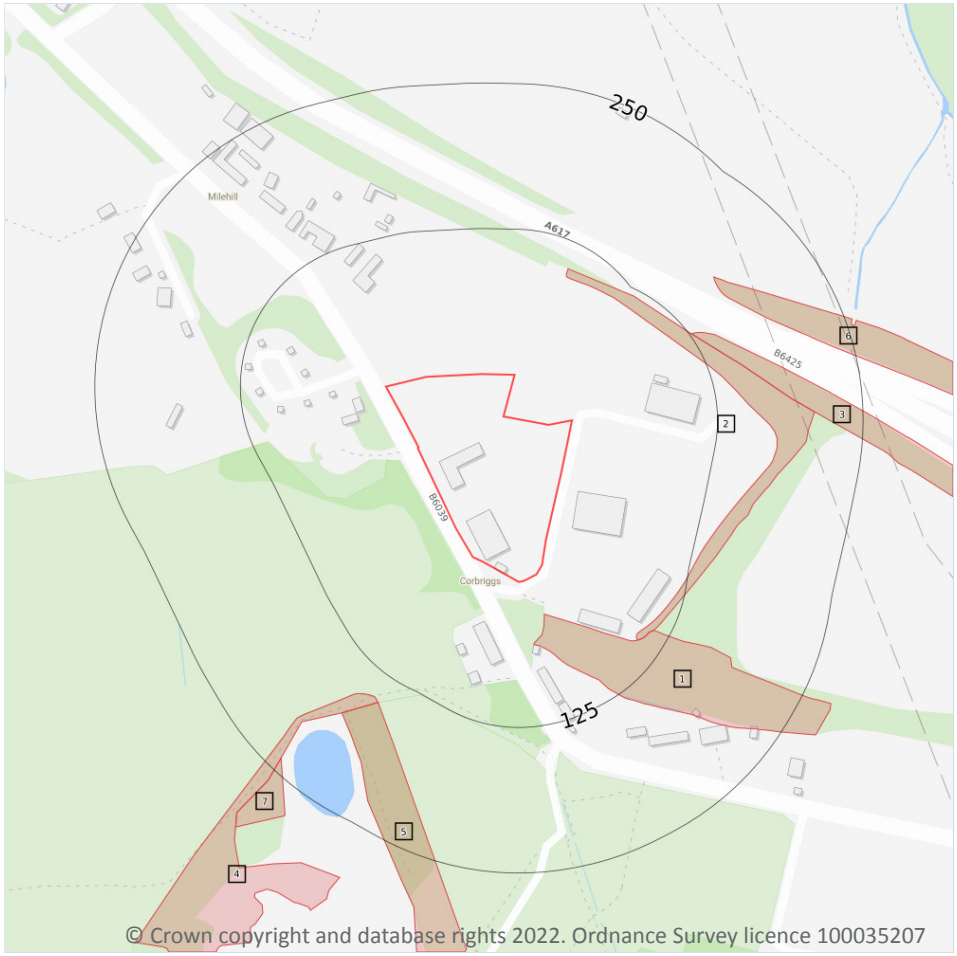
12.5 Countryside Stewardship Schemes

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	**7**

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

Features are displayed on the Habitat designations map on **page 79**

ID	Location	Main Habitat	Other habitats
1	33m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	95m NE	No main habitat but additional habitats present	Additional: DWOOD (INV 50%)
3	127m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
4	147m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	149m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%); Additional: GQSIG (FEP 50%)
6	169m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	238m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 81**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**No coverage**	**No coverage**	**No coverage**	**NoCov**

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

14.3 Superficial geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m	0

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.

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	1

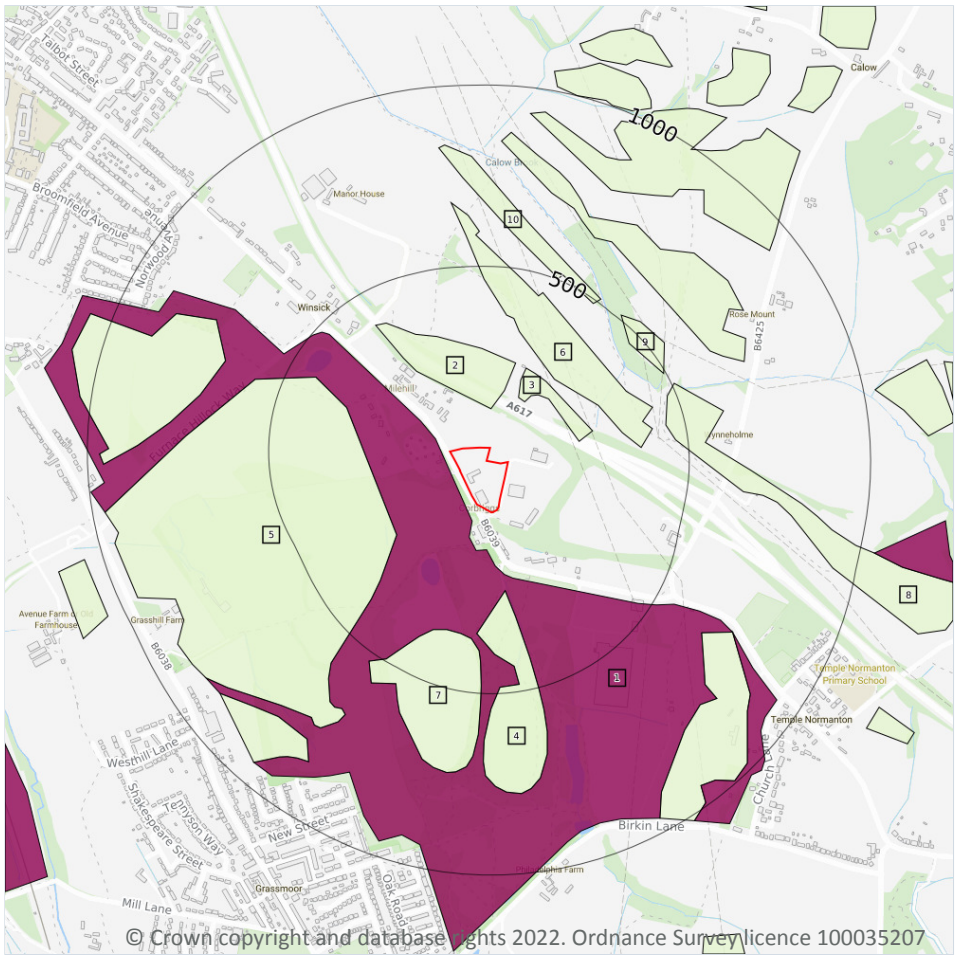
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 85**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW112_chesterfield_v4**

This data is sourced from the British Geological Survey.

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



15.2 Artificial and made ground (50k)

Records within 500m	10

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 86**

ID	Location	LEX Code	Description	Rock description
1	22m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	108m N	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	159m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
4	220m S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

ID	Location	LEX Code	Description	Rock description
5	221m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
6	259m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
7	344m S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
8	447m E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
9	468m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
10	489m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

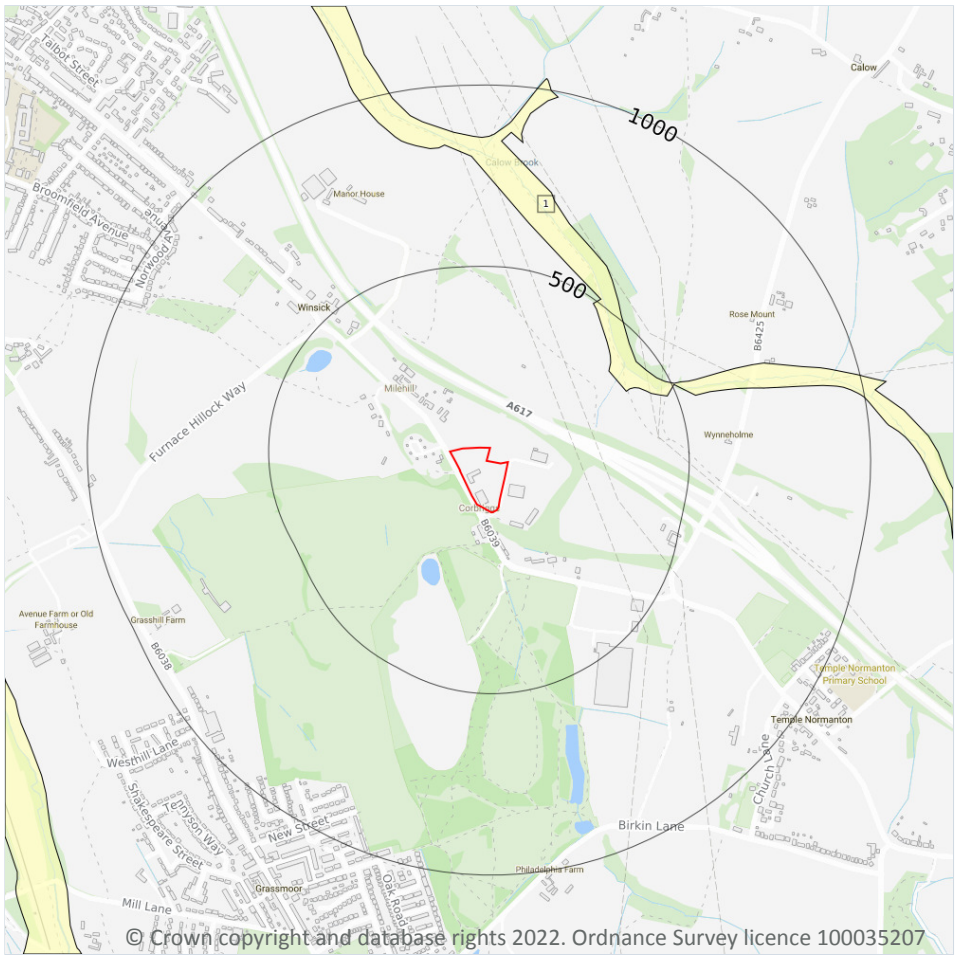
Records within 50m	**1**

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

Location	Flow type	Maximum permeability	Minimum permeability
22m S	Mixed	Very High	Low

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	1

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 88**

ID	Location	LEX Code	Description	Rock description
1	375m NE	ALV-XVSZC	ALLUVIUM	GRAVEL, SAND, SILT AND CLAY

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

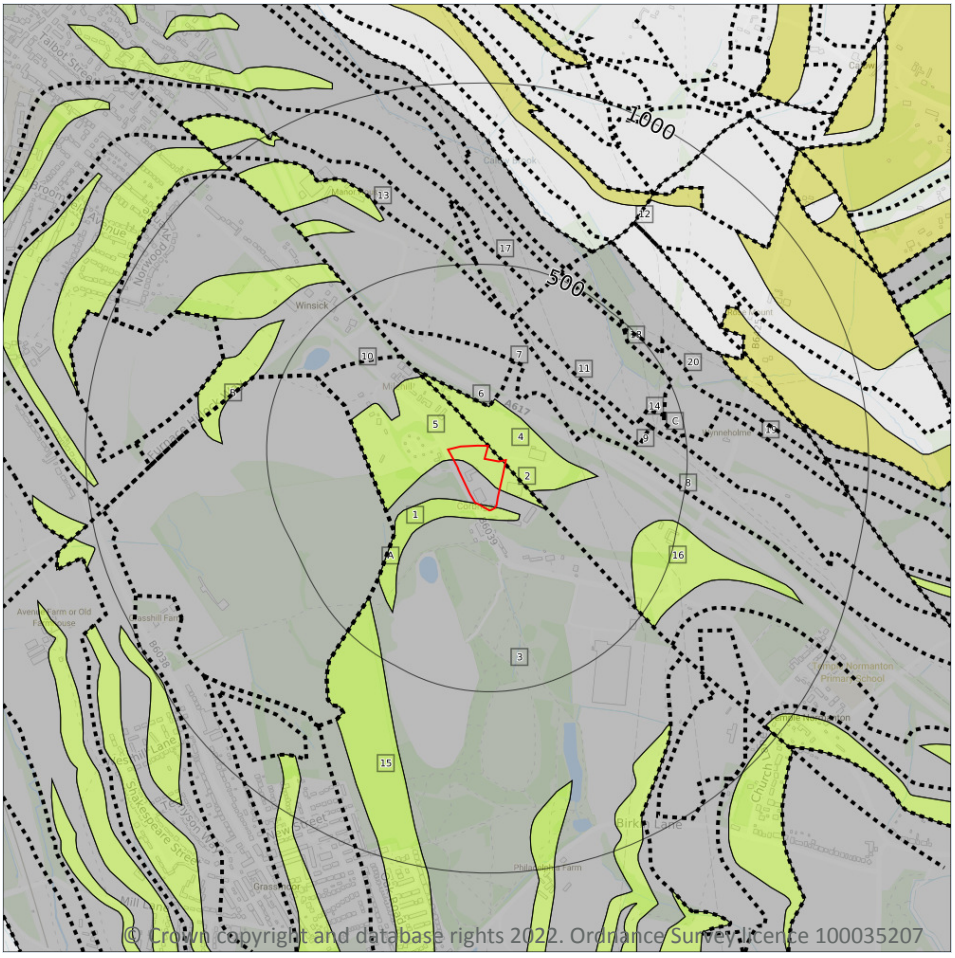
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **6**

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 90**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-SDST**	**PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE**	**WESTPHALIAN**
3	**On site**	**PMCM-MDSS**	**PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
4	**On site**	**THR-SDST**	**TOP HARD ROCK - SANDSTONE**	**WESTPHALIAN**

ID	Location	LEX Code	Description	Rock age
5	**On site**	**THR-SDST**	**TOP HARD ROCK - SANDSTONE**	**WESTPHALIAN**
15	391m SW	THR-SDST	TOP HARD ROCK - SANDSTONE	WESTPHALIAN
16	392m E	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**3**

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

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

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**20**

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

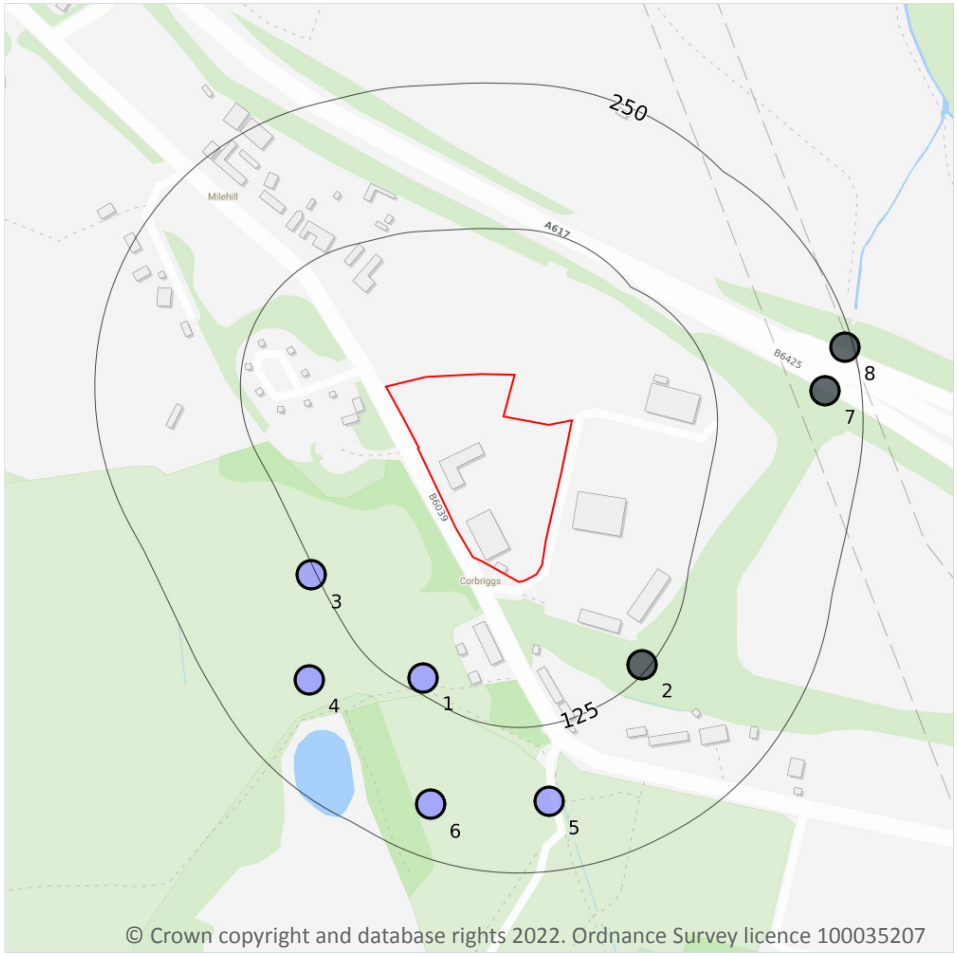
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 90**

ID	Location	Category	Description
2	**On site**	**FAULT**	**Fault, inferred**
6	108m N	ROCK	Coal seam, observed
7	159m NE	ROCK	Coal seam, observed
A	221m W	ROCK	Coal seam, observed
A	221m W	ROCK	Coal seam, observed
8	249m E	ROCK	Coal seam, inferred

ID	Location	Category	Description
9	259m NE	ROCK	Coal seam, observed
10	287m NW	ROCK	Coal seam, inferred
11	303m NE	ROCK	Coal seam, observed
12	363m N	FAULT	Fault, inferred
13	369m N	ROCK	Coal seam, inferred
14	388m E	ROCK	Coal seam, observed
B	405m NW	ROCK	Coal seam, observed
B	405m NW	ROCK	Coal seam, observed
17	440m N	ROCK	Coal seam, observed
C	447m E	ROCK	Coal seam, observed
C	447m E	ROCK	Coal seam, observed
18	453m E	ROCK	Coal seam, observed
19	486m E	ROCK	Coal seam, observed
20	486m NE	ROCK	Coal seam, observed

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	8

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.

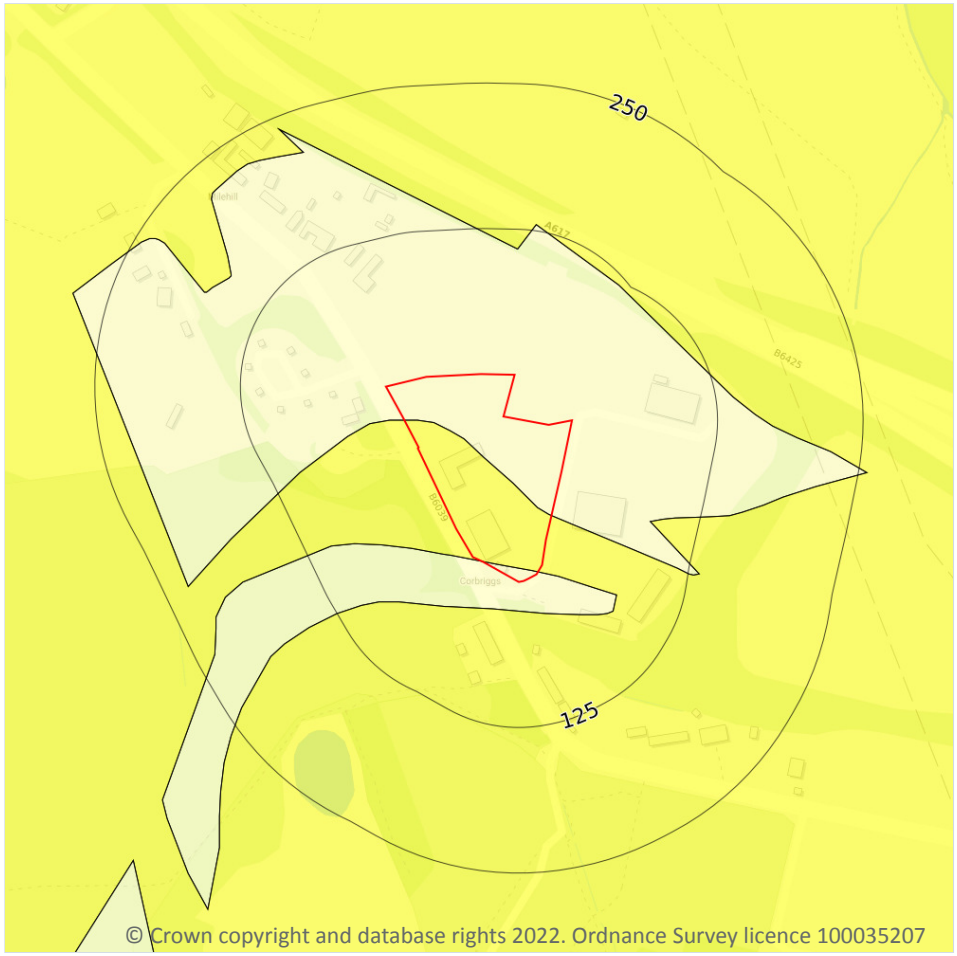
Features are displayed on the Boreholes map on **page 93**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	112m SW	440951 368050	GRASSMOOR COLLIERY 25	5.0	N	753963
2	120m SE	441139 368061	CORBRIGGS SEWER 3	-	Y	N/A
3	129m SW	440855 368138	GRASSMOOR COLLIERY 27	6.0	N	753965

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	176m SW	440853 368048	GRASSMOOR COLLIERY 26	5.0	N	753964
5	190m S	441059 367944	GRASSMOOR COLLIERY 12	4.0	N	753950
6	206m S	440957 367941	GRASSMOOR COLLIERY 24	6.0	N	753962
7	219m E	441296 368296	CORBRIGGS SEWER 1	-	Y	N/A
8	243m E	441313 368334	CORBRIGGS SEWER 2	-	Y	N/A

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

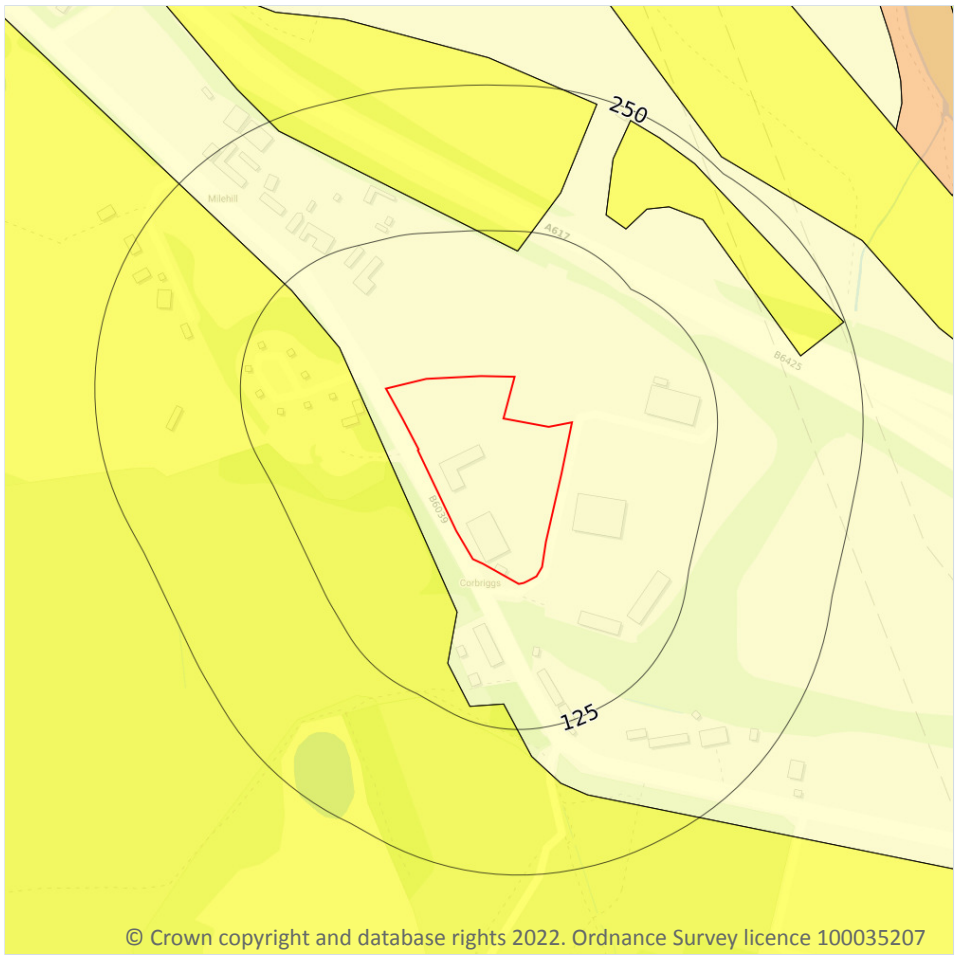
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 95**

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	2

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.

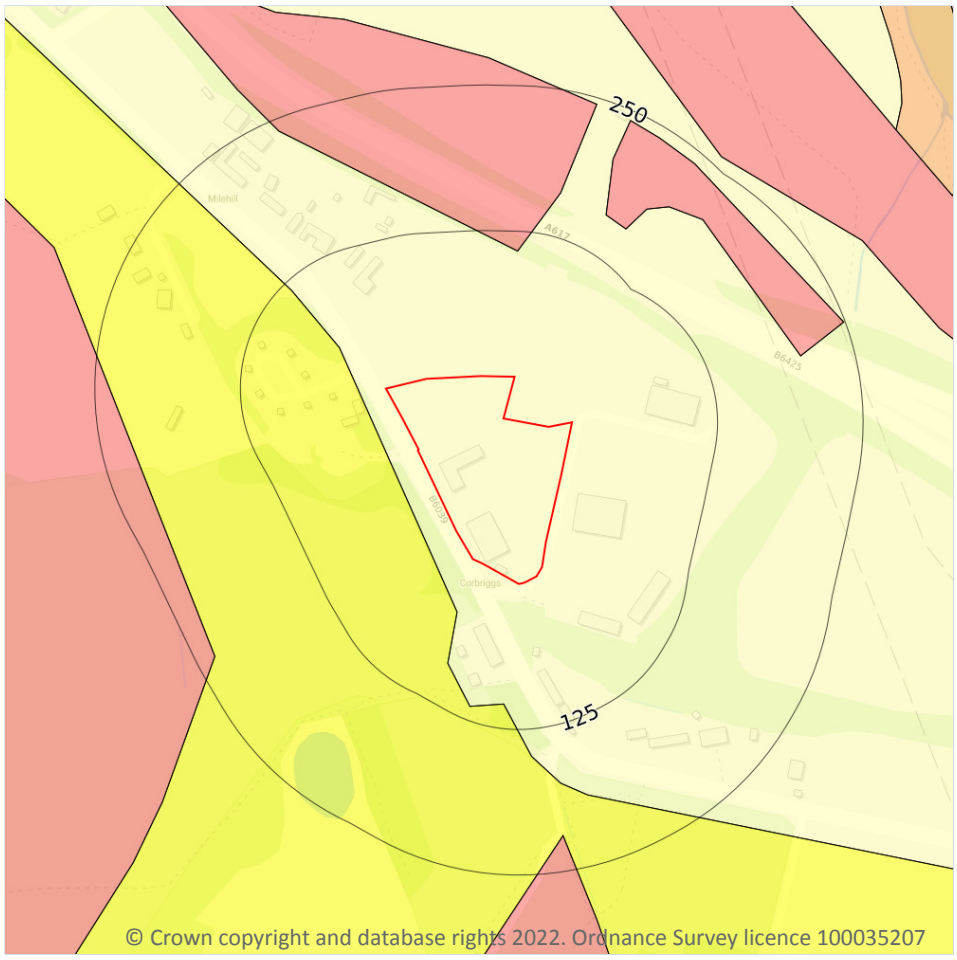
Features are displayed on the Natural ground subsidence - Running sands map on **page 96**

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

Location	Hazard rating	Details
22m SW	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

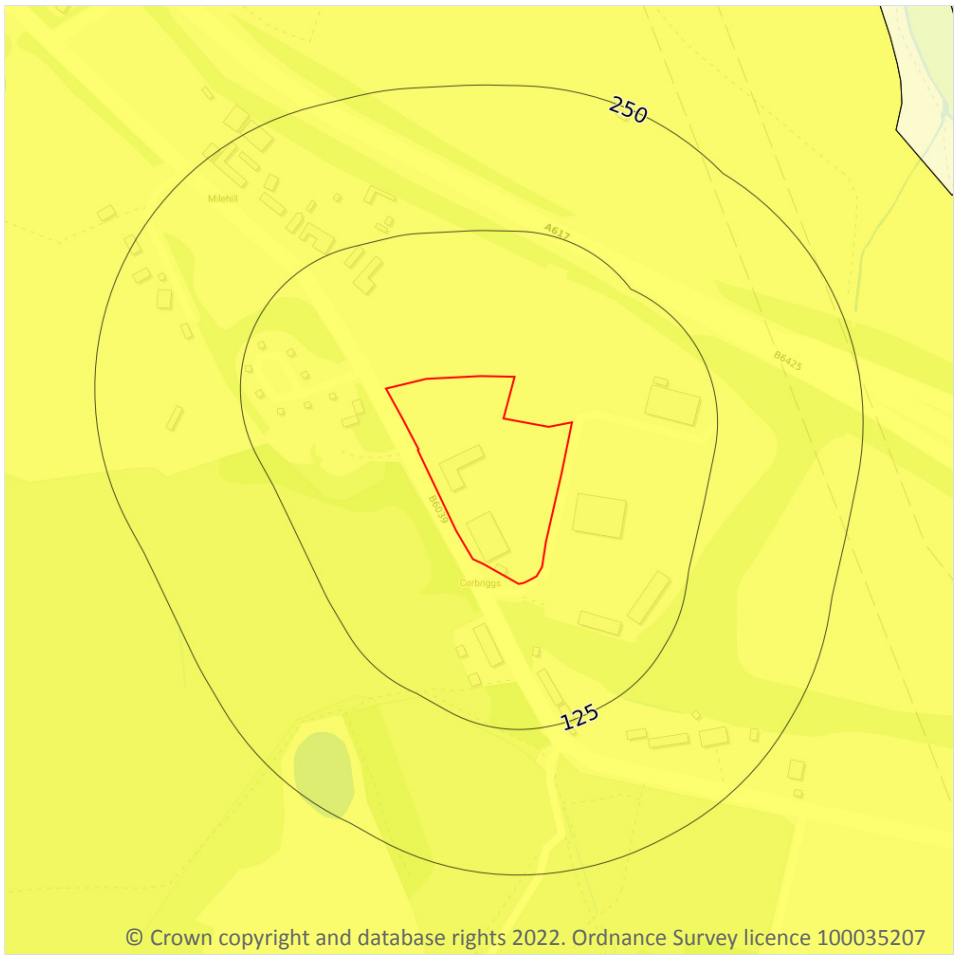
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 98**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
22m SW	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

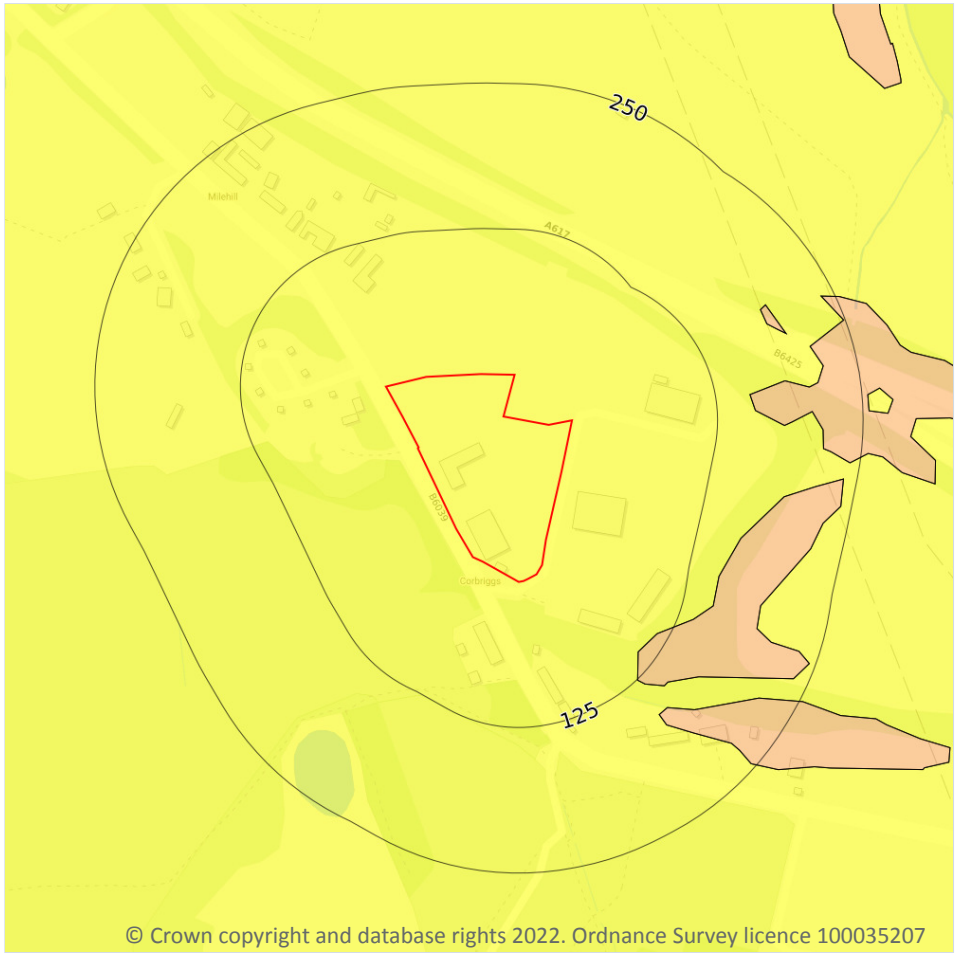
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 100**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	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 101**

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

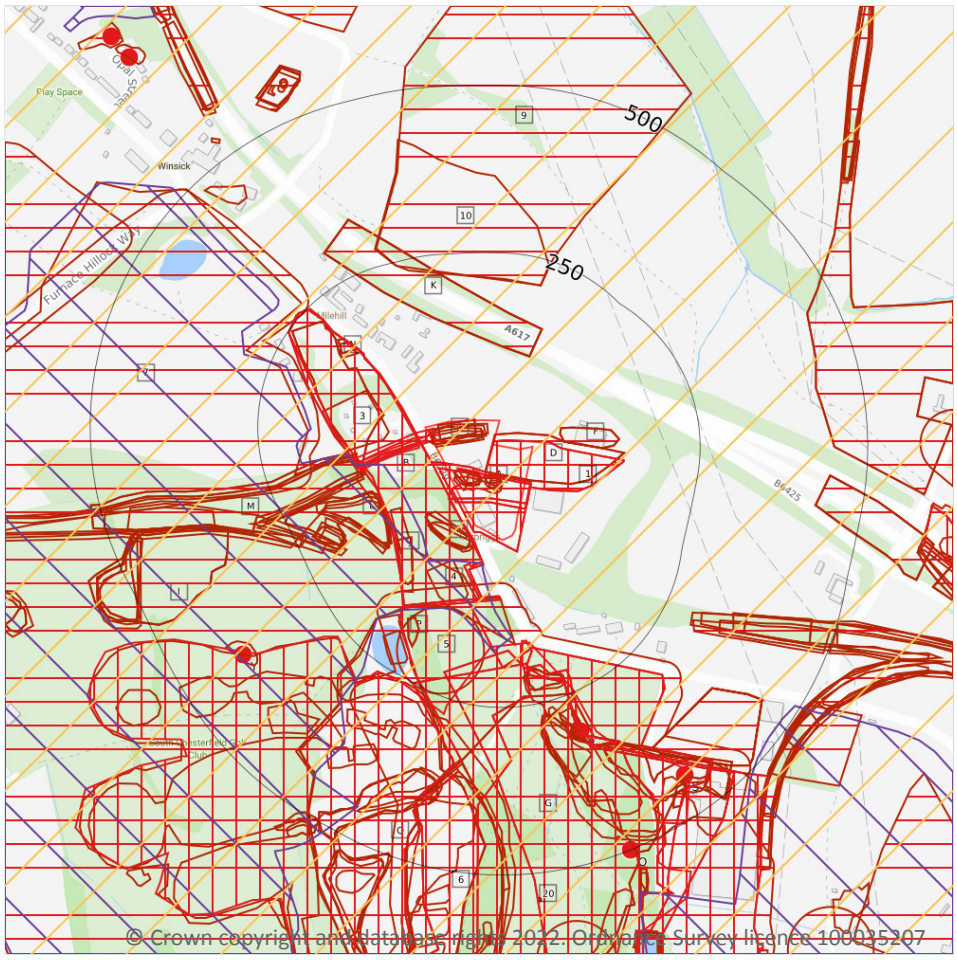
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 102**

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	4

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 104**

ID	Location	Details	Description
R	307m S	Name: Corbridge Quarry Address: Grassmoor, CHESTERFIELD, Derbyshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
Y	396m SW	Name: Furnace Hillock Quarry Address: Grassmoor, CHESTERFIELD, Derbyshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
S	439m SE	Name: Grassmoor Colliery Brick Kilns Address: Grassmoor, CHESTERFIELD, Derbyshire 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
O	499m S	Name: Grassmoor Colliery Address: Grassmoor, CHESTERFIELD, Derbyshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	77

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 104**

ID	Location	Land Use	Year of mapping	Mapping scale
A	**On site**	**Unspecified Heap**	**1921**	**1:10560**
A	**On site**	**Refuse Heap**	**1921**	**1:10560**
A	**On site**	**Unspecified Heap**	**1921**	**1:10560**
A	**On site**	**Refuse Heap**	**1921**	**1:10560**
A	**On site**	**Unspecified Heap**	**1938**	**1:10560**
A	**On site**	**Unspecified Heap**	**1938**	**1:10560**
A	**On site**	**Unspecified Heaps**	**1921**	**1:10560**
A	**On site**	**Old Colliery**	**1950**	**1:10560**
A	**On site**	**Unspecified Heap**	**1950**	**1:10560**
A	**On site**	**Unspecified Heap**	**1950**	**1:10560**
B	**On site**	**Old Colliery**	**1938**	**1:10560**
C	**On site**	**Cuttings**	**1938**	**1:10560**
C	**On site**	**Cuttings**	**1921**	**1:10560**
C	**On site**	**Cuttings**	**1921**	**1:10560**
C	**On site**	**Cuttings**	**1967**	**1:10560**
C	**On site**	**Cuttings**	**1974**	**1:10000**
C	**On site**	**Cuttings**	**1950**	**1:10560**
D	**On site**	**Old Colliery**	**1921**	**1:10560**
D	**On site**	**Old Colliery**	**1921**	**1:10560**
D	**On site**	**Old Colliery**	**1921**	**1:10560**
B	14m SW	Colliery	1898	1:10560
E	14m SW	Unspecified Heap	1898	1:10560
E	18m SW	Unspecified Heap	1938	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
E	20m SW	Unspecified Heap	1921	1:10560
E	20m SW	Unspecified Heap	1921	1:10560
E	24m SW	Unspecified Heap	1974	1:10000
F	45m NE	Unspecified Heap	1921	1:10560
F	45m NE	Unspecified Heap	1921	1:10560
3	55m W	Cuttings	1950	1:10560
4	61m SW	Unspecified Heap	1974	1:10000
G	64m S	Colliery	1938	1:10560
H	65m W	Cuttings	1967	1:10560
H	65m W	Cuttings	1974	1:10000
I	74m SW	Opencast Workings	1980	1:10000
J	87m SW	Cuttings	1950	1:10560
J	92m SW	Cuttings	1967	1:10560
J	92m SW	Unspecified Pit	1974	1:10000
G	103m SW	Colliery	1898	1:10560
K	105m N	Cuttings	1974	1:10000
K	105m N	Cuttings	1980	1:10000
K	105m N	Cuttings	1992	1:10000
L	108m SW	Unspecified Heap	1921	1:10560
L	108m SW	Unspecified Heap	1921	1:10560
L	110m SW	Unspecified Heap	1938	1:10560
M	111m SW	Cuttings	1921	1:10560
L	111m SW	Unspecified Heaps	1967	1:10560
L	111m SW	Unspecified Heaps	1974	1:10000
M	111m SW	Cuttings	1938	1:10560
L	112m SW	Unspecified Heap	1950	1:10560
L	114m SW	Unspecified Heaps	1921	1:10560
M	114m SW	Cuttings	1950	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
M	117m SW	Cuttings	1921	1:10560
5	124m SW	Disused Workings	1992	1:10000
N	150m NW	Unspecified Heap	1950	1:10560
O	154m S	Colliery	1950	1:10560
N	155m NW	Unspecified Heap	1921	1:10560
N	155m NW	Unspecified Heap	1921	1:10560
7	159m W	Opencast Workings	1992	1:10000
P	164m SW	Unspecified Ground Workings	1921	1:10560
P	164m SW	Unspecified Ground Workings	1921	1:10560
G	166m S	Colliery	1877	1:10560
Q	176m SW	Unspecified Disused Tip	1980	1:10000
L	180m SW	Unspecified Heap	1921	1:10560
L	180m SW	Unspecified Heap	1921	1:10560
L	181m SW	Unspecified Heap	1938	1:10560
L	184m SW	Unspecified Heap	1950	1:10560
M	187m SW	Cuttings	1877	1:10560
G	188m S	Colliery	1921	1:10560
P	194m SW	Pond	1992	1:10000
R	197m S	Unspecified Heap	1921	1:10560
R	197m S	Unspecified Heap	1921	1:10560
R	199m S	Unspecified Heap	1938	1:10560
S	206m S	Unspecified Heap	1921	1:10560
9	208m N	Opencast Workings	1967	1:10560
10	209m N	Opencast Workings	1967	1:10560
G	236m S	Colliery	1921	1:10560
G	236m S	Colliery	1921	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	19

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 104**

ID	Location	Land Use	Year of mapping	Mapping scale
A	**On site**	**Old Colliery**	**1950**	**1:10560**
B	**On site**	**Old Colliery**	**1938**	**1:10560**
B	**On site**	**Tunnel**	**1967**	**1:10560**
D	**On site**	**Old Colliery**	**1921**	**1:10560**
B	5m SW	Tunnel	1938	1:10560
B	8m SW	Tunnel	1950	1:10560
B	14m SW	Colliery	1898	1:10560
B	23m SW	Tunnel	1921	1:10560
G	103m SW	Colliery	1898	1:10560
O	154m S	Colliery	1950	1:10560
6	157m S	Unspecified Mine	1967	1:10560
G	166m S	Colliery	1877	1:10560
8	188m S	Colliery	1921	1:10560
O	474m S	Unspecified Shaft	1877	1:10560
20	537m S	Unspecified Shaft	1877	1:10560
24	601m E	Colliery	1950	1:10560
-	763m E	Colliery	1921	1:10560
-	916m E	Colliery	1898	1:10560
-	993m E	Colliery	1938	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**1**

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 104**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
2	45m SW	Furnace Hillock	Coal	Surface mineral working	Valid	27/4/77

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	**2**

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 104**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Iron Ore (Bedded)**	**B**	**Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered**
-	919m W	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

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	1

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

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

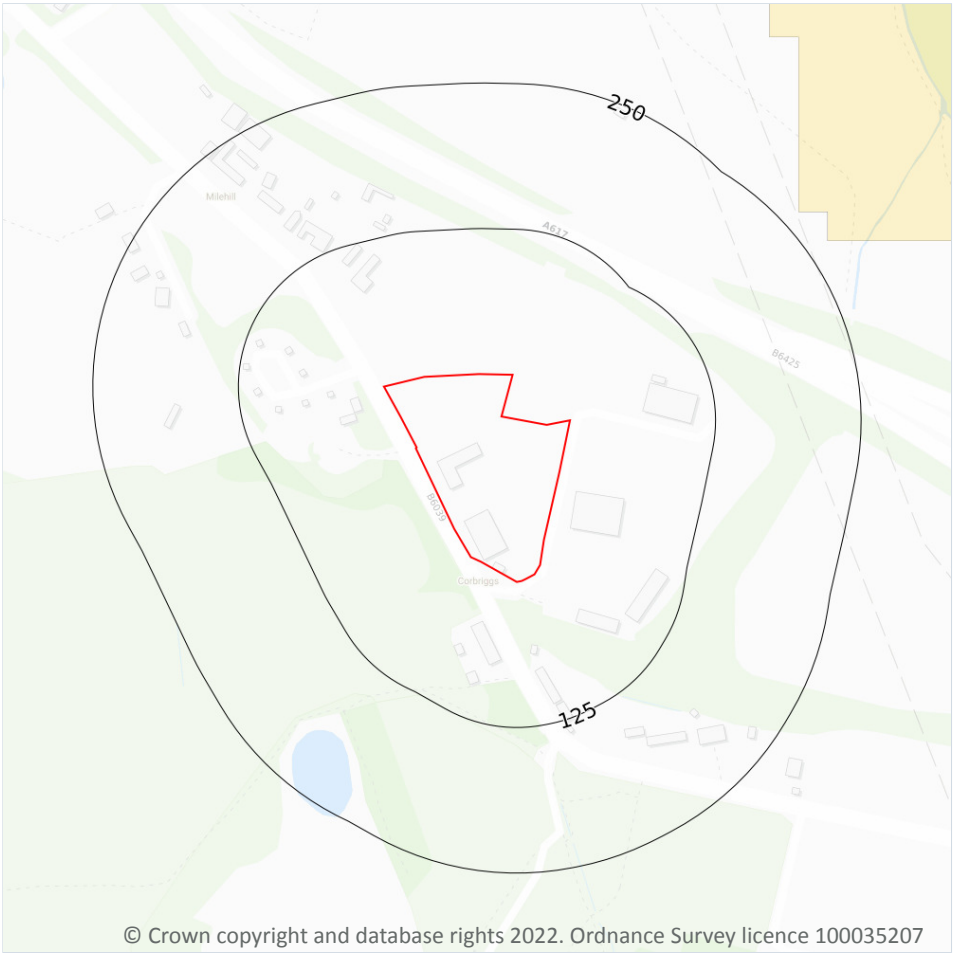
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	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 113**

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	**14**

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 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 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**
19m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
19m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
20m N	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
20m N	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 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

Site Outline
Search buffers in metres (m)
Crossrail 1 Stations
Crossrail 1 Route
Crossrail 1 Worksites
Crossrail 2 Stations
Crossrail 2 Route
Crossrail 2 Worksites
Crossrail 2 Safeguarding
Crossrail 2 Headhouses
Railway stations
Active railways
Active tunnels
Abandoned railways
Historic railways
Historic tunnels
Underground stations
Underground Lines
Royal Mail tunnels
HS2 optimised route
HS2 Stations
HS2 Depots
HS2 Surface Safeguarding
HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	30

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

Features are displayed on the Railway infrastructure and projects map on **page 116**

Location	Land Use	Year of mapping	Mapping scale
On site	**Tunnel**	**1967**	**10560**
On site	**Railway Sidings**	**1898**	**2500**
On site	**Railway Sidings**	**1898**	**10560**
On site	**Railway Sidings**	**1938**	**10560**
2m SW	Tunnel	1961	2500
5m SW	Tunnel	1918	2500
5m SW	Tunnel	1938	10560
8m SW	Tunnel	1950	10560
12m SW	Railway Sidings	1967	10560
15m SW	Tunnel	1921	10560
23m SW	Tunnel	1921	10560
28m SW	Railway Sidings	1950	10560
28m SW	Railway Sidings	1921	10560
31m SW	Railway Sidings	1918	2500
33m SW	Railway Sidings	1921	10560
34m SW	Railway Sidings	1961	2500
115m SW	Mineral Railway Sidings	1970	2500

Location	Land Use	Year of mapping	Mapping scale
115m SW	Mineral Railway Sidings	1961	2500
124m NW	Railway Sidings	1938	2500
131m NW	Railway Sidings	1918	2500
134m NW	Railway Sidings	1938	2500
136m SW	Railway Sidings	1961	2500
137m S	Railway Sidings	1962	2500
140m NW	Railway Sidings	1918	2500
142m SW	Railway Sidings	1877	10560
144m NW	Railway Sidings	1898	2500
148m SW	Railway Sidings	1880	2500
153m NW	Railway Sidings	1938	2500
154m NW	Railway Sidings	1918	2500
155m NW	Railway Sidings	1898	2500

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	2

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

Features are displayed on the Railway infrastructure and projects map on **page 116**

Location	Description
7m SW	Dismantled
24m S	Abandoned

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 E

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site	Trial Pit Number
Alexander House, Mansfield Road, Corbriggs	TPA

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Caulmert/Silva Recyling	IV.95.22
	Location	**Dates** 29/07/2022	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Topsoil		
0.20	ES1				(0.20) 0.30	MADE GROUND: Light grey very sandy slightly gravelly Clay. Gravel is fine to coarse, angular to subangular sandstone mudstone and rare brick.		
0.40	ES2				(0.40) 0.70	Firm light brownish grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and mudstone		
1.50	D1				(2.00) 2.70	Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and mudstone.		
						Complete at 2.70m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	DW	IV.95.22.TPA

IVY HOUSE environmental

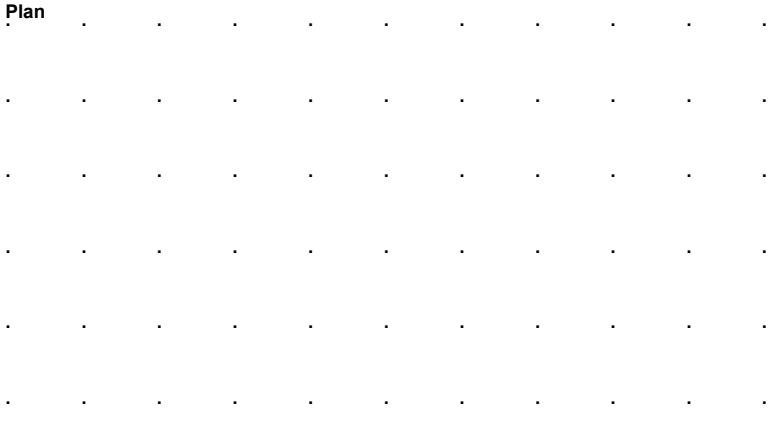
Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site	Trial Pit Number
Alexander House, Mansfield Road, Corbriggs	TPB

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Caulmert/Silva Recyling	IV.95.22
	Location	**Dates** 29/07/2022	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Topsoil		
0.20	ES1				(0.30)	MADE GROUND: Light brown gravelly sand. Gravel is fine to coarse, angular to subangular brick, concrete slab, sandstone and mixed lithologies with metal pipe.		
					0.40			
0.60	ES2				(0.40)	Firm light brown slightly sandy gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and flint.		
					0.80			
0.90	D1				(1.30)	Firm bluish grey gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and shale.		
					2.10			
						Complete at 2.10m		

Plan



Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	DW	IV.95.22.TPB

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site	Trial Pit Number
Alexander House, Mansfield Road, Corbriggs	TPC

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Caulmert/Silva Recyling	IV.95.22
	Location	**Dates** 29/07/2022	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	ES1				(0.10) 0.10	MADE GROUND: Topsoil		
					(0.30)	MADE GROUND: Light brown gravelly sand. Gravel is fine to coarse, angular to subangular brick, concrete slab, sandstone and mixed lithologies with metal pipe.		
					0.40 (0.30)	Firm light brown slightly sandy gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and flint.		
					0.70 (1.50)	Firm bluish grey gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and shale.		
					2.20	Complete at 2.20m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	DW	IV.95.22.TPC

IVY HOUSE environmental

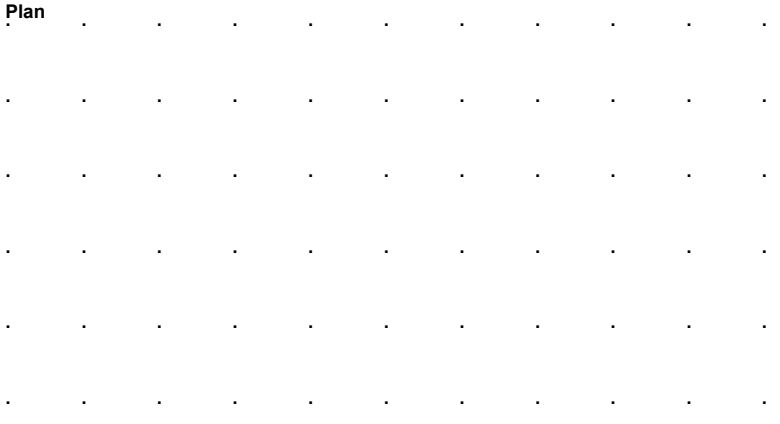
Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site	Trial Pit Number
Alexander House, Mansfield Road, Corbriggs	TPD

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Caulmert/Silva Recyling	IV.95.22
	Location	**Dates** 29/07/2022	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20	MADE GROUND: Topsoil		
0.20	ES1				(0.30) 0.50	MADE GROUND: Light brown gravelly sand. Gravel is fine to coarse, angular to subangular brick, concrete slab, sandstone and mixed lithologies.		
					(0.30) 0.80	Firm light brown slightly sandy gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and flint.		
					(1.20) 2.00	Firm bluish grey gravelly CLAY. Gravel is fine to coarse, angular to subangular sandstone and shale.		
						Complete at 2.20m		

Plan



Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	DW	IV.95.22.TPD

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site	Trial Pit Number
Alexander House, Mansfield Road, Corbriggs	TTA

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Caulmert/Silva Recyling	IV.95.22
	Location	**Dates** 29/07/2022	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Tarmac		
					(0.20) 0.30	MADE GROUND: Cream slightly sandy gravelly gravel. Gravel is fine to coarse, angular to subangular roadstone.		
					(0.40) 0.70	MADE GROUND: Dark brownish black slightly sandy very gravelly clay. Gravel is fine to coarse, angular to subangular mudstone and rare brick.		
0.80	ES1				(0.30) 1.00	MADE GROUND: Bluish black gravelly clay. Gravel is fine to coarse, brick, mudstone and shale.		
			Water strike(1) at 2.00m. Groundwater encountered at 2.0mbgl		(1.30) 2.30	MADE GROUND: Blackish grey sandy slightly gravelly clay. Gravel is fine to coarse, mudstone, ash, brick.		▽1
					(0.20) 2.50	Firm bluish grey slightly gravelly CLAY. Gravel is fine to coarse, angular to subangular mudstone.		
						Complete at 2.50m		

Plan

Remarks

Groundwater encountered at 2.0mbgl.
Trial trench excavated looking for mine entry 441368-001. No indication of mine entry observed.
Trench extended approx 7m either side of the marked out location

Scale (approx)	Logged By	Figure No.
1:25	DW	IV.95.22.TTA

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site
Alexander House, Mansfield Road, Corbriggs

Number
WSA

Excavation Method
Drive-in Windowless Sampler

Dimensions

Ground Level (mOD)

Client
Caulmert/Silva Recyling

Job Number
IV.95.22

Location

Dates
06/07/2022

Engineer
DW

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	ES1				(0.50)	MADE GROUND: Greyish brown slightly clayey gravelly Sand. Gravel is fine to coarse, rounded to angular mixed lithologies, brick, concrete and tarmac.		
0.60	ES2				0.50	Firm to stiff slightly sandy slightly gravelly CLAY. Gravel is fine, angular to subangular mudstone and sandstone.		
0.90	D1				(0.50)			
1.00-1.44	SPT 50/290		7,7/10,13,15,12		1.00	Complete at 1.00m		

Remarks
No groundwater encountered
Borehole terminated on SPT refusal

Scale (approx)
1:25

Logged By
DW

Figure No.
IV.95.22.WSA

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site
Alexander House, Mansfield Road, Corbriggs

Number
WSB

Excavation Method
Drive-in Windowless Sampler

Dimensions

Ground Level (mOD)

Client
Caulmert/Silva Recyling

Job Number
IV.95.22

Location

Dates
06/07/2022

Engineer
DW

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	ES1				(0.50)	MADE GROUND: Brownish grey slightly clayey gravelly Sand. Gravel is fine to coarse, rounded to angular brick, concrete, fabric and other mixed lithologies.		
					0.50			
0.70	ES2					Firm to stiff greyish brown mottled orange slightly gravelly CLAY. Gravel is fine to coarse, angular to subangular mudstone.		
						...ironstone gravel at 0.8mbgl		
1.00-1.45	SPT N=39		5,7/7,10,10,12					
1.20	D1				(1.50)	...rare coal fragment at 1.3mbgl		
						...becoming stiff at 1.7mbgl		
2.00-2.42	SPT 50/270		10,11/12,12,13,13		2.00	Complete at 2.00m		

Remarks
No groundwater encountered
Borehole terminated on SPT refusal

Scale (approx)
1:25

Logged By
DW

Figure No.
IV.95.22.WSB

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site	Number
Alexander House, Mansfield Road, Corbriggs	WSC

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Caulmert/Silva Recyling	IV.95.22
	Location	**Dates** 06/07/2022	**Engineer** DW	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	MADE GROUND: Brownish grey slightly clayey gravelly Sand. Gravel is fine to coarse, angular to subangular brick, concrete and mixed lithologies.		
0.20	ES1				0.30			
					0.31	Membrane		
					(0.49)	MADE GROUND: Brownish grey gravelly clay. Gravel is fine to coarse, rounded to angular ash, mudstone and mixed lithologies.		
0.60	ES2				0.80			
					(0.20)	Firm to stiff brownish grey mottled orange slightly gravelly CLAY. Gravel is fine to coarse, angular to subangular mudstone.		
1.00-1.41	SPT 50/260		7,8/10,13,15,12		1.00	Complete at 1.00m		

Remarks
Borehole terminated at 1.0mbgl on SPT refusal
No groundwater observed

Scale (approx)	Logged By
1:25	DW

Figure No. IV.95.22.WSC

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site
Alexander House, Mansfield Road, Corbriggs

Number
WSD

Excavation Method
Drive-in Windowless Sampler

Dimensions

Ground Level (mOD)

Client
Caulmert/Silva Recyling

Job Number
IV.95.22

Location

Dates
06/07/2022

Engineer
DW

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Tarmac		
0.20	ES1				(0.15) 0.25	MADE GROUND: Cream sandy gravel. Gravel is fine to coarse, angular to subangular limestone.		
0.40	ES2				(0.35) 0.60	MADE GROUND: Dark brownish grey slightly sandy gravelly Clay. Gravel is fine to coarse, angular to subangular mudstone, ash, tarmac and brick.		
1.00-1.45	SPT N=12		2,2/3,3,3,3		(0.80) 1.40	Firm light brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse, angular to subrounded mudstone with rare coal fragments. ...becoming mottled orange at 1.2mbgl		
1.45	D1				(0.60) 2.00	Firm to stiff bluish grey mottled orange slightly gravelly CLAY. Gravel is fine to coarse, angular to subangular mudstone.		
2.00-2.45	SPT N=50		8,10/12,13,12,13			Complete at 2.00m		

Remarks
Borehole terminated at 2mbgl on SPT refusal
No groundwater encountered
Borehole installed with monitoring pipe

Scale (approx)
1:25

Logged By
DW

Figure No.
IV.95.22.WSD

IVY HOUSE environmental

Chartered Environmental Surveyors & Environmental Consultants
Scotland Farm, Ockbrook, Derby DE72 3RX
Telephone. 01332 661987

Site
Alexander House, Mansfield Road, Corbriggs

Number
WSE

Excavation Method
Drive-in Windowless Sampler

Dimensions

Ground Level (mOD)

Client
Caulmert/Silva Recyling

Job Number
IV.95.22

Location

Dates
06/07/2022

Engineer
DW

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	MADE GROUND: Tarmac		
					(0.40)	MADE GROUND: Cream sandy gravel. Gravel is fine to coarse, angular to subangular limestone.		
					0.50 (0.20)	MADE GROUND: Dark brownish black, slightly sandy gravelly Clay. Gravel is fine to coarse, angular to subangular mudstone, ash, brick.		
0.70-1.15 0.70	SPT N=50 ES1		20,5/20,30		0.70	Complete at 0.70m		

Remarks
No groundwater encountered
Borehole terminated at 0.7mbgl on SPT refusal

Scale (approx)
1:25

Logged By
DW

Figure No.
IV.95.22.WSE

APPENDIX F

Dan Wade
Ivy House Environmental Ltd
Scotland Farm
Ockbrook
Derby
DE72 3RX

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-05845

Site Reference:	Alexander House, Corbrigg
Project / Job Ref:	IV.95.22
Order No:	IV.95.22.DW
Sample Receipt Date:	08/07/2022
Sample Scheduled Date:	08/07/2022
Report Issue Number:	1
Reporting Date:	15/07/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-05845	**Date Sampled**	06/07/22	06/07/22	06/07/22	06/07/22	06/07/22
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Alexander House, Corbrigg	**TP / BH No**	WSA	WSB	WSC	WSC	WSD
Project / Job Ref: IV.95.22	**Additional Refs**	MG	NAT	MG	MG	MG
Order No: IV.95.22.DW	**Depth (m)**	0.20	0.70	0.20	0.60	0.40
Reporting Date: 15/07/2022	**DETS Sample No**	604177	604178	604179	604180	604181

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.8	7.4	7.5	7.3	7.7
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	1161	504	844	451	415
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.12	0.05	0.08	0.05	0.04
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	90	133	52	63	17
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.09	0.13	0.05	0.06	0.02
Organic Matter (SOM)	%	< 0.1	MCERTS	5	1.9	7.4	9.4	4.8
Arsenic (As)	mg/kg	< 2	MCERTS	12	17	15	15	10
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.8	< 0.2	0.5	0.3	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	25	26	22	22	22
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	41	11	78	93	33
Lead (Pb)	mg/kg	< 3	MCERTS	78	29	84	122	48
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	22	13	24	27	29
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	33	42	35	31	26
Zinc (Zn)	mg/kg	< 3	MCERTS	118	63	133	93	93

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-05845	**Date Sampled**	06/07/22	06/07/22	06/07/22	06/07/22	06/07/22
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Alexander House, Corbrigg	**TP / BH No**	WSA	WSB	WSC	WSC	WSD
Project / Job Ref: IV.95.22	**Additional Refs**	MG	NAT	MG	MG	MG
Order No: IV.95.22.DW	**Depth (m)**	0.20	0.70	0.20	0.60	0.40
Reporting Date: 15/07/2022	**DETS Sample No**	604177	604178	604179	604180	604181

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	0.18	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	0.17	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	1.78	< 0.1	1.04	0.69	0.65
Anthracene	mg/kg	< 0.1	MCERTS	0.50	< 0.1	0.22	0.16	0.27
Fluoranthene	mg/kg	< 0.1	MCERTS	3.61	< 0.1	3.08	1.40	0.87
Pyrene	mg/kg	< 0.1	MCERTS	3.26	< 0.1	2.81	1.22	0.74
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	1.75	< 0.1	1.57	0.60	0.33
Chrysene	mg/kg	< 0.1	MCERTS	1.30	< 0.1	1.54	0.58	0.31
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.58	< 0.1	1.80	0.54	0.28
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.64	< 0.1	0.65	0.20	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.58	< 0.1	1.53	0.42	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.94	< 0.1	1.02	0.21	0.14
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.22	< 0.1	0.23	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.87	< 0.1	0.82	0.19	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	18.4	< 1.6	16.3	6.2	3.8

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-05845	**Date Sampled**	06/07/22	06/07/22			
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Alexander House, Corbrigg	**TP / BH No**	WSC	WSD			
Project / Job Ref: IV.95.22	**Additional Refs**	MG	MG			
Order No: IV.95.22.DW	**Depth (m)**	0.60	0.40			
Reporting Date: 15/07/2022	**DETS Sample No**	604180	604181			

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10 : EH_1D_FID_AL	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aliphatic >C10 - C12 : EH_1D_FID_AL	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aliphatic >C12 - C16 : EH_1D_FID_AL	mg/kg	< 3	**MCERTS**	< 3	< 3			
Aliphatic >C16 - C21 : EH_1D_FID_AL	mg/kg	< 3	**MCERTS**	< 3	< 3			
Aliphatic >C21 - C34 : EH_1D_FID_AL	mg/kg	< 10	**MCERTS**	< 10	< 10			
Aliphatic (C5 - C34) : EH_1D_FID_MS_HS_AL	mg/kg	< 21	NONE	< 21	< 21			
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10 : EH_1D_FID_AR	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aromatic >C10 - C12 : EH_1D_FID_AR	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aromatic >C12 - C16 : EH_1D_FID_AR	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aromatic >C16 - C21 : EH_1D_FID_AR	mg/kg	< 3	**MCERTS**	< 3	< 3			
Aromatic >C21 - C35 : EH_1D_FID_AR	mg/kg	< 10	**MCERTS**	< 10	< 10			
Aromatic (C5 - C35) : EH_1D_FID_MS_HS_AR	mg/kg	< 21	NONE	< 21	< 21			
Total >C5 - C35 : EH_1D_FID_MS_HS_Total	mg/kg	< 42	NONE	< 42	< 42			

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-05845	Date Sampled	06/07/22	06/07/22			
Ivy House Environmental Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Alexander House, Corbrigg	TP / BH No	WSC	WSD			
Project / Job Ref: IV.95.22	Additional Refs	MG	MG			
Order No: IV.95.22.DW	Depth (m)	0.60	0.40			
Reporting Date: 15/07/2022	DETS Sample No	604180	604181			

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5			

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4480

Soil Analysis Certificate - Volatile Organic Compounds (VOC)							
DETS Report No: 22-05845	Date Sampled	06/07/22					
Ivy House Environmental Ltd	Time Sampled	None Supplied					
Site Reference: Alexander House, Corbrigg	TP / BH No	WSC					
Project / Job Ref: IV.95.22	Additional Refs	MG					
Order No: IV.95.22.DW	Depth (m)	0.60					
Reporting Date: 15/07/2022	DETS Sample No	604180					

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5				
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5				
Chloromethane	ug/kg	< 10	MCERTS	< 10				
Chloroethane	ug/kg	< 5	MCERTS	< 5				
Bromomethane	ug/kg	< 10	MCERTS	< 10				
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5				
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5				
MTBE	ug/kg	< 5	MCERTS	< 5				
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5				
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5				
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5				
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5				
Chloroform	ug/kg	< 5	MCERTS	< 5				
Bromochloromethane	ug/kg	< 5	MCERTS	< 5				
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5				
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10				
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5				
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5				
Benzene	ug/kg	< 2	MCERTS	< 2				
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5				
Trichloroethene	ug/kg	< 5	MCERTS	< 5				
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5				
Dibromomethane	ug/kg	< 5	MCERTS	< 5				
TAME	ug/kg	< 5	MCERTS	< 5				
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5				
Toluene	ug/kg	< 5	MCERTS	< 5				
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5				
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10				
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5				
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5				
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5				
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5				
Chlorobenzene	ug/kg	< 5	MCERTS	< 5				
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5				
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2				
m,p-Xylene	ug/kg	< 2	MCERTS	< 2				
o-Xylene	ug/kg	< 2	MCERTS	< 2				
Styrene	ug/kg	< 5	MCERTS	< 5				
Bromoform	ug/kg	< 10	MCERTS	< 10				
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5				
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5				
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5				
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5				
Bromobenzene	ug/kg	< 5	MCERTS	< 5				
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5				
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5				
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5				
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5				
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5				
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5				
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5				
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5				
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5				
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5				
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5				
,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10				
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5				

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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 22-05845	**Date Sampled**	06/07/22				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Alexander House, Corbrigg	**TP / BH No**	WSC				
Project / Job Ref: IV.95.22	**Additional Refs**	MG				
Order No: IV.95.22.DW	**Depth (m)**	0.60				
Reporting Date: 15/07/2022	**DETS Sample No**	604180				

Determinand	**Unit**	**RL**	**Accreditation**				
PCB Congener 28	mg/kg	< 0.008	NONE	< 0.008			
PCB Congener 52	mg/kg	< 0.008	NONE	< 0.008			
PCB Congener 101	mg/kg	< 0.008	NONE	< 0.008			
PCB Congener 118	mg/kg	< 0.008	NONE	< 0.008			
PCB Congener 138	mg/kg	< 0.008	NONE	< 0.008			
PCB Congener 153	mg/kg	< 0.008	NONE	< 0.008			
PCB Congener 180	mg/kg	< 0.008	NONE	< 0.008			
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1			

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 22-05845
Ivy House Environmental Ltd
Site Reference: Alexander House, Corbrigg
Project / Job Ref: IV.95.22
Order No: IV.95.22.DW
Reporting Date: 15/07/2022

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
604177	WSA	MG	0.20	10.7	Brown sandy clay with stones
604178	WSB	NAT	0.70	18.5	Brown sandy clay
604179	WSC	MG	0.20	10.5	Brown sandy clay with vegetation
604180	WSC	MG	0.60	14.5	Brown sandy clay
604181	WSD	MG	0.40	22	Brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-05845
Ivy House Environmental Ltd
Site Reference: Alexander House, Corbrigg
Project / Job Ref: IV.95.22
Order No: IV.95.22.DW
Reporting Date: 15/07/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_1D_FID_AL
TPH CWG - Aliphatic >C12 - C16 - EH_1D_FID_AL
TPH CWG - Aliphatic >C16 - C21 - EH_1D_FID_AL
TPH CWG - Aliphatic >C21 - C34 - EH_1D_FID_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_1D_FID_AL
TPH CWG - Aliphatic C5 - C34 - EH_1D_FID_MS_HS_AL
TPH CWG - Aromatic >C10 - C12 - EH_1D_FID_AR
TPH CWG - Aromatic >C12 - C16 - EH_1D_FID_AR
TPH CWG - Aromatic >C16 - C21 - EH_1D_FID_AR
TPH CWG - Aromatic >C21 - C35 - EH_1D_FID_AR
TPH CWG - Aromatic >C5 - C35 - EH_1D_FID_MS_HS_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_1D_FID_AR
TPH CWG - Total >C5 - C35 - EH_1D_FID_MS_HS_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

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DETS Report No: 22-06642

Site Reference:	Alexander House, Corbrigg
Project / Job Ref:	IV.95.22
Order No:	IV.95.22.DW
Sample Receipt Date:	04/08/2022
Sample Scheduled Date:	04/08/2022
Report Issue Number:	1
Reporting Date:	09/08/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 22-06642	**Date Sampled**	01/08/22	01/08/22			
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Alexander House, Corbrigg	**TP / BH No**	TTA	TPA			
Project / Job Ref: IV.95.22	**Additional Refs**	None Supplied	None Supplied			
Order No: IV.95.22.DW	**Depth (m)**	0.80	0.20			
Reporting Date: 09/08/2022	**DETS Sample No**	607800	607801			

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected			
pH	pH Units	N/a	MCERTS	7.3	7.4			
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	472	665			
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.05	0.07			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	100	15			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.10	0.02			
Organic Matter (SOM)	%	< 0.1	MCERTS	9.5	8.9			
Arsenic (As)	mg/kg	< 2	MCERTS	7	12			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.6			
Chromium (Cr)	mg/kg	< 2	MCERTS	16	21			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	37	35			
Lead (Pb)	mg/kg	< 3	MCERTS	30	166			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	46	21			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	22	30			
Zinc (Zn)	mg/kg	< 3	MCERTS	96	110			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-06642	**Date Sampled**	01/08/22	01/08/22			
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Alexander House, Corbrigg	**TP / BH No**	TTA	TPA			
Project / Job Ref: IV.95.22	**Additional Refs**	None Supplied	None Supplied			
Order No: IV.95.22.DW	**Depth (m)**	0.80	0.20			
Reporting Date: 09/08/2022	**DETS Sample No**	607800	607801			

Determinand	Unit	RL	Accreditation	(n)				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	0.13			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.41			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.38			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.16			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.22			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.24			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.21			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.15			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.14			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	2			

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Rose Lane
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Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-06642	**Date Sampled**	01/08/22				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Alexander House, Corbrigg	**TP / BH No**	TTA				
Project / Job Ref: IV.95.22	**Additional Refs**	None Supplied				
Order No: IV.95.22.DW	**Depth (m)**	0.80				
Reporting Date: 09/08/2022	**DETS Sample No**	607800				

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01				
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05				
Aliphatic >C8 - C10 : EH_1D_FID_AL	mg/kg	< 2	MCERTS	< 2				
Aliphatic >C10 - C12 : EH_1D_FID_AL	mg/kg	< 2	MCERTS	< 2				
Aliphatic >C12 - C16 : EH_1D_FID_AL	mg/kg	< 3	MCERTS	< 3				
Aliphatic >C16 - C21 : EH_1D_FID_AL	mg/kg	< 3	MCERTS	< 3				
Aliphatic >C21 - C34 : EH_1D_FID_AL	mg/kg	< 10	MCERTS	< 10				
Aliphatic (C5 - C34) : EH_1D_FID_MS_HS_AL	mg/kg	< 21	NONE	< 21				
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01				
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05				
Aromatic >C8 - C10 : EH_1D_FID_AR	mg/kg	< 2	MCERTS	< 2				
Aromatic >C10 - C12 : EH_1D_FID_AR	mg/kg	< 2	MCERTS	< 2				
Aromatic >C12 - C16 : EH_1D_FID_AR	mg/kg	< 2	MCERTS	< 2				
Aromatic >C16 - C21 : EH_1D_FID_AR	mg/kg	< 3	MCERTS	< 3				
Aromatic >C21 - C35 : EH_1D_FID_AR	mg/kg	< 10	MCERTS	< 10				
Aromatic (C5 - C35) : EH_1D_FID_MS_HS_AR	mg/kg	< 21	NONE	< 21				
Total >C5 - C35 : EH_1D_FID_MS_HS_Total	mg/kg	< 42	NONE	< 42				

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-06642	**Date Sampled**	01/08/22				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Alexander House, Corbrigg	**TP / BH No**	TTA				
Project / Job Ref: IV.95.22	**Additional Refs**	None Supplied				
Order No: IV.95.22.DW	**Depth (m)**	0.80				
Reporting Date: 09/08/2022	**DETS Sample No**	607800				

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2				
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5				
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2				
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2				
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2				
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5				

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-06642	
Ivy House Environmental Ltd	
Site Reference: Alexander House, Corbrigg	
Project / Job Ref: IV.95.22	
Order No: IV.95.22.DW	
Reporting Date: 09/08/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
607800	TTA	None Supplied	0.80	16.5	Grey clay
607801	TPA	None Supplied	0.20	12.4	Light brown clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-06642
Ivy House Environmental Ltd
Site Reference: Alexander House, Corbrigg
Project / Job Ref: IV.95.22
Order No: IV.95.22.DW
Reporting Date: 09/08/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

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List of HWOL Acronyms and Operators
DETS Report No: 22-06642
Ivy House Environmental Ltd
Site Reference: Alexander House, Corbrigg
Project / Job Ref: IV.95.22
Order No: IV.95.22.DW
Reporting Date: 09/08/2022

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_1D_FID_AL
TPH CWG - Aliphatic >C12 - C16 - EH_1D_FID_AL
TPH CWG - Aliphatic >C16 - C21 - EH_1D_FID_AL
TPH CWG - Aliphatic >C21 - C34 - EH_1D_FID_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_1D_FID_AL
TPH CWG - Aliphatic C5 - C34 - EH_1D_FID_MS_HS_AL
TPH CWG - Aromatic >C10 - C12 - EH_1D_FID_AR
TPH CWG - Aromatic >C12 - C16 - EH_1D_FID_AR
TPH CWG - Aromatic >C16 - C21 - EH_1D_FID_AR
TPH CWG - Aromatic >C21 - C35 - EH_1D_FID_AR
TPH CWG - Aromatic >C5 - C35 - EH_1D_FID_MS_HS_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_1D_FID_AR
TPH CWG - Total >C5 - C35 - EH_1D_FID_MS_HS_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

APPENDIX G

IVY HOUSE environmental

Scotland Farm, Ockbrook, Derby, DE72 3RX

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GROUNDWATER / GAS MONITORING RECORD SHEET

Client:	Caulmert	**Date:**	15/07/2022	**Instruments Used:**	GA5000	**Visit No:**	1
Project:	Mansfield Road, Corbriggs	**Weather:**	Dry	**Monitored By:**	SRS	**General Comments:**	
Job No:	IV.95.22	**Temp (°C)**	20-Jan-00	**Rising/Falling Trend (3 days)**			

Installation No.	Peak[1]		Steady[2]			Total gas flow rate	Atmospheric Pressure	Minutes Monitored	Water Depth	Base Depth	Remarks
	CH_4 (% vol)	CO_2 (% vol)	CH_4 (% vol)	CO_2 (% vol)	O_2 (% vol)	(l/hr)	(mbar)		(mbgl)	(m bgl)	
WSD	1.2	15.1	1.2	15.1	7.7	0.0	1009	5	DRY	2.00	

[1] The peak reading is the maximum recorded level during a monitoring event.

[2] The steady reading is the level which remained constant after approximately 2 minutes.

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GROUNDWATER / GAS MONITORING RECORD SHEET

Client:	Caulmert	**Date:**	01/08/2022	**Instruments Used:**	GA5000	**Visit No:**	2
Project:	Mansfield Road, Corbriggs	**Weather:**	Clear	**Monitored By:**	DW	**General Comments:**	
Job No:	IV.95.22	**Temp (°C)**	22				

Installation No.	Peak[1]		Steady[2]			Total gas flow rate	Atmospheric Pressure	Minutes Monitored	Water Depth	Base Depth	Remarks
	CH_4 (% vol)	CO_2 (% vol)	CH_4 (% vol)	CO_2 (% vol)	O_2 (% vol)	(l/hr)	(mbar)		(mbgl)	(m bgl)	
WSD	1.2	13.4	1.1	13.1	7.8	0.1	1007	5	Dry	2.00	

[1] The peak reading is the maximum recorded level during a monitoring event.

[2] The steady reading is the level which remained constant after approximately 2 minutes.

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GROUNDWATER / GAS MONITORING RECORD SHEET

Client:	Caulmert	**Date:**	15/08/2022	**Instruments Used:**	GA5000	**Visit No:**	3 of 3
Project:	Mansfield Road, Corbriggs	**Weather:**	Clear	**Monitored By:**	SRS	**General Comments:**	
Job No:	IV.95.22	**Temp (°C)**	25				

Installation No.	Peak[1]		Steady[2]			Total gas flow rate	Atmospheric Pressure	Minutes Monitored	Water Depth	Base Depth	Remarks
	CH_4 (% vol)	CO_2 (% vol)	CH_4 (% vol)	CO_2 (% vol)	O_2 (% vol)	(l/hr)	(mbar)		(mbgl)	(m bgl)	
WSD	1.5	14.7	1.4	14.0	7.9	0.1	990	5	Dry	2.00	

[1] The peak reading is the maximum recorded level during a monitoring event.

[2] The steady reading is the level which remained constant after approximately 2 minutes.

APPENDIX H

IVY HOUSE environmental

Tier 1 Generic Assessment Criteria

	Residential With Produce	Residential Without Produce	Allotments	Commercial (office)	Commercial (warehouse)
Arsenic	32.40	35.00	43.00	635.00	635.00
Cadmium	5.17	17.70	1.05	230.00	230.00
Mercury, elemental	1.02	1.02	316.00	109.00	83.40
Mercury, inorganic	169.00	238.00	80.30	3640.00	3640.00
Mercury, methyl	11.40	14.10	7.97	407.00	409.00
Selenium	350.00	595.00	121.00	13000.00	13000.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toluene	611.00	2710.00	118.00	189000.00	166000.00
Lead	210.00	210.00	84.00	2300.00	2300.00
Nickel	130.00	130*	180.00	980.00	980.00
Total Cyanide	34.00	34.00			
Benzo(a)pyrene	3.00	3.20	3.50	36.00	14.40
Dibenzo(a,h)anthracene	0.30	0.32	0.43	3.60	13.00
Acenapthene	1100.00	6000.00	200.00	100000.00	103000.00
Acenapthylene	920.00	6000.00	160.00	100000.00	103000.00
Anthracene	11000.00	37000.00	2200.00	540000.00	542000.00
Benzo(a)anthracene	13.00	15.00	13.00	180.00	97.50
Benzo(b)fluoranthene	3.70	4.00	3.90	45.00	103.00
Benzo(g,h,i)perylene	350.00	360.00	640.00	4000.00	661.00
Benzo(k)fluoranthene	100.00	110.00	130.00	1200.00	144.00
Chrysene	27.00	32.00	19.00	350.00	143.00
Fluoranthene	890.00	1600.00	290.00	23000.00	22700.00
Fluorene	860.00	4500.00	160.00	71000.00	70700.00
Indeno(1,2,3-c,d)pyrene	41.00	46.00	39.00	510.00	61.70
Phenathrene	440.00	1500.00	90.00	23000.00	22600.00
Pyrene	2000.00	3800.00	620.00	54000.00	54500.00
Napthalene	13.00	13.00	24.00	1100.00	875.00
Chromium VI	3.38	4.12	2.11	34.20	34.20
Chromium III	627.00	627.00	15300.00	8840.00	8840.00
Copper	2330.00	6200*	524.00	71700.00	71700.00
Vanadium	79.00	226.00	17.90	5590.00	5590.00
Zinc	3750.00	40400*	618.00	665000.00	665000.00

Note:
All figures are in mg/kg
Values calculated using CLEA v1.071
Soil type chosen is sandy loam, pH 7
All organic determinands calculated using 6% SOM
PAH = S4UL (except warehouse model - CLEAv1.071)
* Phytotoxic assessment based on pH range of <6.0 to >7.0
Copper = 100 - 200mg/kg
Nickel = 60 - 110mg/kg
Zinc = 200 - 300mg/kg

Generic Assessment Criteria

Contaminants	Land Use Scenario				
	Residential With Produce	Residential Without Produce	Allotments	Commercial (office)	Commercial (warehouse)
Benzene	0.33	1.00	0.07	94.70	80.30
Ethylbenzene	354.00	843.00	91.20	65700.00	55600.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toluene	611.00	2710.00	118.00	189000.00	166000.00
Xylene, o-	246.00	321.00	159.00	34600.00	27600.00
Xylene, m-	240.00	302.00	175.00	32700.00	26100.00
Xylene, p-	228.00	288.00	164.00	31400.00	25100.00
Aliphatic C5 - C6	113.00	113.00	3910.00	12800.00	10800.00
Aliphatic C6 - C8	48.10	48.20	13300.00	5470.00	4620.00
Aliphatic C8 - C10	108.00	109.00	1710.00	11900.00	10200.00
Aliphatic C10 - C12	537.00	538.00	7280.00	49300.00	43700.00
Aliphatic C12 - C16	3030.00	3040.00	13400.00	90500.00	89600.00
Aliphatic C16 - C35	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aliphatic C35 - C44	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aromatic C5 - C7	275.00	978.00	57.30	89900.00	76800.00
Aromatic C7 - C8	611.00	2710.00	118.00	189000.00	166000.00
Aromatic C8 - C10	151.00	189.00	50.50	17800.00	15700.00
Aromatic C10 - C12	346.00	866.00	73.80	34500.00	33800.00
Aromatic C12 - C16	593.00	1710.00	134.00	37800.00	37800.00
Aromatic C16 - C21	770.00	1340.00	260.00	28600.00	28600.00
Aromatic C21 - C35	1230.00	1340.00	1550.00	28600.00	28600.00
Aromatic C35 - C44	1230.00	1340.00	1550.00	28600.00	28600.00
Combined Ali & Aro C44 - C70	1300.00	1340.00	2950.00	28600.00	28600.00

Note:
All figures are in mg/kg
Values calculated using CLEA v1.071
Soil type chosen is sandy loam, pH 7
All organic determinands calculated using 6% SOM

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