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Geo-environmental
Ground Investigation Report

ON

PROPOSED RESIDENTIAL DEVELOPMENT

AT

LAND TO THE SOUTH OF CONISTON AVENUE, DARTON, BARNSLEY

FOR

BARRATT & DAVID WILSON HOMES

MARCH 2022
Rev B

E21/7786/R001B

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INDEX

0.0	Executive Summary		Page 4
1.0	Introduction		Page 7
2.0	The Site		Page 9
3.0	Site History		Page 10
4.0	Site Geology and Mining		Page 11
5.0	Environmental Considerations		Page 13
	5.1	Radon	Page 13
	5.2	Landfill Sites	Page 13
	5.3	Flood Risk	Page 13
	5.4	Groundwater	Page 13
	5.5	Designated Environmentally Sensitive Site	Page 14
6.0	Preliminary Site Conceptual Model		Page 15
7.0	Fieldwork		Page 18
8.0	Results of the Investigation		Page 20
	8.1	Geotechnical Investigation	Page 20
	8.2	Groundwater	Page 27
	8.3	Gas Monitoring	Page 28
9.0	Contamination		Page 30
	9.1	Human Health Risk Assessment	Page 30
	9.2	Contamination Results	Page 30
	9.3	Qualitative Risk Assessment	Page 33
10.0	Conclusions and Recommendations		Page 36
	10.1	Geotechnical Assessment	Page 36
	10.2	Mining	Page 39
	10.3	Ground Floor Slab – Gas Measures	Page 40
	10.4	Contamination Assessment	Page 41
	10.5	Highways	Page 41

10.6 Surface Water Drainage Page 42

11.0 Suggested Further Work Page 43

12.0 Approvals Page 44

Appendix A Site Location Plan
Site Investigation Plans
Typical Site Conceptual Model
Sections Through Site

Appendix B Trial Hole Logs
Borehole Logs
Soakaway Test Results

Appendix C Chemical Analysis of Samples
Geotechnical Analysis of Samples

Appendix D Coal Authority Report

Appendix E Groundsure Report
Historical Plans

0.0 EXECUTIVE SUMMARY

SITE

The site is located on land to the south of Coniston Avenue, Darton. The main body of the site consists of a field used for crop farming. Access to the site is from Coniston Avenue in the north west. Yorkshire Water adopted Foul and Surface water sewers run from north to south along the western boundary of the site. The surface water sewer outfalls to a culverted watercourse approximately midway along the western boundary of the site. The site generally falls from a high point of 142.0m AOD in the northeast to a low point of 130.5m AOD in the southwest at an average grade of 1 in 13.

HISTORY

Only the north western corner of the site adjacent Coniston Avenue has been developed, residential properties were shown from 1951-1993. The remainder of the site has been shown as undeveloped since the earliest OS plan from 1854. Residential development adjacent the northern, eastern and southern boundaries began in the 1930s.

GEOLOGY

The northern half of the site is shown as an area of infilled ground. This coincides with the historical opencast mine recorded on site.
The site is underlain by the Pennine Middle Coal Measures Formation, consisting of Mudstone, Siltstone and Sandstone.
Fault lines are shown running along the south eastern boundary of the site, and crossing the north western corner of the site.
In the northern half of the site, in the former opencast mine, a thin layer of topsoil overlying fill up to 8.1m in depth was encountered. Alternating bands of mudstone, siltstone and sandstone were encountered beneath the base of the opencast.
In the southern half of the site, a relatively shallow depth of clay overlaid alternating bands of mudstone, siltstone and sandstone.
In the north western corner of the site adjacent Coniston Avenue, buried remains of the former properties were found at shallow depth overlaying alternating bands of mudstone, siltstone and sandstone.

MINING/QUARRYING

The Coal Authority Report states that the property is in a surface area that could be affected by underground mining in 10 seams of coal at 40m to 490m depth, and last worked in 1987. Additionally, historical opencast mining has been undertaken in the northern half of the site.
Three coal seams were encountered at shallow depths beneath the site.
The upper coal seam is 0.9-1.0m thick and outcrops halfway through the site, this has been worked via opencast methods in the north of the site.

A second 0.9-1.0m thick coal seam was encountered at 3.8-8.5m below ground levels in the south of the site and 12.8-17.2m below ground levels in the northern half.
A third 0.4m thick coal seam was encountered at 21.3-21.7m below existing ground levels at the lower southern end of the site.
None of the coal seams showed evidence of being worked beyond the opencast workings in the north of the site.

HYDROLOGY

An un-named open watercourse flows westwards from the western site boundary.
A culvert watercourse flows southwards from midway up the western boundary.
The site is not located within any Environment Agency defined flood zones or shown to be at risk of flooding from rivers or the sea.

HYDROGEOLOGY

The groundwater vulnerability map for the area indicates that the site overlies rocks designated as a Secondary (A) aquifer.
No groundwater was recorded during the trial pit excavations or rotary borehole investigation.
Groundwater was recorded at depths of 1.9-3.9m below existing ground levels during the gas monitoring.

HAZARDOUS GAS

The property is not in an area requiring radon protection measures.
Gas monitoring has been undertaken on two occasions to date and recorded no methane and a maximum carbon dioxide concentration of 4.9%.
Due to the low carbon dioxide levels and flow rates encountered, we would recommend the gas regime on this site be currently classified as Green by the NHBC traffic light system, or CS1 by BS 8485:2015 Table 2.

CONTAMINATION

Marginally elevated levels of dibenzo(a,h)anthracene were proved in the topsoil in the north western corner of the site, along with deleterious materials from the former properties in this area of the site.
No elevated levels of heavy or phytotoxic metals or PAH compounds were recorded in the samples from site.
No asbestos was recorded in the samples taken from site.

REMEDIATION

It is recommended that the contaminated topsoil, along with the remains of the former buildings are removed from the north western corner of the site.
The topsoil on the remainder of the site has proved clean from contamination.
We would recommend that the topsoil is scraped and screened to remove

unsuitable material and then stockpiled behind protective fencing for eventual re-use on site to soft landscaped areas.

FOUNDATIONS

Due to the depth of infill within the former opencast mine in the north of the site, it is recommended that piled foundations are used in this location. For the remainder of the site, strip/trench fill foundations to the underlying clay or mudstone strata may be used. Where the shallow coal seam is encountered, the foundations should be taken through to the underlying natural strata. Where foundations are within the influence of the fault lines crossing the site, it is recommended the foundations are strengthened.

HIGHWAYS

Ground to be re-engineered where the highway alignment passes through the quarry backfill recorded on site. Following re-engineering works and reduction in ground levels on site, CBR testing to be undertaken at road formation level to confirm any capping/geo-grid reinforcement requirements. Details to be agreed with Barnsley MBC Highways dependent on results.

DRAINAGE

Infiltration methods have proved unsuitable for use on site. A discharge rate must be agreed with Barnsley MBC Lead Local Flood Authority.

1.0 INTRODUCTION

1.1 As requested by Barratt & David Wilson Homes, this practice carried out ground and contamination investigation works for a proposed development on land to the south of Coniston Avenue, Darton, Barnsley.

1.2 The purpose of the report was to:-

1.2.1 Identify the nature of the near surface strata, in order to enable recommendations to be made as to the most economic foundation solution for the proposed residential development.

1.2.2 To identify any areas of contaminated ground.

1.2.3 Propose a suitable outline remediation strategy, which will enable the site to be developed safely, to the satisfaction of the overseeing regulators and in compliance with the current environmental standards.

1.2.4 Determine if historical opencast and shallow mine workings would adversely affect the site.

1.2.5 Determine if ground gas migration from historical mine workings would adversely affect the site.

1.2.6 Determine if infiltration methods would be a suitable form of surface water dispersal.

1.3 Soil sampling was undertaken via trial pits to determine the near surface strata. Distributed samples were taken for testing to ascertain the nature of the soils and fills present.

1.4 The conclusions and recommendations made in this report are limited to the findings of the preliminary Geotechnical Survey. The report is made on condition that Haigh Huddleston Associates will not in any circumstances be liable for loss, arising directly or indirectly from ground conditions encountered between trial pits and boreholes, which have not been revealed by the investigation.

1.5 Any opinion given on the possible configuration of strata between trial pit and borehole locations and below maximum depth of the investigation is for guidance only. Any remarks on groundwater conditions made are based solely on observations made at the time of investigation. Kindly note that levels may differ from those reported due to seasonal variations or other influences.

1.6 Furthermore, there is the possibility that any trial pits or boreholes undertaken as part of the investigatory works may be within the influence of existing or proposed foundations or excavations. Haigh Huddleston Associates cannot be held responsible for any failure of any excavations, foundations, or structures within the influence of the trial pits or boreholes.

2.0 THE SITE

2.1 The site is located on land to the south of Coniston Avenue, Darton and lies around OS Grid Reference 432179, 410860. A site location plan is attached in Appendix A at the rear of the report.

2.2 The main body of the site is approximately square in shape, with the northern, southern and eastern boundaries formed by the rear gardens to residential properties. To the west and southwest there are further fields. Existing and proposed access to the site is from Coniston Avenue to the North of the site.

2.3 The majority of the site consists of a field used for crop farming. An adjacent field proposed for surface attenuation is located to the southwest and is separated from the main field by a hedge. Yorkshire Water adopted Foul and Surface water sewers run from north to south along the western boundary of the site. The surface water sewer outfalls to a culverted watercourse approximately midway along the western boundary of the site.

2.4 The access to the site is located in the north western corner of the site off Coniston Avenue, and is separated from the main body of the site by a hedge and 0.5m high stone wall. It consists of a rectangular grassed area that was formerly occupied by residential properties. The northern boundary of this area fronts directly onto Coniston Avenue, and consists of a 0.65m high brick wall that retains the highway approximately 0.5m above the site.

2.5 The site is open to further fields on the western boundary. There is a hedge separating the field from the adjacent residential properties to the north, south and east. Occasional mature trees are noted to the corners of the site.

2.6 The site generally falls from a high point of 142.0m AOD in the northeast to a low point of 130.5m AOD in the southwest at an average grade of 1 in 13.

3.0 SITE HISTORY

A number of historical Ordnance Survey plans from 1854-2021 have been consulted. These are contained for reference within Appendix C to the rear of the report. Below is a brief description outlining the significant developments that may affect future construction of the site.

Date	Historical uses on site	Historical findings within 100m perimeter of the site	Historical findings further than 100m perimeter of the site
1854	i) The area to be developed is shown as open field.	i) Darton Lane runs southwest to northeast 50m east of the site.	i) Sandstone quarries 200m east and 475m south of the site. ii) Old coal pit 400m south east of the site.
1891	i) The on-site features are similar to the previous sheet.	i) Residential development 50m east of the site.	i) Wheatley Wood Colliery 750m north of the site. ii) Woolley Colliery 1000m to the west. iii) Sandstone quarries no longer labelled.
1904-1930	i) The on-site features are similar to the previous sheet.	i) Works and gas hook 70m east of site.	i) Reservoir 200m east of site. ii) Old coal shaft 300m northeast of site.
1938-1948	i) The on-site features are similar to the previous sheet.	i) Residential properties constructed east and northeast of site.	i) No significant developments further than 100m from site.
1951-1978	i) Residential properties shown in proposed site access area in north west of site.	i) Residential development immediately north of site. ii) Drain shown heading westwards from western boundary.	i) Wheatley Wood Colliery shown as disused.
1990-1993	i) The on-site features are similar to the previous sheet.	i) Residential development immediately south of site.	i) No significant developments further than 100m from site.
2001	i) Properties in proposed site access area no longer shown..	i i) No significant developments within 100m of the site.	i) No significant developments further than 100m from site.
2010-2020	i) The on-site features are similar to the previous sheet.	i) No significant developments within 100m of the site.	i) Woolley colliery now shown as a residential estate.

4.0 SITE GEOLOGY & MINING

4.1 The BGS Digital Geological map of Great Britain at 1:10,000 has been consulted and we would report as follows:-

4.2 The northern half of the site is shown as an area of infilled ground. This coincides with the historical opencast mine recorded on site.

4.3 No superficial strata is shown overlying the site.

4.4 The site is underlain by the Pennine Middle Coal Measures Formation, consisting of Mudstone, Siltstone and Sandstone.

4.5 There are two faults shown crossing the site. The first crosses the north western corner of the site from south west to north east. The second fault line runs south west to north east along the south eastern boundary of the site. The recorded location of the fault lines is indicated on the site investigation plan in Appendix A.

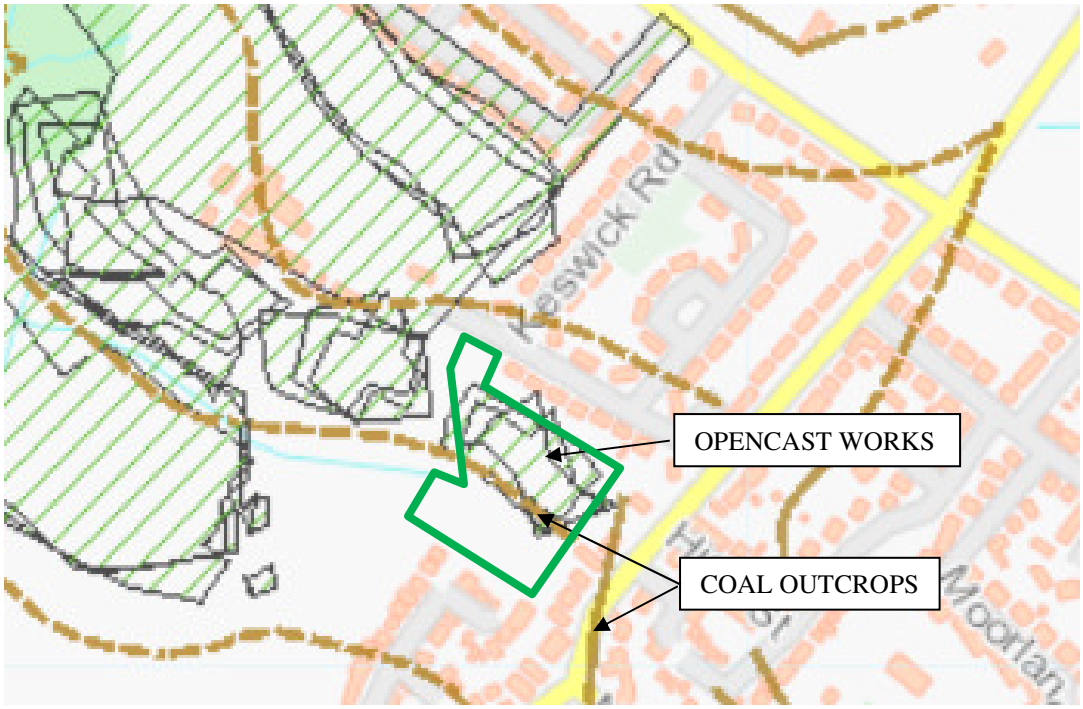
4.6 Additionally, South Yorkshire Mining Advisory Service have confirmed that several properties within the proposed site entrance area in the north west of the site, fronting onto Coniston Avenue, had to be demolished due to structural instability from movement within this fault line. The fault movement was initiated by deep mining subsidence. However, all deep mining has now ceased in the area and therefore the site should be stable in this regard.

4.7 There are no detailed deep BGS boreholes recorded in the vicinity of the site.

4.8 The Coal Authority Report states that the property is in a surface area that could be affected by underground mining in 10 seams of coal at 40m to 490m depth, and last worked in 1987. Any ground movement from these coal workings should have stopped by now.

4.9 In addition to this, the Coal Authority report states that the property is in an area where the Coal Authority believes that there is coal at or close to the surface. Historically, shallow and surface coal has been worked by private individuals and these workings have been unrecorded by the Coal Authority.

4.10 The property is also within the boundary of an opencast site from which coal has been removed by opencast methods. The Coal Authority Interactive Map Viewer indicates the open cast mining to have occupied approximately half of the site.



4.11 The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods. The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods. However, reserves of coal exist in the local area which could be worked at some time in the future.

4.12 There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

4.13 The southwestern corner of the site is shown to belong to a property that has made a subsidence claim. There are two further claims for subsidence located immediately southeast and 40m north of the site. Two claims for subsidence in the vicinity of the site have been rejected.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Radon

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the action level.

No Radon Protective Measures are necessary.

5.2 Landfill Sites

There are no recorded historical landfills within 250m of the site. However, the northern third of the site was a former opencast coal mine and has been infilled with unrecorded materials.

5.3 Flood Risk

The site is not located in a currently defined Environment Agency flood zone or at risk of flooding from rivers and the sea.

5.4 Groundwater

The groundwater vulnerability map for the area indicates that the site overlies bedrock designated as a Secondary (A) aquifer. These are 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.

The site is not within a currently defined (Groundwater) Source Protection Zone (SPZ).

There are no licensed groundwater or surface water abstractions within 250m of the site.

There are no Licensed Discharge Consents within 250m of the site.

There are no recorded pollution incidents to controlled waters within 250m of the site.

An un-named open watercourse flows westwards from the western boundary of the site. This is classified as an inland river not influenced by normal tidal action. Additionally, a Yorkshire Water surface water sewer discharges to a former open watercourse in the south west corner of the site. This has been culverted as it heads southwards from the site.

5.5 Designated Environmentally Sensitive Site

The southwestern corner of the site, separate from the main field, is shown to be part of the South and West Yorkshire Green Belt. This is the location of the proposed attenuation basin.

6.0 PRELIMINARY CONCEPTUAL SITE MODEL

6.1 The initial stage in assessing the risks posed from contaminated land during the redevelopment of a site is to prepare a conceptual model. A generalised conceptual model can be developed highlighting the main pollutant linkages through a contaminant ► pathway ►receptor model for a residential development. In order to prepare the conceptual model for a particular site the following parameters need to be reviewed as discussed below.

6.2 Contamination of existing land can be caused by a number of factors, including:-

i) Possible historical/current industrial activities.
ii) Disposal of waste materials.
iii) Storage of materials.
iv) A number of natural processes can also lead to hazardous gases and elevated heavy metals.

6.3 Potential pathways can include ground and surface water, permeable strata, existing services providing a conduit and voided ground. Potential receptors can include human health, ecosystems, controlled waters and building structures. There are a number of ways that a receptor can be exposed to the contaminant these include, inhalation, direct contact, ingestion, dermal contact, and uptake.

6.4 Sources of potential contamination, that could affect the proposed development, from either on or off site activities would include the following:-

i) Infill material to former opencast mine on site.
ii) Possible ground gas migration from opencast and probable shallow mine workings on and in vicinity of site.

Based on the above activities the potential for some contamination to exist on site is considered to be moderate.

6.5 Considering the proposed residential end use, there will be two possible human receptor groups exposed to the existing onsite contamination:-

a) Site operatives during development.
b) End users, future site residents (the critical receptor is a 6 year-old girl).

6.6 Human receptors may be exposed to site contamination by a number of possible pathways. These pathways are summarised in Table 1 below.

Table 1- Potential Human Exposure Pathways

Human Exposure Pathway	Site Residents	Construction Workers
Soil Ingestion	YES	YES
Consumption of Home Grown Vegetables	YES	NO
Dermal Contact	YES	YES
Dust Inhalation	YES	YES
Gases/Vapours	YES	NO

6.7 The construction workers will come into contact with any contaminated soil to a far greater extent than future residents. The exposure pathways are generally through dermal contact and indirect ingestion. However their exposure will be for a limited time and the provision and correct use of personnel protective equipment and adequate welfare facilities during construction should restrict their risks to acceptable levels.

6.8 Future site residents can be protected in the long term development of the site via a suitable remediation strategy that ensures any proposed contaminated materials remaining on-site are suitably isolated beneath an effective capping layer.

6.9 The risk of pollution to controlled waters by existing contamination is considered low. There have been no recorded pollution incidents associated with the site and there has been no development of the site shown since 1854. However, there are watercourses on the western boundary of the site and a temporary works plan will be required to protect the site from surface water run-off containing contaminants during development of the site.

6.10 No specific areas of ecological importance have been identified in the initial desk top study. Therefore the site is considered to be in a low risk environmental setting. The potential for phototoxic materials to exist at shallow depth should be considered, these could pose a potential risk to new planting and soft landscaping areas within the proposed development.

6.11 The proposed planning drawings indicate residential properties with private garden areas and hard paved site access and parking areas. The presence of elevated sulphates and hydrocarbons could affect the long term integrity of buried concrete structures, including foundations and drainage pipes. Plastic water supply pipes can also be damaged by the presence of hydrocarbon contamination.

7.0 FIELDWORK

7.1 Initial trial pit excavations were undertaken on the 1-3 June 2021 using an 8 tonne tracked 360 excavator equipped with 600mm bucket. A total of fourteen trial pits were undertaken in total, which included two trial trenches. Two of these were used to undertake soakaway testing. In addition to this twenty-eight boreholes were undertaken on site to depths of between 3m and 30m to identify the extents of the opencast workings and determine the presence of shallow of mine workings. Six of the boreholes were fitted with gas monitoring stations to determine if ground gas generation would adversely affect the site, as well as monitoring ground water levels.

7.2 Additional fieldwork was undertaken on the main site on 27-28th September 2021 to determine the extents of the former opencast mine and the presence of any shallow mine workings. The additional fieldwork comprised of five trial trenches undertaken with an 8 tonne 360 tracked excavator. In addition to this, a total of thirty four rotary boreholes were sunk.

7.3 Finally, when permission was obtained to access the site entrance area in the north west of the site, further site investigations were undertaken on 13th January 2022. This consisted of four trial pits and four boreholes in the site entrance, two of which were fitted with gas monitoring stations. A fifth borehole was undertaken in the proposed pond location to allow the groundwater levels to be monitored.

7.4 Materials encountered in the trial pits and boreholes were examined and categorised. Trial pit and borehole logs are contained within Appendix B of the report.

7.5 The soakaway tests were undertaken in accordance with the method specified in BRE Digest 365 Soakaway Design. An instantaneous supply of water was provided via a bowser. In general, the trial pits were filled and the water levels were recorded against time as the water permeated into the natural strata. The water level was monitored over an extended time period to determine the infiltration rate for the natural strata.

7.6 The site investigation works were designed to achieve comprehensive site coverage within the proposed development area. These were restricted by the existing sewers adjacent the western boundary and electrical services in the south western corner of the site.

7.7 Soil samples were removed from the natural and made ground deposits within the trial pits. The samples were removed by operatives wearing gloves and placed into airtight clean plastic containers and glass bottles for transportation to the laboratory.

7.8 A total of fourteen samples from the natural and made ground deposits were recovered from the trial holes for chemical analysis. The testing was carried out by a UKAS accredited laboratory to nationally or accredited in-house methods. The results of the contamination testing are contained within Appendix C of this report.

7.9 A suite of common potential contaminants consisting of heavy metals, phytotoxic metals, sulphates, sulphides and poly-aromatic hydrocarbons as well as asbestos were analysed for.

7.10 All samples were stored in airtight containers within cool boxes at approximately 4°c until delivery to the laboratory within 48 hours.

8.0 RESULTS OF THE INVESTIGATION

8.1 GEOTECHNICAL INVESTIGATION

8.1.1 A copy of the trial hole and borehole logs providing a complete record of strata encountered beneath the proposed development is presented in Appendix B.

8.1.2 The main body of the site can generally be divided into two areas. In the northern half, the trial pits proved infill material to the former opencast mine, while in the south a relatively shallow depth of clays overlaid a mudstone bedrock.

8.1.3 FORMER OPENCAST MINE. (TP03, TP05-TP07, TP10-TP14, BH01, BH01A, BH05H, BH06E, BH06F, BH07, BH10-BH12 AND TT01-TT05, BH13-BH19, BH21-BH26, BH54, BH55, BH58, BH59, BH62)

8.1.3.1 The trial pits in this area of the site proved a 0.2-0.3m of topsoil overlying re-engineered clays and mudstones, with occasional bricks and red shale, particularly in TP11 in the northeastern corner of the site. The re-engineered ground extended to the base of all these trial pits except TP12 at the edge of the opencast workings. TP10 was a trial trench undertaken to shallow depth and identified the location of the coal outcrop. TP14 was a trial trench undertaken to shallow depth to determine the location of any high wall features on the western boundary of the opencast.

8.1.3.2 Beneath the re-engineered ground in TP12 and the western half of TP14, a 0.6-0.8m thick layer of firm to stiff light brown clay with occasional mudstone gravels was encountered at 1.1-1.4m below existing ground levels. This in turn was underlain by a weak grey mudstone excavated as shaley gravels and encountered at 1.9-2.5m below existing ground levels and extending to the base of the trial pits. The eastern half of TP14 proved re-engineered ground to the base of the trial pit at 2.6m below existing ground levels, confirming the presence of a high wall feature on the western edge of the opencast works.

8.1.3.3 TT1 and TT2 were undertaken perpendicular to the northern boundary to determine the northern extent of the opencast mine. A near vertical high wall feature was encountered at 7.5m from the northern boundary in TT1 and 8.5m from the northern boundary in TT2. Natural soils were encountered in the northern ends of the trial trenches, with colliery spoil recorded in the southern end of the trial trenches.

8.1.3.4 TT3 was undertaken perpendicular to the eastern boundary and proved a near vertical highwall feature at 2.6m from the boundary. Natural soils were encountered in the eastern end of the trial pit with colliery spoil in the western end of the trial trench.

8.1.3.5 TT4 and TT5 were undertaken to determine the western extent of the opencast. TT4 proved colliery spoil throughout, and could not be extended further westwards due to the presence of existing adopted sewers. TT5 proved natural soils throughout and was undertaken to the south of the opencast mine.

8.1.3.6 The boreholes undertaken in this area of the site show a gradual increase in the depth of clay fill/colliery spoil to the north, indicating there are no high wall features at the southern edge, and the base of the opencast slopes with the dip of the coal seam extracted. Additional boreholes were undertaken adjacent the identified high walls on the northern edge of the opencast and proved they were near vertical to the base of the opencast mine, with no stepping out or platforms at depth. The depth of fill/spoil ranged from 2.7m to 8.5m.

8.1.3.7 Beneath the base of the opencast workings, the boreholes proved bands of mudstone, siltstone and sandstone to a depth of 30m beneath existing ground levels. The boreholes generally proved a second deeper seam of intact coal 0.9-1.0m thick encountered at 11.6-17.5m below existing ground levels.

8.1.4 REMAINDER OF THE MAIN SITE (TP01, TP02, TP04, TP08, TP09, BH02-BH05G, BH06A-BH06D, BH08-BH09 AND BH03, BH05, BH07, BH10, BH30, BH31, BH38, BH42-BH51)

8.1.4.1 The trial pits in the remainder of the site proved 0.25-0.4m of dark brown topsoil overlying firm to stiff light brown and grey sandy clays with occasional gravels of mudstone. The mudstone gravels were noted to become more numerous with depth. The clay strata varied in thickness from 1.1m to 2.25m across site. In only TP08 in this area of the site was a 0.8m thick layer of re-engineered sandy clays proved beneath the topsoil.

8.1.4.2 Underlying the clay strata, a moderately weak grey mudstone excavated as angular gravels was encountered at 1.4-2.6m below existing ground levels.

8.1.4.3 BH05A-BH05G and BH06A-BH06D were undertaken at the edge of the opencast works. The southernmost boreholes proved up to 2.2m of clay with mudstone encountered beneath. The northernmost boreholes proved up to 2.1m of clay overlying a 0.6-0.7m thick seam of immature coal, with mudstone bedrock encountered at 2.0-2.8m below existing ground levels.

8.1.4.4 BH02-BH04A and BH08-BH09 were undertaken to the south of where the uppermost coal seam had been outcropped. These proved 0.3-0.4m of topsoil overlying 1.6-2.2m of brown clay. Beneath this in all the boreholes, alternating bands of mudstone, siltstone and sandstone were encountered from 1.9-2.6m below existing ground levels.

8.1.4.5 An intact 0.9-1.0m thick coal seam was encountered in all but BH04 and BH04A at depths of 3.3-8.5m below existing ground levels, getting deeper as the site levels rose to the north. In only BH02 a deeper 0.4m thick intact third coal seam was encountered at 21.2-21.7m below existing ground levels.

8.1.5 SITE ENTRANCE AREA (TP01-TP04, BH301-BH302)

8.1.5.1 The surface of the trial pits in this area of the site proved 0.2-0.4m of dark brown topsoil containing occasional brick fragments. Beneath the topsoil in TP01 and TP02 there was a 0.4-0.55m thick layer of soft light brown re-engineered clay with occasional brick fragments. Underlying this was a 0.9-2.3m layer of loosely compacted weak light grey/brown mudstone that extended to the base of TP02 at 3.1m below existing ground levels. This re-engineered material is potentially associated with the former buildings on site. Beneath the re-engineered mudstone in TP01, a moderately strong weathered mudstone was encountered at 1.5m below existing ground levels.

8.1.5.2 In TP03 in the centre of this area, beneath the topsoil was a soft light brown mottled grey clay that became firmer with depth. A 0.6m thick seam of weak black unworked coal was encountered within the clay strata at a depth of 1.9-2.5m below existing ground levels. Beneath the coal seam, the clay became a weathered mudstone that became difficult to excavate.

8.1.5.3 TP04 in the east of this area was abandoned as a relict concrete floor slab, possible raft foundation, from the former buildings on site was encountered at shallow depth. An existing footing and concrete floor slab were also encountered in TP02.

8.1.5.4 BH301 and BH302 in this area proved 0.3m of topsoil overlying 0.9-1.4m of brown clay. Mudstone bedrock was encountered at 1.4-1.7m below existing ground levels and extended to the base of the boreholes. Two intact coal seams were encountered within the boreholes. The upper coal seam was 0.5m thick and encountered at 2.9-6.5m below existing ground levels. The lower coal seam was 0.9-1.0m thick and encountered at 10.2-13.3m below existing ground levels. The depth of this seam would match the adjacent open cast area excavation.

8.1.6 A summary of the strata encountered within the boreholes undertaken across the entire site is presented in Table 2 below:

Table 2 Summary of Strata within boreholes (June 2021)

Borehole No.	Topsoil (m)	Clay (m)	Fill/Colliery Spoil (m)	Mudstone (m)	Rock Cover (m)	Seam 1 (m)	Seam 2 (m)	Seam 3 (m)	10x seam cover
1	-	-	0-8.1	8.1-16.2	8.1	-	16.2-17.2	-	N
1A*	-	-	0-3.0	-	-	-	-	-	-
2	0.0-0.4	0.4-2.5	-	2.5-5.1	2.6	-	5.1-6.0	21.3-21.7	N
3*	0.0-0.4	0.4-2.3	-	2.3-3.3	1.0	-	3.3-4.3	-	N
4	0.0-0.4	0.4-2.6	-	2.6-7.0	>4.4	-	-	-	-
4A*	0.0-0.4	0.4-2.6	-	2.6-3.0	>0.4	-	-	-	-
5A	-	0.0-2.2	-	2.2-6.0	>3.8	-	-	-	-
5B	-	0.0-2.1	-	2.1-6.0	>3.9	-	-	-	-
5C	-	0.0-2.1	-	2.1-6.0	>3.9	-	-	-	-
5D	-	0.0-1.4	-	2.0-3.0	0.0	1.4-2.0	-	-	N
5E	-	0.0-1.4	-	2.0-3.0	0.0	1.4-2.0	-	-	N
5F	-	0.0-1.8	-	2.4-3.0	0.0	1.8-2.4	-	-	N
5G	-	0.0-2.1	-	2.8-6.0	0.0	2.1-2.8	-	-	N
5H	-	0.0-3.0	-	3.0-6.0	>3.0	-	-	-	-
6A	-	0.0-1.0	-	1.6-3.0	0.0	1.0-1.6	-	-	N
6B	-	0.0-1.2	-	1.8-3.0	0.0	1.2-1.8	-	-	N
6C	-	0.0-1.7	-	2.3-3.0	0.0	1.7-2.3	-	-	N
6D	-	0.0-1.8	-	2.4-3.0	0.0	1.8-2.4	-	-	N
6E*	-	-	0.0-2.7	2.7-3.0	-	-	-	-	-
6F	-	-	0.0-3.0	3.0-6.0	-	-	-	-	-
7	-	-	0.0-6.3	6.3-13.2	6.9	-	13.2-14.2	-	N
8	0.0-0.3	0.3-0.9	-	1.9-7.2	5.3	-	7.2-8.2	-	N
8A*	0.0-0.3	0.3-1.9	-	1.9-3.0	-	-	-	-	-
9	0.0-0.3	0.3-2.1	-	2.1-7.5	5.4	-	7.5-8.5	-	N
10	-	-	0.0-6.3	6.3-12.8	6.5	-	12.8-13.8	-	N
11	-	-	0.0-8.0	8.0-16.1	8.1	-	16.1-17.1	-	N
11A*	-	-	0.0-3.0	-	-	-	-	-	-
12	-	-	0.0-2.0	2.0-6.3	4.3	6.3-7.3	16.2-17.1	-	N

Table 2a Summary of Strata within boreholes (September 2021)

Borehole No.	Topsoil (m)	Clay (m)	Fill/Colliery Spoil (m)	Mudstone (m)	Rock Cover (m)	Seam 1 (m)	Seam 2 (m)	Seam 3 (m)	10x seam cover
3	-	0.0-1.8	-	1.8-5.7	3.9	-	5.7-6.7	-	N
5	-	0.0-1.9	-	1.9-8.1	6.2	-	8.1-9.1	-	N
7	-	-	0.0-2.7	2.7-10.5	7.8	-	10.5-11.5	-	N
10	-	0.0-1.9	-	1.9-5.7	3.8	5.7-6.3	13.9-14.9	-	N
13	-	-	0.0-6.2	6.2-13.7	7.5	-	13.7-14.7	-	N
14	-	-	0.0-7.3	7.3-15.2	7.9	-	15.2-16.2	-	N
15	-	-	0.0-7.4	7.4-15.2	7.8	-	15.2-16.2	-	N
16	-	-	0.0-7.5	7.5-15.3	7.8	-	15.3-16.3	-	N
17	-	-	0.0-7.5	7.5-15.6	8.1	-	15.6-16.6	-	N
18	-	-	0.0-7.7	7.7-16.0	8.3	-	16.0-17.0	-	N
19	-	-	0.0-7.8	7.8-16.2	8.4	-	16.2-17.2	-	N
21	-	-	0.0-8.0	8.0-16.5	8.5	-	16.5-17.5	-	N
22	-	-	0.0-6.4	6.4-12.6	6.2	-	12.6-13.6	-	N
23	-	-	0.0-6.2	6.2-12.1	5.9	-	12.1-13.1	-	N
24	-	-	0.0-5.9	5.9-11.8	5.9	-	11.8-12.8	-	N
25	-	-	0.0-5.9	5.9-11.5	5.6	-	11.5-12.5	-	N
26	-	-	0.0-6.0	6.0-11.6	5.6	-	11.6-12.6	-	N
30	-	-	0.0-1.0	-	0.0	1.0-1.8	8.8-9.8	-	N
31	-	0.0-2.2	-	2.2-7.0	4.8	-	7.0-8.0	-	N
38	-	0.0-2.2	-	2.2-7.7	5.5	7.7-8.4	16.5-17.5	-	n
42	-	0.0-1.9	-	1.9-5.6	3.7	-	5.6-6.6	-	N
43	-	0.0-1.9	-	1.9-6.0	4.1	-	6.0-7.0	-	N
44	-	0.0-1.9	-	1.9-6.0	4.1	-	6.0-7.0	-	N
45	-	0.0-1.9	-	1.9-6.3	4.4	-	6.3-7.3	-	N
46	-	-	0.0-6.3	6.3-12.8	6.5	-	12.8-13.8	-	N
47	-	0.0-1.9	-	1.9-6.0	4.1	-	6.0-7.0	-	N
48	-	0.0-1.9	-	1.9-6.2	4.3	-	6.2-7.2	-	N
49	-	0.0-3.0	-	3.0-7.1	4.1	-	7.1-8.1	-	N
50	-	0.0-2.7	-	2.7-7.6	4.9	-	7.6-8.6	-	N
51	-	0.0-2.8	-	2.8-9.0	6.2	-	9.0-10.0	-	N
54	-	-	0.0-5.3	5.3-12.7	7.4	-	12.7-13.7	-	N
55	-	-	0.0-5.5	5.5-13.2	7.7	-	13.2-14.2	-	N
58	-	-	0.0-6.2	6.2-13.6	7.4	-	13.6-14.6	-	N
59	-	-	0.0-6.2	6.2-13.0	6.8	-	13.0-14.0	-	N
62	-	-	0.0-6.2	6.2-14.1	7.9	-	14.1-15.1	-	N

Table 2b Summary of Strata within boreholes (January 2022)

Borehole No.	Topsoil (m)	Clay (m)	Fill/Colliery Spoil (m)	Mudstone (m)	Rock Cover (m)	Seam 1 (m)	Seam 2 (m)	Seam 3 (m)	10x seam cover
301	0.0-0.3	0.3-1.7	-	1.7-2.9	3.9	2.9-3.4	10.2-11.3	-	N
301A*	0.0-0.3	0.3-1.7	-	1.7-2.9	>1.2	-	-	-	-
302	0.0-0.3	0.3-1.4	-	1.4-6.0	7.8	6.0-6.5	12.3-13.3	-	N
302A*	0.0-0.3	0.3-1.4	-	1.4-3.0	>1.6	5.7-6.3	-	-	-
303A*	0.0-0.5	0.5-1.6	-	1.6-3.3	1.7	-	3.3-4.3	-	N

8.1.6 Overall, the boreholes indicate three coal seams passing beneath the site. The upper coal seam is 0.9-1.0m thick and outcrops halfway through the site as indicated on the Coal Authority Plans. This has been worked via opencast methods in the north of the main site.

8.1.7 A second coal seam has been encountered, within the deeper boreholes, beneath the opencast workings at depths of 12.8-17.2m beneath existing ground levels, and at depths of 3.3-8.5m to the south of the opencast workings. This coal seam was also 0.9-1.0m thick. This seam is unworked and is intact.

8.1.8 A third coal seam was encountered with BH02 in the south of the site. This was the only deep borehole to 30m undertaken at the lower end of the site and proved a 0.4m thick coal seam at 21.3-21.7m below existing ground levels. This would dip northwards below the depth of the remaining deep boreholes undertaken. Sections through the seams are included in Appendix A.

8.1.9 Except the opencast workings associated with the uppermost coal seam in the north of the site, none of the coal seams encountered showed evidence of being extracted.

8.1.10 As discussed previously in the report, two of the trial pits were used to carry out soakaway tests in order to obtain an infiltration rate for the development. This was undertaken in TP01 and TP02 at the lower southern end of the site.

8.1.11 The infiltration rate has been calculated between the 75% and 25% full values as recommended in the BRE Digest 365. The soakaway result in included in Appendix B and is summarised Table 3 below:-

Table 3 Summary of infiltration rates

SOAKAWAY NUMBER	INFILTRATION RATE m/s x10^{-6}
TP01	1.3
TP02	ABANDONED DUE TO STATIONARY WATER LEVELS

8.1.12 During the soak-a-way tests, TP01 registered a slight drop in water level over the five hour duration of the test with a low infiltration rate of 1.3 x 10^{-6} m/s recorded. In TP02 the water level remained stationary during the five hours of the test.

8.1.13 The result of the geotechnical analysis undertaken on the samples of clayey soil from the main site indicates the clay to be of medium plasticity (Plasticity Index 19-22%). If the modified results are calculated, taking into account the percentage of material retained on a 425micron sieve, the results correspond to a low shrinkage clay.

8.1.14 The samples of clay taken from the site entrance indicate the clay to be of medium plasticity (Plasticity Index 17-28%). If the modified results are calculated, taking into account the percentage of material retained on a 425micron sieve, the results correspond to a medium shrinkage clay. The test certificates are contained in Appendix C.

8.2 GROUNDWATER

8.2.1 No groundwater was encountered during the trial pit investigation.

8.2.2 No groundwater strikes were recorded during the rotary borehole investigation. Groundwater was recorded at depths of 1.9-3.9m below existing ground levels during the gas monitoring.

8.2.3 It should be recognised that ground water levels may vary throughout the year. During periods of heavy rainfall, the groundwater levels may be substantially higher than the results revealed in these investigations.

8.3 GAS MONITORING

8.3.1 Gas Monitoring was originally undertaken following the initial site investigation works, from 14th June to 25th August 2021 and are reported on in letter reference E21/7786/JF/001 included in Appendix F.

8.3.2 This original gas monitoring covered the main body of the site, and proved no methane and carbon dioxide levels between 0.9 and 4.9% in the area to be developed. No flow rates were detected.

8.3.3 As discussed previously three of the shallow boreholes from the January 2022 site investigation works were installed with gas standpipes and lockable covers. Gas testing is currently being undertaken on site and to-date the wells have been monitored on three occasions following the installation of the standpipes.

8.3.4 A standard gas monitoring procedure has been followed in accordance with CIRIA guidance, including measurement of the following:-

i) Methane, Oxygen and Carbon Dioxide concentrations.
ii) Atmospheric Pressure.
iii) Gas Flow Rate.
iv) Standing water level.

8.3.5 The result of the monitoring undertaken to-date is summarised in Table 4 below. A complete set of results will be reported on completion of the intended testing programme.

Table 4 - Summary of Recorded Gas Levels.

Borehole No.	Date	Oxygen (steady) %	Carbon Dioxide (steady) %	Methane (steady) %	Flow Rate (l/hr)	Depth to Water (m)	Atmospheric Pressure (mb)
BH301A	03.02.22	16.5	0.9	ND	ND	0.65	996
	23.02.22	19.0	1.6	ND	ND	0.60	997
	09.03.22	17.8	2.2	ND	ND	2.60	997
	22.03.22	18.2	1.9	ND	ND	DRY	1012
BH302A	03.02.22	19.1	2.1	ND	ND	DRY	995
	23.02.22	19.0	1.9	ND	11.4	0.1	996
	09.03.22	20.2	0.4	ND	ND	0.6	998
	22.03.22	20.4	0.4	ND	3.0	1.2	1011
BH303A	03.02.22	19.0	2.0	ND	ND	3.90	994
	23.02.22	20.1	0.4	ND	ND	3.70	996
	09.03.22	20.1	0.4	ND	ND	3.00	998
	22.03.22	20.3	0.4	ND	ND	3.40	1011

8.3.4 A maximum steady carbon dioxide concentration of 2.2% was recorded in BH301A. No steady methane has been recorded. A steady flow rate of 11.4 l/hr has been recorded on only one occasion in BH302A, this will be related to the high ground water level recorded on this visit.

8.3.5 The visits on the 23rd February, 9th March and 22nd March 2022 were undertaken under falling air pressure.

8.3.6 Due to the low levels of carbon dioxide on site, we would recommend the gas regime on this site be currently classified as **Green** by the NHBC traffic light system, or **CS1** by BS 8485:2015 Table 2.

8.3.7 The gas monitoring is ongoing and a final report confirming any gas protection measures required will be prepared when the monitoring is completed.

9.0 CONTAMINATION

9.1 HUMAN HEALTH RISK ASSESSMENT

9.1.1 The appraisal of contaminated land within the UK is based on a risk assessment approach. The method involves the principle of defining a source ► pathway ►receptor, linkage to establish a human health risk. For any risk to exist to a potential receptor from an identified contaminant there must be an unbroken source ► pathway ►target relationship.

9.1.2 In the first instance site data for the contaminant levels are compared against guidance such as the CLEA values published by DEFRA. Should the site values exceed the guidance criteria, the contamination levels are recognised to have the potential to pose a risk to human health. Two scenarios are then available: -

a) To break or remove one of the source ► pathway ►receptor linkages, by specifying an appropriate level of remedial work. Examples of remedial action may include the removal of the contaminated material or alternatively specifying a sufficient capping layer.

b) The alternative approach is to provide a more detailed human health site specific risk assessment. This will involve examining factors such as soil properties, exposure assumptions, groundwater flows and contamination composition.

9.2 CONTAMINATION RESULTS

9.2.1 As stated above, in order to put the analytical results into context, the data has in the first instance been assessed in relation to several sets of guidelines: -

9.2.2 The analytical results have been assessed via an initial screening assessment with regard to the current Contaminated Land Exposure Assessment model (CLEA UK) for human health, which has been produced for the Environment Agency and the Department of Environment, Food and Rural Affairs (DEFRA). The CLEA model provides Soil Guideline Values (SGVs) for a limited range of contaminants only, and these are based on risk to human health. As such they do not take into account potential risks to other receptors e.g. groundwater and third party land.

9.2.3 It is proposed to redevelop the site for residential properties with private garden areas. Soil results have therefore been assessed against the CLEA SGV's for residential use with plant uptake, as these are considered to be the most suitable guidelines to protect the most critical targets from contaminants via all possible exposure routes.

9.2.4 Where no CLEA SGV has been published, Generic Assessment Criteria (GAC) based on guidelines from the Chartered Institute of Environmental Health (CIEH) and Land Quality Management Ltd (LQM) S4UL document residential land use with plant uptake has been used. Where there is no GAC, guidance limits have been adopted from sources referenced in the table below.

9.2.5 A new approach has now been adopted for the calculation of SGV based on an acceptably low level of risk. These Category 4 Screening Levels (C4SL) have been calculated for six substances to date by modifying the toxicological/exposure parameters within CLEA. C4SLs have been used as tier 1 trigger levels within this assessment, superseding the previous CIEH and LQM SGVs.

9.2.6 Assessment of risk is considered as a tiered approach. Assessment based on non intrusive means is considered Tier 1 assessment, comparison against SGVs and GACs is a Tier 2 assessment, and the generation of and comparison with Site Specific Assessment Criteria (SSAC) is a Tier 3 assessment and is conducted where deemed appropriate following the Tier 2 assessment.

9.2.7 The sulphate and acid concentrations have been compared against the BRE digest "Concrete in Aggressive Ground" parts 1-4. This will enable the concrete class to be specified in relation to possible contact with aggressive soils.

9.2.8 The results of the chemical analysis are presented on the laboratory analysis sheets with Appendix C. A summary of the significance of the results is presented in Table 5.

Table 5

Comparison of contaminant against accepted guidance values for residential use with plant uptake

CONTAMINANT	SGV MG/KG	CONCENTRATION IN ALL SOILS. MG/KG	No. OF SAMPLES EXCEEDING GUIDANCE VALUES	PERCENTAGE OF SAMPLES EXCEEDING GUIDELINE VALUE
Arsenic	37 (4)	5.8-15	0/13	
Cadmium	22 (4)	<0.1-0.4	0/13	
Chromium (Total)	130 (2)	13-21	0/13	
Lead	200 (4)	19-45	0/13	
Mercury (Total)	1.2 (1)	<0.05-0.06	0/13	
Selenium	250 (1)	<0.5-2.0	0/13	
Copper	2400 (1)	21-36	0/13	
Nickel	180 (1)	15-33	0/13	
Zinc	3700 (1)	61-93	0/13	
Sulphate	0.24 (3)	0.02-0.07	0/13	
Thiocyanate	50	0.6-2.4	0/13	
Sulphide	250	<10-100	0/13	
Naphthalene	2.3 (1)	<0.1	0/13	
Benzo(a)pyrene	5 (4)	<0.1-2.1	0/13	
Dibenzo(a,h)anthracene	0.24	<0.1-0.8	2/13	15.4%
PAH (Total)	40	<1.6-16	0/13	
Phenols	760 (1)	<0.3-0.7	0/13	
Asbestos	No fibres	None	0/13	
pH	6-8	5.4-8.2	4/13	30.7%

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(2) DEFRA CLR SGV's withdrawn used for initial comparison

(3) BS 8110 1985 Table 6.1

(4) Category 4 Screening Levels

9.2.9 No elevated levels of heavy or phytotoxic metals were recorded in the samples from site.

9.2.10 Marginally elevated levels of dibenzo(a,h)anthracene were proved in the samples of topsoil in the north west site entrance area. This is likely from the demolition of the former buildings on site.

9.2.11 No asbestos was detected in the samples taken from site.

9.2.12 No elevated sulphate levels were recorded in the samples taken from site, however, three samples proved pH values of less than 6. This corresponds to a design sulphate class DS-1, ACEC class AC-3z, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.

9.3 QUALITATIVE RISK ASSESSMENT

9.3.1 The Qualitative Risk Assessment is based upon the previously discussed source ► pathway ►receptor principle. In relation to the proposed site these may be described as follows:-

9.3.2 **SOURCE**

i) Marginally elevated levels of dibenzo(a,h)anthracene in the north west of the site.

ii) No elevated levels of ground gas.

9.3.3 **PATHWAYS**

i) Ingestion of contamination material.

ii) Inhalation of contaminated particles.

iii) Dermal contact with the known contamination.

iv) Leaching to controlled waters.

9.3.4 **RECEPTORS**

i) Residential site users.

ii) Construction and maintenance workers.

iii) Controlled waters.

iv) The building structure.

9.3.5 Each of the receptors will now be appraised and attribute the likely risks involved.

i) Residential site users.

Based on the chemical results obtained it is considered that there is currently a **negligible** risk to end users from localised ground contamination on-site.

No elevated levels of heavy or phytotoxic metals were detected in the samples taken from site.

The only contamination of note recorded was marginally elevated levels of dibenzo(a,h)anthracene were proved in the samples of topsoil in the north west site entrance area. This is likely from the demolition of the former buildings on site.

No asbestos was detected in the samples taken from site.

The topsoil in the north west site entrance area of the site have proven marginally elevated levels of dibenzo(a,h)anthracene. In addition to this, fragments of brick were found in the topsoil and relict foundations and floor slabs from the former properties on site were encountered. It is recommended that the relict structures are excavated to a depth of 600mm and removed from site, along with the contaminated topsoil.

The chemical analysis undertaken on the samples of topsoil from the main body of the site have proved it suitable for re-use on site. Prior to construction work commencing on site, it is recommended that the existing topsoil is scraped and stockpiled behind protective fencing to prevent cross contamination during the demolition and construction work.

Due to the low level of carbon dioxide recorded on site, we would recommend the gas regime on this site be currently classified as **Green** by the NHBC traffic light system, or **CS1** by BS 8485:2015 Table 2.

The gas monitoring is ongoing and a final report confirming any gas protection measures required will be prepared when the monitoring is completed.

ii) Construction and Maintenance Workers.

It is considered that there is a **low** risk to construction and maintenance workers from the redevelopment of the site. However, it is recommended that contractors are made aware of the low concentrations of asbestos present within the made ground.

Construction workers should always wear PPE including overalls, boots and gloves when handling the contaminated materials onsite. In addition eating, drinking and smoking should be restricted to designated areas where the above hygiene facilities are available.

iii) Controlled Waters

The samples taken from site proved clean from contamination. It is therefore considered unlikely that there is a risk to groundwater and controlled waters from existing contamination on site.

However, due to the presence of the watercourses on the western boundary of the development site, a temporary works plan should be prepared to ensure no surface water run-off during development on site causes pollution to the watercourse.

iv) Building Structures.

Service providers should be forwarded the final validated chemical levels in order for them to provide an accurate specification for the apparatus to be provided. New services should be surrounded and backfilled with clean material to afford some protection to the apparatus and allow any future maintenance work to be undertaken in clean material.

No elevated sulphate levels were recorded in the samples taken from site, however, three samples proved pH values of less than 6. This corresponds to a design sulphate class DS-1, ACEC class AC-3z, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 GEOTECHNICAL ASSESSMENT

10.1.1 The fieldwork generally proved clays or fill material overlying a mudstone bedrock, with shallow seams of coal encountered within the mudstone. For initial design purposes we would envisage a safe bearing capacity of 100kN/m2 where foundations are cited onto the natural firm clay strata and 150kN/m2 where foundations are extended onto the weathered mudstone strata.

10.1.2 We would therefore initially suggest that the site is divided into two separate areas. Within the former opencast mine in the north of the site, piled foundations will be required due to the depth of fill encountered. For the remainder of the site, strip/trench fill footings may be adopted.

10.1.3 WITHIN THE FORMER OPENCAST MINE IN THE NORTH

10.1.3.1 The ground investigation proved up to 8m of colliery spoil and re-engineered clays in the north of the site. The approximate extent of the open cast site has been indicated on the site investigation plan in Appendix A.

10.1.3.2 The re-engineered clays and colliery spoil are not considered a suitable foundation material and therefore all loadings should be taken through these materials onto suitable underlying strata.

10.1.3.3 We would therefore suggest that the proposed two storey traditional house construction should be constructed on piled foundations with a reinforced concrete suspended ground beam in this area of the site. The following general comments relating to piling are provided for guidance, and further advice should be sought from a specialist-piling contractor.

10.1.3.4 Piled foundations should extend and be socketed into the underlying bedrock. Pile records should be checked to ensure a minimum 3m pile length and that similar pile lengths are achieved throughout a plot and between adjacent structures.

10.1.3.5 The safe working load that may be supported on a pile is dependent on the pile diameter, its founding depth and the method of installation. As piles would be

founded in bedrock, they will be essentially end bearing, although there may also be some shaft adhesion within the infilled materials. It is essential that pile design allows for negative skin friction.

10.1.3.6 It is recommended that flexible service connections are used on this site, especially where they enter the buildings, in order to avoid any possible damage due to self-settlement of the weak strata once the site is developed.

10.1.3.7 Driven piles may lessen the volume of potentially contaminated fill material requiring off-site disposal, compared with continuous flight auger piled foundations. However, driving can induce some ground vibration. Assessment of any vibration risk to adjacent structures and/or existing site features should be undertaken by pile designer.

10.1.3.8 On completion of the piling works, pile testing should be undertaken to confirm the adequacy and load carrying capacity of the installed piles.

10.1.3.9 Should any shallow obstructions occur, i.e. large boulders, they should either be grubbed-up, or alternatively replacement piles installed. The pile logs should be checked prior to the piling rig departing site, to ensure consistent pile lengths are installed throughout the site.

10.1.3.10 The new houses can be built off ring beams designed to span the piles. In order to bond them to the piles, the tops of the piles must be tied to the reinforcement within the ground beams. This can be achieved by a variety of methods dependent upon the type of piles adopted.

10.1.3.11 For piled foundations suspended floor slabs should be utilised. A pre-cast ‘Beam and Block’ concrete ground floor construction could be utilised, and suspended across the ring beams.

10.1.3.12 In some circumstances pile foundations can provide a pathway for the vertical migration of contamination. The pile design should be undertaken in accordance with the Environment Agency’s guidance “Piling into Contaminated Sites”.

10.1.4 REMAINDER OF THE SITE

10.1.4.1 Outside the former opencast mine, the proposed low rise residential constructions should be constructed on strip/trench fill footings founded entirely onto the clay strata. Where mudstone is encountered within the excavations, the foundations should be deepened to lie entirely onto the mudstone strata to avoid differential settlement. The foundation widths will vary dependent upon the line loadings calculated.

10.1.4.2 If the coal strata is encountered within the foundation excavation, the foundations should be extended to below the coal seam and the coal seam immediately sealed with blinding cement to prevent spontaneous combustion.

10.1.4.3 All foundations should be placed below a line of 45degrees drawn up from the base of any services or other structures.

10.1.4.4 Where existing foundations or structures are encountered during construction, these should be totally removed from the excavations to enable the new foundations to be constructed without obstructions. Existing foundations were encountered in the north west corner of the site, in the area of the proposed site entrance. The extent of the former slab should be proved and removed from site.

10.1.4.5 The geological maps for the site indicate that there are two fault lines crossing the site. The faults are not thought to be active; however we would recommend that the strip foundation design is strengthened in areas affected by the fault lines to accommodate any slight differential settlement. This would usually involve doubly reinforcing the foundation within a deeper section of concrete and trench fill to a slightly deeper depth.

10.1.5 At present it is not anticipated that excessive ground water control measures will be required. Please note that ground water flows can vary throughout the year and a further assessment should be undertaken if construction work is proposed following a prolonged rainfall event.

10.1.6 Wherever any foundations are located near existing or proposed new trees, their foundations must be sited below the root growth zone. Reference should be made to the NHBC standards Chapter 4.2 “Building Near Trees” which provides guidance on

foundation criteria, depths and construction. All services should be similarly protected. Plasticity testing of the clays on site has shown them to be of low volume change potential.

10.1.7 No elevated sulphate levels were recorded in the samples taken from site, however, three samples proved pH values of less than 6. This corresponds to a design sulphate class DS-1, ACEC class AC-3z, when compared against the BRE Special Digest 1 “Concrete in aggressive ground”.

10.2 MINING

10.2.1 The Coal Authority Report states that the property is in a surface area that could be affected by underground mining in 10 seams of coal at 40m to 490m depth, and last worked in 1987. In addition to this, the Coal Authority report states that the property is in an area where the Coal Authority believes that there is coal at or close to the surface. Historically, shallow and surface coal has been worked by private individuals and these workings have been unrecorded by the Coal Authority.

10.2.2 The property is also within the boundary of an opencast site from which coal has been removed by opencast methods. The Coal Authority Interactive Map Viewer indicates the open cast mining to have occupied approximately the northern half of the site.

10.2.3 Overall, the boreholes undertaken indicate three coal seams passing beneath the site. The upper coal seam is 0.9-1.0m thick and outcrops halfway through the site as indicated on the Coal Authority Plans. This has been worked via opencast methods in the north of the site.

10.2.4 A second coal seam has been encountered, within the deeper boreholes, beneath the opencast workings at depths of 12.8-17.2m beneath existing ground levels, and at depths of 3.3-8.5m to the south of the opencast workings. This coal seam was also 0.9-1.0m thick.

10.2.5 A third coal seam was encountered with BH02 in the south of the site. This was the only deep borehole to 30m undertaken at the lower end of the site and proved a 0.4m thick coal seam at 21.3-21.7m below existing ground levels. This would dip northwards below the depth of the remaining deep boreholes undertaken.

10.2.6 Except the opencast workings associated with the uppermost coal seam in the north of the site, none of the seams encountered showed evidence of coal being extracted. We would therefore consider there to be a low risk to the future development of the site from the shallow coal seams encountered beneath the site.

10.3 GROUND FLOOR SLAB – GAS MEASURES

10.3.1 Gas Monitoring was originally undertaken following the initial site investigation works, from 14th June to 25th August 2021 and are reported on in letter reference E21/7786/JF/001 included in Appendix F.

10.3.2 This original gas monitoring covered the main body of the site, and proved no methane and carbon dioxide levels between 0.9 and 4.9% in the area to be developed. No flow rates were detected.

10.3.3 As discussed previously, gas monitoring stations were installed in three of the borehole locations during the additional site investigation works in January 2022 on site due to the possibility of ground gas migration from infill material to the former opencast workings on site.

10.3.4 A maximum steady carbon dioxide concentration of 2.2% was recorded in BH301A. No steady methane concentrations have been recorded. A steady flow rate of 11.4 l/hr has been recorded on only one occasion in BH302A, this will likely be related to the high ground water level recorded on this visit.

10.3.5 The proposed development consists of low rise residential housing and therefore the gas regime has been characterised in accordance with the traffic light methodology as outlined in CIRIA Report C665. Due to the low carbon dioxide levels on site, we would recommend the gas regime on this site be currently classified as **Green** by the NHBC traffic light system, or **CS1** by BS 8485:2015 Table 2.

10.3.6 No Radon Protection measures are required for the site.

10.3.7 Due to depth of fill on site exceeding 600mm, a ventilated sub-floor void will be required in accordance with NHBC Chapter 5.2.

10.3.8 A detailed analysis of the results and any gas protection measures required will be confirmed on completion of the on-site gas testing in a separate report.

10.4 CONTAMINATION ASSESSMENT

10.4.1 No elevated levels of heavy or phytotoxic metals were detected in the samples taken from site.

10.4.2 Marginally elevated levels of dibenzo(a,h)anthracene were proved in the samples of topsoil in the north west site entrance area. This is likely from the demolition of the former buildings on site.

10.4.3 No asbestos was detected in the samples taken from site.

10.4.4 The topsoil in the north west site entrance area of the site have proven marginally elevated levels of dibenzo(a,h)anthracene. In addition to this, fragments of brick were found in the topsoil and relict foundations and floor slabs from the former properties on site were encountered. It is recommended that the relict buildings are excavated and removed from site, along with the contaminated topsoil.

10.4.5 The chemical analysis undertaken on the samples of topsoil from the remainder of the site have proved it suitable for re-use on site. Prior to construction works commencing on site, it is recommended that the existing topsoil is scraped and stockpiled behind protective fencing to prevent cross contamination during the construction work.

10.4.6 Should any suspected areas of contamination be exposed during site strip/construction, an engineer should be contacted to determine if additional chemical testing should be undertaken. The on-site staff should maintain a photographic record and dates of any exposed contaminated material.

10.5 HIGHWAYS

10.5.1 Based on a visual inspection of the fill materials on site we would recommend that CBR testing should be undertaken at road formation level. As an approximate guide the tests should be undertaken at 25m centres along the proposed road centre line. If a minimum 2% CBR is not achieved the following options are available, dependent upon the results achieved:-

i) The existing strata to be excavated an additional depth to allow the appropriate road capping construction to be incorporated. The capping material should comply with Series 600 Specification for Highway Works 2009. The selected material should be tested for compliance prior to backfilling commencing.

ii) The overall depth of capping construction could be reduced via the inclusion of a geogrid reinforcement layer at road formation level. This would need to be agreed with Barnsley MBC Highways prior to use on site.

iii) Where the highway crosses high wall features, geogrid reinforcement is likely to be required to reduce the risk of differential settlement. This will need to be agreed with Barnsley MBC Highways.

10.6 SURFACE WATER DRAINAGE

10.6.1 Only TP01, of the two soakaways, recorded a small drop in water level during the five hour infiltration tests. In TP02 the water level remained stationary during the test.

10.6.2 We would therefore not consider infiltration methods a suitable long term drainage solution for the development.

10.6.3 A discharge rate and point of connection to the existing watercourse in the south west of the site will need to be agreed with Barnsley MBC Lead Local Flood Authority.

11.0 SUGGESTED FURTHER WORK

11.1 Gas monitoring to be completed and final assessment on gas protection measures to be made.

11.2 Existing buried concrete structure to be removed from northern western area of the site adjacent to Coniston Avenue and fresh trial

12.0 APPROVALS

12.1 Proposals for the remediation of contaminated land may require the approval of numerous bodies.

These include:

a) Barnsley MBC Environmental Health Department as required by the building and planning regulations.

b) The NHBC or similar as they will provide the insurance costs to cover the property.

c) The Environment Agency if there are risks of contamination to ground or surface water systems. They will also require notification if material is removed from site and taken to an appropriate tip.

d) Relevant highways and drainage authorities and other service companies may also wish to know about the level of contaminants.

Prepared by

M.Dean. BSc (Hons) HND

Checked by

M. Huddleston. MEng

March 2022

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Barratt & David Wilson Homes in respect of the proposals described.

APPENDIX A

Site Location Plan

Dwg No. E20/7786/03/01D, 03 – Site Investigation Plans

Dwg No. E20/7786/32 - Typical Site Conceptual Model

Dwg No. E20/7786/03/02 – Sections Through Site

TRIAL PIT/ TRIAL TRENCH LOCATION

BOREHOLE/ GAS MONITORING STATION LOCATION

PH2 - TRIAL TRENCH LOCATION

PH2 - BOREHOLE LOCATION

BH38
BH12
TT14
BH10
TP13
BH11
BH11A
TT1 (PH2)
TT4 (PH2)
BH14
BH15
BH13
BH55
BH16
BH17
TP12
BH54
TP05
BH10
BH07
BH18
TT5 (PH2)
TP06
BH58
BH19
BH05H
BH05G
BH05F
BH05E
BH05D
BH05C
BH05B
BH05A
BH59
BH07
BH01
BH01A
TT2 (PH2)
TP11
BH21
BH05
BH51
TT10
BH26
BH04A(G)
BH04
BH30
BH06F
BH06E(G)
BH06D
BH06C
BH06B
BH06A
TP07
BH25
BH62
TP03
BH09
BH50
BH24
TT3 (PH2)
TP09
BH23
TP04
BH49
BH22
BH03
BH31
TP02 (SOAKAWAY)
BH03(G)
BH42
BH43
BH08A
BH08
TP08
HD01
BH45
BH44
BH02
BH47
BH48
HD02
TP01 (SOAKAWAY)

ASSUMED FAULT LINE LOCATION FROM GEOLOGICAL PLANS

EXISTING 225Ø ADOPTED STORM

EXISTING 150Ø ADOPTED FOUL

ASSUMED ALIGNMENT OF CULVERT

APPROXIMATE EXTENT OF OPENCAST

Pennine View

Rev D. Phase 2 borehole locations added. 30.11.21 JF
Rev C. Project title amended in the title block. 19.11.21 CM
Rev B. Extent of opencast amended. 10.11.21 JF

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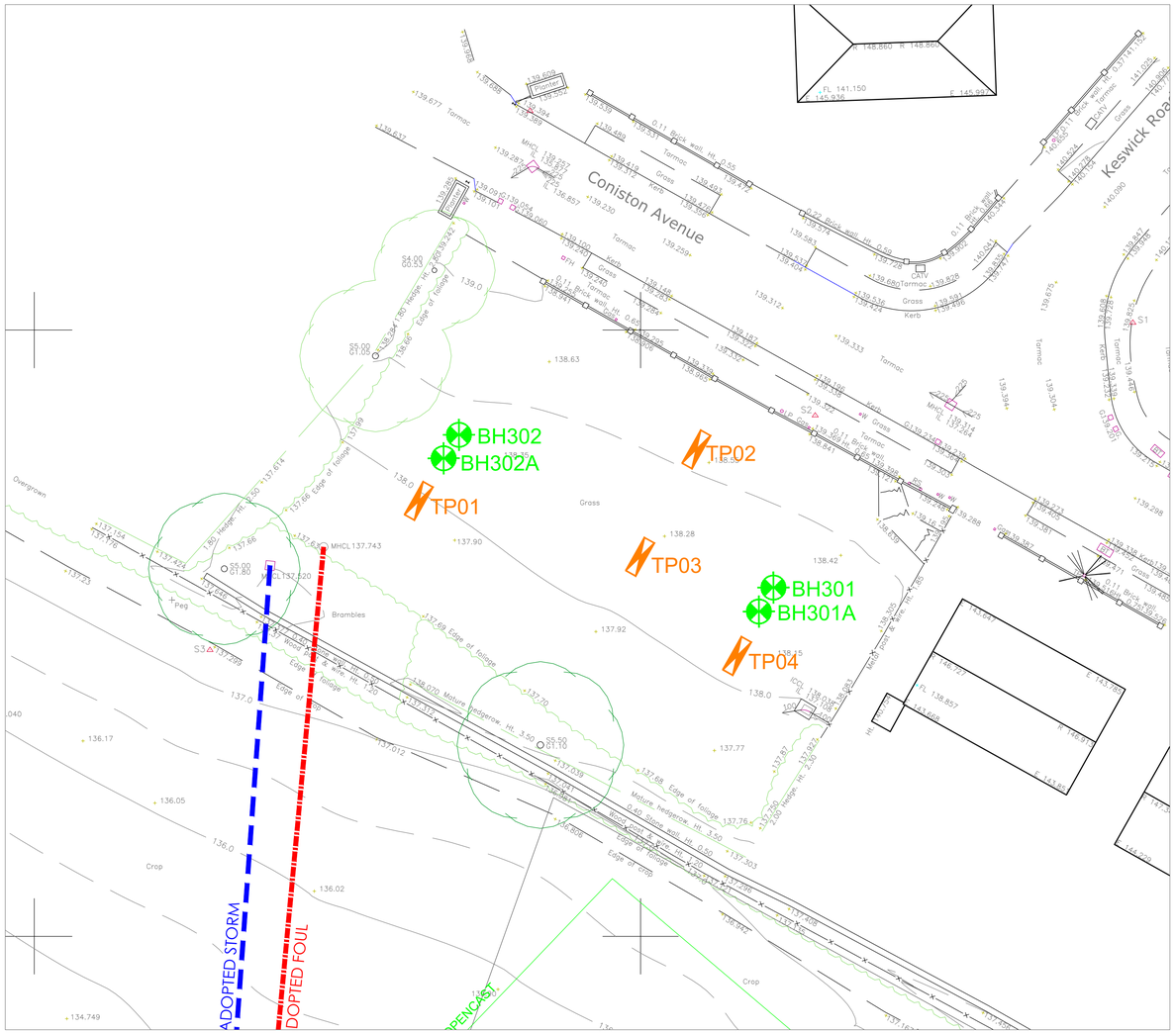
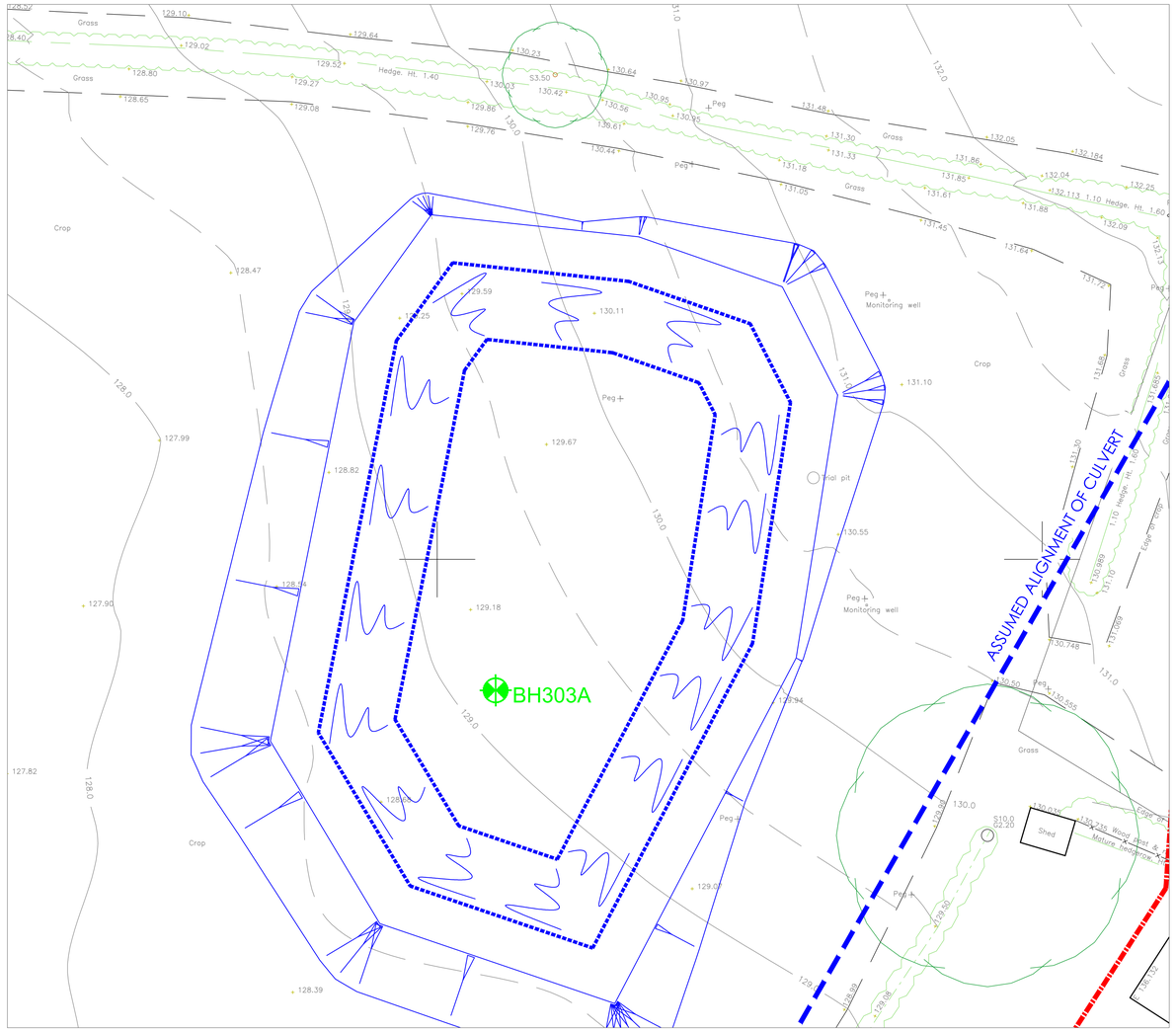
Client
BARRATT DAVID WILSON HOMES

Project
CONISTON AVENUE, DARTON

Detail
SITE INVESTIGATION PLAN

Dwn	Chkd	Date	Scale	Dwg No.
CM	MD/MH	June'21	1:250@A1	E20/7786/003/01D





PH3 - TRIAL PIT LOCATION

PH3 - BOREHOLE LOCATION

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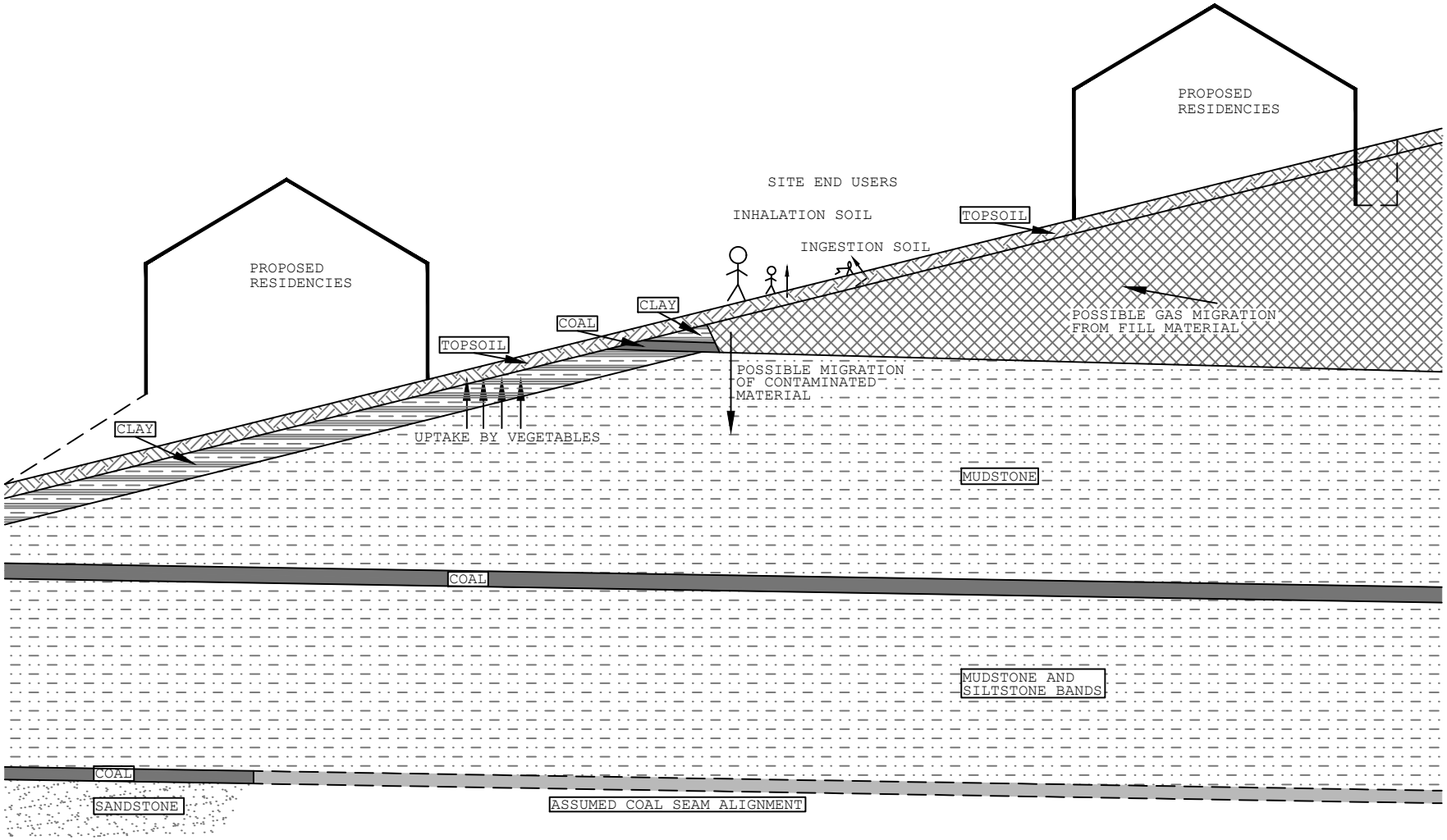
Project
CONISTON AVENUE, DARTON

Detail
SITE INVESTIGATION PLAN – Phase 3

Dwn	Chkd	Date	Scale	Dwg No.
JF	MD	Jan'22	1:100@A1	E20/7786/003/03



Rev A Project title amended in title block. 19.11.21 CM

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Client
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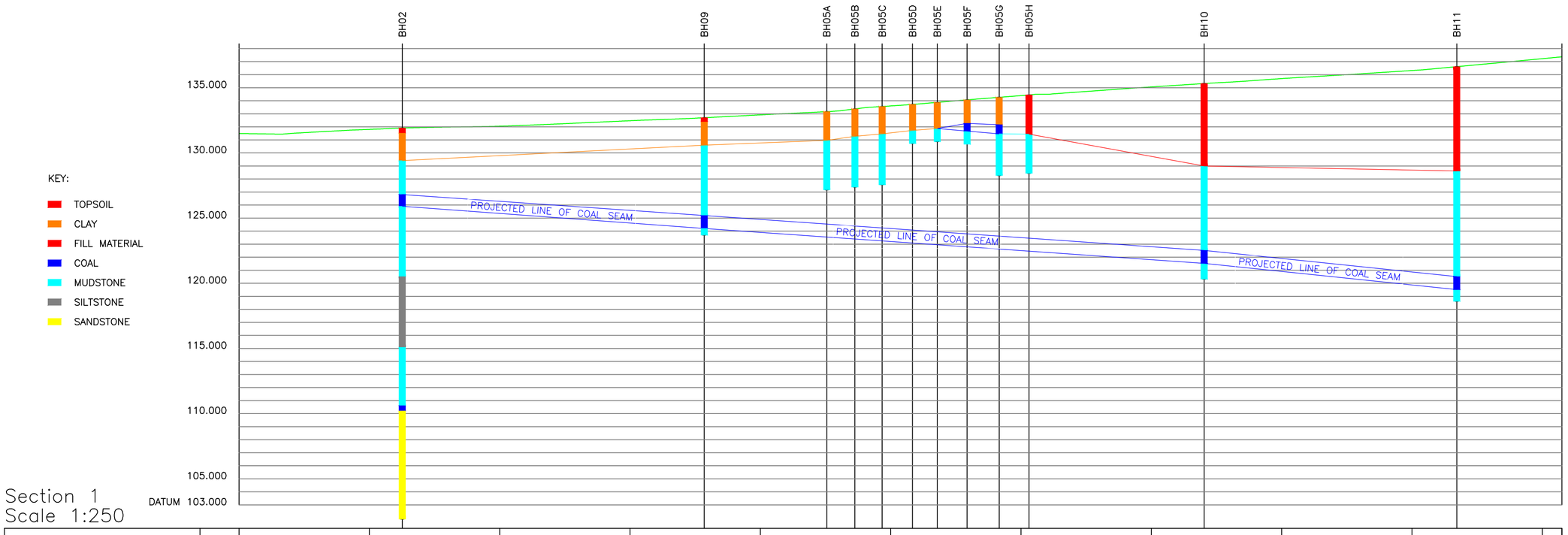
Project
CONISTON AVENUE, DARTON

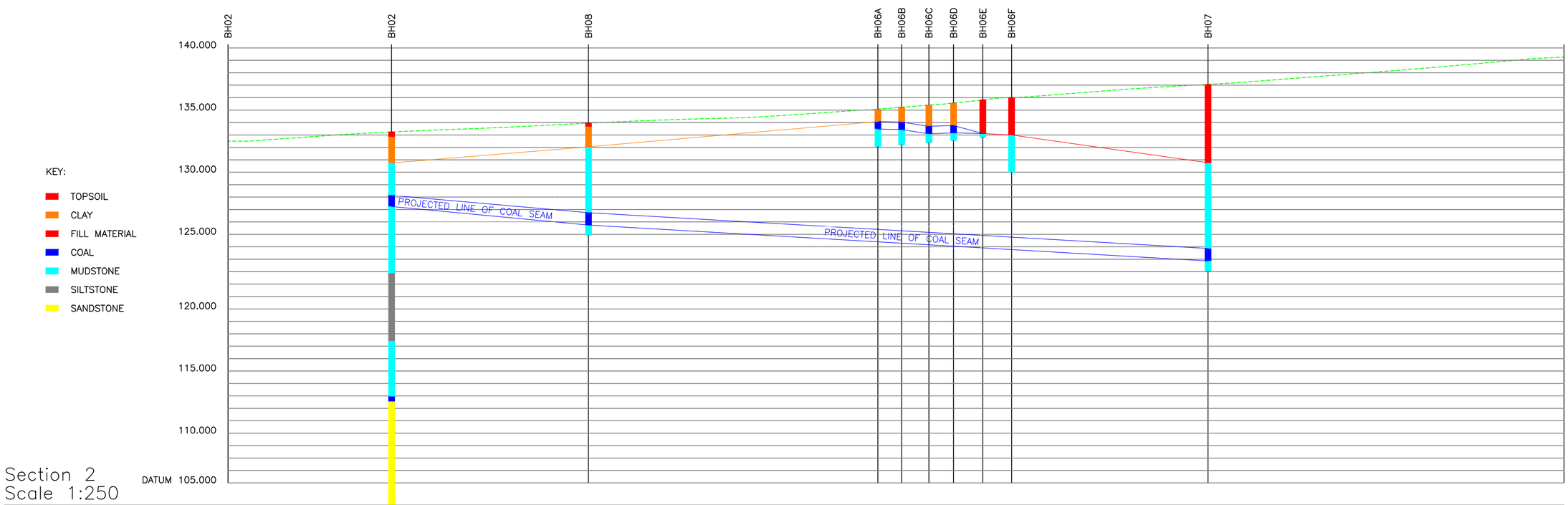
Detail
Typical Site Conceptual Model

Scale	Dwn	Chkd	Date	Dwg No.
NTS	MD		Jul'21	E20/7786/32A



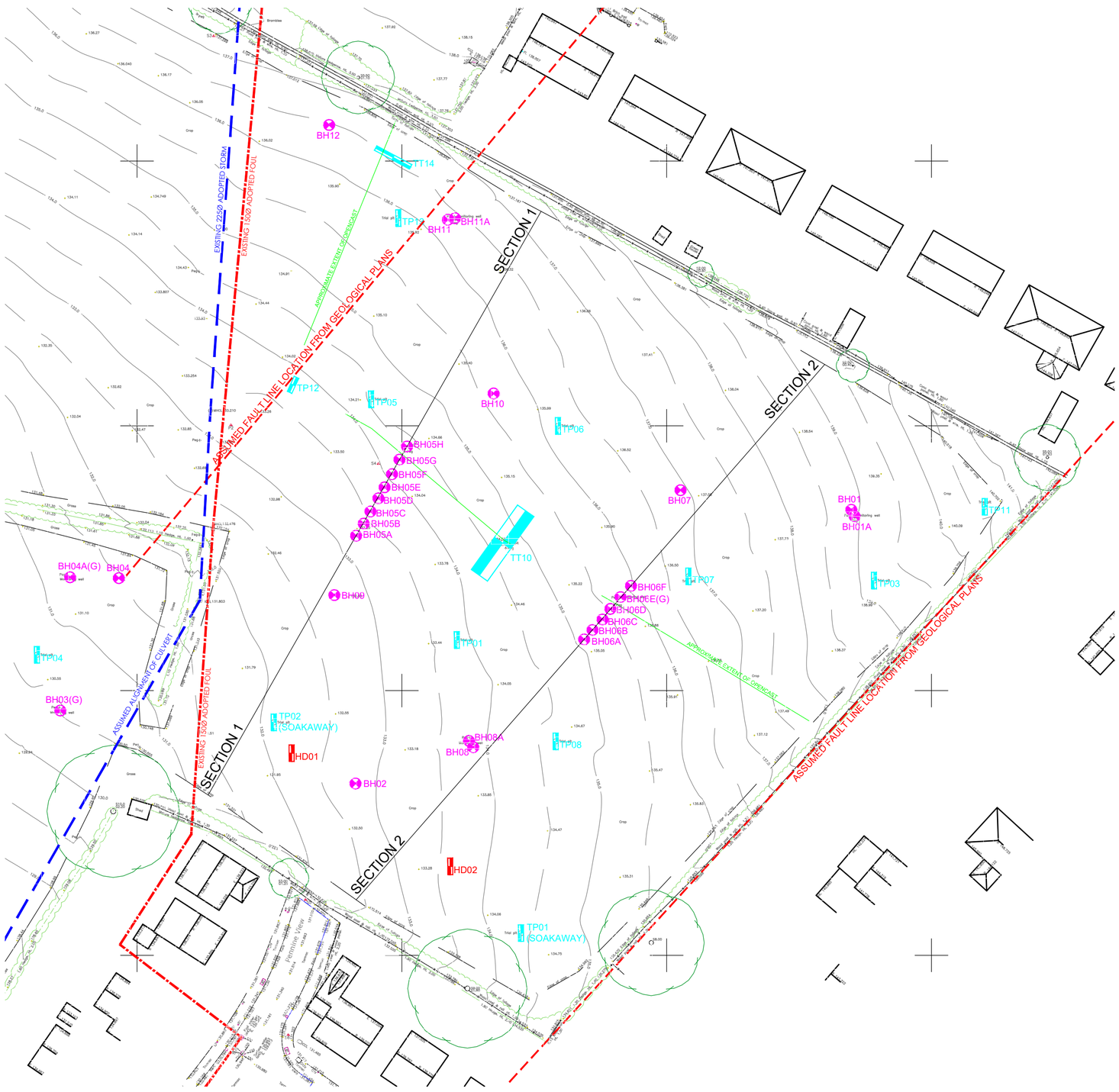
Section 1
Scale 1:250

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	101.506
7786 EXISTING TOPO LEV	131.488	131.804	132.049	132.468	132.917	133.602	134.393	135.059	135.699	136.320	137.228	137.371



Section 2
Scale 1:250

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	107.478
7786 EXISTING TOPO LEV	132.500	133.075	133.515	133.995	134.350	134.932	135.733	136.502	137.130	137.877	138.694	139.268



SECTION LOCATION PLAN
SCALE 1:500

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Client
BARRATT DAVID WILSON HOMES

Project
PENNINE VIEW, DARTON

Detail
SECTIONS THROUGH SITE

Dwn	Chkd	Date	Scale	Dwg No.
MD		July'21	1:250@A1	E20/7786/003/02

APPENDIX B

Trial Hole Logs

Borehole Logs

Soakaway Results

TRIAL HOLE NO. 1

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.25	Crop overlying dark brown topsoil.
0.5	**0.9**	Firm orangish brown mottled grey very sandy clay. Clay land drain at 900mm.
1.0	**1.3**	Stiff brown mottled grey sandy clay.
1.5	**1.6**	Firm brown/grey clay with small weak gravels of mudstone.
2.0	**2.5**	Stiff grey clay containing numerous gravels of mudstone.
2.5	**2.9**	Weak grey mudstone excavated as horizontally bedded gravels.
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.1m. & 0.6m.
Sides of excavation remained stable	YES
Level	……

NOTES:

……

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TRIAL HOLE NO. 2

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.4	Corn crop overlying dark brown topsoil.
0.5		
1.0	**1.4**	Firm brown mottled grey sandy clay.
1.5		
2.0		
2.5	**2.6**	Firm brown/grey clay with numerous mudstone gravels.
	2.8	Moderately weak grey mudstone excavated as shaley gravels.
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m.
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL HOLE NO. 3

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Corn crop overlying dark brown topsoil.
0.5		Re-engineered dark brown/grey clays with occasional mudstone gravels and occasional bricks/red shale.
1.0		
1.5		
2.0		
2.5		
3.0		
3.5		
	3.6	
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 2.5m.
Sides of excavation remained stable	YES
Level	……..

NOTES:

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……

TRIAL HOLE NO. 4

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.25	Corn crop overlying dark brown topsoil.
0.5		Firm light brown very sandy slightly mottled grey clay.
1.0		
	1.1	
1.5	**1.5**	Firm grey/brown clay with occasional mudstone.
	1.8	Firm light grey clay with numerous gravels of mudstone (completed weathered mudstone).
2.0		Weak light grey mudstone excavated as angular gravels.
	2.4	
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m.
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL HOLE NO. 5

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.3	Crop overlying dark brown topsoil.
0.5		Re-engineered light brown/grey clays.
1.0		
1.5	**1.5**	
2.0		Re-engineered dark brown/grey sandy clay with occasional mudstone.
2.5	**2.5**	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL HOLE NO. 6

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Crop overlying dark brown topsoil.
0.5		Re-engineered light brown/grey sandy clay with occasional mudstone pockets.
1.0		
	1.2	
1.5		Re-engineered very weak light grey mudstone with occasional brick fragments.
2.0		
2.5		
3.0	**3.0**	
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES
Sides of excavation remained stable	YES
Level	……

NOTES:

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TRIAL HOLE NO. 7

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Crop overlying dark brown topsoil.
0.5	**0.6**	Re-engineered dark grey very sandy clay with mudstone gravels.
1.0		Re-engineered very weak dark grey mudstone excavated as gravels.
1.5		
2.0		
2.5		
3.0	**3.1**	Sides collapsing and very unstable.
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m & 3.0m.
Sides of excavation remained stable	NO
Level	……..

NOTES:

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TRIAL HOLE NO. 8

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.3	Crop overlying dark brown topsoil.
0.5		Re-engineered brown sandy clay.
1.0	**1.1**	
	1.9	Firm light brown/grey clay.
1.5		
2.0		Weak like grey shaley mudstone.
2.5	**2.7**	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m
Sides of excavation remained stable	YES
Level	……

NOTES:

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TRIAL HOLE NO. 9

Haigh Huddleston & Associates
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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.3	Crop overlying dark brown topsoil.
0.5		Moderately firm light brown/grey sandy clay.
1.0		
	1.4	
1.5		Weak light grey mudstone excavated as sub-angular gravels.
2.0		
	2.1	
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……

NOTES:

……

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TRIAL HOLE NO. 10

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Firth Buildings, 99 -101 Leeds Road, Dewsbury, WF12 7BU
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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Dark brown topsoil.
0.5	**0.7**	Re-engineered ground identified coal upsweep.
1.0		
1.5		
2.0		
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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……

TRIAL HOLE NO. 11

Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Rough grass over dark brown topsoil.
0.5		Re-engineered ground primarily consisting of clays with occasional gravels and brick.
1.0		
1.5		
2.0	**2.0**	
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m & 1.0m.
Sides of excavation remained stable	YES
Level	……

NOTES:

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TRIAL HOLE NO. 12

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Corn crop overlying dark brown topsoil.
0.5		Re-engineered ground consisting of brown/yellow/grey clays and mudstone gravels.
1.0		
	1.1	
	1.3	Weak immature soft coal/clay.
1.5		Firm light brown clay with occasional mudstone gravels.
	1.9	
2.0	**2.0**	Weak dark grey mudstone excavated as small angular gravels.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL HOLE NO. 13

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**02 JUNE 2021**

0.0		
	0.2	Corn crop overlying dark brown topsoil.
0.5		Made ground consisting of re-engineered clay and occasional mudstone gravels.
1.0		
1.5		
2.0		
2.5	**2.5**	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.8m.
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL TRENCH HOLE NO. 14

Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**2nd JUNE 2021**

0.0

	WEST		EAST
0.20	Crop overlying dark grey topsoil.	**0.20**	Crop overlying dark grey topsoil.
1.40	Re-engineered ground primarily consisting of clays with occasional gravels and brick.		
2.50	Firm light brown sandy gravelly clay.		Re-engineered ground primarily consisting of clays with occasional gravels and brick.
2.60	Weak light grey mudstone.	**2.60**	

0.5 **1.0** **1.5** **2.0** **2.5** **3.0** **3.5** **4.0**

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL TRENCH HOLE NO. 1 (PH2)

Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**CONISTON AVENUE, DARTON**	**Date :**	**27th SEPTEMBER 2021**

0.0

	NORTH EAST		SOUTH WEST
0.20	Crop overlying dark grey topsoil.	**0.20**	Crop overlying dark grey topsoil.
1.60	Re-engineered ground primarily consisting of clays with occasional gravels and brick.		
1.90	Weak immature soft coal		
2.10	Firm light brown sandy gravelly clay.		
2.20	Weak light grey mudstone.		
		2.50	Re-engineered ground primarily consisting of clays with occasional gravels and occasional brick.

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL TRENCH HOLE NO. 2 (PH2)

Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**CONISTON AVENUE, DARTON**	**Date :**	**27th SEPTEMBER 2021**

0.0

	NORTH EAST		SOUTH WEST
0.20	Crop overlying dark grey topsoil.	**0.20**	Crop overlying dark grey topsoil.
1.80	Re-engineered ground primarily consisting of clays with occasional gravels and brick.		
2.40	Weak immature soft coal		
2.60	Moderately weak light grey mudstone.		
		2.90	Re-engineered ground primarily consisting of clays with occasional gravels and occasional brick.

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL TRENCH HOLE NO. 3 (PH2)

Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**CONISTON AVENUE, DARTON**	**Date :**	**27th SEPTEMBER 2021**

0.0

	SOUTH EAST		NORTH WEST
0.20	Crop overlying dark grey topsoil.	**0.20**	Crop overlying dark grey topsoil.
2.30	Re-engineered ground primarily consisting of clays with occasional gravels and brick.		
2.50	Moderately weak light grey mudstone.	**2.70**	Re-engineered ground primarily consisting of clays with occasional gravels and occasional brick.

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL TRENCH HOLE NO. 4 (PH2)

Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**CONISTON AVENUE, DARTON**	**Date :**	**28th SEPTEMBER 2021**

0.0		
	0.20	Crop overlying dark grey topsoil.
0.5		
1.0		
1.5		
2.0		
	2.30	Re-engineered ground primarily consisting of clays with occasional gravels and brick.
2.5	**2.50**	Moderately weak light grey mudstone.
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL TRENCH HOLE NO. 5 (PH2)

Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**CONISTON AVENUE, DARTON**	**Date :**	**28th SEPTEMBER 2021**

0.0		
	0.20	Crop overlying dark grey topsoil.
0.5	**0.50**	Firm brown mottled grey sandy clay.
	0.70	Weak immature soft coal
1.0		
1.5	**1.50**	Firm brown/grey clay with numerous mudstone gravels.
2.0		
	2.20	Moderately weak grey mudstone excavated as shaley gravels.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……..

NOTES:

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TRIAL HOLE NO. 1 (NW CORNER)

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**13 January 2022**

0.0		
	0.2	Short grass over dark brown topsoil with occasional brick fragments.
0.5	**0.6**	Soft light brown/grey re-engineered mottled clay with occasional brick fragments.
1.0		Weak light brown/grey re-engineered mudstone excavated loosely.
1.5	**1.5**	
2.0		Moderately strong light grey mudstone horizontally bedded.
2.5		
	2.9	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……

NOTES:

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TRIAL HOLE NO. 2 (NW CORNER)

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**14 January 2022**

0.0		
	0.25	Short grass over dark brown topsoil with occasional brick fragments.
0.5	**0.8**	Soft light brown/grey re-engineered mottled clay with occasional brick fragments.
1.0		Re-engineered dark brown/grey mudstone consisting of medium sized angular boulders excavated loosely.
1.5		
2.0		
2.5		
3.0	**3.1**	
3.5		**TP02 extended in length and existing footing encountered. 4.6 from footing to existing brick wall. Raft foundation 8.0m. total width.**
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	.....

NOTES:

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TRIAL HOLE NO. 3 (NW CORNER)

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**14 January 2022**

0.0		
	0.4	Short grass over dark brown topsoil with occasional brick fragments.
0.5		Soft light brown/grey mottled clay.
1.0		
1.5		
	1.9	
2.0		Black weak un-worked coal.
2.5	**2.5**	
	2.8	Light brown firm clay, becoming difficult to excavate due to solid mudstone.
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……

NOTES:

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TRIAL HOLE NO. 4 (NW CORNER)

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Client :	**BARRATT LEEDS**	**Job No :**	**7786**
Site :	**PENNINE VIEW, DARTON**	**Date :**	**14 January 2022**

0.0		
	0.10	Short grass over dark brown topsoil with occasional brick fragments
0.5	**0.50**	Soft light brown re-engineered clay with occasional brick fragments
1.0		Trial Pit terminated @0.50m due to existing footing encountered. Trial pit could not be extended in length due to risk of encountering existing sewers in close proximity.
1.5		
2.0		
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	NO
Sides of excavation remained stable	YES
Level	……

NOTES:

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STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**01/06/2021**
Driller	**G Lee**	**Flush**	**Water**

bh	depth	description		bh	depth	description
1	GL to 8.10	Colliery Spoil		2	GL to 0.40	Soil
	8.10 to 16.20	Grey Silty Mudstone			0.40 to 2.50	Brown Clay
	16.20 to 17.20	Coal			2.50 to 5.10	Grey Silty Mudstone
	17.20 to 22.70	Grey Silty Mudstone			5.10 to 6.00	Coal
	22.70 to 23.90	Brown Sandstone			6.00 to 11.40	Grey Silty Mudstone
	23.90 to 27.00	Solid Strata-Lost Flush			11.40 to 16.80	Grey Siltstone
					16.80 to 21.30	Grey Silty Mudstone
1A	GL to 3.00	Colliery Spoil			21.30 to21.70	Coal
		Install to 3m			21.70 to 30.00	Brown Sandstone
		2m slotted, 1m plain				
		End cap, gas valve				
		Flush Cover				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site **Darton, Barnsley**	**Date: 01/06/2021**
Driller **G Lee**	**Flush Water**

bh	depth	description		bh	depth	description
3	GL to 0.40	Soil		4A	GL to 0.40	Soil
	0.40 to 2.30	Brown Clay			0.40 to 2.60	Brown Clay
	2.30 to 3.30	Grey Silty Mudstone			2.60 to 3.00	Brown Mudstone
	3.30 to 4.30	Coal				Install to 3m
	4.30 to 5.00	Grey Silty Mudstone				2m slotted, 1m plain
		Install to 5m				End cap, gas valve
		4m slotted, 1m plain				Flush Cover
		End cap, gas valve				
		Flush Cover				
4	GL to 0.40	Soil				
	0.40 to 2.60	Brown Clay				
	2.60 to 5.80	Brown Mudstone				
	5.80 to 7.00	Grey Silty Mudstone				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site **Darton, Barnsley**	**Date: 02/06/2021**
Driller **G Lee**	**Flush Water**

bh	depth	description		bh	depth	description
5A	GL to 2.20	Brown Clay		5E	GL to 1.40	Brown Clay
	2.20 to 6.00	Grey Silty Mudstone			1.40 to 2.00	Coal
					2.00 to 3.00	Grey Silty Mudstone
5B	GL to 2.10	Brown Clay				
	2.10 to 6.00	Grey Silty Mudstone		5F	GL to 1.80	Brown Clay
					1.80 to 2.40	Coal
5C	GL to 2.10	Brown Clay			2.40 to 3.00	Grey Silty Mudstone
	2.10 to 6.00	Grey Silty Mudstone				
				5G	GL to 2.10	Brown Clay
					2.10 to 2.80	Coal
5D	GL to 1.40	Brown Clay			2.80 to 6.00	Grey Silty Mudstone
	1.40 to 2.00	Coal				
	2.00 to 3.00	Grey Silty Mudstone		5H	GL to 3.00	Clay Fill
					3.00 to 6.00	Grey Silty Mudstone

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site **Darton, Barnsley**	**Date: 02/06/2021**
Driller **G Lee**	**Flush Water**

bh	depth	description		bh	depth	description
6A	GL to 1.00	Brown Clay		6E	GL to 2.70	Clay Fill
	1.00 to 1.60	Coal			2.70 to 3.00	Grey Silty Mudstone
	1.60 to 3.00	Grey Silty Mudstone				Install to 3m
						2m slotted, 1m plain
6B	GL to 1.20	Brown Clay				End cap, gas valve
	1.20 to 1.80	Coal				Flush Cover
	1.80 to 3.00	Grey Silty Mudstone				
				6F	GL to 3.00	Clay Fill
6C	GL to 1.70	Brown Clay			3.00 to 6.00	Grey Silty Mudstone
	1.70 to 2.30	Coal				
	2.30 to 3.00	Grey Silty Mudstone		7	GL to 6.30	Colliery Spoil
					6.30 to 13.20	Grey Silty Mudstone
6D	GL to 1.80	Brown Clay			13.20 to 14.20	Coal
	1.80 to 2.40	Coal			14.20 to 15.00	Grey Silty Mudstone
	2.40 to 3.00	Grey Silty Mudstone				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site **Darton, Barnsley**	**Date: 02/06/2021**
Driller **G Lee**	**Flush Water**

bh	depth	description		bh	depth	description
8	GL to 0.30	Soil		9	GL to 0.30	Soil
	0.30 to 1.90	Brown Clay			0.30 to 2.10	Brown Clay
	1.90 to 7.20	Grey Silty Mudstone			2.10 to 4.20	Brown Mudstone
	7.20 to 8.20	Coal			4.20 to 7.50	Grey Silty Mudstone
	8.20 to 9.00	Grey Silty Mudstone			7.50 to 8.50	Coal
					8.50 to 9.00	Grey Silty Mudstone
8A	GL to 0.30	Soil				
	0.30 to 1.90	Brown Clay		10	GL to 6.30	Colliery Spoil
	1.90 to 3.00	Grey Silty Mudstone			6.30 to 12.80	Grey Silty Mudstone
		Install to 3m			12.80 to 13.80	Coal
		2m slotted, 1m plain			13.80 to 15.00	Grey Silty Mudstone
		End cap, gas valve				
		Flush Cover		11	GL to 8.00	Colliery Spoil
					8.00 to 16.10	Grey Silty Mudstone
					16.10 to 17.10	Coal
					17.10 to 18.00	Grey Silty Mudstone

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site **Darton, Barnsley**	**Date: 02/06/2021**
Driller **G Lee**	**Flush Water**

bh	depth	description		bh	depth	description
11 A	GL to 3.00	Colliery Spoil				
		Install to 3m				
		2m slotted, 1m plain				
		End cap, gas valve				
		Flush Cover				
12	GL to 2.00	Clay Fill				
	2.00 to 6.30	Brown Mudstone/Sandstone				
	6.30 to 7.30	Coal				
	7.30 to 16.20	Grey Silty Mudstone				
	16.20 to 17.10	Coal				
	17.10 to 18.00	Grey Silty Mudstone				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site **Darton, Barnsley**	**Date: 27/09/2021**
Driller **G LEE**	**Flush**

bh	depth	description		bh	depth	description
48	GL to 1.90	Brown Clay		42	GL to 1.90	Brown Clay
	1.90 to 6.20	Brown Mudstone			1.90 to 5.60	Brown Mudstone
	6.20 to 7.20	Coal			5.60 to 6.60	Coal
	7.20 to 8.20	Grey Silty Mudstone			6.60 to 7.60	Grey Silty Mudstone
47	GL to 1.90	Brown Clay		43	GL to 1.90	Brown Clay
	1.90 to 6.00	Brown Mudstone			1.90 to 6.00	Brown Mudstone
	6.00 to 7.00	Coal			6.00 to 7.00	Coal
	7.00 to 8.00	Grey Silty Mudstone			7.00 to 8.00	Grey Silty Mudstone
44	GL to 1.90	Brown Clay		45	GL to 1.90	Brown Clay
	1.90 to 6.00	Brown Mudstone			1.90 to 6.30	Brown Mudstone
	6.00 to 7.00	Coal			6.30 to 7.30	Coal
	7.00 to 8.00	Grey Silty Mudstone			7.30 to 8.30	Grey Silty Mudstone

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**27/09/2021**
Driller	**G LEE**	**Flush**	

bh	depth	description		bh	depth	description
31	GL to 2.20	Brown Clay		51	GL to 2.80	Brown Clay
	2.20 to 7.00	Brown Mudstone			2.80 to 6.70	Brown Mudstone
	7.00 to 8.00	Coal			6.70 to 9.00	Grey Mudstone
	8.00 to 9.00	Grey Silty Mudstone			9.00 to 10.00	Coal
					10.00 to 11.00	Grey Silty Mudstone
49	GL to 3.00	Brown Clay				
	3.00 to 7.10	Brown Mudstone		54	GL to 5.30	Colliery Spoil
	7.10 to 8.10	Coal			5.30 to 12.70	Grey Silty Mudstone
	8.10 to 9.10	Grey Silty Mudstone			12.70 to 13.70	Coal
					13.70 to 14.70	Grey Silty Mudstone
50	GL to 2.70	Brown Clay				
	2.70 to 7.60	Brown Mudstone		55	GL to 5.50	Colliery Spoil
	7.60 to 8.60	Coal			5.50 to 13.20	Grey Silty Mudstone
	8.60 to 9.60	Grey Silty Mudstone			13.20 to 14.20	Coal
					14.20 to 15.20	Grey Silty Mudstone

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**27/09/2021**
Driller	**G LEE**	**Flush**	

bh	depth	description		bh	depth	description
13	GL to 6.20	Colliery Spoil		16	GL to 7.50	Colliery Spoil
	6.20 to 13.70	Grey Silty Mudstone			7.50 to 15.30	Grey Silty Mudstone
	13.70 to 14.70	Coal			15.30 to 16.30	Coal
	14.70 to 15.70	Grey Silty Mudstone			16.30 to 17.30	Grey Silty Mudstone
14	GL to 7.30	Colliery Spoil				
	7.30 to 15.20	Grey Silty Mudstone				
	15.20 to 16.20	Coal				
	16.20 to 17.20	Grey Silty Mudstone				
15	GL to 7.40	Colliery Spoil				
	7.40 to 15.20	Grey Silty Mudstone				
	15.20 to 16.20	Coal				
	16.20 to 17.20	Grey Silty Mudstone				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**28/09/2021**
Driller	**G LEE**	**Flush**	

bh	depth	description		bh	depth	description
17	GL to 7.50	Colliery Spoil		21	GL to 8.00	Colliery Spoil
	7.50 to 15.60	Grey Silty Mudstone			8.00 to 16.50	Grey Silty Mudstone
	15.60 to 16.60	Coal			16.50 to 17.50	Coal
	16.60 to 17.60	Grey Silty Mudstone			17.50 to 18.50	Grey Silty Mudstone
18	GL to 7.70	Colliery Spoil		62	GL to 6.20	Colliery Spoil
	7.70 to 16.00	Grey Silty Mudstone			6.20 to 14.10	Grey Silty Mudstone
	16.00 to 17.00	Coal			14.10 to 15.10	Coal
	17.00 to 18.00	Grey Silty Mudstone			15.10 to 16.10	Grey Silty Mudstone
19	GL to 7.80	Colliery Spoil		22	GL to 6.40	Colliery Spoil
	7.80 to 16.20	Grey Silty Mudstone			6.40 to 12.60	Grey Silty Mudstone
	16.20 to 17.20	Coal			12.60 to 13.60	Coal
	17.20 to 18.20	Grey Silty Mudstone			13.60 to 14.60	Grey Silty Mudstone

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**28/09/2021**
Driller	**G LEE**	**Flush**	

bh	depth	description		bh	depth	description
23	GL to 6.20	Colliery Spoil		26	GL to 6.00	Colliery Spoil
	6.20 to 12.10	Grey Silty Mudstone			6.00 to 11.60	Grey Silty Mudstone
	12.10 to 13.10	Coal			11.60 to 12.60	Coal
	13.10 to 14.10	Grey Silty Mudstone			12.60 to 13.60	Grey Silty Mudstone
24	GL to 5.90	Colliery Spoil		59	GL to 6.20	Colliery Spoil
	5.90 to 11.80	Grey Silty Mudstone			6.20 to 13.00	Grey Silty Mudstone
	11.80 to 12.80	Coal			13.00 to 14.00	Coal
	12.80 to 13.80	Grey Silty Mudstone			14.00 to 15.00	Grey Silty Mudstone
25	GL to 5.90	Colliery Spoil		58	GL to 6.20	Colliery Spoil
	5.90 to 11.50	Grey Silty Mudstone			6.20 to 13.60	Grey Silty Mudstone
	11.50 to 12.50	Coal			13.60 to 14.60	Coal
	12.50 to 13.50	Grey Silty Mudstone			14.60 to 15.60	Grey Silty Mudstone

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**28/09/2021**
Driller	**G LEE**	**Flush**	

bh	depth	description		bh	depth	description
30	GL to 1.00	Fill		7	GL to 2.70	Colliery Spoil
	1.00 to 1.80	Coal			2.70 to 10.50	Grey Silty Mudstone
	1.80 to 8.80	Grey Silty Mudstone			10.50 to 11.50	Coal
	8.80 to 9.80	Coal			11.50 to 12.50	Grey Silty Mudstone
	9.80 to 10.80	Grey Silty Mudstone				
				10	GL to 1.90	Brown Clay
3	GL to 1.80	Brown Clay			1.90 to 5.70	Brown Mudstone
	1.80 to 5.70	Brown Mudstone			5.70 to 6.30	Coal
	5.70 to 6.70	Coal			6.30 to 13.90	Grey Silty Mudstone
	6.70 to 7.70	Grey Silty Mudstone			13.90 to 14.90	Coal
					14.90 to 15.90	Grey Silty Mudstone
5	GL to 1.90	Brown Clay				
	1.90 to 8.10	Brown Mudstone				
	8.10 to 9.10	Coal				
	9.10 to 10.10	Grey Silty Mudstone				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**28/09/2021**
Driller	**G LEE**	**Flush**	

bh	depth	description		bh	depth	description
38	GL to 2.20	Brown Clay				
	2.20 to 7.70	Brown Mudstone				
	7.70 to 8.40	Coal				
	8.40 to 16.50	Grey Silty Mudstone				
	16.50 to 17.50	Coal				
	17.50 to 18.50	Grey Silty Mudstone				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**13/01/2022**
Driller	**G LEE**	**Flush**	**WATER**

bh	depth	description		bh	depth	description
301	GL to 0.30	Topsoil		302	GL to 0.30	Topsoil
	0.30 to 1.70	Brown Clay			0.30 to 1.40	Brown Clay
	1.70 to 2.90	Brown Silty Mudstone			1.40 to 6.00	Brown Silty Mudstone
	2.90 to 3.40	Coal			6.00 to 6.50	Coal
	3.40 to 10.20	Grey Silty Mudstone			6.50 to 12.30	Grey Silty Mudstone
	10.20 to 11.30	Coal			12.30 to 13.30	Coal
	11.30 to 30.00	Grey Silty Mudstone			13.30 to 18.00	Grey Silty Mudstone
301 A	GL to 0.30	Topsoil		302 A	GL to 0.30	Topsoil
	0.30 to 1.70	Brown Clay			0.30 to 1.40	Brown Clay
	1.70 to 2.90	Brown Silty Mudstone			1.40 to 3.00	Brown Silty Mudstone
	2.90 to 3.00	Coal				Install to 3m, 2m slotted, 1m plain, end cap, gas
		Install to 3m, 2m slotted, 1m plain, end cap, gas				valve and flush cover
		valve and flush cover				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

STRATIGRAPHY GROUND ENGINEERS

DAILY DRILLING LOG

Site	**Darton, Barnsley**	**Date:**	**13/01/2022**
Driller	**G LEE**	**Flush**	**WATER**

bh	depth	description		bh	depth	description
303 A	GL to 0.50	Top Soil				
	0.50 to 1.60	Brown Clay				
	1.60 to 3.30	Brown Silty Mudstone				
	3.30 to 4.30	Coal				
	4.30 to 5.00	Grey Silty Mudstone				
		Install to 3m, 2m slotted, 1m plain, end cap, gas				
		valve and flush cover				

TODAYS TOTAL _____ PREVIOUS TOTAL _____

TOTAL TO DATE _____ TOTAL CASING _____

Soil Permeability test

TP01

Site **Pennine View, Darton** **Date** Jun-21

Client **Barratt David Wilson Homes** **Job No.** E20/7786

Pit dimensions m

Length	1.6
Width	0.6
Depth	2.9

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
9.41	0	2270	0.60480		3.73200	
9.51	10	2270	0.60480	0.00000	3.73200	0.00000
10.10	29	2270	0.60480	0.00000	3.73200	0.00000
10.42	61	2310	0.56640	0.03840	3.55600	0.00549
14.46	305	2340	0.53760	0.02880	3.42400	0.00056

BRE Value	0.0013079	lit/ sq.m/sec

Average Permeabilty Value: 0.001513036 lit/ sq.m/sec

Soil Permeability test

TP02

Site **Pennine View, Darton** **Date** Jun-21

Client **Barratt David Wilson Homes** **Job No.** E20/7786

Pit dimensions m

Length	2.6
Width	0.6
Depth	2.8

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
9.49	0	2500	0.46800		3.48000	
10.10	21	2500	0.46800	0.00000	3.48000	0.00000
10.50	61	2500	0.46800	0.00000	3.48000	0.00000
14.49	300	2500	0.46800	0.00000	3.48000	0.00000

ABANDONED DUE TO STATIONARY WATER LEVEL

Average Permeabilty Value: 0.000000000 lit/ sq.m/sec

APPENDIX C

Chemical Analysis of Samples

Geotechnical Analysis of Samples

Certificate of Analysis

Certificate Number	21-12096	*Issued:*	15-Jun-21

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference	21-12096
Client Reference	7786
Order No	(not supplied)
Contract Title	Darton
Description	11 Soil samples.
Date Received	08-Jun-21
Date Started	08-Jun-21
Date Completed	15-Jun-21
Test Procedures	Identified by prefix DETSn (details on request).

Notes 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.

Approved By

Adam Fenwick
Contracts Manager

MCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING
2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 21-12096
Client Ref 7786
Contract Title Darton

Sample ID	Depth	Lab No	Completed	Matrix Description
TP05	0.2	1859604	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP06	0.2	1859605	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP01	0.2	1859606	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP07	0.2	1859607	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP11	0.2	1859608	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP02	0.2	1859609	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP04	0.2	1859610	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP08	0.2	1859611	15/06/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP11	1	1859612	15/06/2021	Dark brown slightly gravelly, sandy CLAY
TP06	2.5	1859613	15/06/2021	Dark brown slightly gravelly, sandy CLAY
TP01	0.6	1859614	15/06/2021	Brown sandy CLAY

Summary of Chemical Analysis
Soil Samples

Our Ref 21-12096
Client Ref 7786
Contract Title Darton

	Lab No	1859604	1859605	1859606	1859607	1859608	1859609	1859610
	.Sample ID	TP05	TP06	TP01	TP07	TP11	TP02	TP04
	Depth	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	Other ID							
	Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampling Date	02/06/2021	02/06/2021	01/06/2021	02/06/2021	02/06/2021	01/06/2021	01/06/2021
	Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Metals								
Arsenic	DETSC 2301#	0.2	mg/kg	8.8	11	13	11	14	15	11
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2	0.2	0.2	0.2	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	19	18	17	19	17	17	20
Copper	DETSC 2301#	0.2	mg/kg	30	28	27	30	36	27	25
Lead	DETSC 2301#	0.3	mg/kg	38	33	42	34	45	44	32
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.06	< 0.05	0.06	0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	26	17	18	21	18	16	15
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	2.0	0.8	0.6	0.7	1.0
Zinc	DETSC 2301#	1	mg/kg	93	74	77	79	78	72	71
Inorganics								
pH	DETSC 2008#		pH	6.9	6.6	6.6	6.5	6.1	6.9	7.0
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.4	1.6	1.8	1.9	2.4	1.4	1.5
Sulphide	DETSC 2024*	10	mg/kg	< 10	16	< 10	< 10	16	< 10	< 10
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.04	0.06	0.07	0.06	0.07	0.06	0.06
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 21-12096
Client Ref 7786
Contract Title Darton

			Lab No	1859611	1859612	1859613	1859614
			.Sample ID	TP08	TP11	TP06	TP01
			Depth	0.20	1.00	2.50	0.60
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	02/06/2021	02/06/2021	02/06/2021	01/06/2021
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	10	6.3	5.8	8.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	17	17	16	21
Copper	DETSC 2301#	0.2	mg/kg	25	34	35	21
Lead	DETSC 2301#	0.3	mg/kg	34	21	20	19
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	15	32	33	16
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	61	78	79	66
Inorganics							
pH	DETSC 2008#		pH	6.8	5.4	5.9	6.8
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.5	1.4	0.6	0.8
Sulphide	DETSC 2024*	10	mg/kg	100	< 10	< 10	< 10
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.04	0.05	0.05	0.03
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 21-12096
Client Ref 7786
Contract Title Darton

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1859604	TP05 0.20	SOIL	NAD	none	Colin Patrick
1859605	TP06 0.20	SOIL	NAD	none	Colin Patrick
1859606	TP01 0.20	SOIL	NAD	none	Colin Patrick
1859607	TP07 0.20	SOIL	NAD	none	Colin Patrick
1859608	TP11 0.20	SOIL	NAD	none	Colin Patrick
1859609	TP02 0.20	SOIL	NAD	none	Colin Patrick
1859610	TP04 0.20	SOIL	NAD	none	Colin Patrick
1859611	TP08 0.20	SOIL	NAD	none	Colin Patrick
1859612	TP11 1.00	SOIL	NAD	none	Colin Patrick
1859613	TP06 2.50	SOIL	NAD	none	Colin Patrick
1859614	TP01 0.60	SOIL	NAD	none	Colin Patrick

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-12096
Client Ref 7786
Contract Darton

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1859604	TP05 0.20 SOIL	02/06/21	GJ 250ml, PT 1L		
1859605	TP06 0.20 SOIL	02/06/21	GJ 250ml, PT 1L		
1859606	TP01 0.20 SOIL	01/06/21	GJ 250ml, PT 1L		
1859607	TP07 0.20 SOIL	02/06/21	GJ 250ml, PT 1L		
1859608	TP11 0.20 SOIL	02/06/21	GJ 250ml, PT 1L		
1859609	TP02 0.20 SOIL	01/06/21	GJ 250ml, PT 1L		
1859610	TP04 0.20 SOIL	01/06/21	GJ 250ml, PT 1L		
1859611	TP08 0.20 SOIL	02/06/21	GJ 250ml, PT 1L		
1859612	TP11 1.00 SOIL	02/06/21	GJ 250ml, PT 1L		
1859613	TP06 2.50 SOIL	02/06/21	GJ 250ml, PT 1L		
1859614	TP01 0.60 SOIL	01/06/21	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report

Certificate of Analysis

Certificate Number	22-00973	*Issued:*	25-Jan-22

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference	22-00973
Client Reference	7786
Order No	(not supplied)
Contract Title	Darton
Description	3 Soil samples.
Date Received	19-Jan-22
Date Started	19-Jan-22
Date Completed	25-Jan-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	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.

Approved By

Adam Fenwick
Contracts Manager

MCERTS THE ENVIRONMENT AGENCY'S

UKAS TESTING 2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 22-00973
Client Ref 7786
Contract Title Darton

Sample ID	Depth	Lab No	Completed	Matrix Description
TP02	0.2	1959032	25/01/2022	Brown gravelly, sandy CLAY including some rootlets
TP03	0.4	1959033	25/01/2022	Brown gravelly, sandy CLAY including some rootlets
TP04	0.2	1959034	25/01/2022	Brown gravelly, sandy CLAY including some rootlets

Summary of Chemical Analysis
Soil Samples

Our Ref 22-00973
Client Ref 7786
Contract Title Darton

			Lab No	1959032	1959033	1959034
			.Sample ID	TP02	TP03	TP04
			Depth	0.20	0.40	0.20
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	13/01/2022	13/01/2022	13/01/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	8.6	7.7	9.1
Cadmium	DETSC 2301#	0.1	mg/kg	0.4	0.4	0.4
Chromium	DETSC 2301#	0.15	mg/kg	19	13	14
Copper	DETSC 2301#	0.2	mg/kg	21	23	27
Lead	DETSC 2301#	0.3	mg/kg	28	23	38
Mercury	DETSC 2325#	0.05	mg/kg	0.05	< 0.05	0.06
Nickel	DETSC 2301#	1	mg/kg	11	18	11
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.9	< 0.5
Zinc	DETSC 2301#	1	mg/kg	61	69	72
Inorganics						
pH	DETSC 2008#		pH	8.2	7.7	7.3
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	1.2
Total Organic Carbon	DETSC 2084#	0.5	%	3.0	1.2	3.2
Sulphide	DETSC 2024*	10	mg/kg	91	12	47
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.06	0.02	0.06
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	1.9	0.3	0.5
Anthracene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	2.5	1.0	1.1
Pyrene	DETSC 3301	0.1	mg/kg	2.4	1.1	1.3
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	1.1	0.6	0.6
Chrysene	DETSC 3301	0.1	mg/kg	1.1	0.6	0.5
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	1.1	0.5	0.4
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.5	0.4	0.3
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	2.1	0.6	0.5
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.6	0.6	0.6
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.8	0.2	0.4
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	1.1	0.4	0.4
PAH Total	DETSC 3301	1.6	mg/kg	16	6.4	6.7
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.3	< 0.3	0.7

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-00973
Client Ref 7786
Contract Title Darton

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1959032	TP02 0.20	SOIL	NAD	none	D Wilkinson
1959033	TP03 0.40	SOIL	NAD	none	D Wilkinson
1959034	TP04 0.20	SOIL	NAD	none	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-00973
Client Ref 7786
Contract Darton

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1959032	TP02 0.20 SOIL	13/01/22	GJ 250ml, PT 1L		
1959033	TP03 0.40 SOIL	13/01/22	GJ 250ml, PT 1L		
1959034	TP04 0.20 SOIL	13/01/22	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report

STRUCTURAL SOILS LTD

TEST REPORT

1774

Report No. 784962 R1

Date 07-July-2021 Contract Darton

Client Haigh Huddleston Associates
Address Firth Building
99-101 Leeds Road
Dewsbury
WF12 7BU

For the Attention of Martin Huddleston

Samples submitted by client	16/06/2021	Client Reference	
Testing Started	29/06/2021	Client Order No.	
Testing Completed	07/07/2021	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests Undertaken

Moisture Content (oven drying method) BS1377:Part 2:1990,clause 3.2 (superseded)**
Liquid Limit (definitive method) BS1377:Part 2:1990,clause 4.3
Plastic Limit BS1377:Part 2:1990,clause 5.3
Plasticity Index Derivation BS1377:Part 2:1990,clause 5.4

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977 552255. E-mail mark.athorne@soils.co.uk

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Description of Sample
HD01	1	D	0.40	18	42	23	19	86	Dark brown slightly sandy slightly gravelly CLAY
HD02	1	D	0.40	19	47	25	22	75	Light brown slightly sandy slightly gravelly CLAY
TP13	1	D	0.80	23	42	21	21	86	Brown light brown slightly gravelly slightly sandy CLAY

STRUCTURAL SOILS LTD

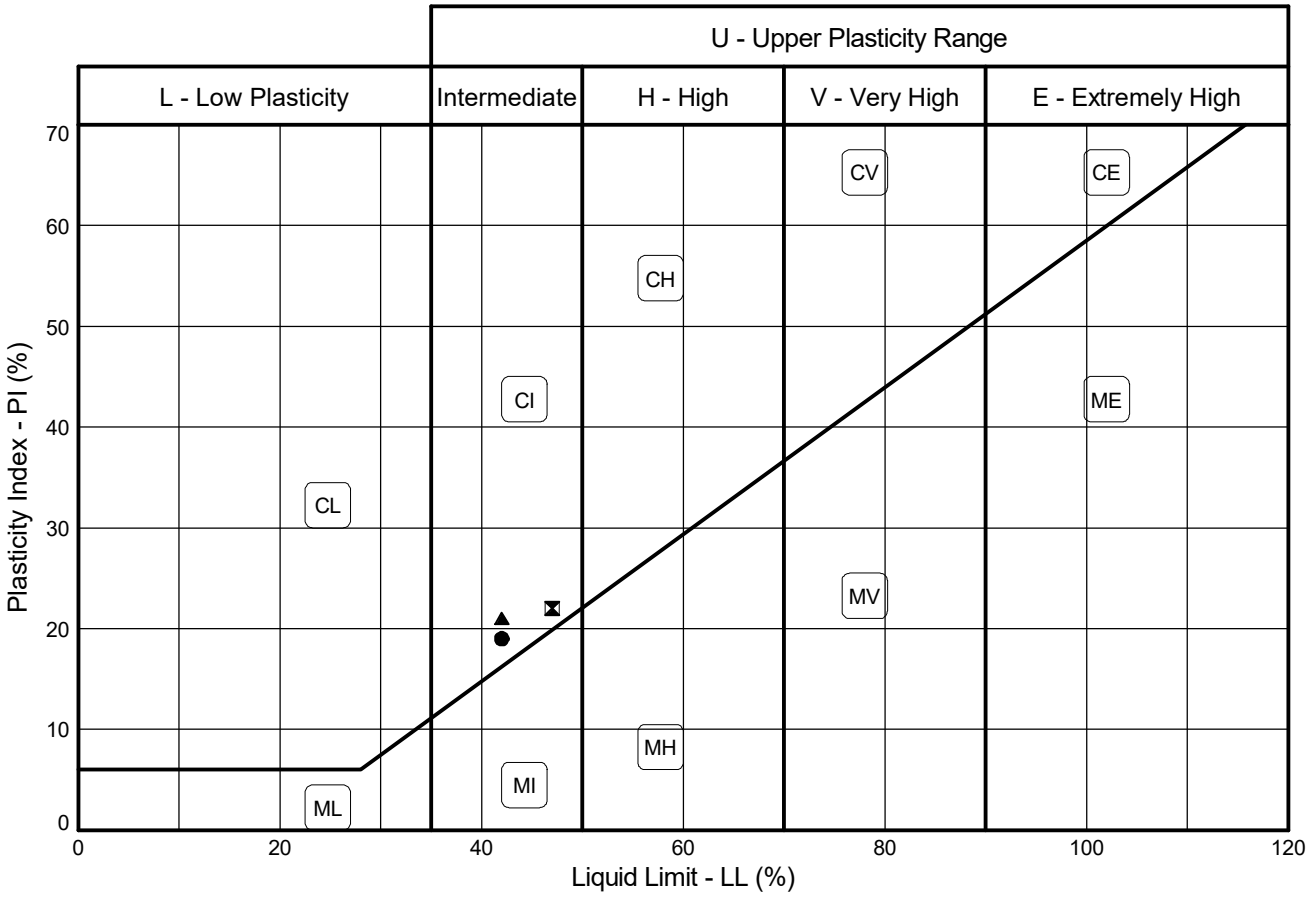
Contract: **Darton**

Contract Ref: **784962**

AGS

PLASTICITY CHART - PI Vs LL

In accordance with BS5930:2015
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC	LL	PL	PI	<425µm	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%		
●	HD01	1D	0.40	3.2/4.3/5.3/5.4	4.2.4	18	42	23	19	86	C	
⊠	HD02	1D	0.40	3.2/4.3/5.3/5.4	4.2.4	19	47	25	22	75	C	
▲	TP13	1D	0.80	3.2/4.3/5.3/5.4	4.2.4	23	42	21	21	86	C	

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LORNA WHITWORTH	07/07/21

Contract	Contract Ref:
Darton	784962

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - ALINE STANDARD - A4P | 784962-DARTON LAB SCHEDULE.GPJ - v10_01.
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 07/07/21 - 13:41 | LW5 |

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **07/07/2021 13:58:39**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Luke Fisher (Laboratory Manager)

(Head Office)
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Unit 1A, Princess Street
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Bristol
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Castleford Laboratory
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Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU

STRUCTURAL SOILS LTD	Contract: **Darton**	Job No: **784962**

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Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 07/07/21 - 14:00 | LF1 |

STRUCTURAL SOILS LTD

TEST REPORT

1774

Report No. 785134 r1

Date 31-January-2022 Contract Darton

Client Haigh Huddleston Associates
Address Firth Building
99-101 Leeds Road
Dewsbury
WF12 7BU

For the Attention of Martin Huddleston

Samples submitted by client	19/01/2022	Client Reference	
Testing Started	20/01/2022	Client Order No.	
Testing Completed	31/01/2022	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests Undertaken

Moisture Content (oven drying method) BS1377:Part 2:1990,clause 3.2 (superseded)**
Liquid Limit (definitive method) BS1377:Part 2:1990,clause 4.3
Plastic Limit BS1377:Part 2:1990,clause 5.3
Plasticity Index Derivation BS1377:Part 2:1990,clause 5.4

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977 552255. E-mail mark.athorne@soils.co.uk

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
TP02	1	D	0.80	25.5	45	17	28	100	Grey brown slightly sandy slightly gravelly CLAY
TP04	1	D	0.00	23.7	37	20	17	96	Grey brown slightly sandy slightly gravelly CLAY

SYMBOLS: * denotes BS 1377

STRUCTURAL SOILS LTD

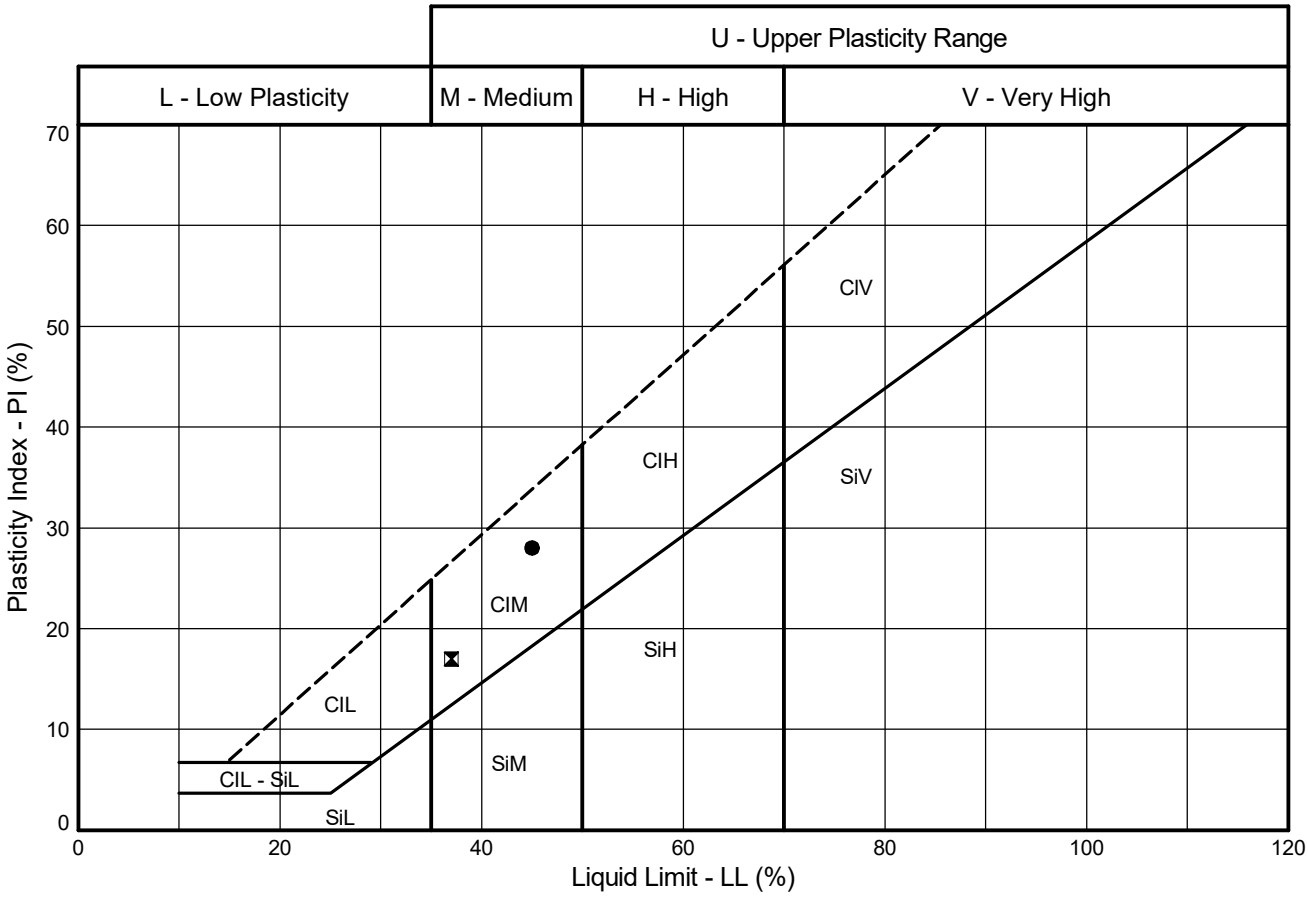
Contract: **Darton**

Contract Ref: **785134**

AGS

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC	LL	PL	PI	<425µm	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%		
●	TP02	1D	0.80	5.3/5.5/6.5	5.2.7	25.5	45	17	28	100	C	
⊠	TP04	1D	0.00	5.3/5.5/6.5	5.2.7	23.7	37	20	17	96	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LORNA WHITWORTH	31/01/22

Contract	Contract Ref:
Darton	**785134**

AGS

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Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 31/01/22 - 16:09 | LW5 |

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

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This testing verification certificate covers all testing compiled on or before the following datetime: **01/02/2022 08:38:10**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Luke Fisher (Laboratory Manager)

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Bristol Laboratory
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Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU

STRUCTURAL SOILS LTD	Contract: **Darton**	Job No: **785134**

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Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 01/02/22 - 08:42 | LF1 |

APPENDIX D

Coal Authority Report

The Coal Authority

CON29M
coal mining report

PENNINE VIEW, STAINCROSS, BARNSLEY, S75 5AT

Known or potential coal mining risks

Past underground coal mining	Page 4
Future underground coal mining	Page 4
Mine entries	Page 5
Past opencast coal mining	Page 5
Coal mining subsidence	Page 6
Withdrawal of support	Page 6

Further action

These additional reports can give further detail on the risks identified:

- Subsidence claims history
- Subsidence claims 50m buffer report

For more information please see our Further action reports on page 10

Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. In view of the coal mining circumstances we would recommend that any planned or future development should follow detailed technical advice before beginning work on site. Please see page 3 for further details on Future development.

Your reference: barratt 7786
Our reference: 51002537058001
Date: 1 June 2021

Client name: HAIGH HUDDLESTON & ASSOCIATES

If you require any further assistance please contact our experts on:
0345 762 6848
groundstability@coal.gov.uk

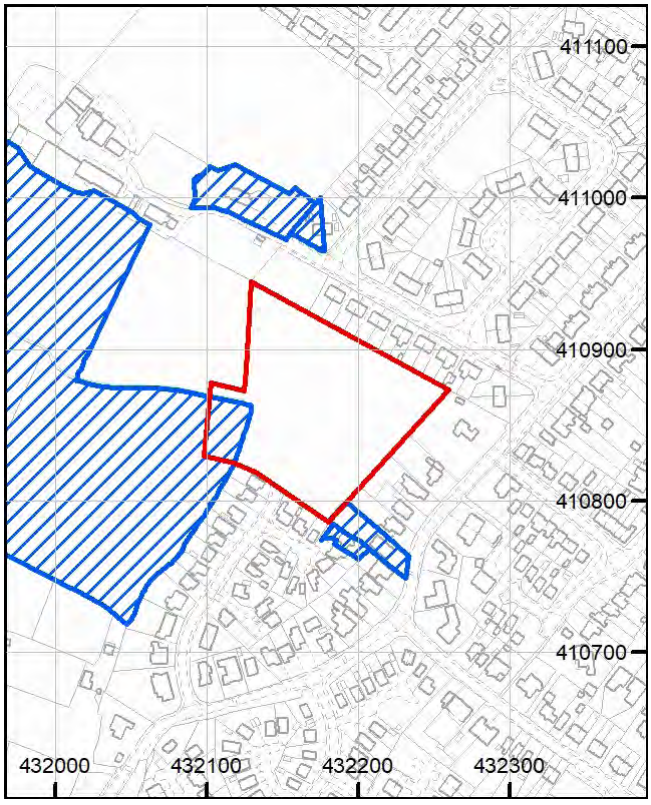
The Law Society

Enquiry boundary

Key

Approximate position of enquiry boundary shown

Coal claims



We can confirm that the location is **on the coalfield**

Map data

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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.

Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Professional opinion

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed.

If you are looking to develop, or undertake works, within a coal mining development high risk area your Local Authority planning department may require a Coal Mining Risk Assessment to be undertaken by a qualified mining geologist or engineer. Should you require any additional information then please contact the Coal Authority on 0345 762 6848 or email cmra@coal.gov.uk.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

The Coal Authority owns the copyright in this report and the information used to produce this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 10 seams of coal at 40m to 490m depth, and last worked in 1987.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

In addition the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered, particularly prior to any site works or future development activity, as ground movement could still be a risk. Your attention is drawn to the Professional opinion sections of the report.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

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

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

This information is based on the information that the Coal Authority has at the time of this enquiry.

Based on the Coal Authority's knowledge of the mining circumstances at the time of this enquiry, there may be unrecorded mine entries in the local area that do not appear on Coal Authority records.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

A damage notice or claim for alleged subsidence damage was made in August 1999 for 197 SACKUP LANE, DARTON, BARNSLEY, SOUTH YORKSHIRE, S75 5AU. However, the claim was rejected.

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

A damage notice or claim for alleged subsidence damage was made in February 1998 for FIELDS OS 0004 0082 8883 LAND ADJ CONISTON AVENUE, DARTON, BARNSLEY, SOUTH YORKSHIRE, S75 5BB. However, the claim was rejected.

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

There are a further 3 claims within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

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.

If further subsidence damage claims information is required, please visit www.groundstability.com.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is in an area where notices to withdraw support were given in 1978 and 1982.

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.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 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.

Statutory cover

Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.
www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form

Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call 01623 646 333. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary

Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings

Further action reports

Subsidence claims history - gives unique copies of original documents from the subsidence claim file in the Coal Authority archives . To order this report, use the boundary and address of where the claim was made.

For more information and to order this report please visit:
https://www2.groundstability.com/subsidence-claims-history

Subsidence claims 50m buffer report - gives information on coal mining subsidence claims within 50 metres of the property boundary. To order this report, use the same boundary as the CON29M mining report.

For more information and to order this report please visit:
https://www2.groundstability.com/subsidence-50m-buffer

APPENDIX E

Groundsure Report

Historical Plans

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

PENNINE VIEW, STAINCROSS, BARNSLEY, S75 5AT

Order Details

Date: 01/06/2021

Your ref: BARRATT_7786

Our Ref: GS-7911605

Client: Haigh Huddleston & Associates

Site Details

Location: 432182 410876

Area: 1.35 ha

Authority: Barnsley Metropolitan Borough Council

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Summary of findings p. 2

OS MasterMap site plan p.12

Aerial image p. 8

groundsure.com/insightuserguide

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

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	1	15	49	-
16	1.2	Historical tanks	0	0	3	1	-
16	1.3	Historical energy features	0	0	1	3	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	0	1	22	71	-
22	2.2	Historical tanks	0	0	4	1	-
22	2.3	Historical energy features	0	0	3	11	-
23	2.4	Historical petrol stations	0	0	0	0	-
23	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	Active or recent landfill	0	0	0	0	-
24	3.2	Historical landfill (BGS records)	0	0	0	0	-
25	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
25	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
25	3.5	Historical waste sites	0	0	0	0	-
25	3.6	Licensed waste sites	0	0	0	0	-
25	3.7	Waste exemptions	0	0	47	0	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
32	4.1	Recent industrial land uses	0	0	3	-	-
33	4.2	Current or recent petrol stations	0	0	0	0	-
33	4.3	Electricity cables	0	0	0	0	-
33	4.4	Gas pipelines	0	0	0	0	-
33	4.5	Sites determined as Contaminated Land	0	0	0	0	-

33	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
34	4.7	Regulated explosive sites	0	0	0	0	-
34	4.8	Hazardous substance storage/usage	0	0	0	0	-
34	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
34	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
34	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
35	4.12	Radioactive Substance Authorisations	0	0	0	0	-
35	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	4	-
36	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
36	4.15	Pollutant release to public sewer	0	0	0	0	-
36	4.16	List 1 Dangerous Substances	0	0	0	0	-
36	4.17	List 2 Dangerous Substances	0	0	0	0	-
36	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	0	1	-
37	4.19	Pollution inventory substances	0	0	0	0	-
37	4.20	Pollution inventory waste transfers	0	0	0	0	-
37	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
38	5.1	Superficial aquifer	None (within 500m)				
39	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
40	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
41	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
41	5.5	Groundwater vulnerability- local information	None (within 0m)				
42	**5.6**	**Groundwater abstractions**	0	0	0	0	2
43	5.7	Surface water abstractions	0	0	0	0	0
43	5.8	Potable abstractions	0	0	0	0	0
44	5.9	Source Protection Zones	0	0	0	0	-
44	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

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

46	6.2	Surface water features	1	0	2	-	-
46	6.3	WFD Surface water body catchments	1	-	-	-	-
46	6.4	WFD Surface water bodies	0	0	0	-	-
47	6.5	WFD Groundwater bodies	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
48	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
48	7.2	Historical Flood Events	0	0	0	-	-
48	7.3	Flood Defences	0	0	0	-	-
48	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
49	7.5	Flood Storage Areas	0	0	0	-	-
50	7.6	Flood Zone 2	None (within 50m)				
50	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
51	8.1	Surface water flooding	Negligible (within 50m)

Page	Section	Groundwater flooding	
52	9.1	Groundwater flooding	Negligible (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
53	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
54	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
54	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
54	10.4	Special Protection Areas (SPA)	0	0	0	0	0
54	10.5	National Nature Reserves (NNR)	0	0	0	0	0
55	10.6	Local Nature Reserves (LNR)	0	0	0	0	1
55	10.7	Designated Ancient Woodland	0	0	0	1	5
55	10.8	Biosphere Reserves	0	0	0	0	0
56	10.9	Forest Parks	0	0	0	0	0
56	10.10	Marine Conservation Zones	0	0	0	0	0
56	10.11	Green Belt	1	0	0	2	0
56	10.12	Proposed Ramsar sites	0	0	0	0	0

57	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
57	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
57	10.15	Nitrate Sensitive Areas	0	0	0	0	0
57	**10.16**	**Nitrate Vulnerable Zones**	1	0	1	0	1
59	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
60	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
61	11.1	World Heritage Sites	0	0	0	-	-
61	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
61	11.3	National Parks	0	0	0	-	-
61	11.4	Listed Buildings	0	0	0	-	-
62	11.5	Conservation Areas	0	0	0	-	-
62	11.6	Scheduled Ancient Monuments	0	0	0	-	-
62	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
63	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
64	12.2	Open Access Land	0	0	0	-	-
64	12.3	Tree Felling Licences	0	0	0	-	-
64	12.4	Environmental Stewardship Schemes	0	0	0	-	-
64	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
65	**13.1**	**Priority Habitat Inventory**	0	0	1	-	-
66	13.2	Habitat Networks	0	0	0	-	-
66	13.3	Open Mosaic Habitat	0	0	0	-	-
66	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
67	**14.1**	**10k Availability**	Identified (within 500m)				
68	**14.2**	**Artificial and made ground (10k)**	2	0	3	3	-
70	14.3	Superficial geology (10k)	0	0	0	0	-

70	14.4	Landslip (10k)	0	0	0	0	-
71	14.5	Bedrock geology (10k)	4	3	14	19	-
74	14.6	Bedrock faults and other linear features (10k)	6	6	22	13	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
76	15.1	50k Availability	Identified (within 500m)				
77	15.2	Artificial and made ground (50k)	1	1	3	2	-
78	15.3	Artificial ground permeability (50k)	1	1	-	-	-
79	15.4	Superficial geology (50k)	0	0	0	0	-
79	15.5	Superficial permeability (50k)	None (within 50m)				
79	15.6	Landslip (50k)	0	0	0	0	-
79	15.7	Landslip permeability (50k)	None (within 50m)				
80	15.8	Bedrock geology (50k)	3	1	13	16	-
82	15.9	Bedrock permeability (50k)	Identified (within 50m)				
83	15.10	Bedrock faults and other linear features (50k)	4	4	17	18	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
85	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
86	17.1	Shrink swell clays	Very low (within 50m)				
87	17.2	Running sands	Very low (within 50m)				
89	17.3	Compressible deposits	Moderate (within 50m)				
91	17.4	Collapsible deposits	Very low (within 50m)				
92	17.5	Landslides	Low (within 50m)				
94	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
95	18.1	Natural cavities	0	0	0	0	-
96	18.2	BritPits	0	0	1	1	-
96	18.3	Surface ground workings	0	0	19	-	-
97	18.4	Underground workings	0	0	0	5	35
99	18.5	Historical Mineral Planning Areas	0	0	0	0	-

99	**18.6**	**Non-coal mining**	1	2	1	0	4
100	18.7	Mining cavities	0	0	0	0	0
100	18.8	JPB mining areas	None (within 0m)				
101	**18.9**	**Coal mining**	Identified (within 0m)				
101	18.10	Brine areas	None (within 0m)				
101	18.11	Gypsum areas	None (within 0m)				
101	18.12	Tin mining	None (within 0m)				
101	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
102	**19.1**	**Radon**	Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
103	**20.1**	**BGS Estimated Background Soil Chemistry**	2	2	-	-	-
103	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
104	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
105	21.1	Underground railways (London)	0	0	0	-	-
105	21.2	Underground railways (Non-London)	0	0	0	-	-
105	21.3	Railway tunnels	0	0	0	-	-
105	21.4	Historical railway and tunnel features	0	0	0	-	-
105	21.5	Royal Mail tunnels	0	0	0	-	-
106	21.6	Historical railways	0	0	0	-	-
106	21.7	Railways	0	0	0	-	-
106	21.8	Crossrail 1	0	0	0	0	-
106	21.9	Crossrail 2	0	0	0	0	-
106	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 01/07/2018

Site Area: 1.35ha

Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 1.35ha

Recent site history - 2009 aerial photograph

Capture Date: 11/09/2009

Site Area: 1.35ha

Recent site history - 1999 aerial photograph

Capture Date: 10/07/1999

Site Area: 1.35ha

OS MasterMap site plan

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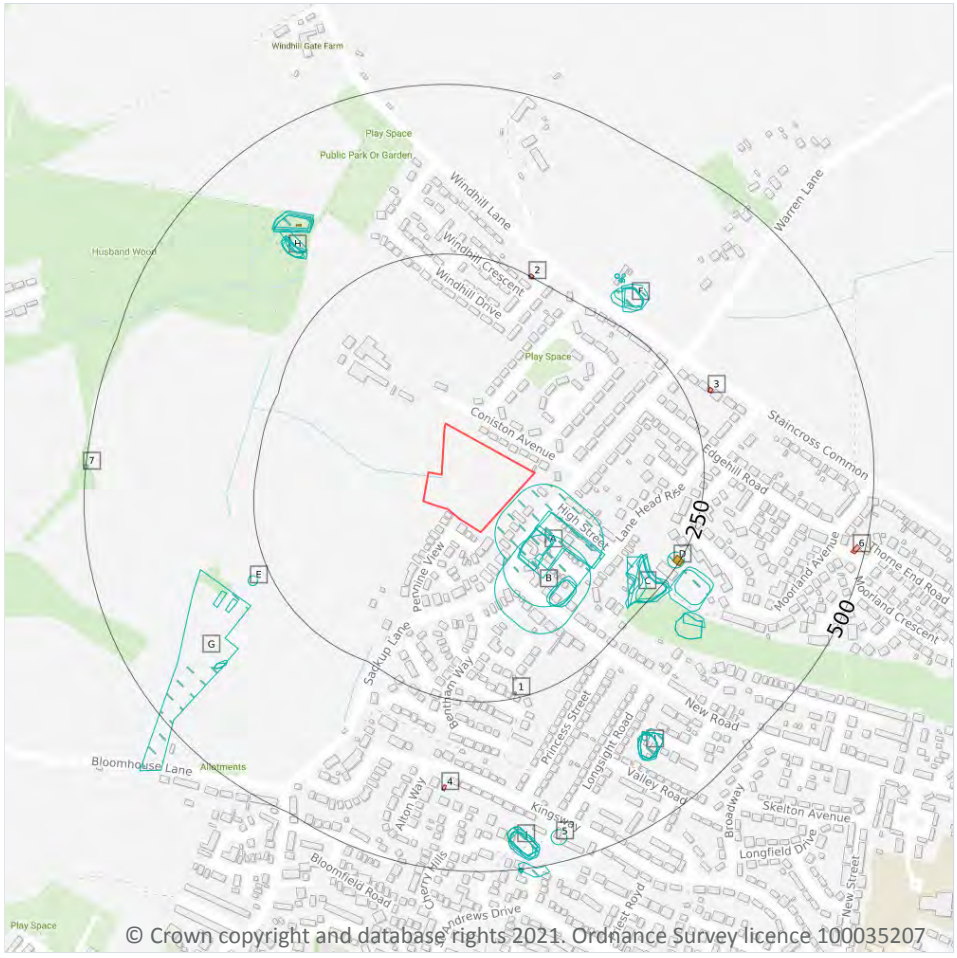
Site Area: 1.35ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	65

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

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

ID	Location	Land use	Dates present	Group ID
A	4m SE	Unspecified Works	1965	1493827

ID	Location	Land use	Dates present	Group ID
A	53m SE	Chaplet and Gas Hook Works	1948	1458891
B	55m SE	Unspecified Works	1904	1529107
A	56m SE	Chaplet and Gas Hook Works	1951	1532406
A	57m SE	Chaplet and Gas Hook Works	1938	1549119
A	58m SE	Unspecified Works	1930	1487929
B	134m SE	Unspecified Heap	1948 - 1951	1541198
B	138m SE	Unspecified Heap	1938	1490465
B	138m SE	Unspecified Heap	1930	1469202
C	184m SE	Unspecified Quarry	1948	1510710
C	198m SE	Unspecified Quarry	1951	1499640
C	199m SE	Unspecified Ground Workings	1930	1494977
C	200m SE	Unspecified Quarry	1938	1546539
C	201m SE	Unspecified Quarry	1891 - 1904	1477765
C	206m SE	Unspecified Quarry	1965	1488377
D	233m SE	Sandstone Quarry	1854	1461403
D	261m SE	Water Works Reservoirs	1930	1519440
D	264m SE	Unspecified Heap	1965	1417528
E	270m SW	Unspecified Levels	1938	1473191
F	271m NE	Refuse Heap	1904	1437977
F	276m NE	Unspecified Heap	1930 - 1948	1534044
F	280m NE	Unspecified Heap	1948	1493014
F	284m NE	Unspecified Heap	1951 - 1965	1489350
G	297m SW	Tramway Sidings	1930 - 1938	1506500
D	302m SE	Unspecified Quarry	1904	1508305
D	302m SE	Unspecified Quarry	1948	1555612
D	304m SE	Unspecified Quarry	1965	1545484
F	308m NE	Unspecified Old Shaft	1938	1508455
F	309m NE	Old Coal Shaft	1904	1411680

ID	Location	Land use	Dates present	Group ID
F	309m NE	Unspecified Old Shaft	1948	1418311
F	310m NE	Unspecified Old Shaft	1930	1495156
E	311m SW	Unspecified Levels	1930	1440500
F	315m NE	Unspecified Old Shaft	1951	1418314
H	318m NW	Refuse Heap	1930	1539368
E	320m SW	Unspecified Levels	1930	1440499
H	322m NW	Refuse Heap	1938	1524704
H	325m NW	Refuse Heap	1948	1531451
H	327m NW	Refuse Heap	1965	1534143
H	327m NW	Refuse Heap	1951	1460092
H	346m NW	Sewage Works	1938	1517746
H	347m NW	Rural District Council Sewage Works	1930	1433254
H	350m NW	Sewage Works	1951	1491578
H	351m NW	Sewage Works	1948	1557455
G	373m SW	Unspecified Level	1930	1536487
G	377m SW	Unspecified Level	1938	1486555
I	378m SE	Old Coal Pit	1904	1486756
I	378m SE	Unspecified Heap	1948	1508936
I	378m SE	Unspecified Heap	1891	1548548
I	381m SE	Unspecified Heap	1930	1464688
I	381m SE	Unspecified Heap	1951	1546687
I	382m SE	Old Coal Pit	1854	1546194
I	382m SE	Old Coal Pit	1854	1513425
I	382m SE	Unspecified Heap	1938	1525354
J	437m S	Unspecified Pit	1948	1487219
J	437m S	Unspecified Pit	1891	1509299
J	437m S	Unspecified Quarry	1904	1524360
J	441m S	Unspecified Quarry	1951	1478132

ID	Location	Land use	Dates present	Group ID
J	444m S	Unspecified Pit	1930	1512473
J	445m S	Unspecified Quarry	1938	1459261
J	446m S	Sandstone Quarry	1854	1451546
5	453m S	Sandstone Quarry	1854	1451547
J	490m S	Railway Sidings	1951	1505579
7	497m W	Unspecified Hole	1904	1423047
J	498m S	Unspecified Levels	1948	1538090
J	499m S	Unspecified Levels	1938	1491768

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**4**

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

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

ID	Location	Land use	Dates present	Group ID
D	241m SE	Unspecified Tank	1982 - 1984	233635
1	241m S	Unspecified Tank	1906	228896
D	241m SE	Unspecified Tank	1978	242406
H	361m NW	Unspecified Tank	1913	228895

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**4**

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

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

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

ID	Location	Land use	Dates present	Group ID
2	248m NE	Electricity Substation	1977 - 1994	146705
3	282m NE	Electricity Substation	1978	131068
4	376m S	Electricity Substation	1978 - 1999	138096
6	480m E	Electricity Substation	1978	131069

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

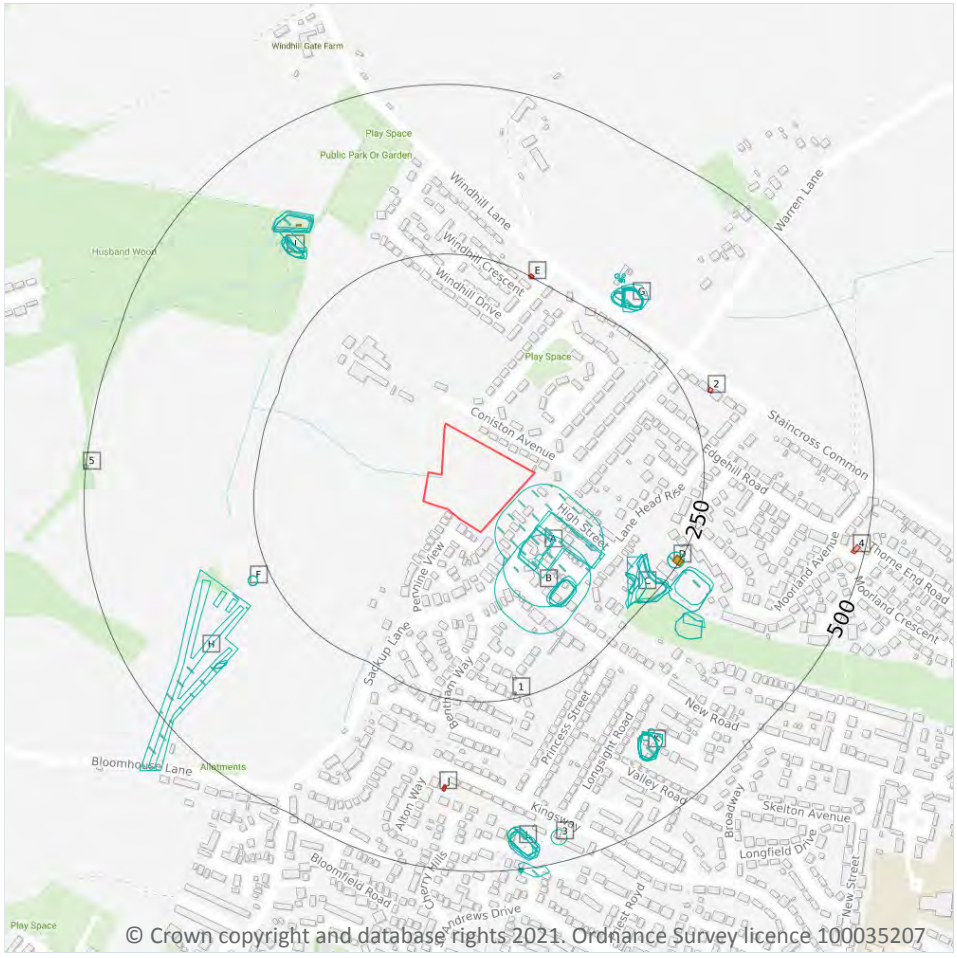
1.6 Historical military land

Records within 500m	**0**

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	94

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

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

ID	Location	Land Use	Date	Group ID
A	4m SE	Unspecified Works	1965	1493827
A	53m SE	Chaplet and Gas Hook Works	1948	1458891
B	55m SE	Unspecified Works	1904	1529107

ID	Location	Land Use	Date	Group ID
A	56m SE	Chaplet and Gas Hook Works	1951	1532406
A	57m SE	Chaplet and Gas Hook Works	1938	1549119
A	58m SE	Unspecified Works	1930	1487929
B	134m SE	Unspecified Heap	1948	1541198
B	136m SE	Unspecified Heap	1951	1541198
B	138m SE	Unspecified Heap	1938	1490465
B	138m SE	Unspecified Heap	1938	1490465
B	138m SE	Unspecified Heap	1930	1469202
C	184m SE	Unspecified Quarry	1948	1510710
C	198m SE	Unspecified Quarry	1951	1499640
C	199m SE	Unspecified Ground Workings	1930	1494977
C	199m SE	Unspecified Ground Workings	1930	1494977
C	199m SE	Unspecified Ground Workings	1930	1494977
C	199m SE	Unspecified Ground Workings	1930	1494977
C	200m SE	Unspecified Quarry	1938	1546539
C	201m SE	Unspecified Quarry	1904	1477765
C	201m SE	Unspecified Quarry	1891	1477765
C	206m SE	Unspecified Quarry	1965	1488377
D	233m SE	Sandstone Quarry	1854	1461403
D	233m SE	Sandstone Quarry	1854	1461403
D	261m SE	Water Works Reservoirs	1930	1519440
D	261m SE	Water Works Reservoirs	1930	1519440
D	264m SE	Unspecified Heap	1965	1417528
F	270m SW	Unspecified Levels	1938	1473191
F	270m SW	Unspecified Levels	1938	1473191
G	271m NE	Refuse Heap	1904	1437977
G	276m NE	Unspecified Heap	1938	1534044
G	276m NE	Unspecified Heap	1938	1534044

ID	Location	Land Use	Date	Group ID
G	276m NE	Unspecified Heap	1948	1534044
G	277m NE	Unspecified Heap	1930	1534044
G	277m NE	Unspecified Heap	1930	1534044
G	277m NE	Unspecified Heap	1930	1534044
G	277m NE	Unspecified Heap	1930	1534044
G	277m NE	Unspecified Heap	1930	1534044
G	279m NE	Unspecified Heap	1938	1534044
G	279m NE	Unspecified Heap	1938	1534044
G	280m NE	Unspecified Heap	1948	1493014
G	284m NE	Unspecified Heap	1965	1489350
G	284m NE	Unspecified Heap	1951	1489350
H	297m SW	Tramway Sidings	1938	1506500
D	302m SE	Unspecified Quarry	1948	1555612
D	302m SE	Unspecified Quarry	1904	1508305
D	304m SE	Unspecified Quarry	1965	1545484
G	308m NE	Unspecified Old Shaft	1938	1508455
G	308m NE	Unspecified Old Shaft	1938	1508455
H	308m SW	Tramway Sidings	1930	1506500
G	309m NE	Old Coal Shaft	1904	1411680
G	309m NE	Unspecified Old Shaft	1948	1418311
G	310m NE	Unspecified Old Shaft	1930	1495156
F	311m SW	Unspecified Levels	1930	1440500
G	315m NE	Unspecified Old Shaft	1951	1418314
I	318m NW	Refuse Heap	1930	1539368
F	320m SW	Unspecified Levels	1930	1440499
I	322m NW	Refuse Heap	1938	1524704
I	322m NW	Refuse Heap	1938	1524704
I	325m NW	Refuse Heap	1948	1531451

ID	Location	Land Use	Date	Group ID
I	327m NW	Refuse Heap	1965	1534143
I	327m NW	Refuse Heap	1951	1460092
I	346m NW	Sewage Works	1938	1517746
I	346m NW	Sewage Works	1938	1517746
I	347m NW	Rural District Council Sewage Works	1930	1433254
I	350m NW	Sewage Works	1951	1491578
I	351m NW	Sewage Works	1948	1557455
H	373m SW	Unspecified Level	1930	1536487
H	377m SW	Unspecified Level	1938	1486555
H	377m SW	Unspecified Level	1938	1486555
K	378m SE	Unspecified Heap	1948	1508936
K	378m SE	Old Coal Pit	1904	1486756
K	378m SE	Unspecified Heap	1891	1548548
K	381m SE	Unspecified Heap	1930	1464688
K	381m SE	Unspecified Heap	1930	1464688
K	381m SE	Unspecified Heap	1930	1464688
K	381m SE	Unspecified Heap	1930	1464688
K	381m SE	Unspecified Heap	1951	1546687
K	382m SE	Old Coal Pit	1854	1546194
K	382m SE	Old Coal Pit	1854	1513425
K	382m SE	Unspecified Heap	1938	1525354
K	382m SE	Unspecified Heap	1938	1525354
L	437m S	Unspecified Quarry	1904	1524360
L	437m S	Unspecified Pit	1948	1487219
L	437m S	Unspecified Pit	1891	1509299
L	441m S	Unspecified Quarry	1951	1478132
L	444m S	Unspecified Pit	1930	1512473
L	445m S	Unspecified Quarry	1938	1459261

ID	Location	Land Use	Date	Group ID
L	446m S	Sandstone Quarry	1854	1451546
3	453m S	Sandstone Quarry	1854	1451547
L	490m S	Railway Sidings	1951	1505579
5	497m W	Unspecified Hole	1904	1423047
L	498m S	Unspecified Levels	1948	1538090
L	499m S	Unspecified Levels	1938	1491768
L	499m S	Unspecified Levels	1938	1491768

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**5**

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

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

ID	Location	Land Use	Date	Group ID
D	241m SE	Unspecified Tank	1984	233635
D	241m SE	Unspecified Tank	1982	233635
1	241m S	Unspecified Tank	1906	228896
D	241m SE	Unspecified Tank	1978	242406
I	361m NW	Unspecified Tank	1913	228895

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**14**

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

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

ID	Location	Land Use	Date	Group ID
E	248m NE	Electricity Substation	1977	146705
E	248m NE	Electricity Substation	1977	146705
E	249m NE	Electricity Substation	1994	146705
2	282m NE	Electricity Substation	1978	131068
J	376m S	Electricity Substation	1983	138096
J	376m S	Electricity Substation	1990	138096
J	377m S	Electricity Substation	1978	138096
J	378m S	Electricity Substation	1995	138096
J	378m S	Electricity Substation	1996	138096
J	378m S	Electricity Substation	1993	138096
J	378m S	Electricity Substation	1994	138096
J	378m S	Electricity Substation	1998	138096
J	378m S	Electricity Substation	1999	138096
4	480m E	Electricity Substation	1978	131069

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

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	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

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.

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	47

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

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

ID	Location	Site	Reference	Category	Sub-Category	Description
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Disposal by incineration
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Storing waste exemption	Both agricultural and non-agricultural waste	Storage of waste in a secure place
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste food
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Preparatory treatments (baling, sorting, shredding etc)
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on non-agricultural land to confer benefit
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of mulch

ID	Location	Site	Reference	Category	Sub-Category	Description
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading of plant matter to confer benefit
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Incorporation of ash into soil
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose
A	141m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/PF0337NT/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste to manufacture finished goods
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Deposit of waste from dredging of inland waters
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Deposit of waste from a portable sanitary convenience
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Disposal by incineration
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open

ID	Location	Site	Reference	Category	Sub-Category	Description
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Storing waste exemption	Both agricultural and non-agricultural waste	Storage of waste in secure containers
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Storing waste exemption	Both agricultural and non-agricultural waste	Storage of waste in a secure place
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Cleaning, washing, spraying or coating relevant waste
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Sorting mixed waste
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste food
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Crushing and emptying waste vehicle oil filters
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste aerosol cans
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Crushing waste fluorescent tubes
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Aerobic composting and associated prior treatment

ID	Location	Site	Reference	Category	Sub-Category	Description
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Anaerobic digestion at premises used for agriculture and burning of resultant biogas
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Anaerobic digestion at premises not used for agriculture and burning of resultant biogas
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of non-hazardous pesticide washings by carbon filtration for disposal
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste in a biobed or biofilter
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Preparatory treatments (baling, sorting, shredding etc)
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Screening and blending of waste
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Mechanical treatment of end-of-life tyres
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Recovery of scrap metal

ID	Location	Site	Reference	Category	Sub-Category	Description
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on non-agricultural land to confer benefit
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of mulch
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading of plant matter to confer benefit
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Incorporation of ash into soil
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of baled end-of-life tyres in construction
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste derived biodiesel as fuel

ID	Location	Site	Reference	Category	Sub-Category	Description
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose
A	152m NW	38 Coniston Avenue Barnsley South Yorkshire S75 5BB	EPR/ZH0272SD/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste to manufacture finished goods

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

4 Current industrial land use

Site Outline

Search buffers in metres (m)

Recent industrial land uses

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	3

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 32**

ID	Location	Company	Address	Activity	Category
1	108m SW	Twenty Four Degrees	183, Sackup Lane, Darton, Barnsley, South Yorkshire, S75 5AU	Electronic Equipment	Industrial Products
2	224m SE	Pumping Station	South Yorkshire, S75	Water Pumping Stations	Industrial Features

ID	Location	Company	Address	Activity	Category
3	233m S	The Studio	7, Austwick Close, Mapplewell, Barnsley, South Yorkshire, S75 5QF	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services

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	4

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 32**

ID	Location	Address	Details	
A	366m NE	STAINCROSS COMMON SPS, WARREN ROAD, STAINCROSS COMMON, NEAR BARNSLEY, SOUTH YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: WRA7045 Permit Version: 1 Receiving Water: TRIB OF BUSHCLIFF BECK	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 18/05/1994 Effective Date: 18/05/1994 Revocation Date: 05/02/2003
A	366m NE	STAINCROSS COMMON SPS, WARREN ROAD, STAINCROSS COMMON, NEAR BARNSLEY, SOUTH YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: WRA7045 Permit Version: 2 Receiving Water: TRIB OF BUSHCLIFFE BECK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 06/02/2003 Effective Date: 06/02/2003 Revocation Date: -
B	471m N	WINDHILL GATE FARM, DARTON, WOOLLEY, WAKEFIELD, WEST YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: C3846 Permit Version: 1 Receiving Water: SOAKAWAY AT WINDHILL GATE FARM	Status: TRANSFERRED FROM COPA 1974 Issue date: 14/01/1985 Effective Date: 14/01/1985 Revocation Date: 25/07/2012
B	471m N	WINDHILL GATE FARM, DARTON, WOOLLEY, WAKEFIELD, WEST YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: C3846 Permit Version: 2 Receiving Water: SOAKAWAY AT WINDHILL GATE FARM	Status: TRANSFERRED FROM COPA 1974 Issue date: 26/07/2012 Effective Date: 26/07/2012 Revocation Date: -

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	1

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 32**

ID	Location	Details	
4	305m NW	Incident Date: 16/07/2001 Incident Identification: 16689 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	**0**

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

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

4.20 Pollution inventory waste transfers

Records within 500m	**0**

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

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

4.21 Pollution inventory radioactive waste

Records within 500m	**0**

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

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

5 Hydrogeology - Superficial aquifer

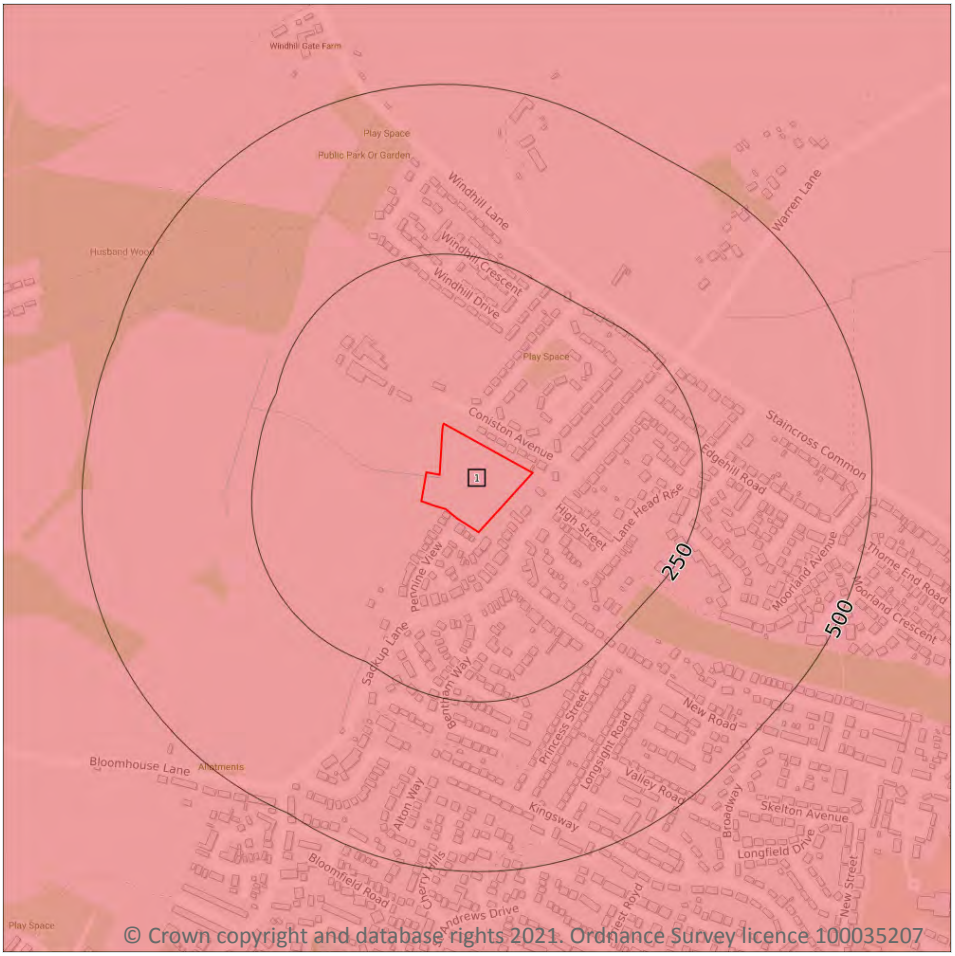
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	1

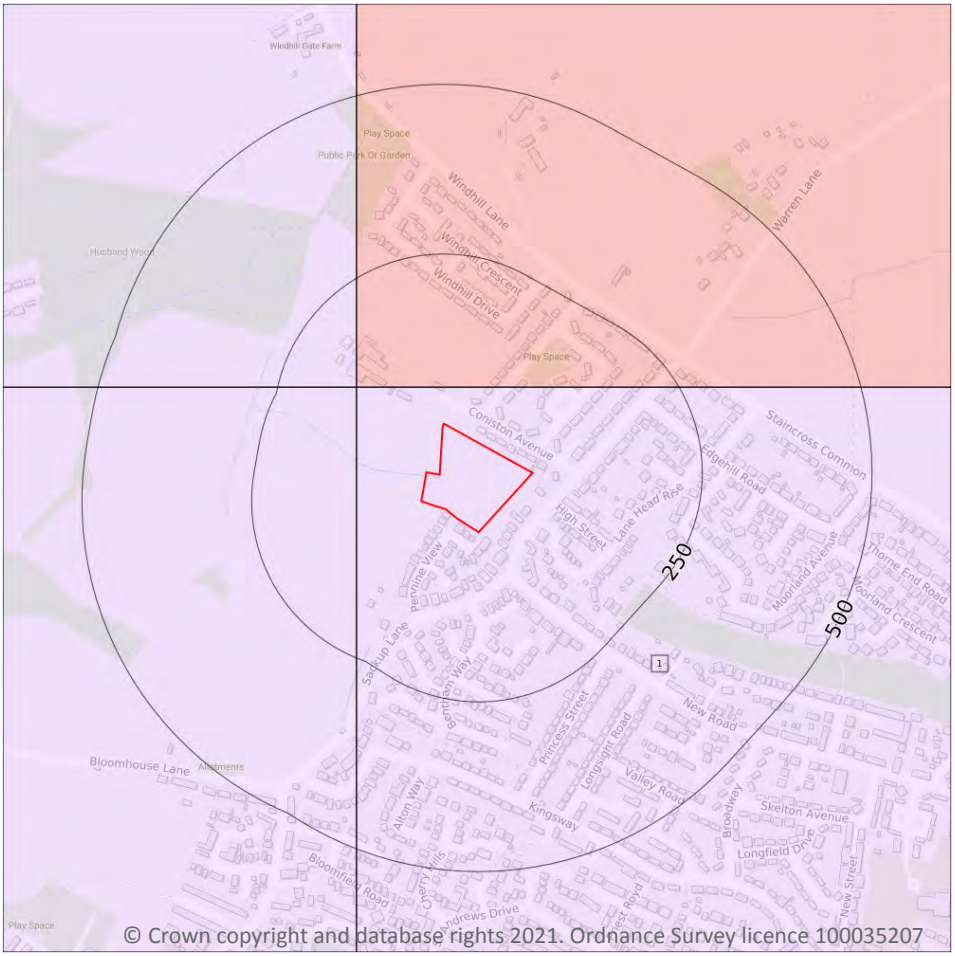
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 39**

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	1

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

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

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

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary 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	2

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 42**

ID	Location	Details	
-	1189m W	Status: Historical Licence No: NE/027/0008/006 Details: Pollution Remediation Direct Source: GROUNDWATERS Point: UNDERGROUND STRATA AT FORMER WOOLEY COLLIERY Data Type: Point Name: THE COAL AUTHORITY Easting: 430949 Northing: 411161	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 13/07/2009 Expiry Date: 31/03/2017 Issue No: 1 Version Start Date: 13/07/2009 Version End Date: -
-	1189m W	Status: Active Licence No: NE/027/0008/006/R01 Details: Pollution Remediation Direct Source: GROUNDWATERS Point: UNDERGROUND STRATA AT FORMER WOOLEY COLLIERY Data Type: Point Name: THE COAL AUTHORITY Easting: 430949 Northing: 411161	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 20/04/2017 Expiry Date: 31/03/2029 Issue No: 1 Version Start Date: 20/04/2017 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**0**

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

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

5.8 Potable abstractions

Records within 2000m	**0**

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

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

5.9 Source Protection Zones

Records within 500m	0

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

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

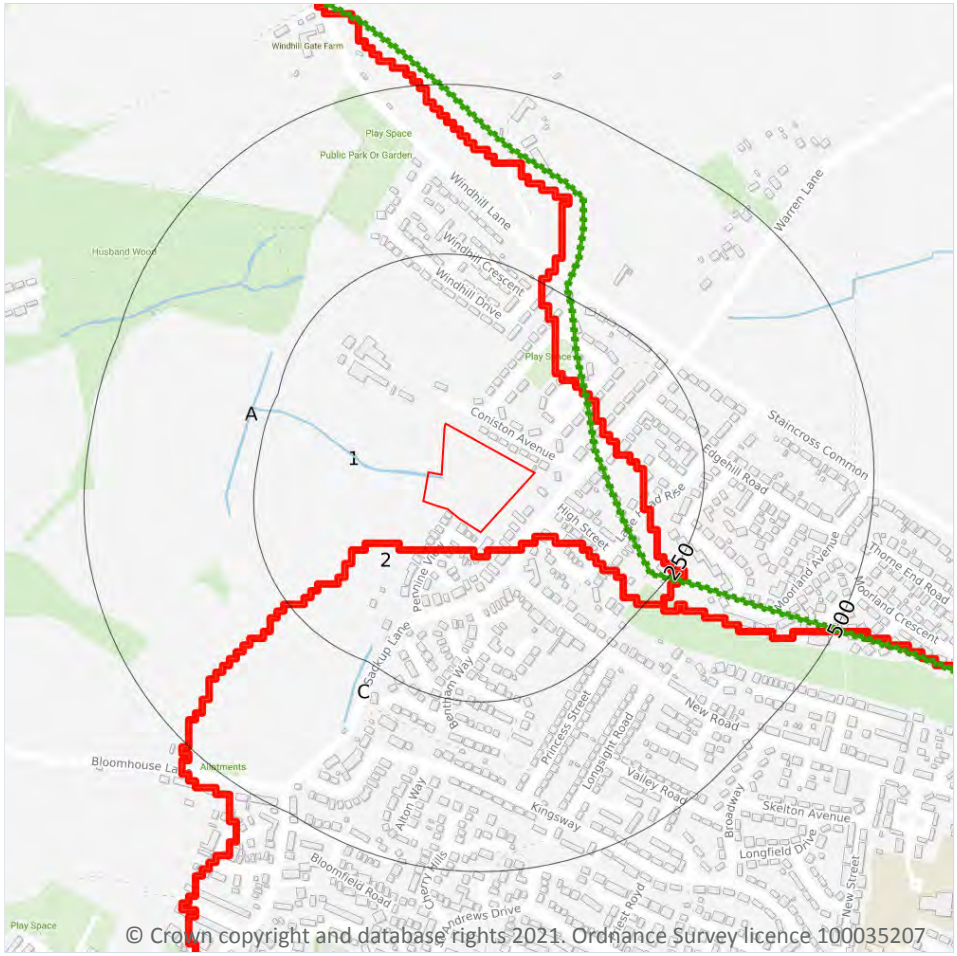
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**2**

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

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

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

ID	Location	Type of water feature	Ground level	Permanence	Name
C	225m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**3**

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

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

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

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

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

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River WB catchment**	**Dearne from Bentley Brook to Cawthorne Dyke**	**GB104027063260**	**Dearne**	**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 45**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1110m SW	River	Dearne from Bentley Brook to Cawthorne Dyke	GB104027063260	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	**1**

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

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

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Don & Rother Millstone grit & Coal Measures**	**GB40402G992300**	**Poor**	**Poor**	**Good**	**2015**

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 Sea (RoFRaS)

Records within 50m	0

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

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

8.1 Surface water flooding

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

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.

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	Negligible
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

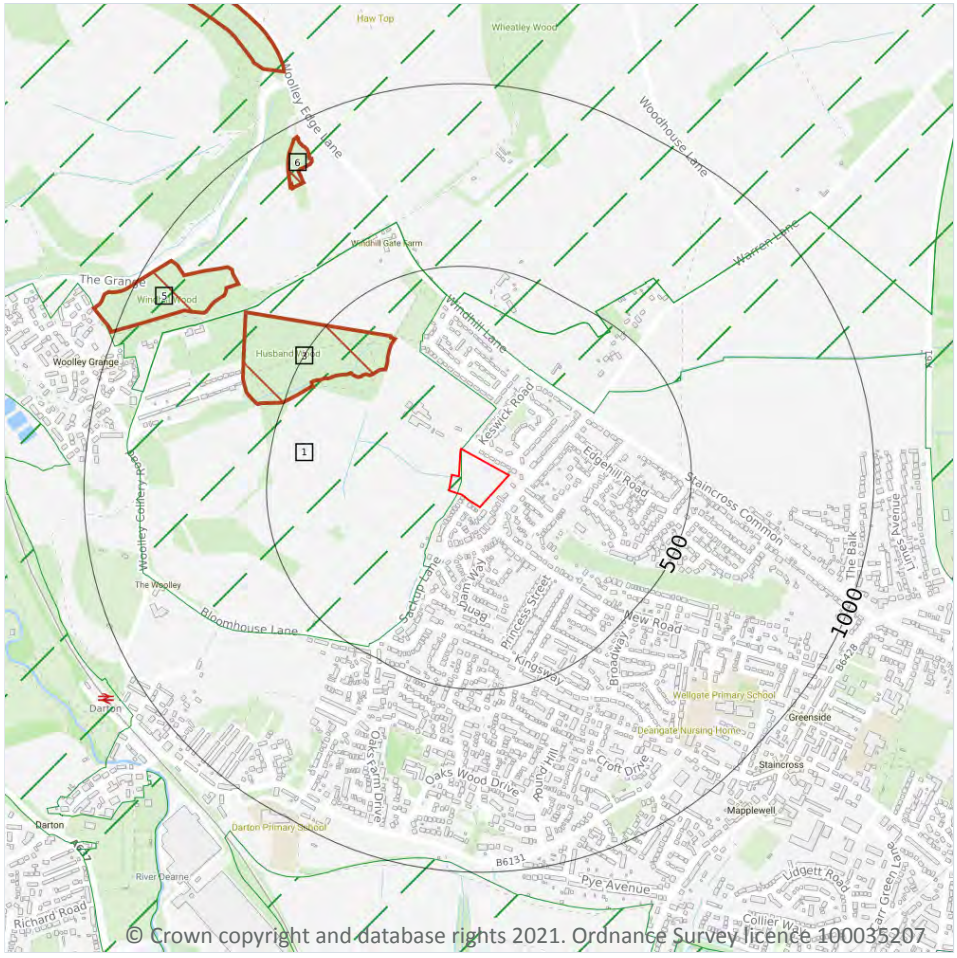
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

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 52**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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 53**

ID	Location	Name	Data source
-	1503m E	Notton Wood	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 53**

ID	Location	Name	Woodland Type
3	300m NW	Unknown	Ancient & Semi-Natural Woodland
5	759m NW	Windhill Wood	Ancient & Semi-Natural Woodland
6	847m NW	Unknown	Ancient & Semi-Natural Woodland
7	1141m NW	Jobson Wood	Ancient & Semi-Natural Woodland
-	1503m E	Notton Park	Ancient Replanted Woodland
-	1755m E	Notton Park	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	3

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

Features are displayed on the Environmental designations map on **page 53**

ID	Location	Name	Local Authority name
1	**On site**	**South and West Yorkshire**	**Barnsley**
2	272m NE	South and West Yorkshire	Barnsley
4	381m NE	South and West Yorkshire	Wakefield

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	3

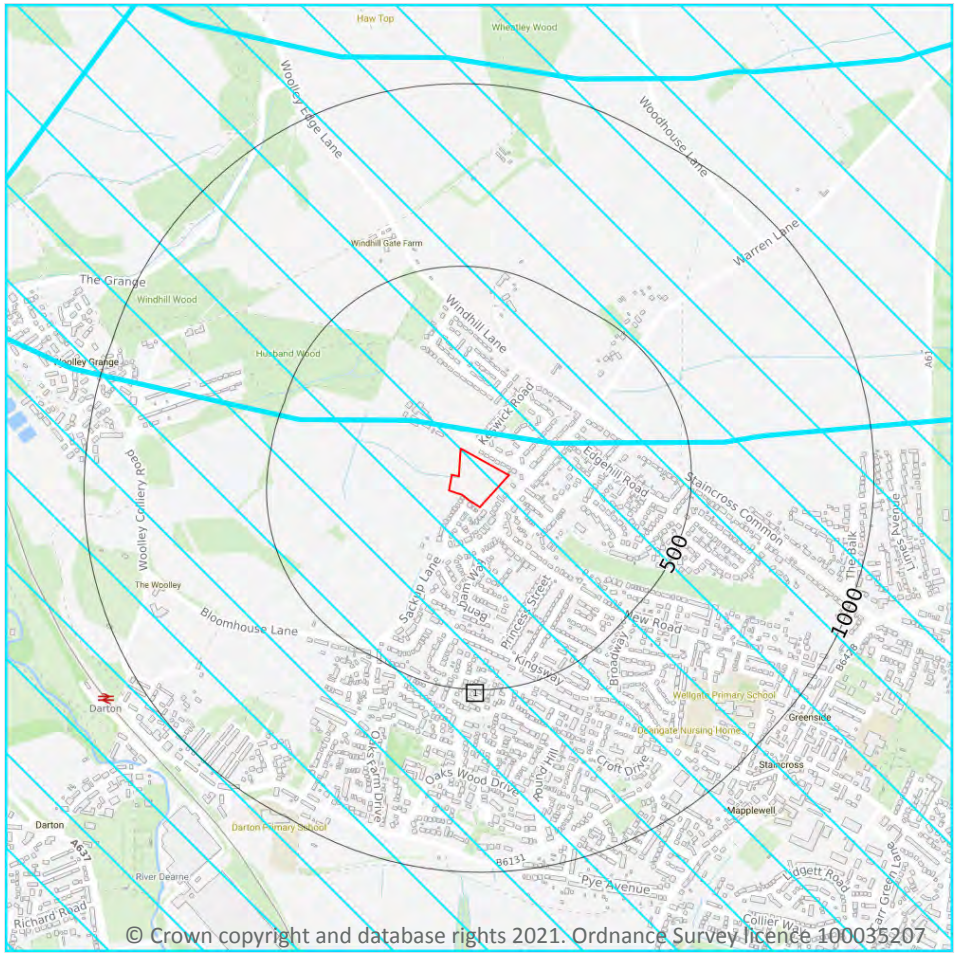
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	**River Dearne NVZ**	**Surface Water**	**S278**	**Existing**

Location	Name	Type	NVZ ID	Status
141m N	Owler Beck from Source to River Calder NVZ	Surface Water	S268	Existing
1833m NE	Owler Beck from Source to River Calder NVZ	Surface Water	S268	Existing

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

SSSI Impact Zones and Units



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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 59**

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 > 750m² & manure stores > 3500t.** **Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion**

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.

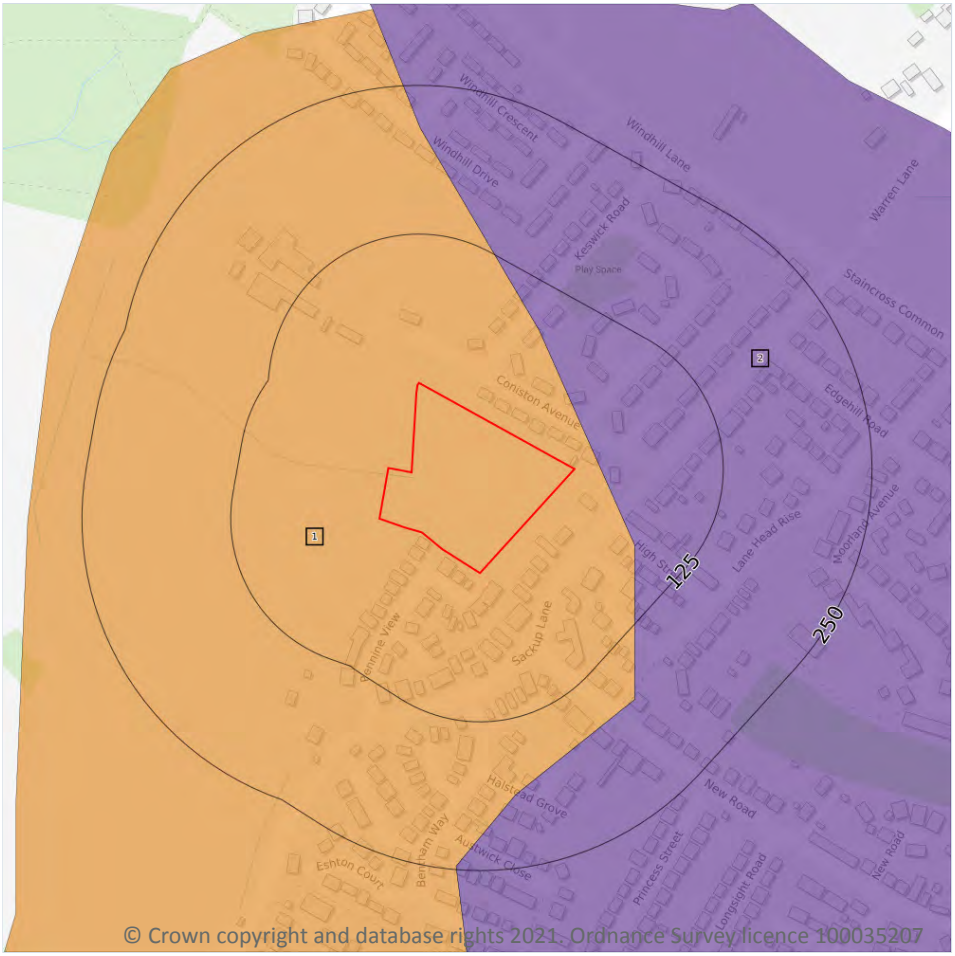
11.7 Registered Parks and Gardens

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 63**

ID	Location	Classification	Description
1	**On site**	**Grade 3**	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**
2	20m NE	Urban	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

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Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

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

13.1 Priority Habitat Inventory

Records within 250m	1

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 65**

ID	Location	Main Habitat	Other habitats
1	236m SE	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.

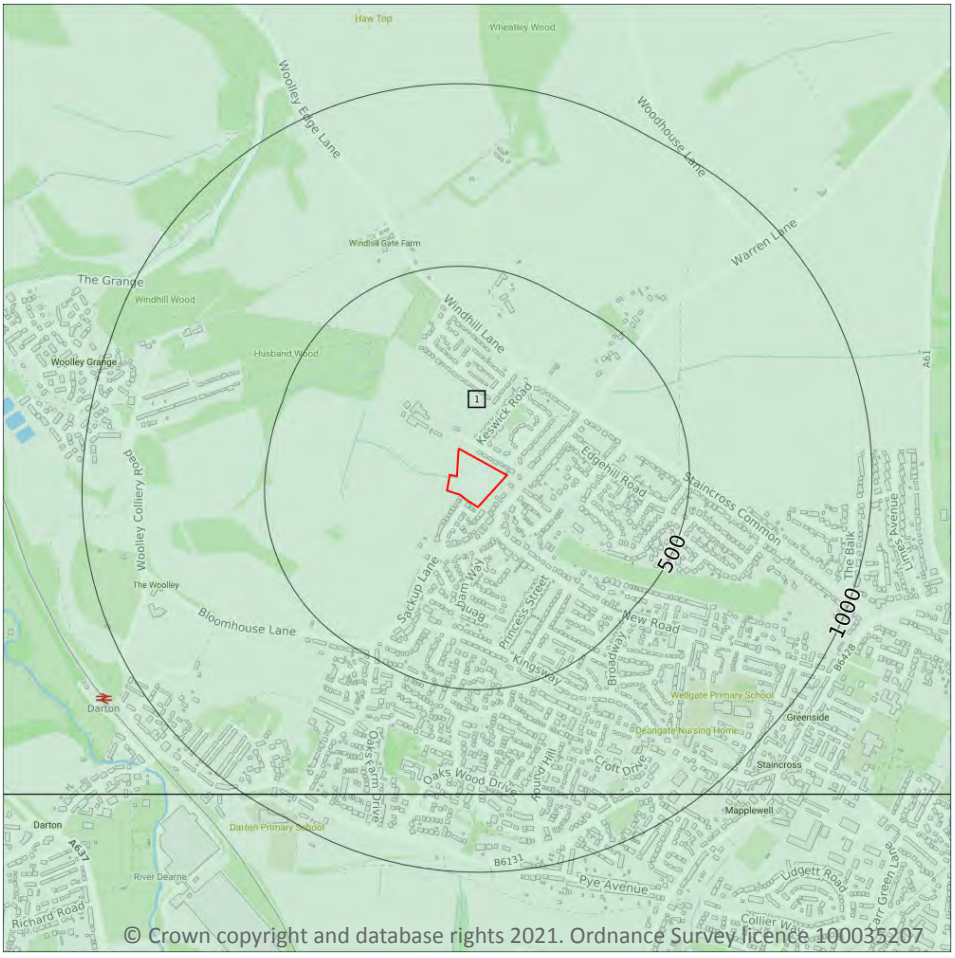
13.4 Limestone Pavement Orders

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 67**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SE31SW**

This data is sourced from the British Geological Survey.

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

Site Outline

Search buffers in metres (m)

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

14.2 Artificial and made ground (10k)

Records within 500m	8

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 68**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**WMGR-ARTDP**	**Infilled Ground**	**Artificial Deposit**
2	**On site**	**WMGR-ARTDP**	**Infilled Ground**	**Artificial Deposit**
3	74m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
4	82m NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
5	120m NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	275m NE	DDGR-UKNOWN	Disturbed Ground (Undivided)	Unknown/unclassified Entry
7	368m NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
8	496m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

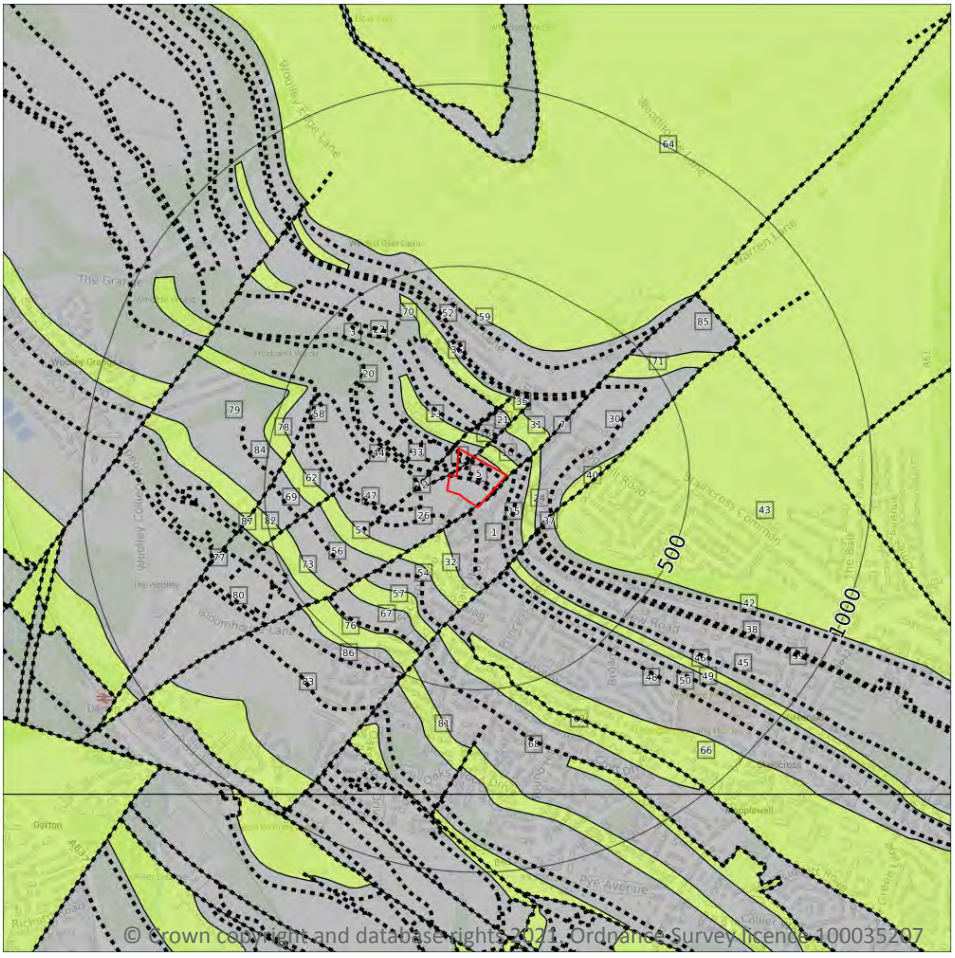
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	40

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 71**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-MDSS**	**Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Bolsovian Sub-age - Duckmantian Sub-age**
3	**On site**	**PMCM-MDSS**	**Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Bolsovian Sub-age - Duckmantian Sub-age**

ID	Location	LEX Code	Description	Rock age
9	**On site**	**PMCM-MDSS**	**Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Bolsovian Sub-age - Duckmantian Sub-age**
10	**On site**	**PMCM-SDST**	**Pennine Middle Coal Measures Formation - Sandstone**	**Bolsovian Sub-age - Duckmantian Sub-age**
13	15m NW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
16	23m N	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
18	39m NE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
21	54m NE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
24	62m E	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
30	91m E	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
31	92m NE	ABR-SDST	Abdy Rock - Sandstone	Duckmantian Sub-age
32	102m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
35	133m NE	ABR-SDST	Abdy Rock - Sandstone	Duckmantian Sub-age
36	141m NE	ABR-SDST	Abdy Rock - Sandstone	Duckmantian Sub-age
39	163m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
40	163m E	ABR-SDST	Abdy Rock - Sandstone	Duckmantian Sub-age
43	165m SE	WE-SDST	Woolley Edge Rock - Sandstone	Duckmantian Sub-age
46	171m SE	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
48	181m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
51	199m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
54	217m S	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
56	255m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age

ID	Location	LEX Code	Description	Rock age
57	298m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
62	322m W	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
63	330m S	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
64	339m NE	WE-SDST	Woolley Edge Rock - Sandstone	Duckmantian Sub-age
66	346m S	KNR-SDST	Kent's Rock - Sandstone	Duckmantian Sub-age
67	349m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
68	361m S	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
69	367m W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
71	385m NE	ABR-SDST	Abdy Rock - Sandstone	Duckmantian Sub-age
73	407m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
76	418m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
78	436m W	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
79	452m W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
80	464m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
81	466m S	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
82	466m W	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
83	467m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
85	471m NE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**47**

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 71**

ID	Location	Category	Description
2	**On site**	**ROCK**	**Coal seam, observed**
4	**On site**	**ROCK**	**Coal seam, observed**
5	**On site**	**ROCK**	**Coal seam, inferred**
6	**On site**	**ROCK**	**Coal seam, inferred**
7	**On site**	**FAULT**	**Normal fault, inferred**
8	**On site**	**FAULT**	**Normal fault, inferred**
11	5m W	ROCK	Coal seam, inferred
12	14m NW	FAULT	Normal fault, inferred
14	15m NW	FAULT	Normal fault, inferred
15	21m E	ROCK	Coal seam, inferred
17	24m SW	ROCK	Coal seam, inferred
19	46m E	ROCK	Coal seam, inferred
20	52m W	ROCK	Coal seam, inferred
22	58m NE	ROCK	Coal seam, inferred
23	61m NE	ROCK	Coal seam, inferred
25	63m W	ROCK	Coal seam, inferred
26	71m S	ROCK	Coal seam, inferred
27	73m NE	ROCK	Coal seam, inferred
28	74m W	ROCK	Coal seam, observed
29	82m NE	ROCK	Coal seam, observed
33	120m NW	ROCK	Coal seam, observed
34	132m E	ROCK	Coal seam, inferred
37	163m SE	FAULT	Normal fault, inferred

ID	Location	Category	Description
38	163m SE	ROCK	Coal seam, inferred
41	163m SE	FOSSIL_HORIZON	Fossil horizon, marine band
42	163m SE	ROCK	Coal seam, inferred
44	165m NW	FAULT	Normal fault, inferred
45	168m SE	ROCK	Coal seam, inferred
47	178m W	ROCK	Coal seam, inferred
49	188m S	ROCK	Coal seam, inferred
50	197m S	ROCK	Coal seam, inferred
52	202m NE	ROCK	Coal seam, inferred
53	209m NE	FOSSIL_HORIZON	Fossil horizon, marine band
55	248m SW	ROCK	Coal seam, inferred
58	300m W	ROCK	Coal seam, inferred
59	308m NE	ROCK	Coal seam, inferred
60	313m S	ROCK	Coal seam, inferred
61	322m W	FAULT	Normal fault, inferred
65	343m SW	ROCK	Coal seam, inferred
70	368m NW	ROCK	Coal seam, observed
72	405m S	ROCK	Coal seam, inferred
74	408m SW	ROCK	Coal seam, inferred
75	410m W	ROCK	Coal seam, inferred
77	422m W	FAULT	Normal fault, inferred
84	469m W	ROCK	Coal seam, inferred
86	496m SW	ROCK	Coal seam, inferred
87	496m SW	ROCK	Coal seam, observed

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability

Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

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

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

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW087_barnsley_v4**

This data is sourced from the British Geological Survey.

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

Site Outline

Search buffers in metres (m)

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

15.2 Artificial and made ground (50k)

Records within 500m	7

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

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

ID	Location	LEX Code	Description	Rock description
1	**On site**	**WMGR-ARTDP**	**INFILLED GROUND**	**ARTIFICIAL DEPOSIT**
2	2m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	74m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
4	81m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

ID	Location	LEX Code	Description	Rock description
5	125m NW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
6	364m NW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
7	498m SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	**2**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Very High**	**Low**
1m NW	Mixed	Very High	Low

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

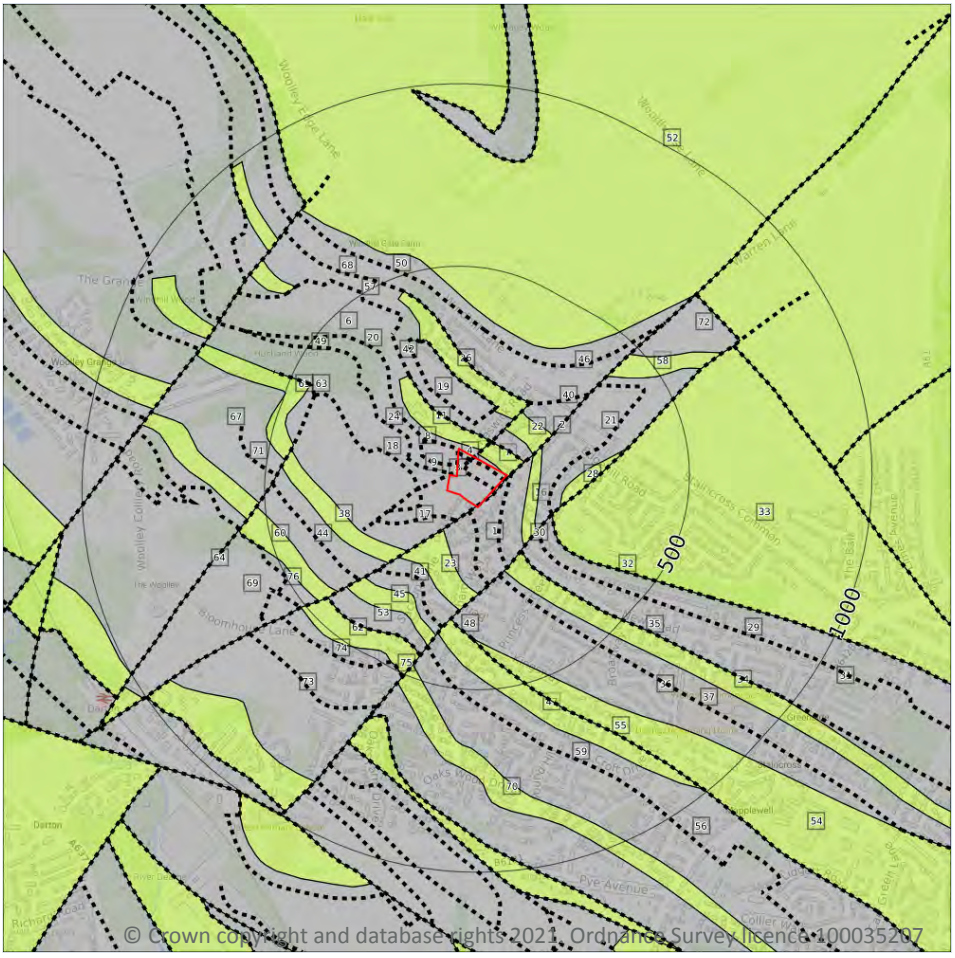
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m	33

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

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

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-MDSS**	**PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
6	**On site**	**PMCM-MDSS**	**PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**

ID	Location	LEX Code	Description	Rock age
7	**On site**	**PMCM-SDST**	**PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE**	**WESTPHALIAN**
11	15m N	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
14	58m NE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16	61m E	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
21	92m E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
22	92m NE	ABR-SDST	ABDY ROCK - SANDSTONE	WESTPHALIAN
23	102m SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
26	137m NE	ABR-SDST	ABDY ROCK - SANDSTONE	WESTPHALIAN
28	160m E	ABR-SDST	ABDY ROCK - SANDSTONE	WESTPHALIAN
31	163m SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
33	163m SE	WE-SDST	WOOLLEY EDGE ROCK - SANDSTONE	WESTPHALIAN
34	168m SE	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
36	189m SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
38	198m SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
41	214m S	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
44	255m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
45	299m S	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
47	314m S	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
52	346m NE	WE-SDST	WOOLLEY EDGE ROCK - SANDSTONE	WESTPHALIAN
53	353m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
54	361m S	KNR-SDST	KENT'S ROCK - SANDSTONE	WESTPHALIAN
56	361m S	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
58	385m NE	ABR-SDST	ABDY ROCK - SANDSTONE	WESTPHALIAN
60	407m SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
62	413m SW	BNR-SDST	BARNSLEY ROCK - SANDSTONE	WESTPHALIAN
65	436m W	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
67	451m W	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
69	463m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
70	467m S	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
72	472m NE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
73	474m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**2**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**High**	**Moderate**
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	**43**

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

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

ID	Location	Category	Description
2	**On site**	**FAULT**	**Fault, inferred**
3	**On site**	**FAULT**	**Fault, inferred, displacement unknown**
4	**On site**	**ROCK**	**Coal seam, inferred**
5	**On site**	**ROCK**	**Coal seam, inferred**
8	2m W	ROCK	Coal seam, inferred
9	4m N	ROCK	Coal seam, inferred
10	11m E	ROCK	Coal seam, inferred
12	24m SW	ROCK	Coal seam, inferred
13	56m N	ROCK	Coal seam, inferred
15	58m NE	ROCK	Coal seam, inferred
17	63m SW	ROCK	Coal seam, inferred
18	74m W	ROCK	Coal seam, inferred
19	81m NE	ROCK	Coal seam, inferred
20	90m W	ROCK	Coal seam, inferred
24	125m NW	ROCK	Coal seam, inferred
25	129m E	ROCK	Coal seam, inferred
27	137m NE	ROCK	Coal seam, inferred
29	163m SE	ROCK	Coal seam, inferred
30	163m SE	FAULT	Fault, inferred
32	163m SE	ROCK	Coal seam, inferred
35	168m SE	ROCK	Coal seam, inferred
37	196m S	ROCK	Coal seam, inferred
39	200m NE	ROCK	Coal seam, inferred

ID	Location	Category	Description
40	204m NE	ROCK	Coal seam, inferred
42	243m NW	ROCK	Coal seam, inferred
43	252m S	ROCK	Coal seam, inferred
46	306m NE	ROCK	Coal seam, inferred
48	314m S	ROCK	Coal seam, inferred
49	332m NW	ROCK	Coal seam, inferred
50	332m N	ROCK	Coal seam, inferred
51	343m SW	ROCK	Coal seam, inferred
55	361m S	ROCK	Coal seam, inferred
57	364m NW	ROCK	Coal seam, inferred
59	406m S	ROCK	Coal seam, inferred
61	413m SW	ROCK	Coal seam, inferred
63	422m W	ROCK	Coal seam, inferred
64	422m W	FAULT	Fault, inferred
66	443m NW	ROCK	Coal seam, inferred
68	458m N	ROCK	Coal seam, inferred
71	468m W	ROCK	Coal seam, inferred
74	487m SW	ROCK	Coal seam, inferred
75	487m SW	ROCK	Coal seam, inferred
76	498m SW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

16 Boreholes

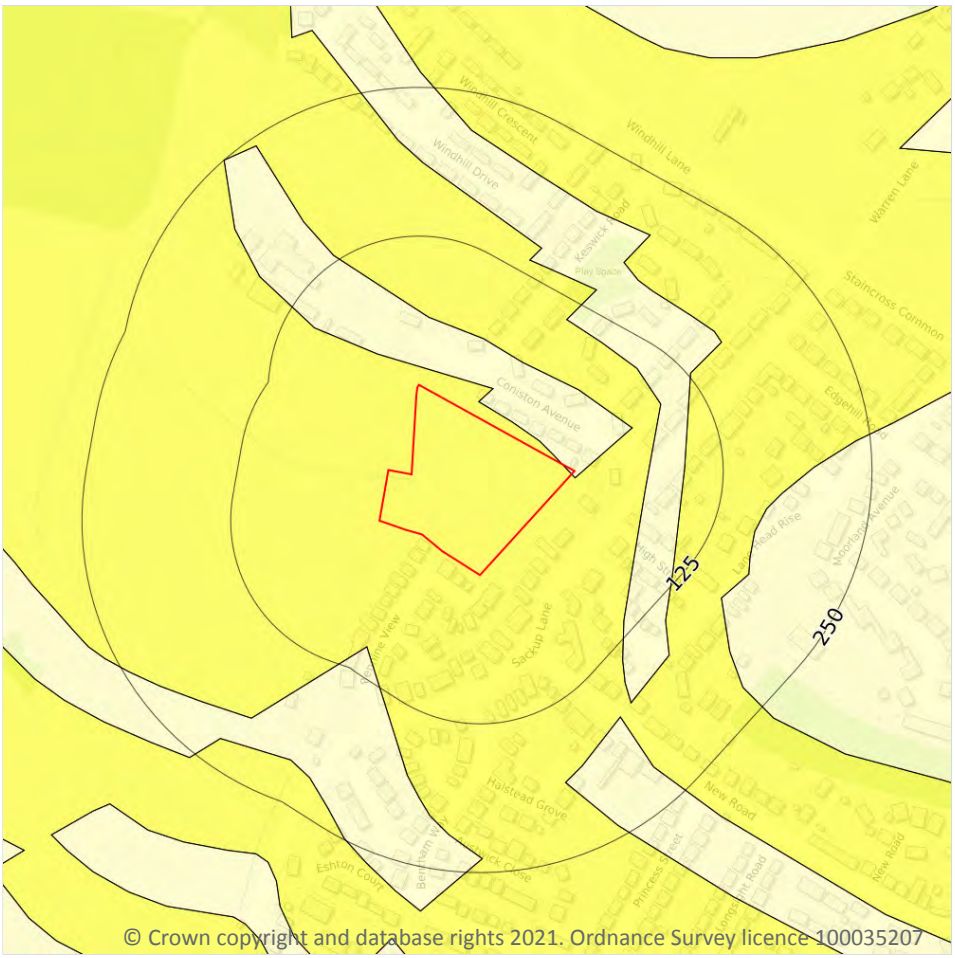
16.1 BGS Boreholes

Records within 250m	0

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

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	2

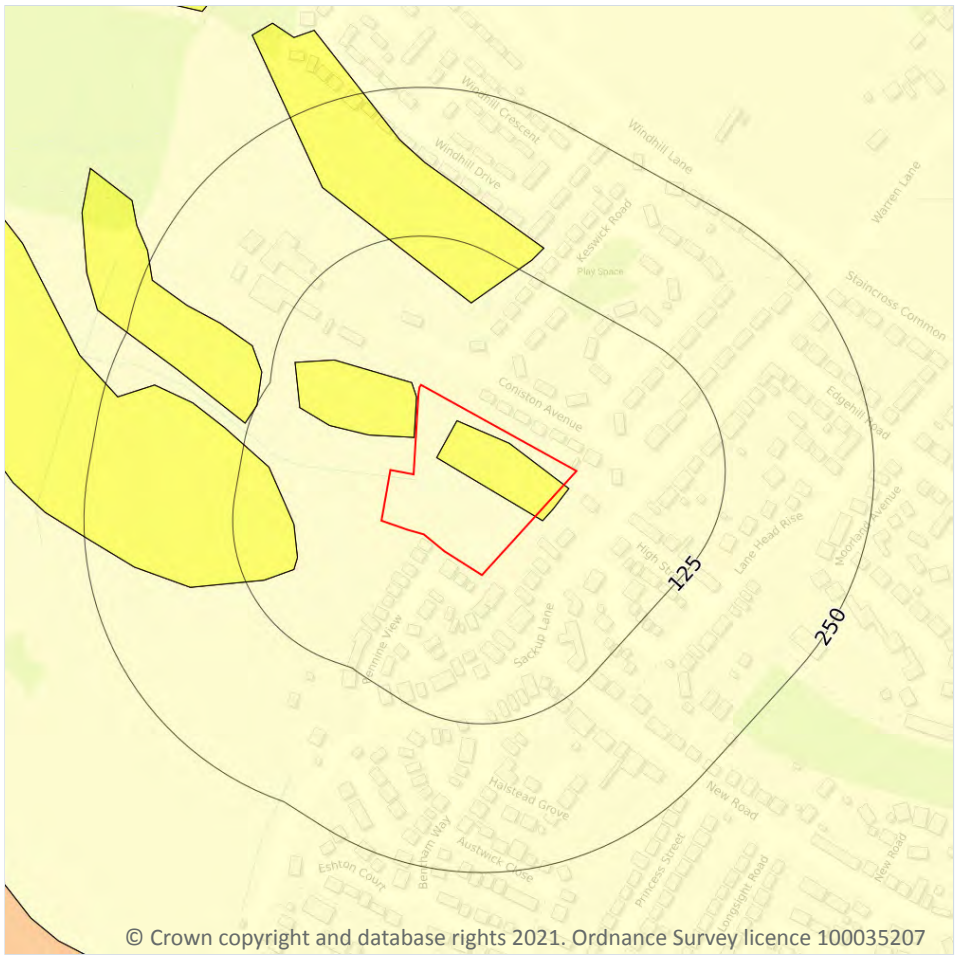
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 86**

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	3

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.

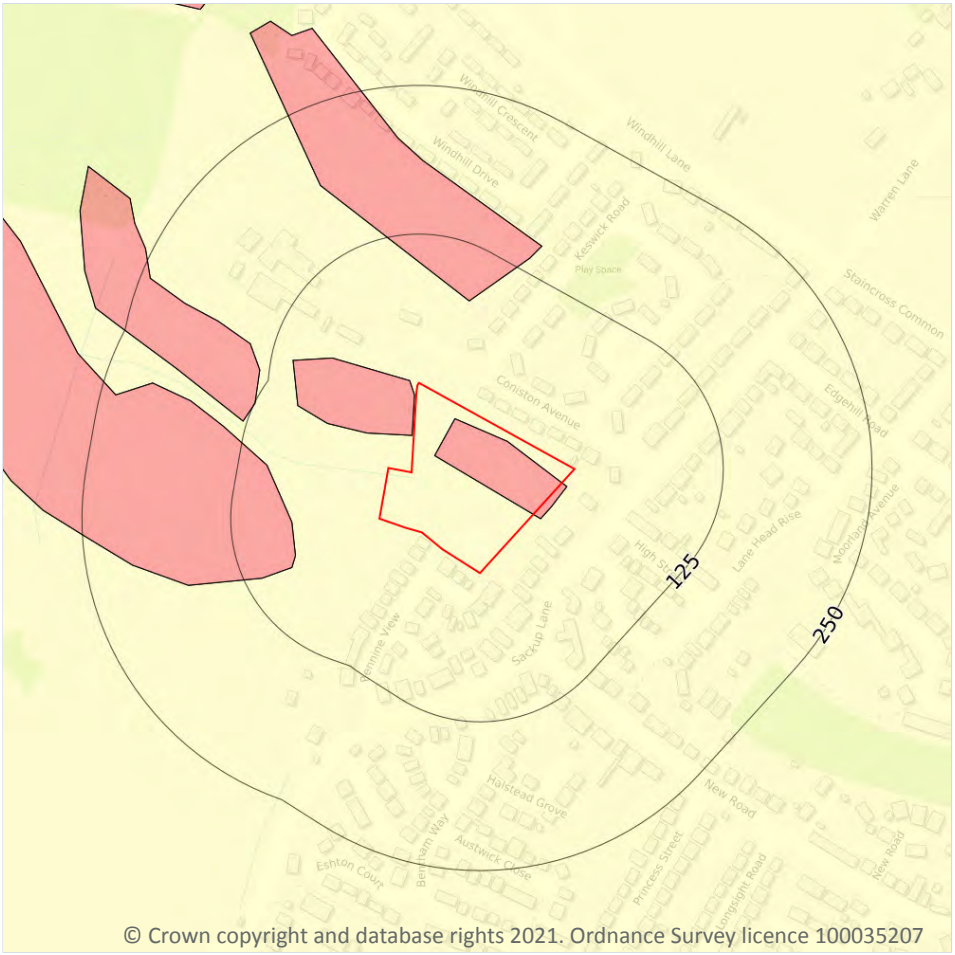
Features are displayed on the Natural ground subsidence - Running sands map on **page 87**

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
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**
2m W	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



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Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	3

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

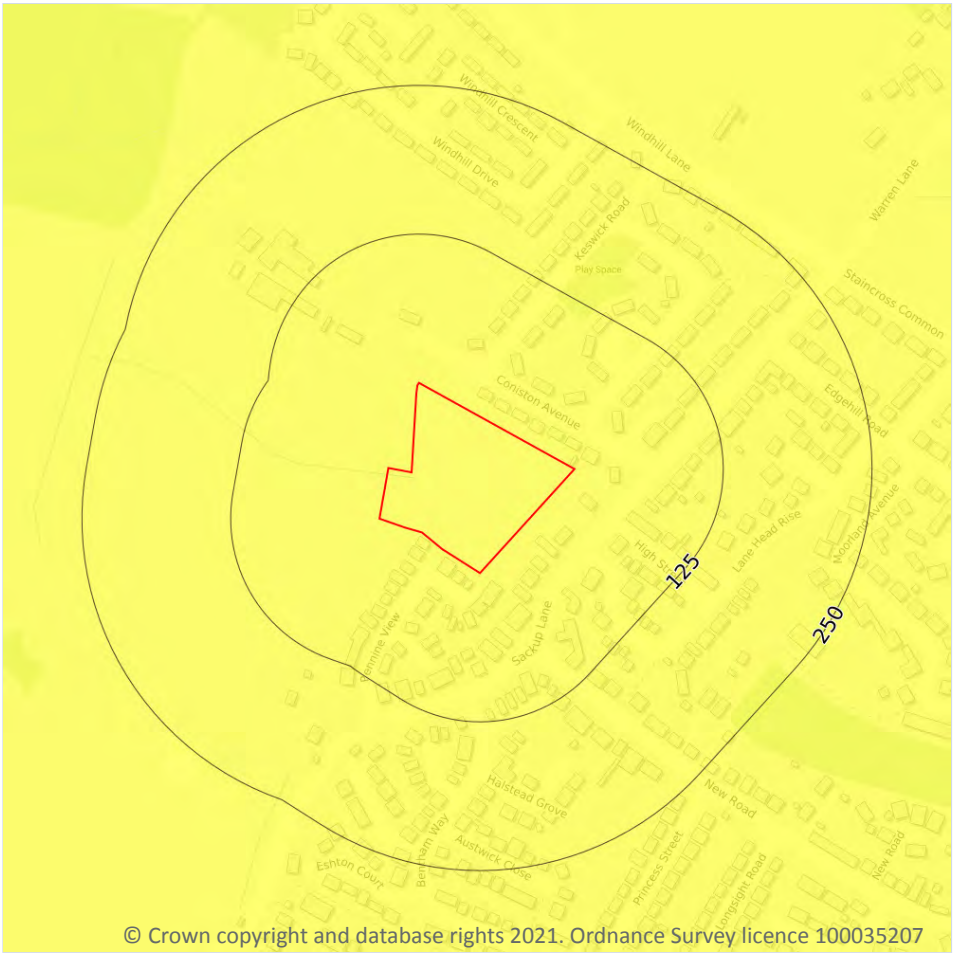
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 89**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

Location	Hazard rating	Details
2m W	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

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

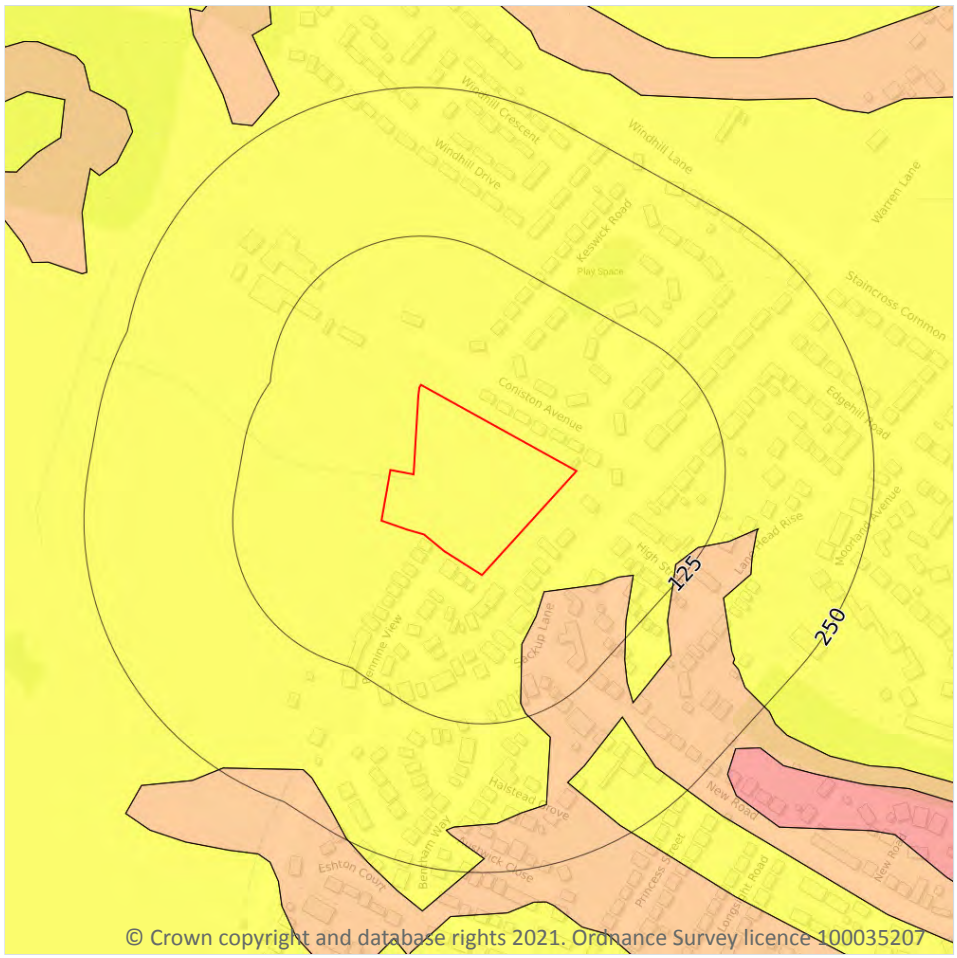
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

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

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



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17.5 Landslides

Records within 50m	2

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

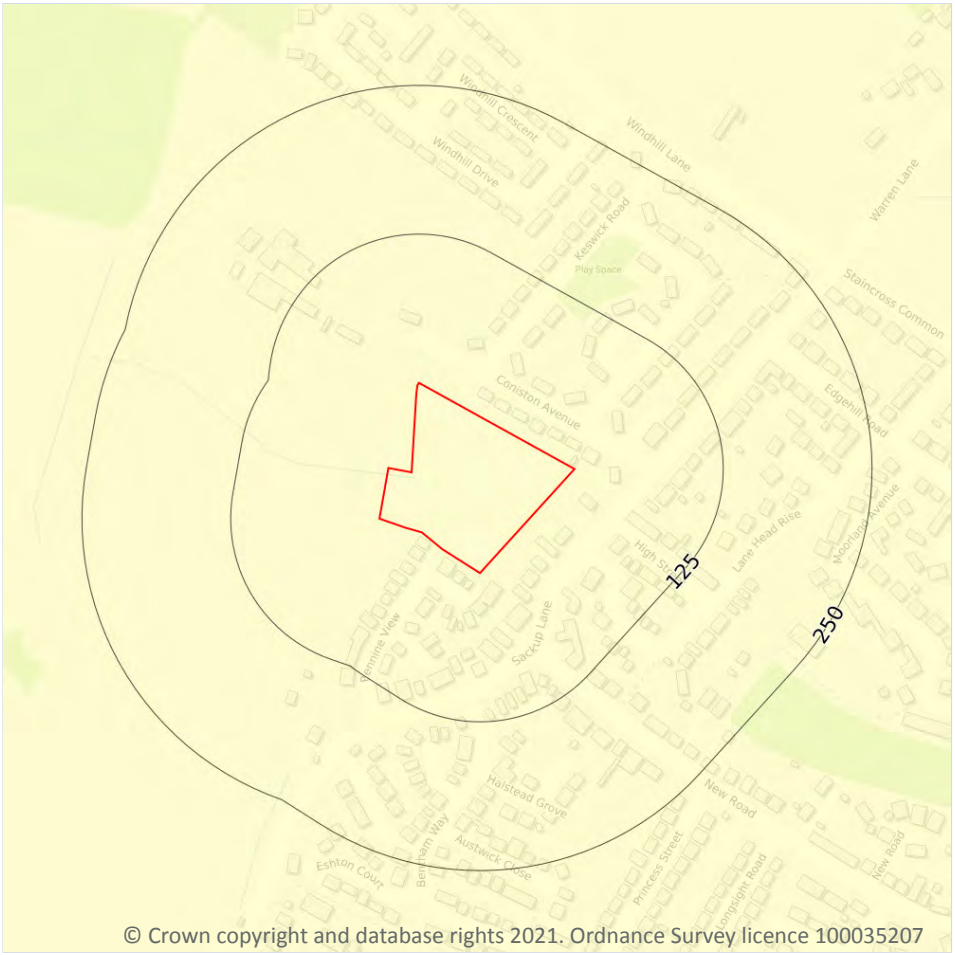
Features are displayed on the Natural ground subsidence - Landslides map on **page 92**

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

Location	Hazard rating	Details
48m SE	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



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

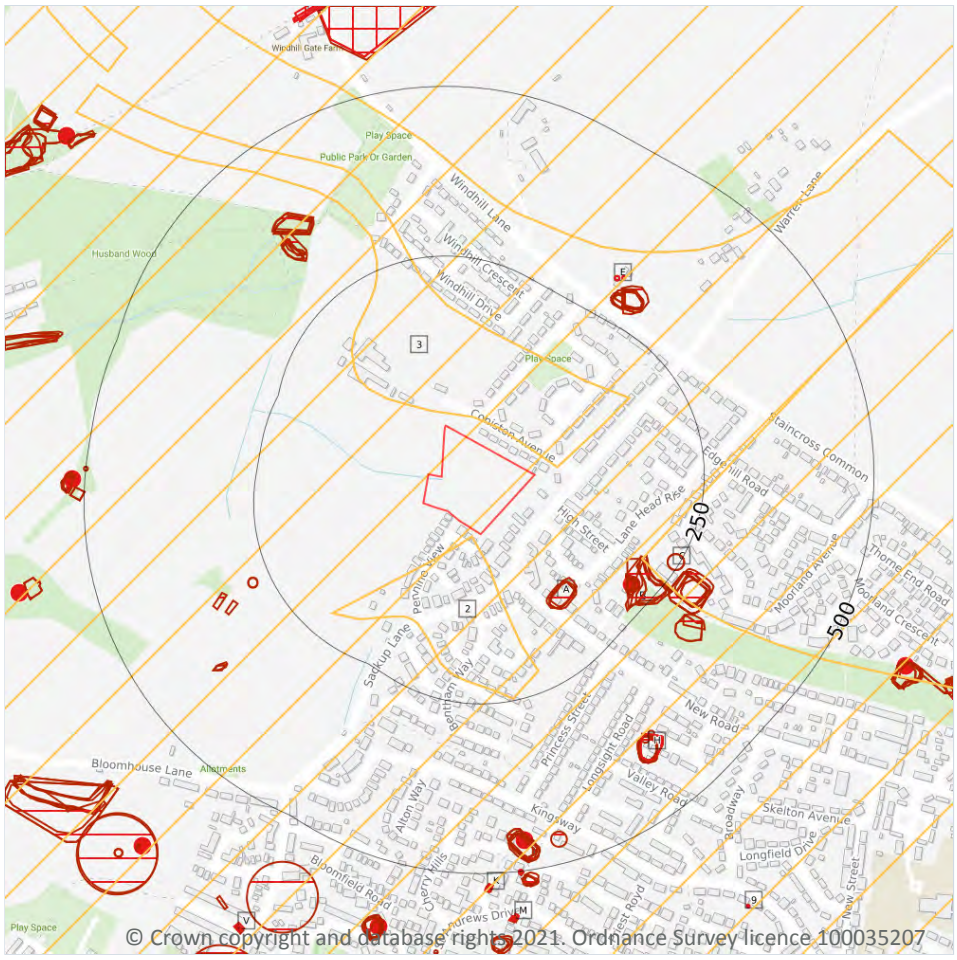
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 94**

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	2

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 95**

ID	Location	Details	Description
B	213m SE	Name: Staincross Hill Address: Mapplewell, BARNSLEY, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
I	454m S	Name: Oakfield Road Address: Mapplewell, BARNSLEY, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	19

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 95**

ID	Location	Land Use	Year of mapping	Mapping scale
A	134m SE	Unspecified Heap	1948	1:10560
A	136m SE	Unspecified Heap	1951	1:10560
A	138m SE	Unspecified Heap	1938	1:10560
A	138m SE	Unspecified Heap	1938	1:10560
A	138m SE	Unspecified Heap	1930	1:10560
B	184m SE	Unspecified Quarry	1948	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
B	198m SE	Unspecified Quarry	1951	1:10560
B	199m SE	Unspecified Ground Workings	1930	1:10560
B	199m SE	Unspecified Ground Workings	1930	1:10560
B	199m SE	Unspecified Ground Workings	1930	1:10560
B	199m SE	Unspecified Ground Workings	1930	1:10560
B	200m SE	Unspecified Quarry	1938	1:10560
B	201m SE	Reservoirs	1938	1:10560
B	201m SE	Unspecified Quarry	1904	1:10560
B	201m SE	Unspecified Quarry	1891	1:10560
B	203m SE	Reservoir	1904	1:10560
B	206m SE	Unspecified Quarry	1965	1:10560
C	233m SE	Sandstone Quarry	1854	1:10560
C	233m SE	Sandstone Quarry	1854	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	**40**

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 95**

ID	Location	Land Use	Year of mapping	Mapping scale
E	309m NE	Old Coal Shaft	1904	1:10560
E	309m NE	Unspecified Old Shaft	1948	1:10560
E	315m NE	Unspecified Old Shaft	1951	1:10560
H	378m SE	Old Coal Pit	1904	1:10560
I	498m S	Unspecified Levels	1948	1:10560
K	516m S	Unspecified Levels	1951	1:10560
K	518m S	Unspecified Levels	1948	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
J	520m W	Old Coal Pit	1904	1:10560
6	557m N	Disused Colliery	1951	1:10560
M	562m S	Unspecified Levels	1951	1:10560
M	565m S	Unspecified Levels	1948	1:10560
T	633m N	Tunnel	1891	1:10560
T	635m N	Tunnel	1948	1:10560
T	637m N	Tunnel	1904	1:10560
-	647m N	Unspecified Mine	1990	1:10000
-	647m N	Unspecified Mine	1965	1:10560
-	647m N	Unspecified Mine	1978	1:10000
-	650m N	Colliery	1904	1:10560
-	650m N	Colliery	1891	1:10560
-	652m N	Colliery	1948	1:10560
9	673m SE	Unspecified Old Shaft	1948	1:10560
V	674m SW	Unspecified Level	1951	1:10560
V	678m SW	Unspecified Level	1948	1:10560
-	679m W	Old Air Shaft	1904	1:10560
W	699m NW	Unspecified Old Shaft	1948	1:10560
W	699m NW	Unspecified Old Shaft	1904	1:10560
W	703m NW	Unspecified Disused Shaft	1990	1:10000
W	703m NW	Unspecified Disused Shaft	1965	1:10560
W	703m NW	Unspecified Disused Shaft	1978	1:10000
W	703m NW	Unspecified Old Shaft	1951	1:10560
-	744m S	Unspecified Levels	1951	1:10560
-	748m W	Old Coal Pit	1904	1:10560
-	753m SW	Unspecified Levels	1951	1:10560
-	754m N	Unspecified Shaft	1948	1:10560
-	831m W	Colliery	1978	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
-	847m W	Unspecified Mine	1965	1:10560
-	849m W	Colliery	1904	1:10560
-	849m W	Colliery	1891	1:10560
-	856m W	Colliery	1951	1:10560
-	873m SE	Old Coal Pit	1904	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	**8**

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 95**

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**
2	10m SW	Sheffield Area	Vein Mineral/Iron ore	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
3	19m N	Sheffield Area	Vein Mineral/Iron ore	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

ID	Location	Name	Commodity	Class	Likelihood
4	201m SE	Sheffield Area	Vein Mineral/Iron ore	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
11	721m NW	Sheffield Area	Vein Mineral/Iron ore	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
-	786m S	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
-	788m N	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
-	894m N	Sheffield Area	Vein Mineral/Iron ore	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 Mining Searches UK.

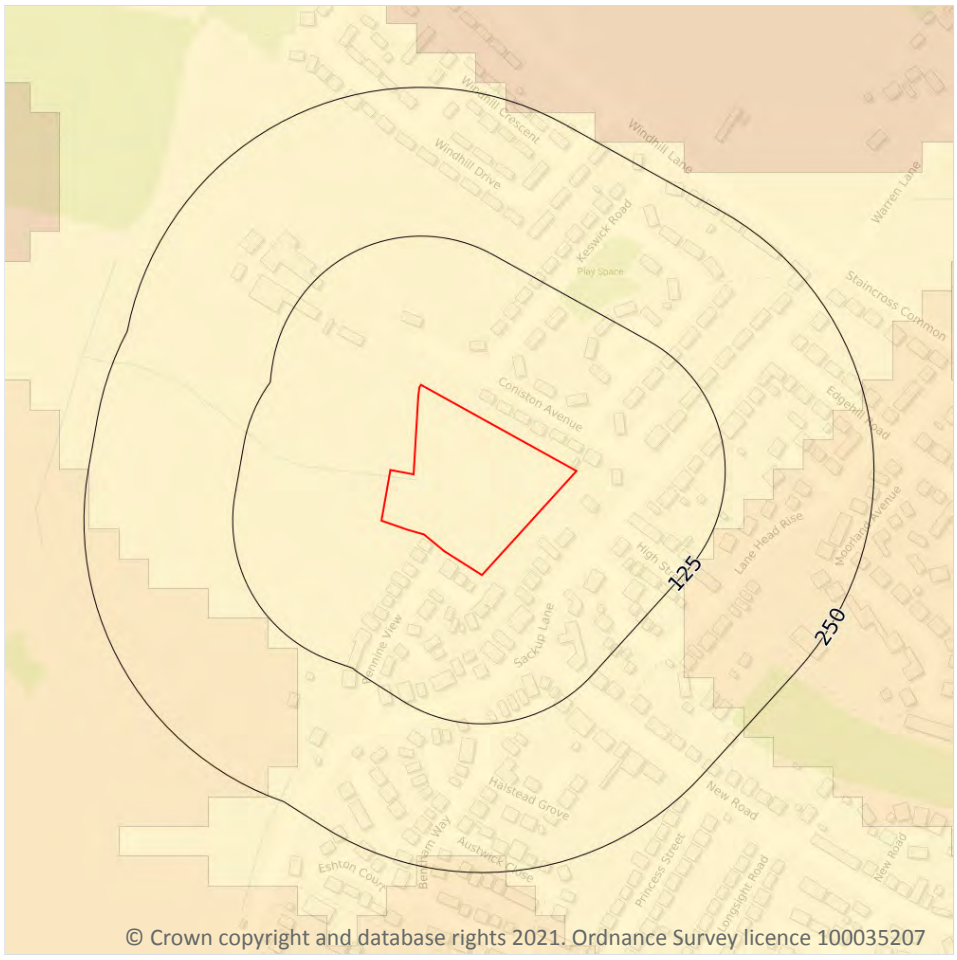
18.13 Clay mining

Records on site	0

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

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

19 Radon



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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 102**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m **4**

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**
10m S	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
19m NE	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m **0**

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

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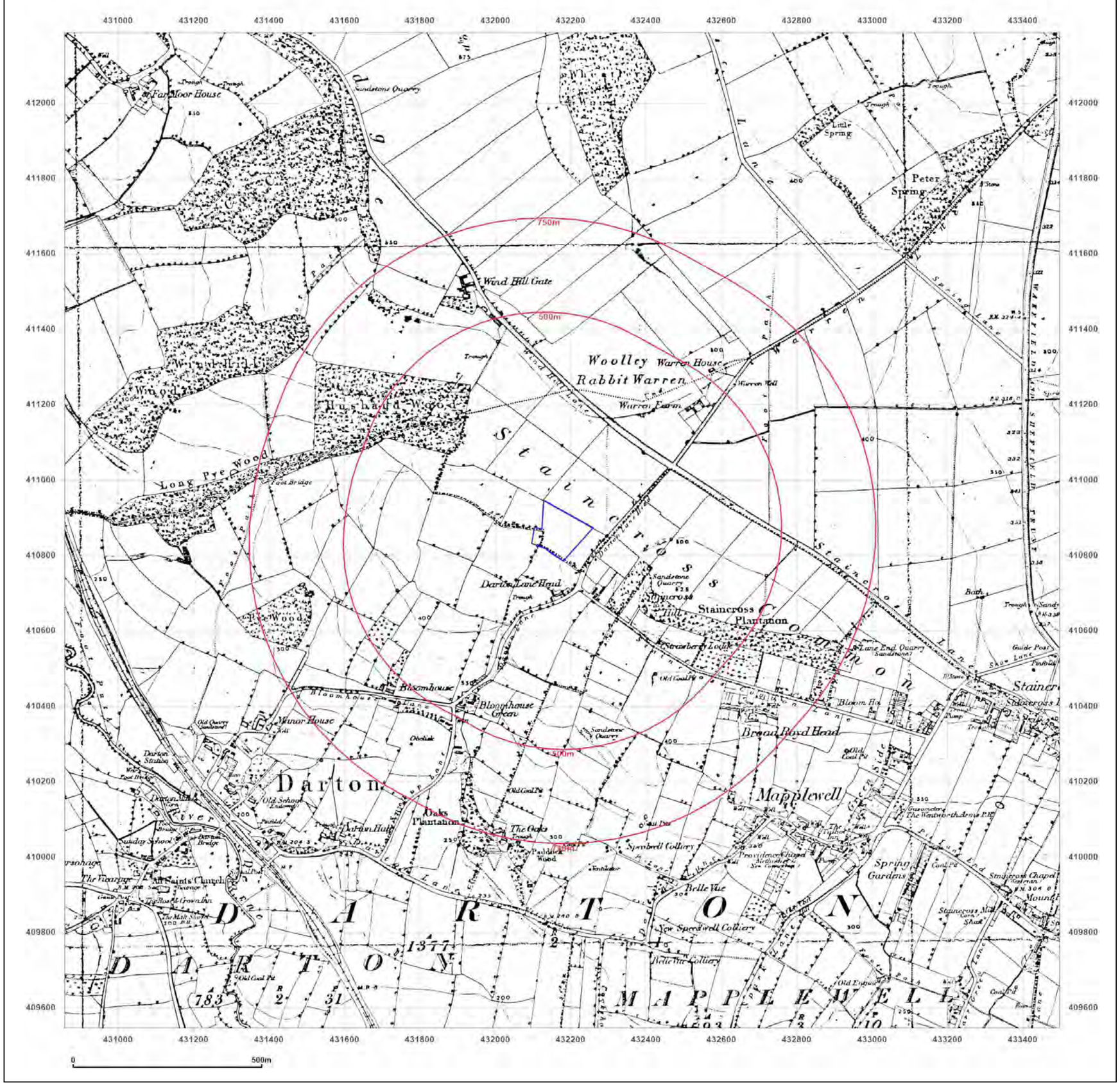

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Site Details:

PENNINE VIEW, STAINCROSS,
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Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

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Edition 1854
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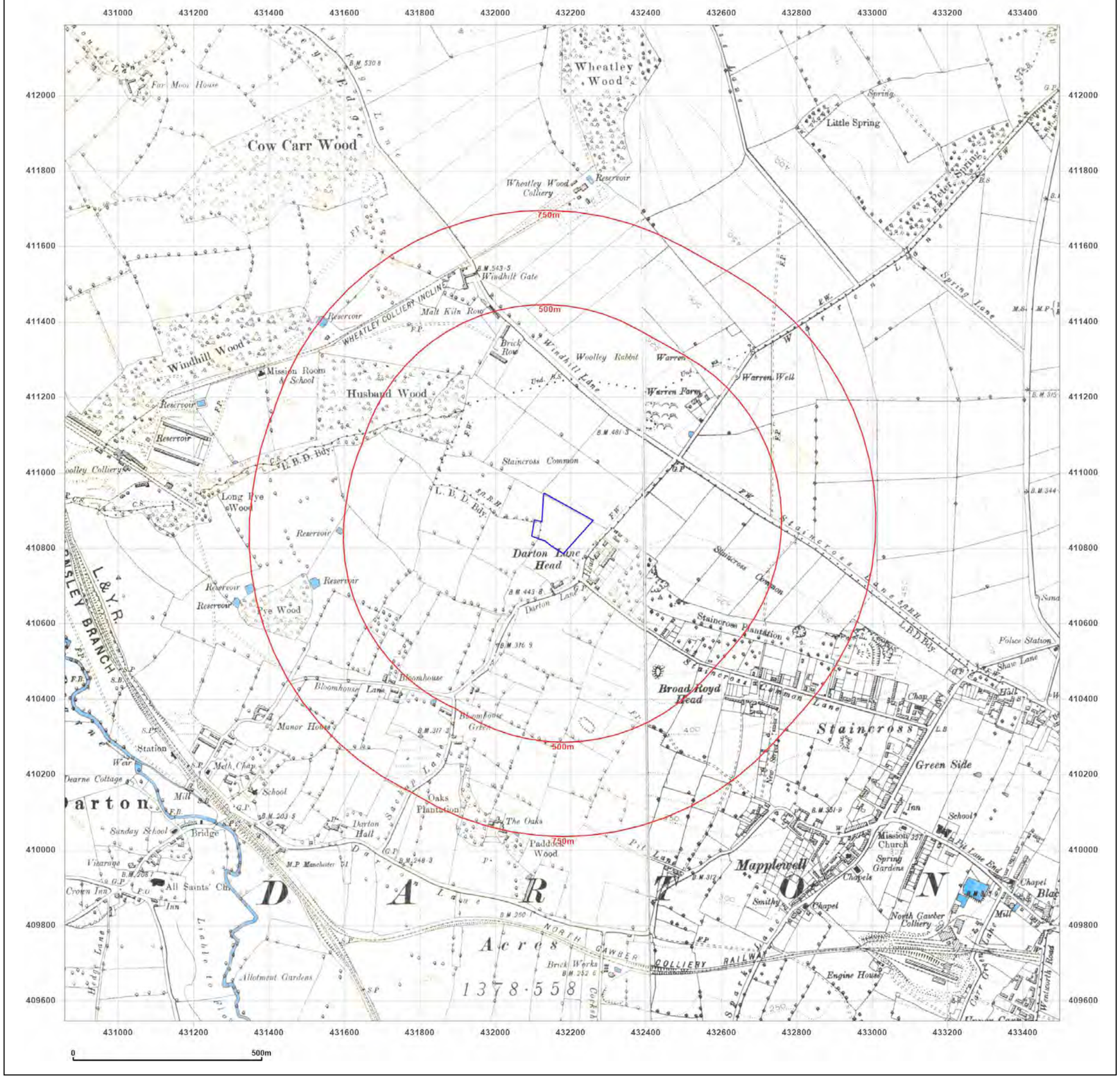

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PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
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Map Name: County Series

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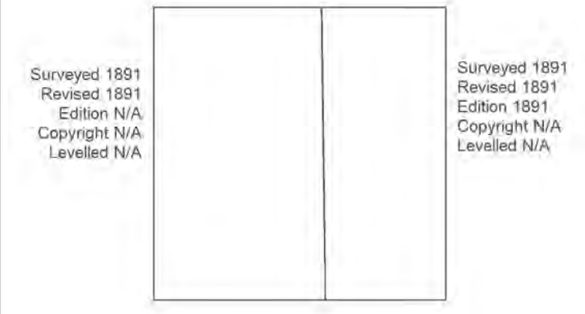

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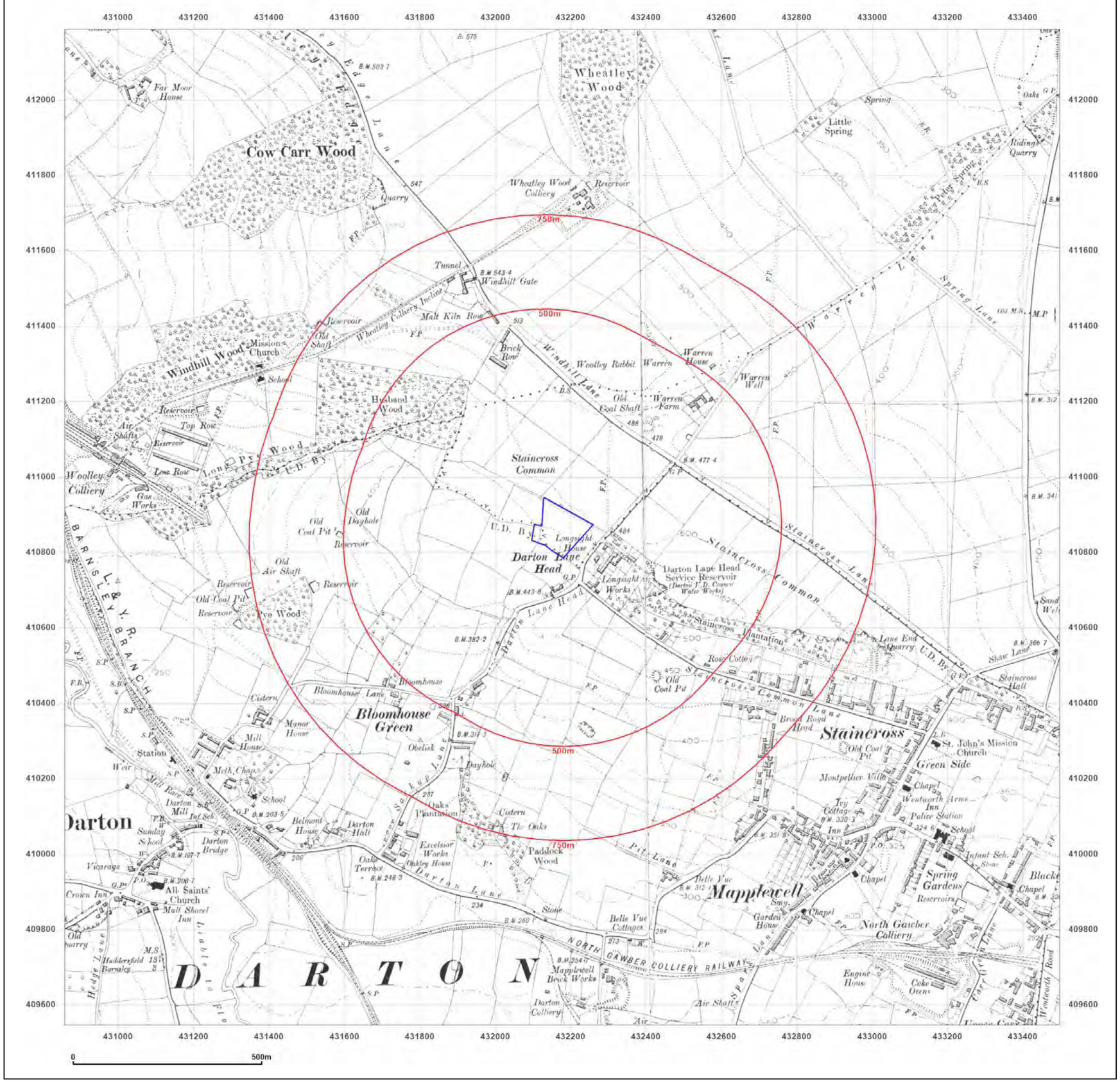

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Report Ref: GS-7911604
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Map Name: County Series

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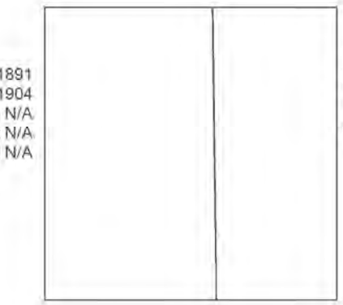

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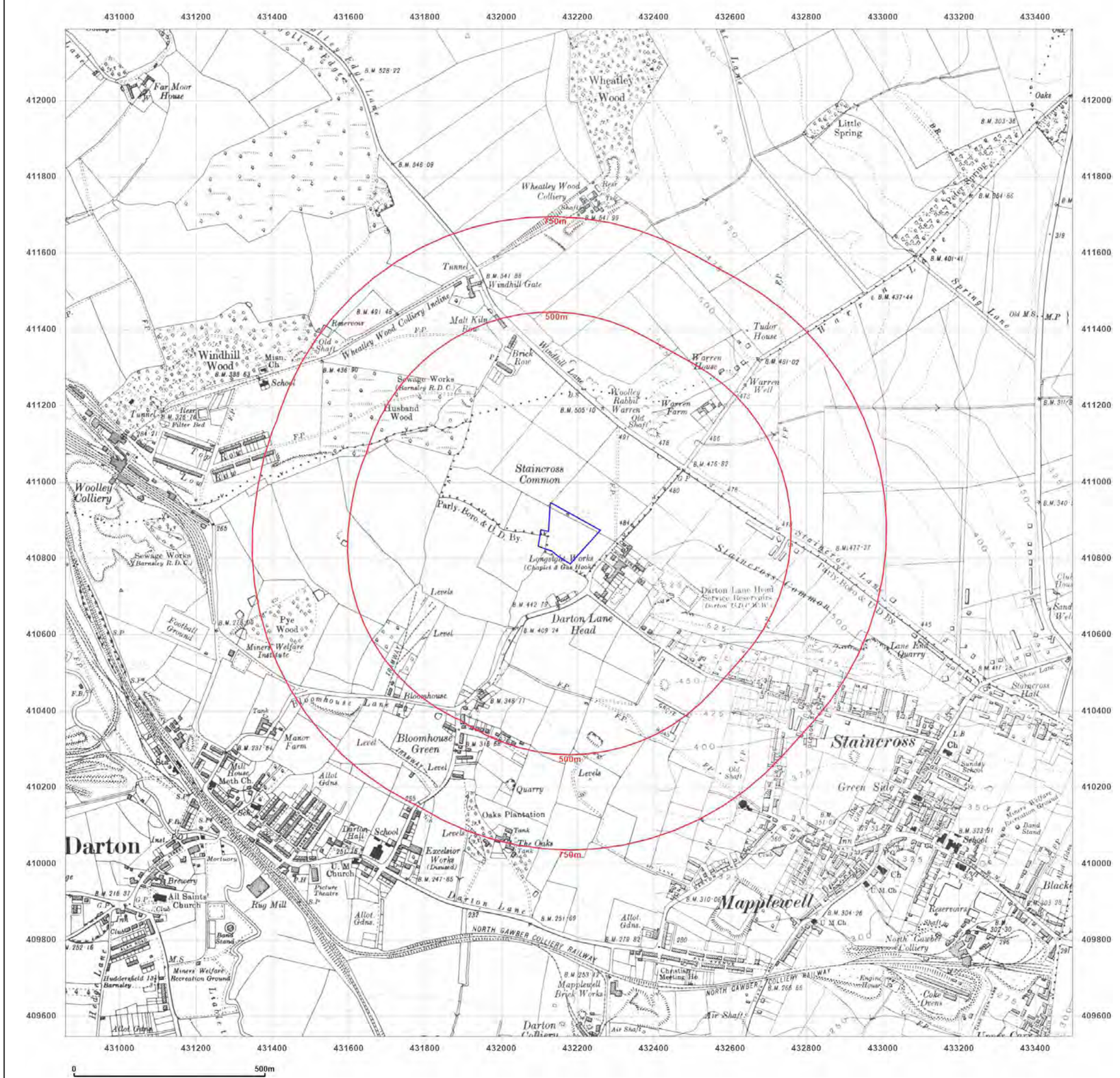

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Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

Map date: **1930**

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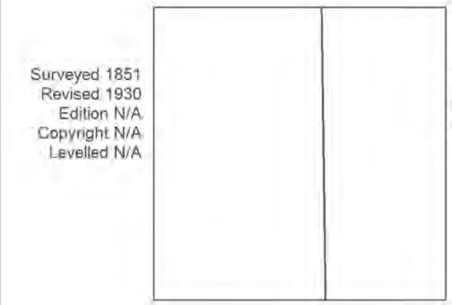

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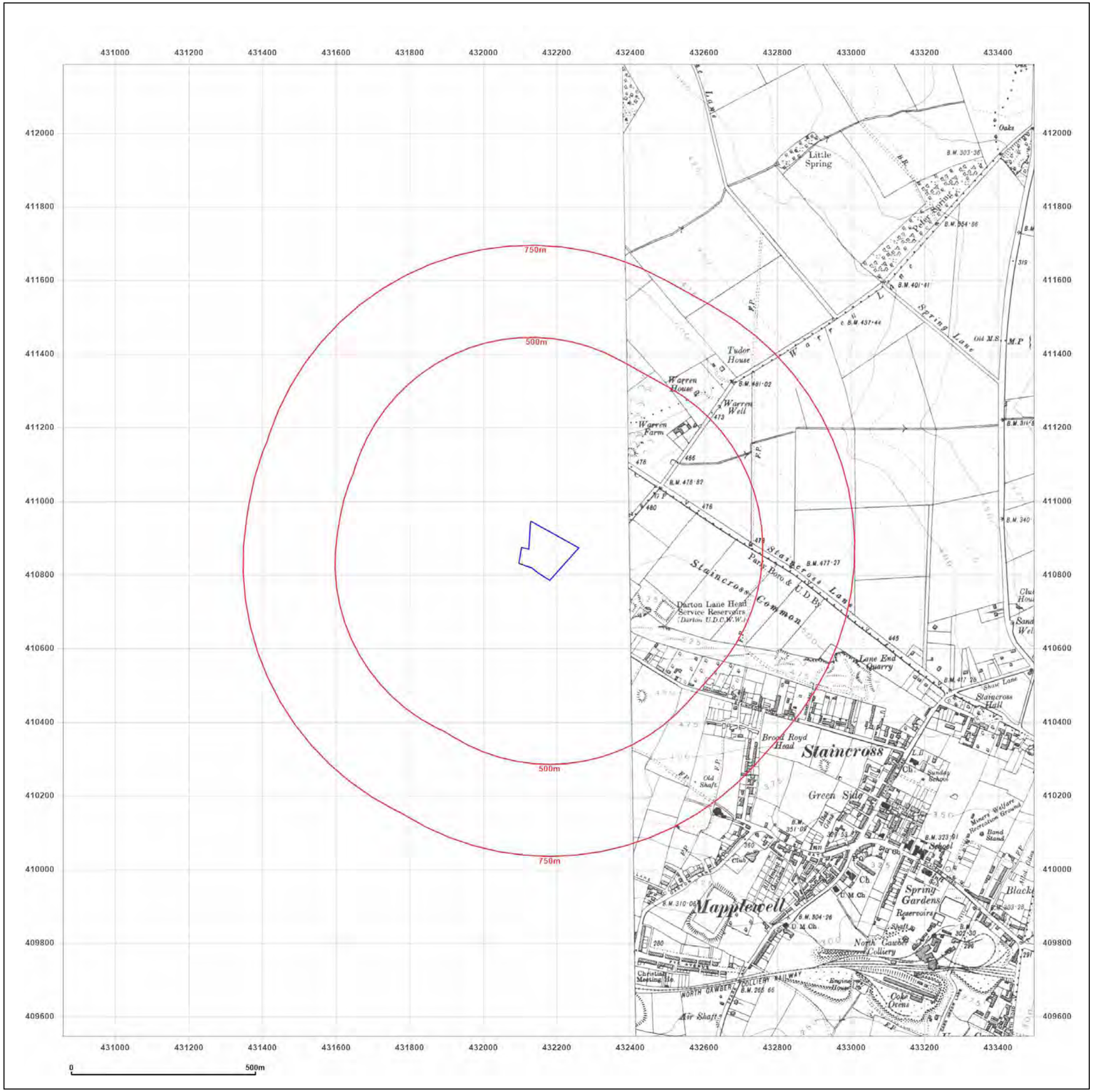

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Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

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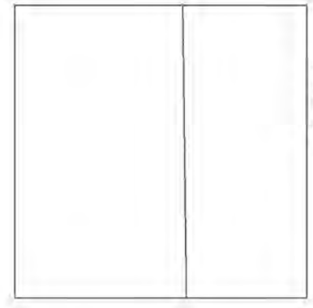

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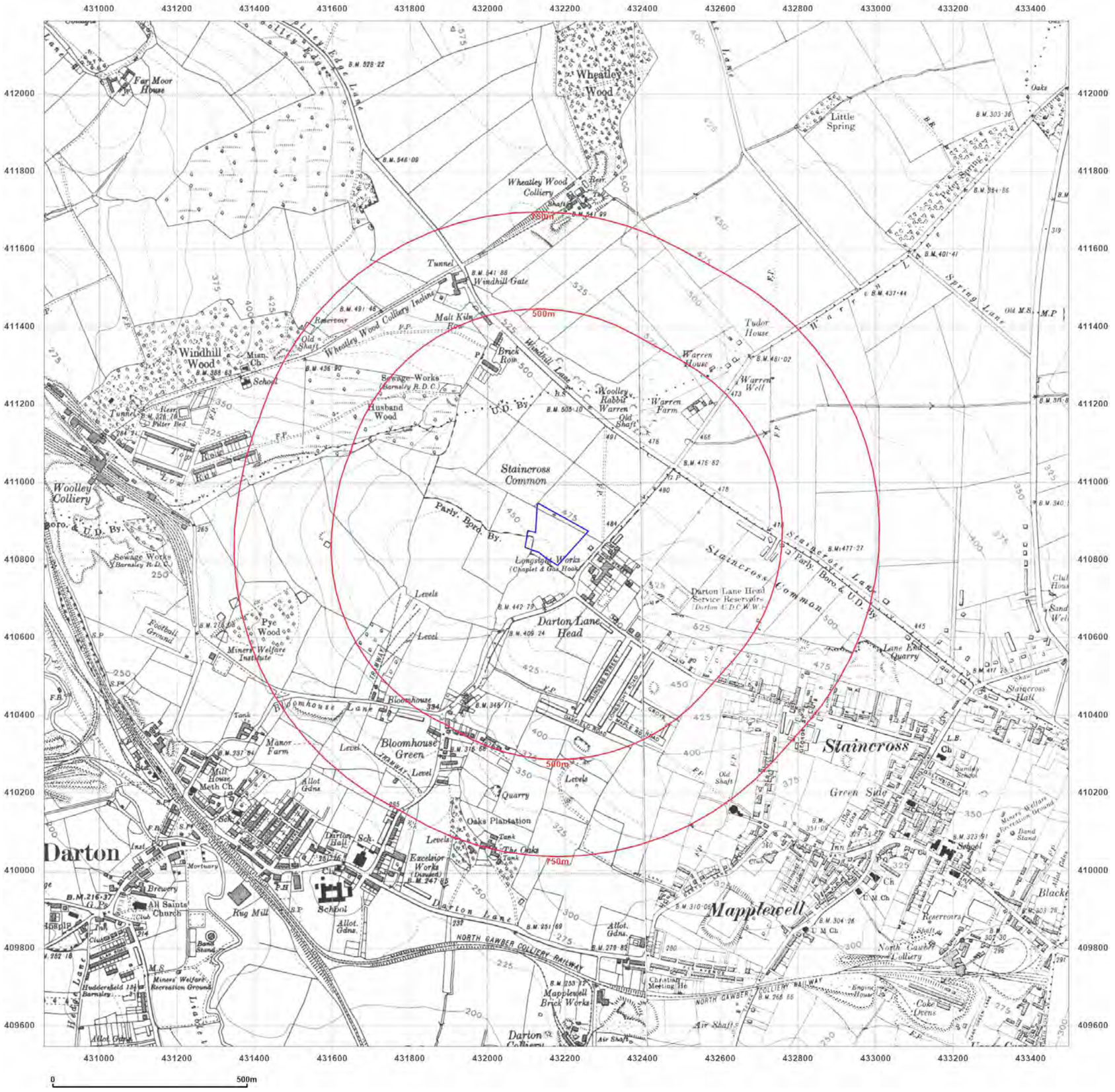

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Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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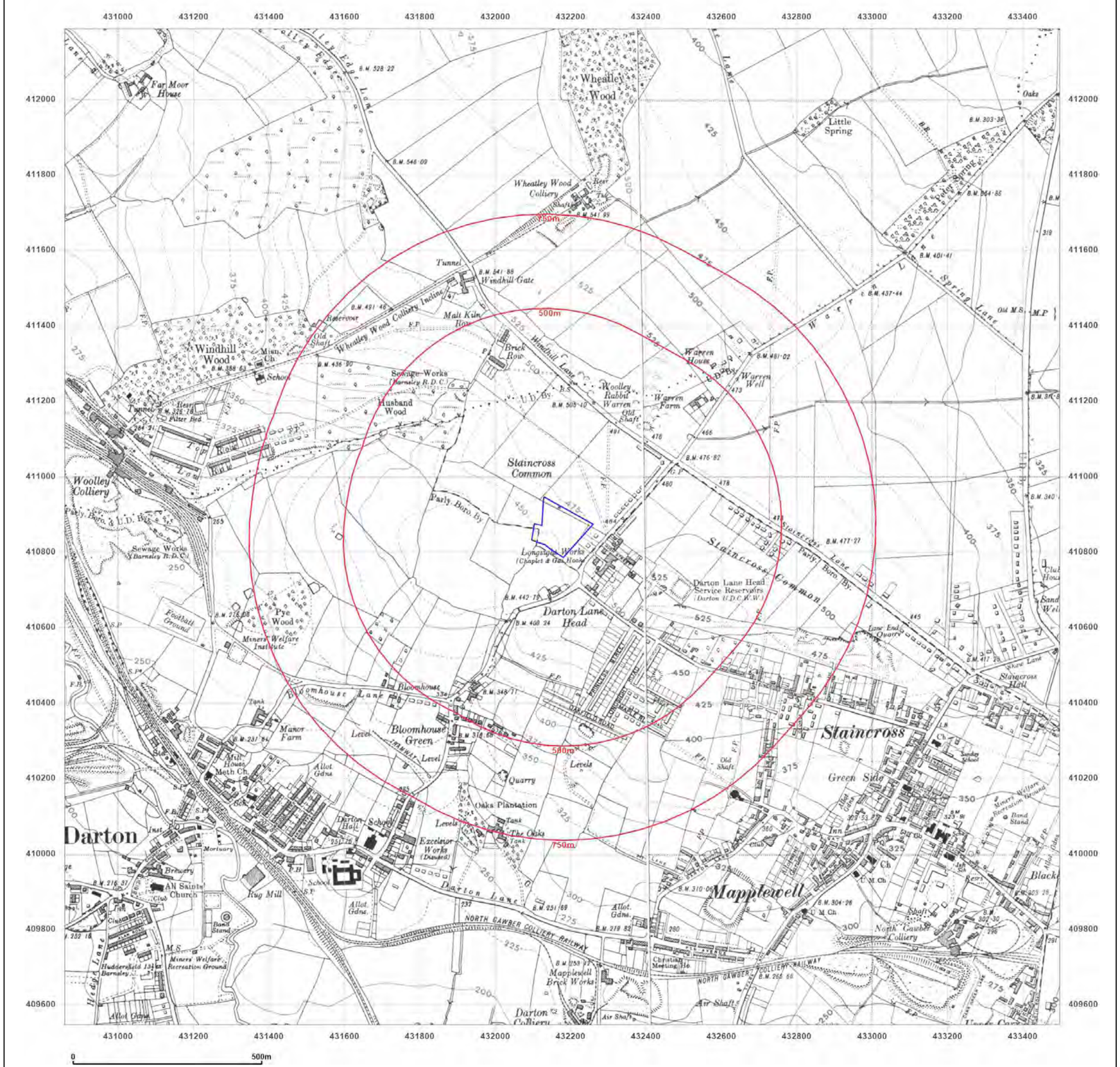

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Client Ref: BARRATT_7786
Report Ref: GS-7911604
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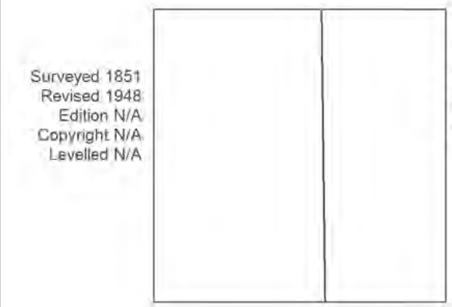

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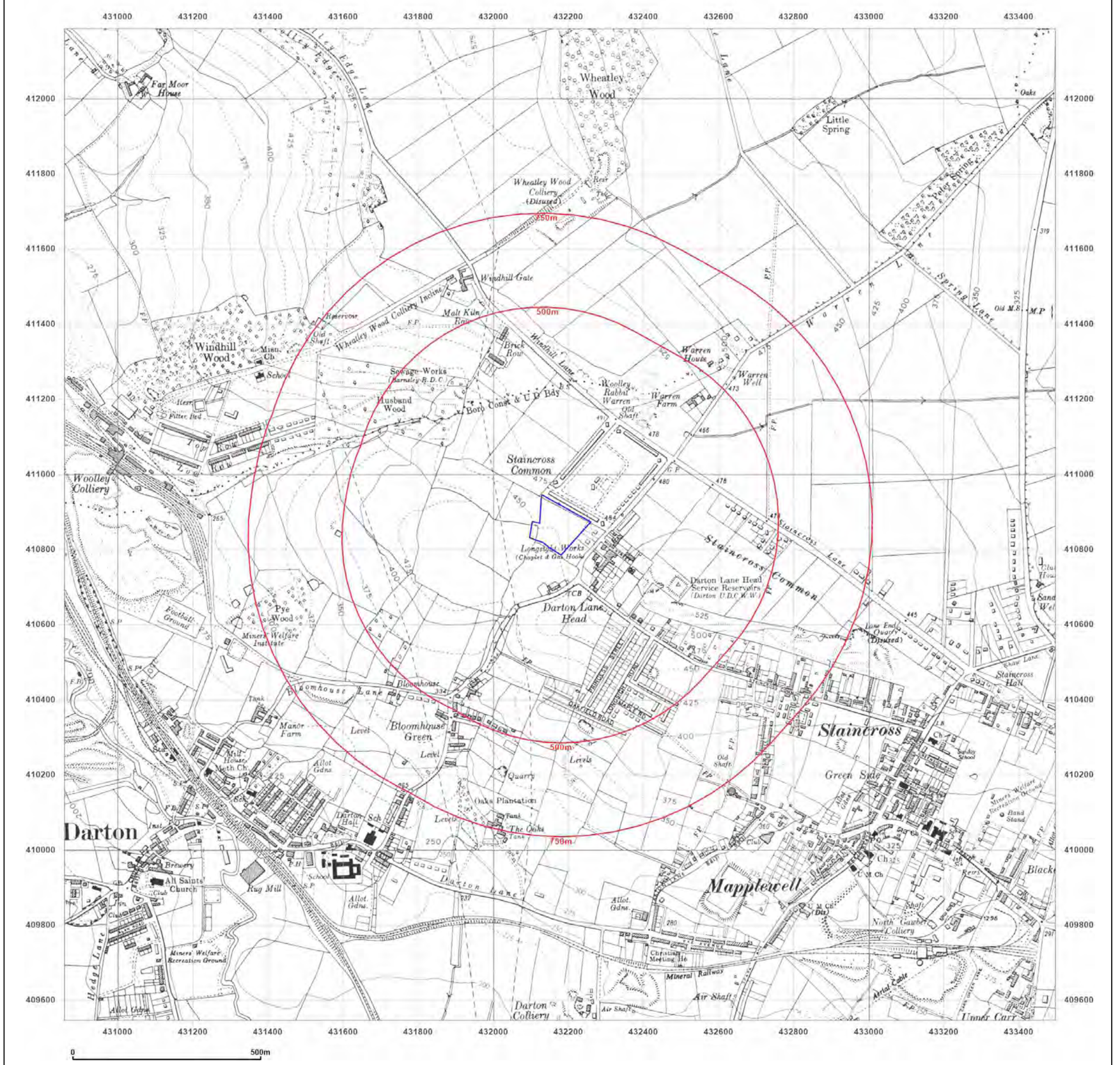

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INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: Provisional

Map date: **1951-1956**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed N/A
Revised 1955
Edition N/A
Copyright 1956
Levelled N/A

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Production date: 01 June 2021

Map legend available at:
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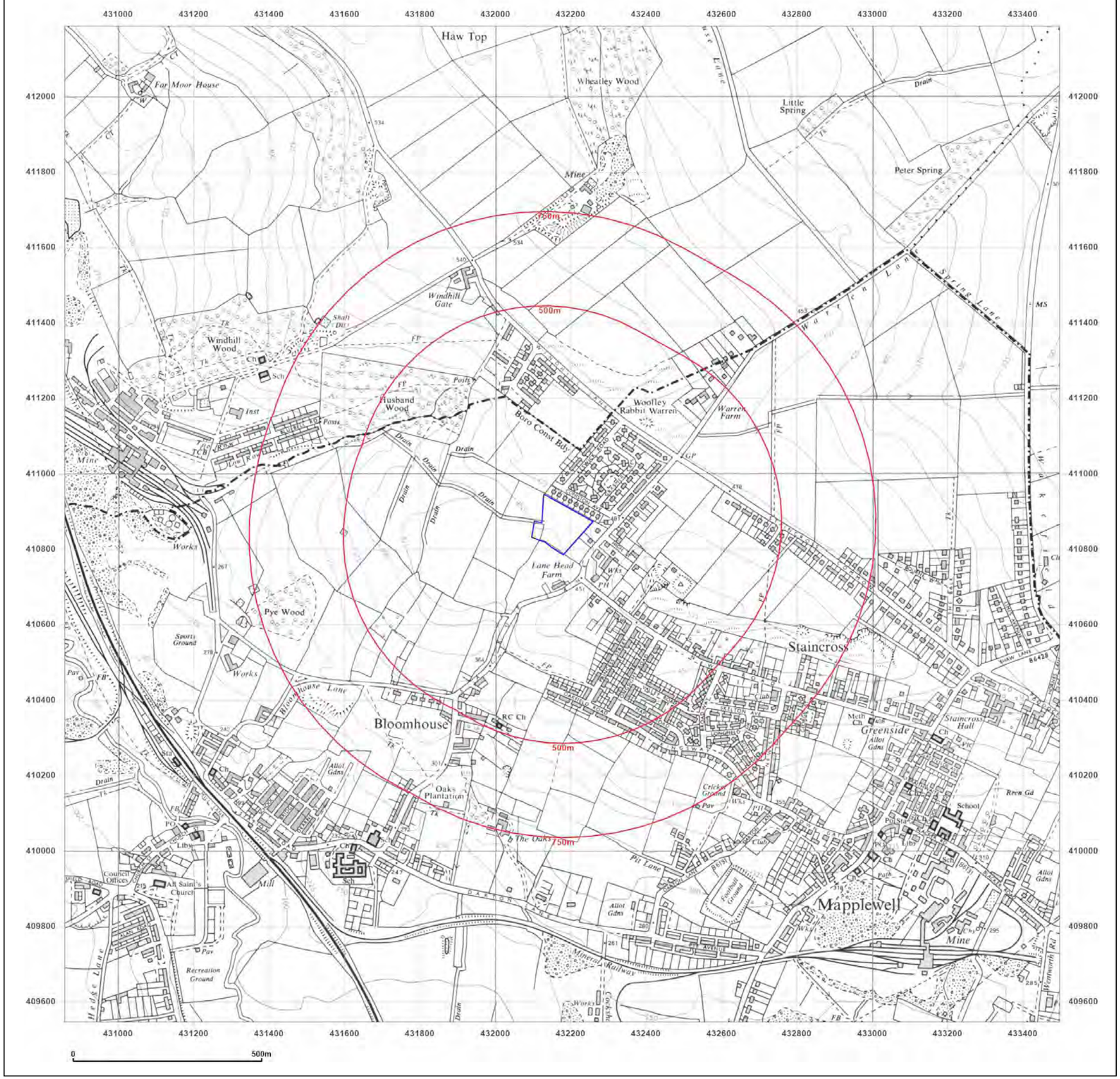

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: Provisional

Map date: **1965-1966**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1965
Revised 1965
Edition N/A
Copyright N/A
Levelled N/A

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

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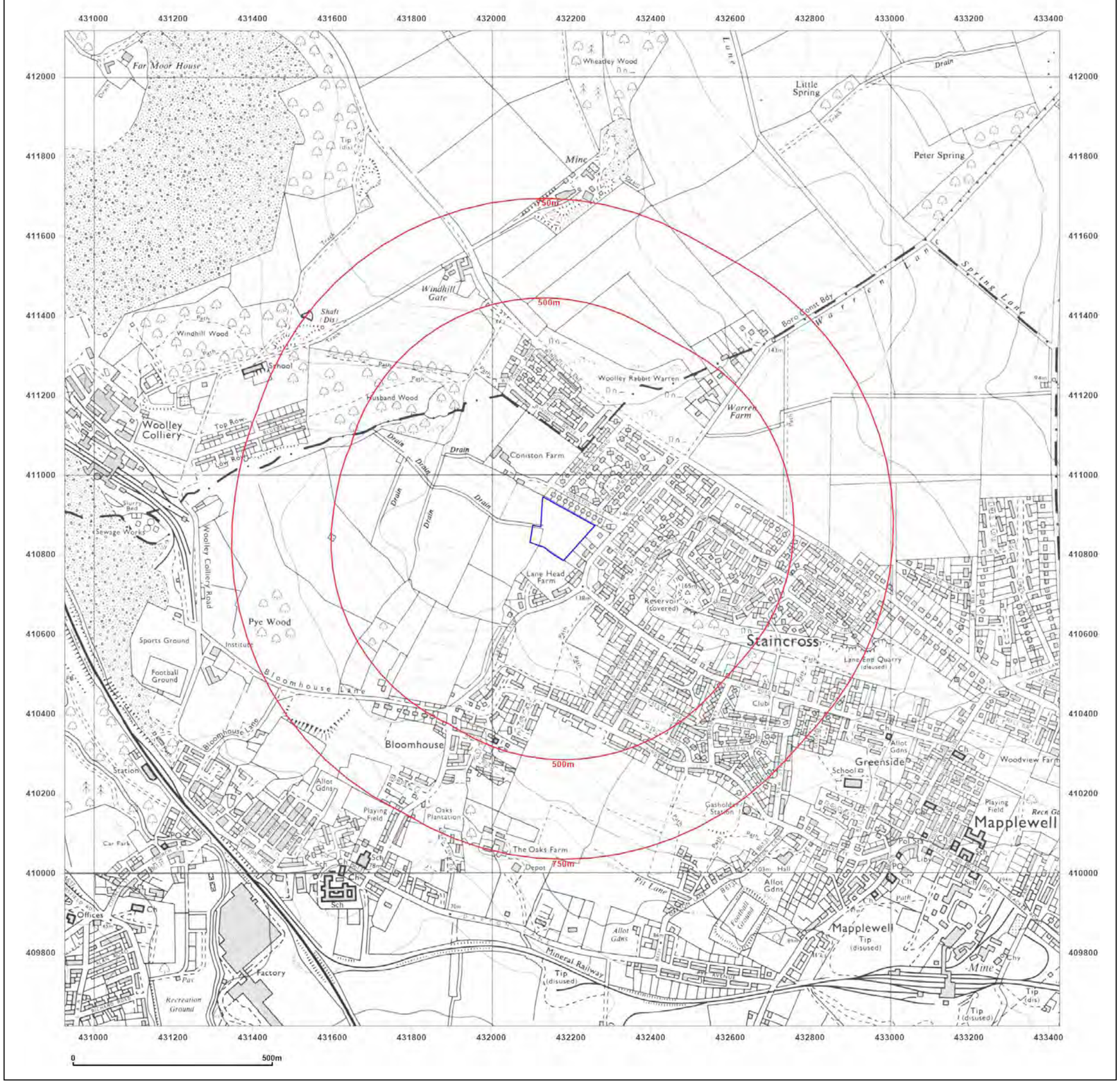

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1973-1978**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1977
Revised 1978
Edition N/A
Copyright N/A
Levelled N/A

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

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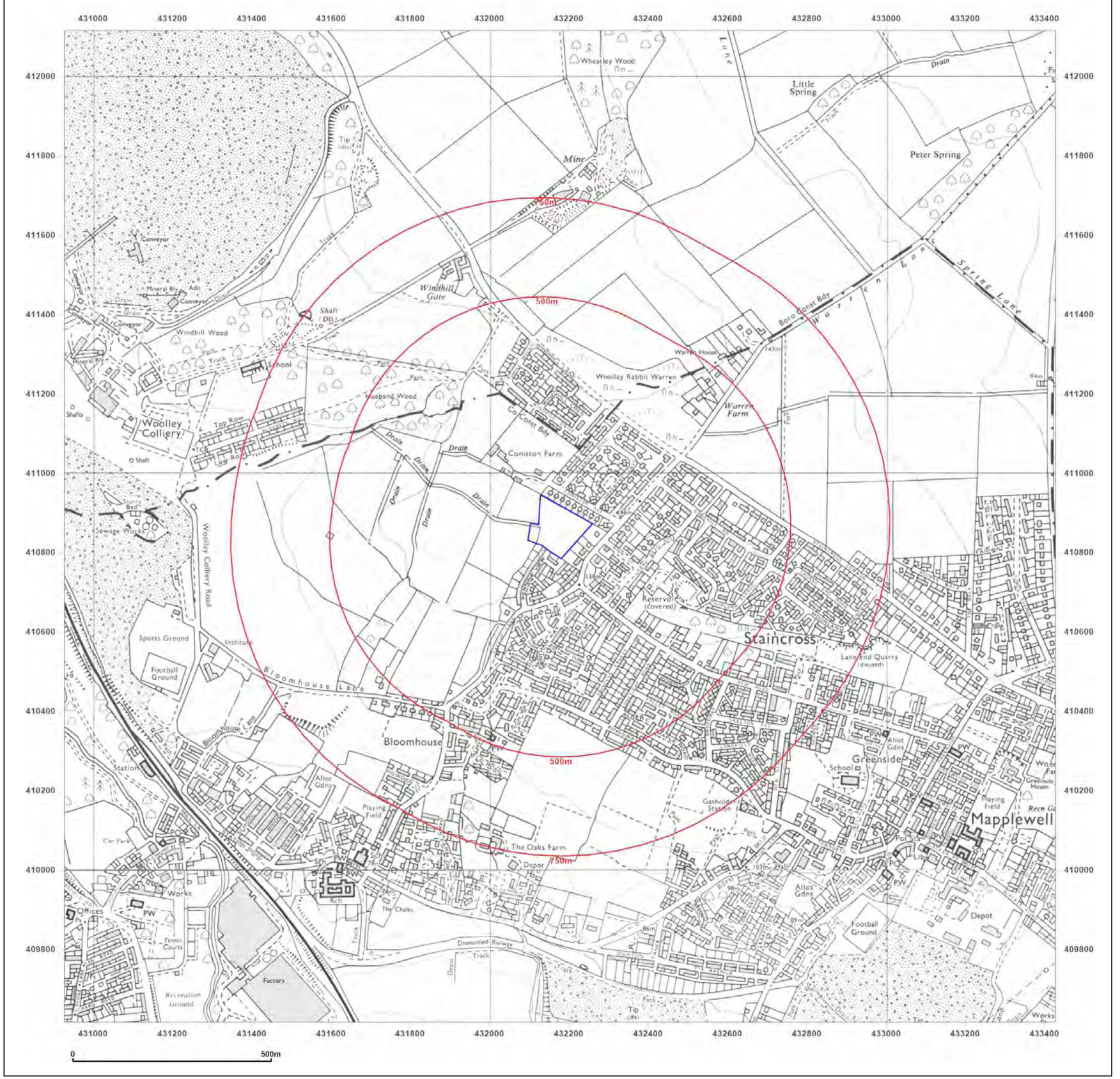

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1990-1993**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1983
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1992
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

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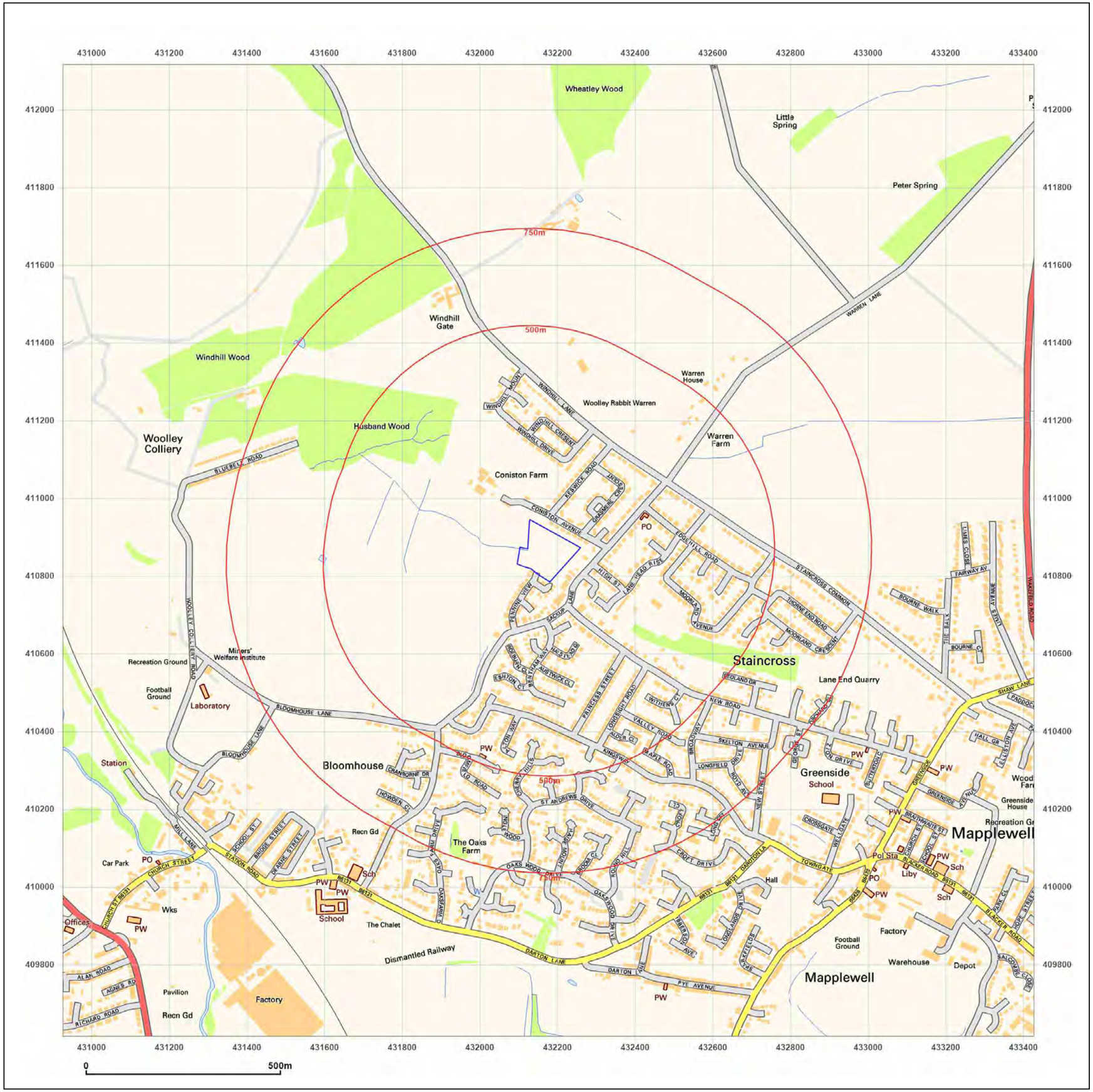

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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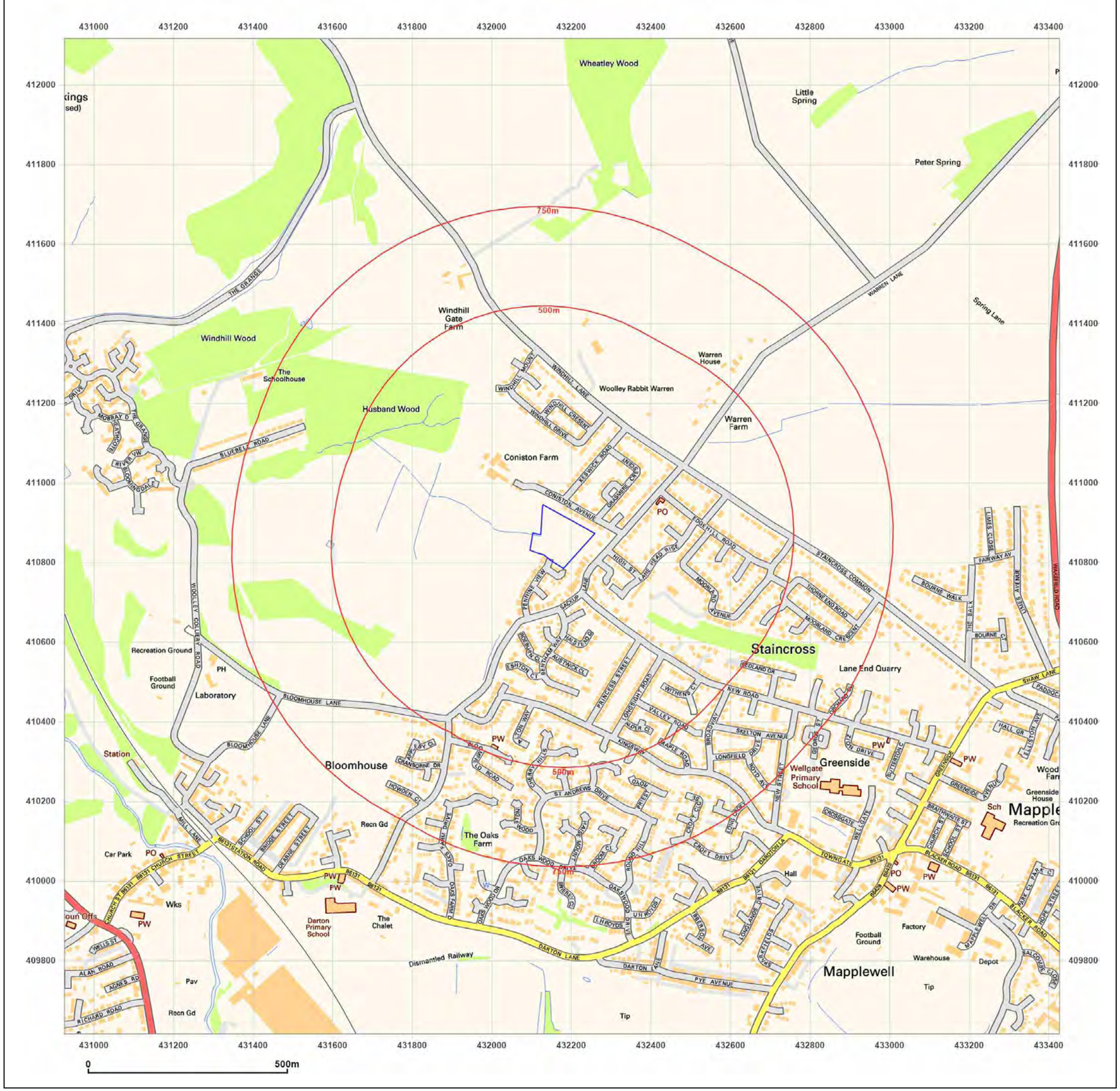

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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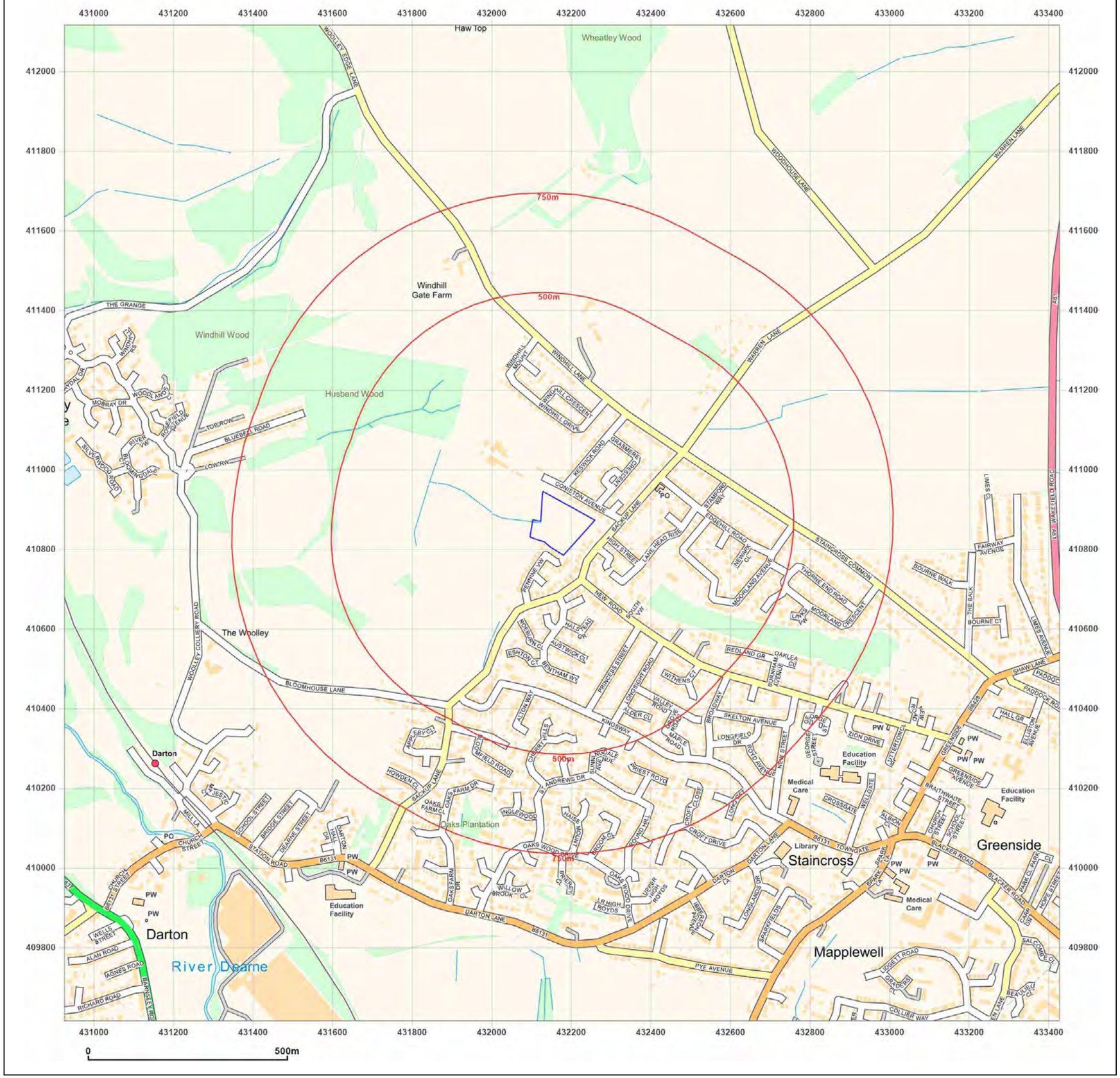

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **2021**

Scale: 1:10,000

Printed at: 1:10,000

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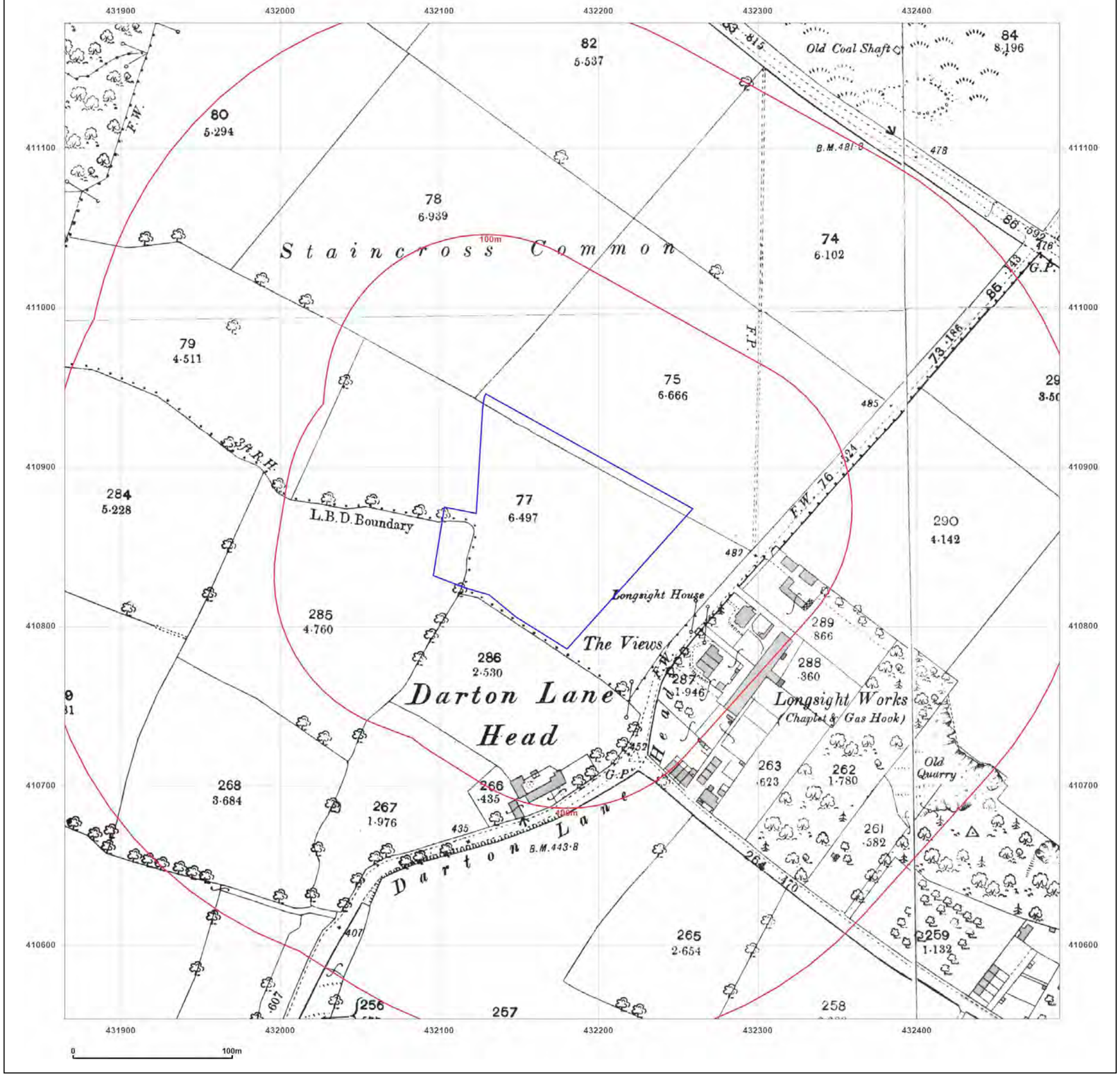

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

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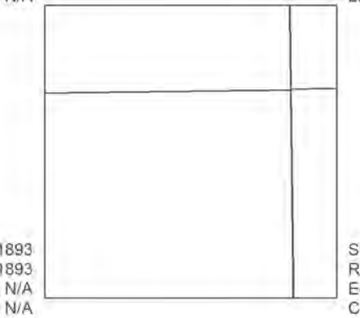
Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A



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

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

Surveyed 1893
Revised 1893
Edition N/A
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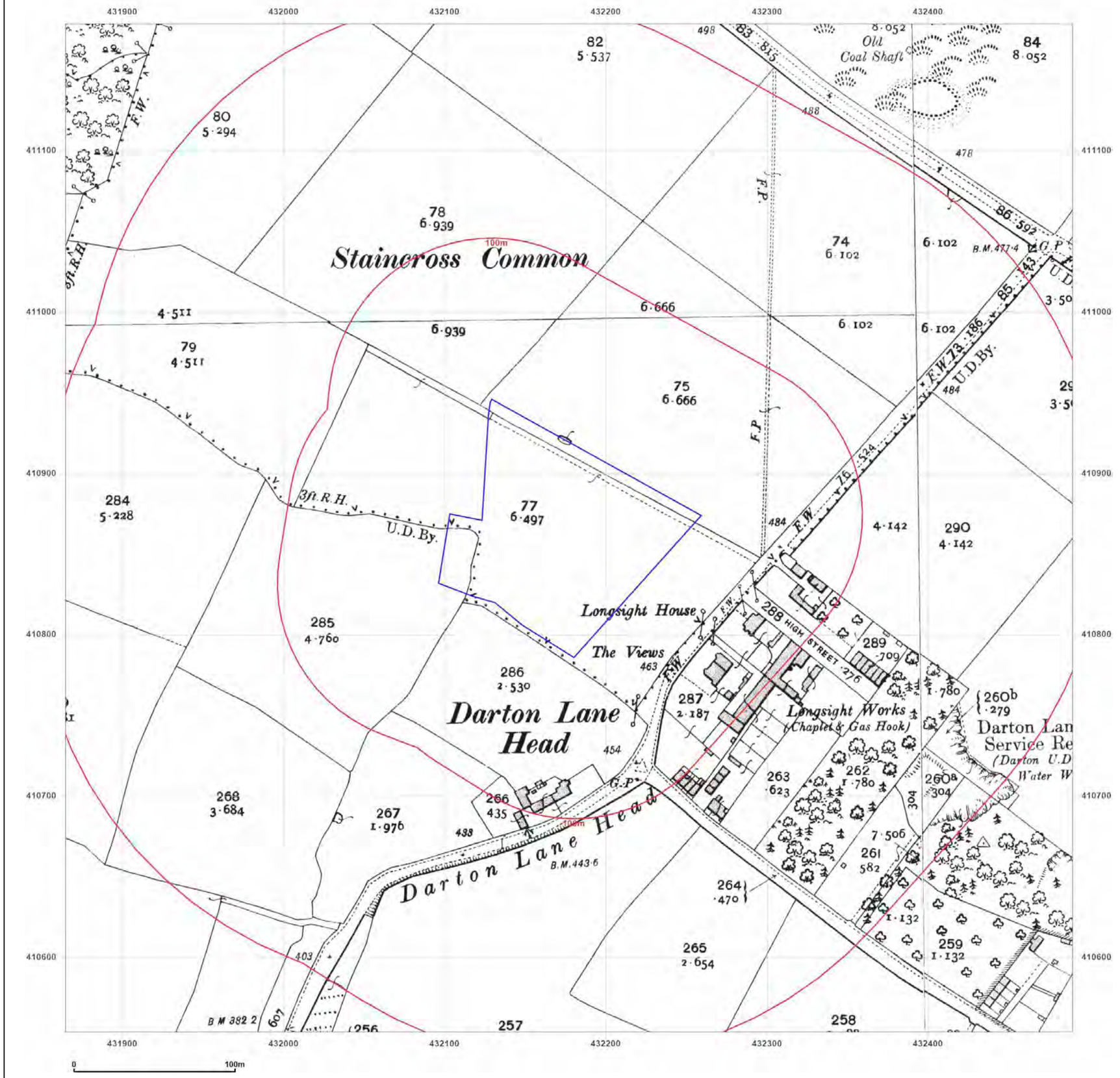

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

Map date: **1906**

Scale: 1:2,500

Printed at: 1:2,500

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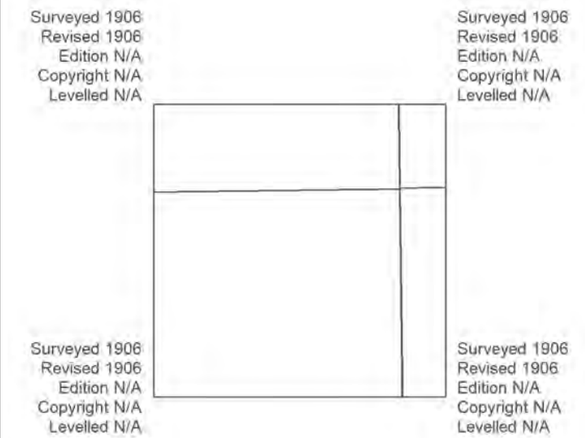

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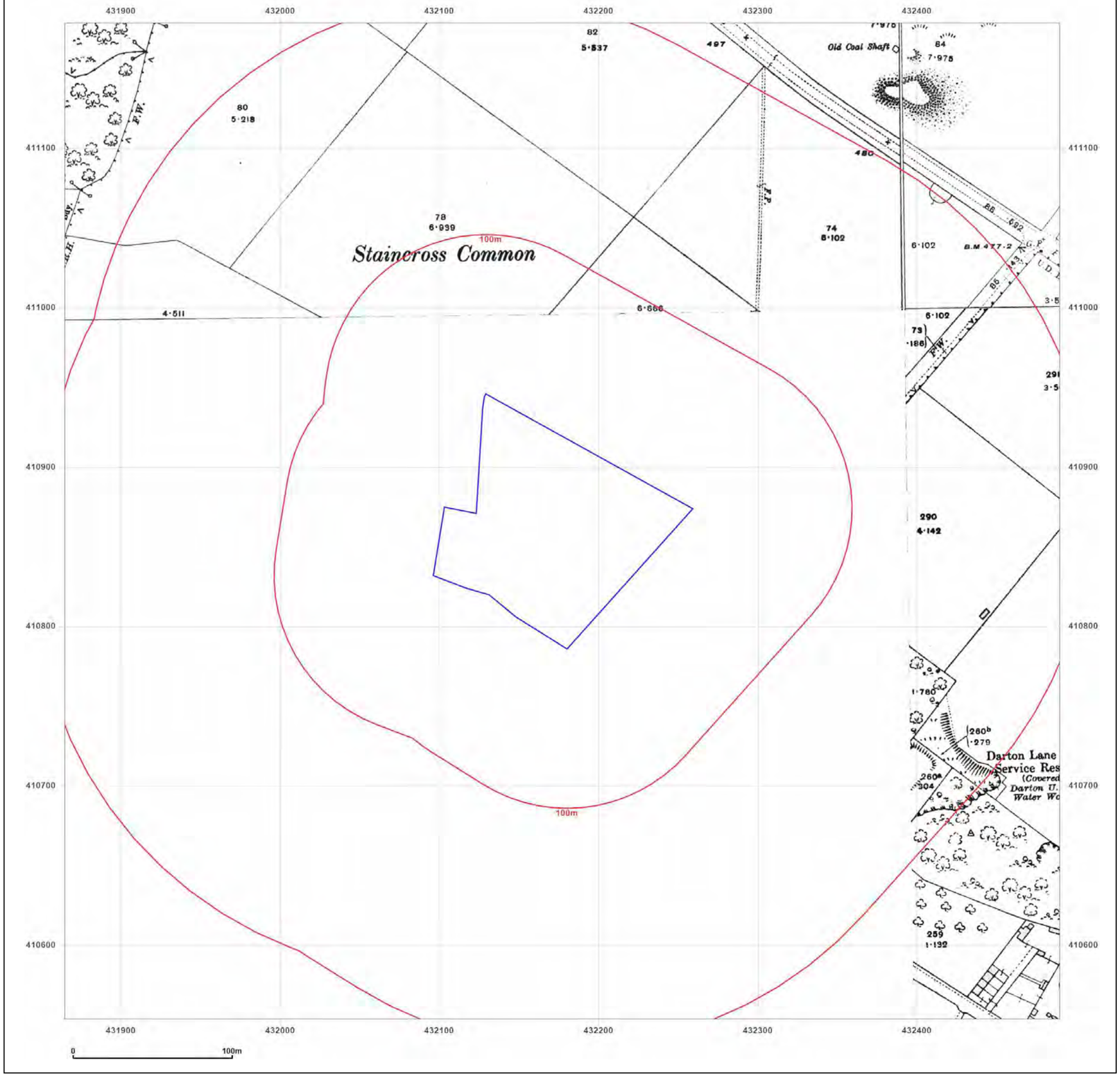

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: County Series

Map date: **1913**

Scale: 1:2,500

Printed at: 1:2,500

N
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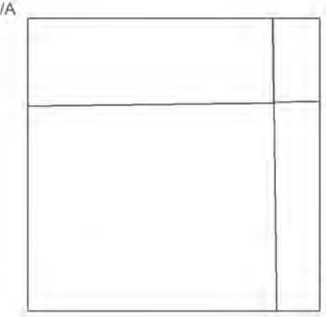
Surveyed 1913
Revised 1913
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1913
Revised 1913
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1913
Revised 1913
Edition N/A
Copyright N/A
Levelled N/A

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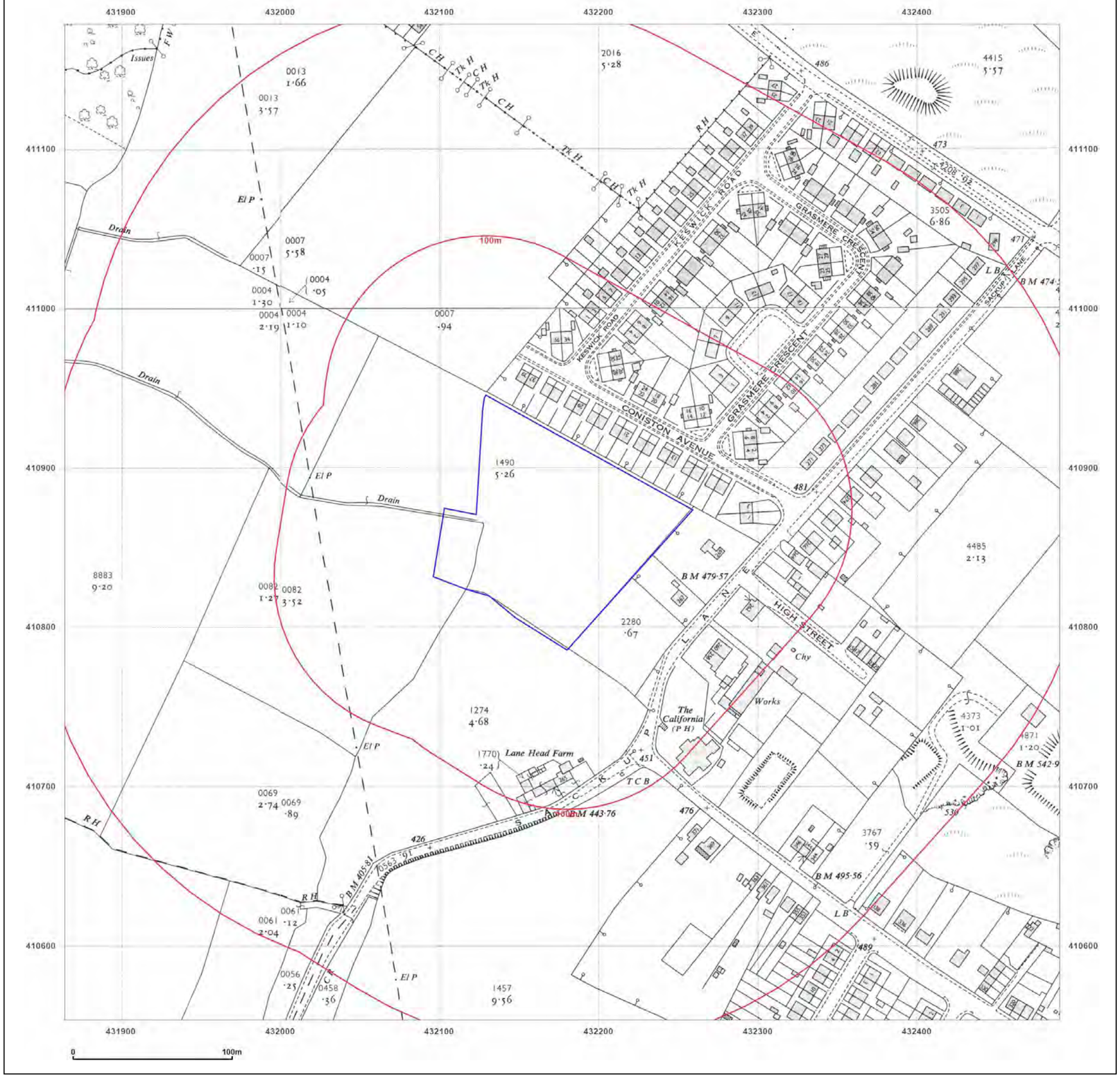

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1960**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1958

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1958

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1958

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1962
Levelled 1960

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Site Details:

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BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1966-1969**

Scale: 1:2,500

Printed at: 1:2,500

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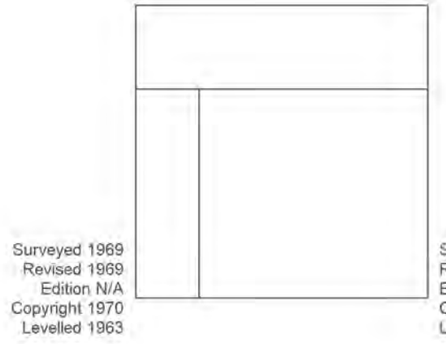

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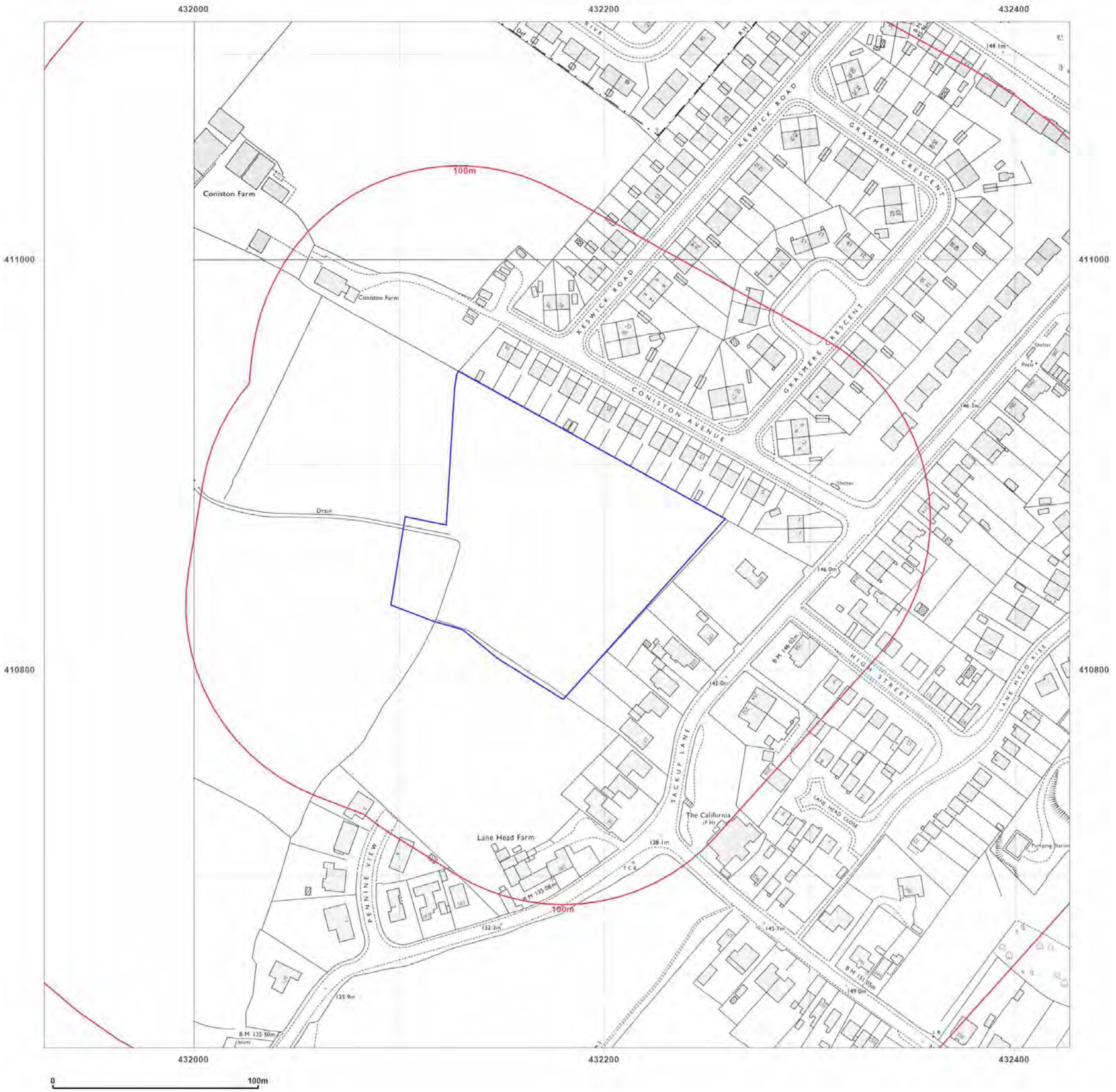

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1977-1978**

Scale: 1:1,250

Printed at: 1:2,000

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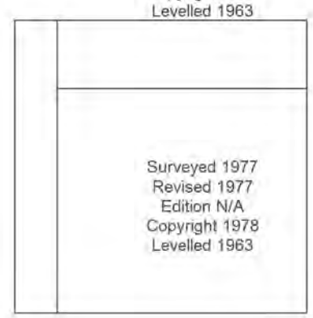
Surveyed 1976
Revised 1976
Edition N/A
Copyright 1977
Levelled 1963



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

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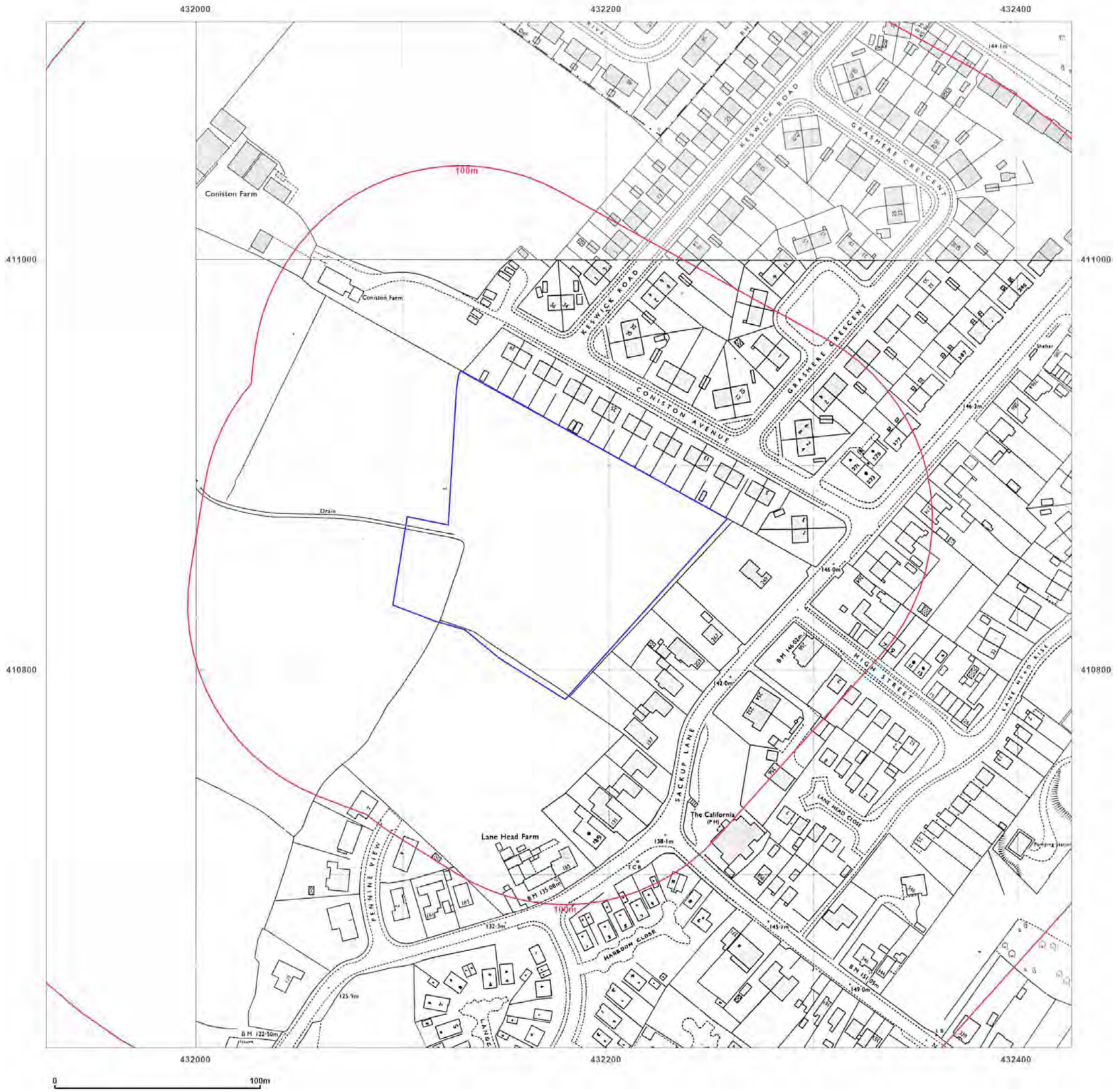

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1977-1982**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1976
Revised 1976
Edition N/A
Copyright 1977
Levelled 1963

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1982
Levelled 1963

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Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1984**

Scale: 1:1,250

Printed at: 1:2,000

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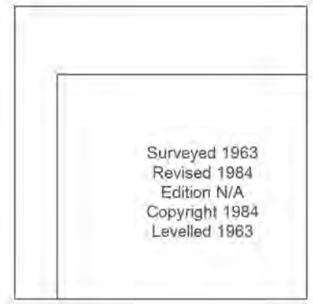

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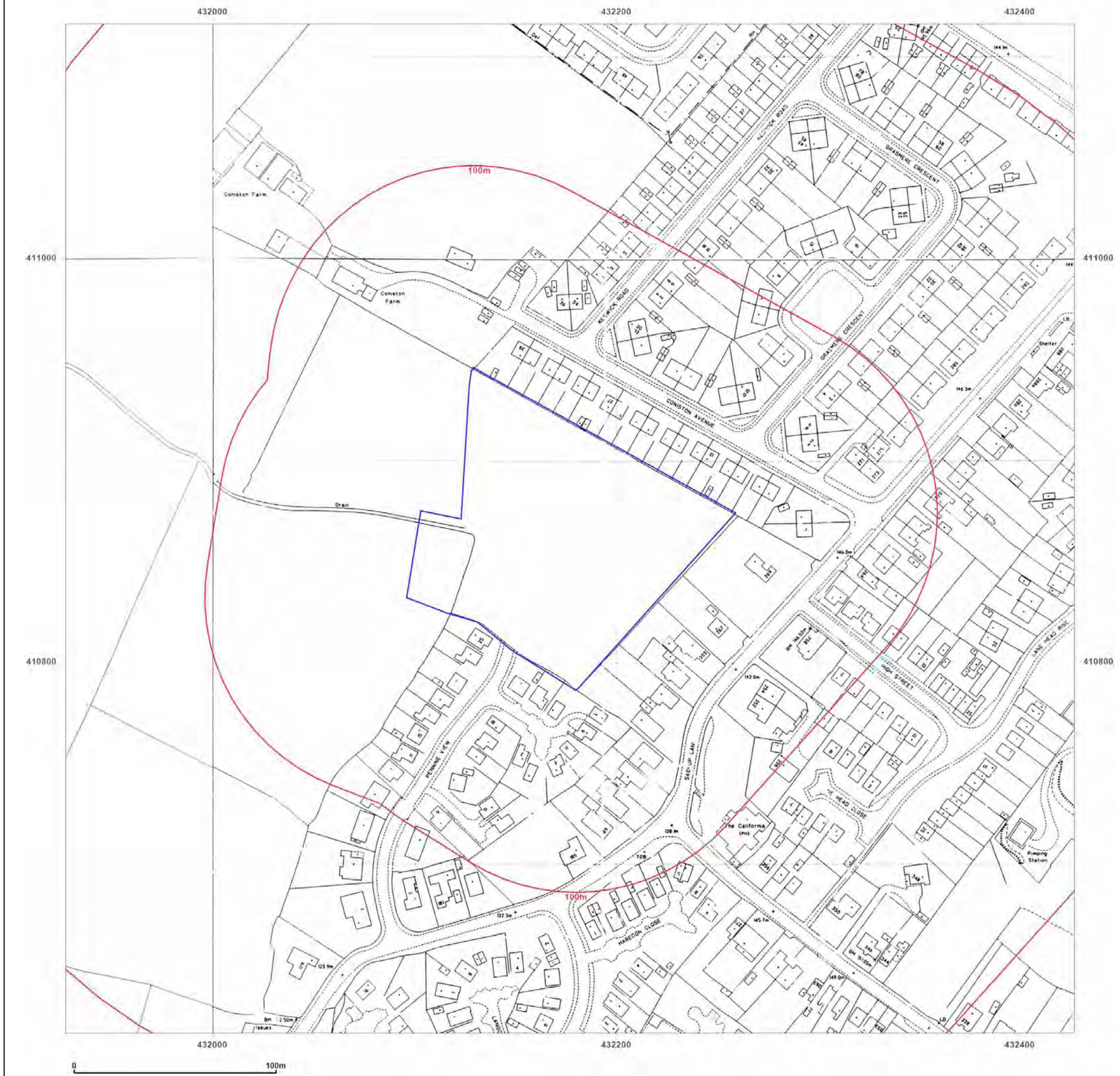

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

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

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

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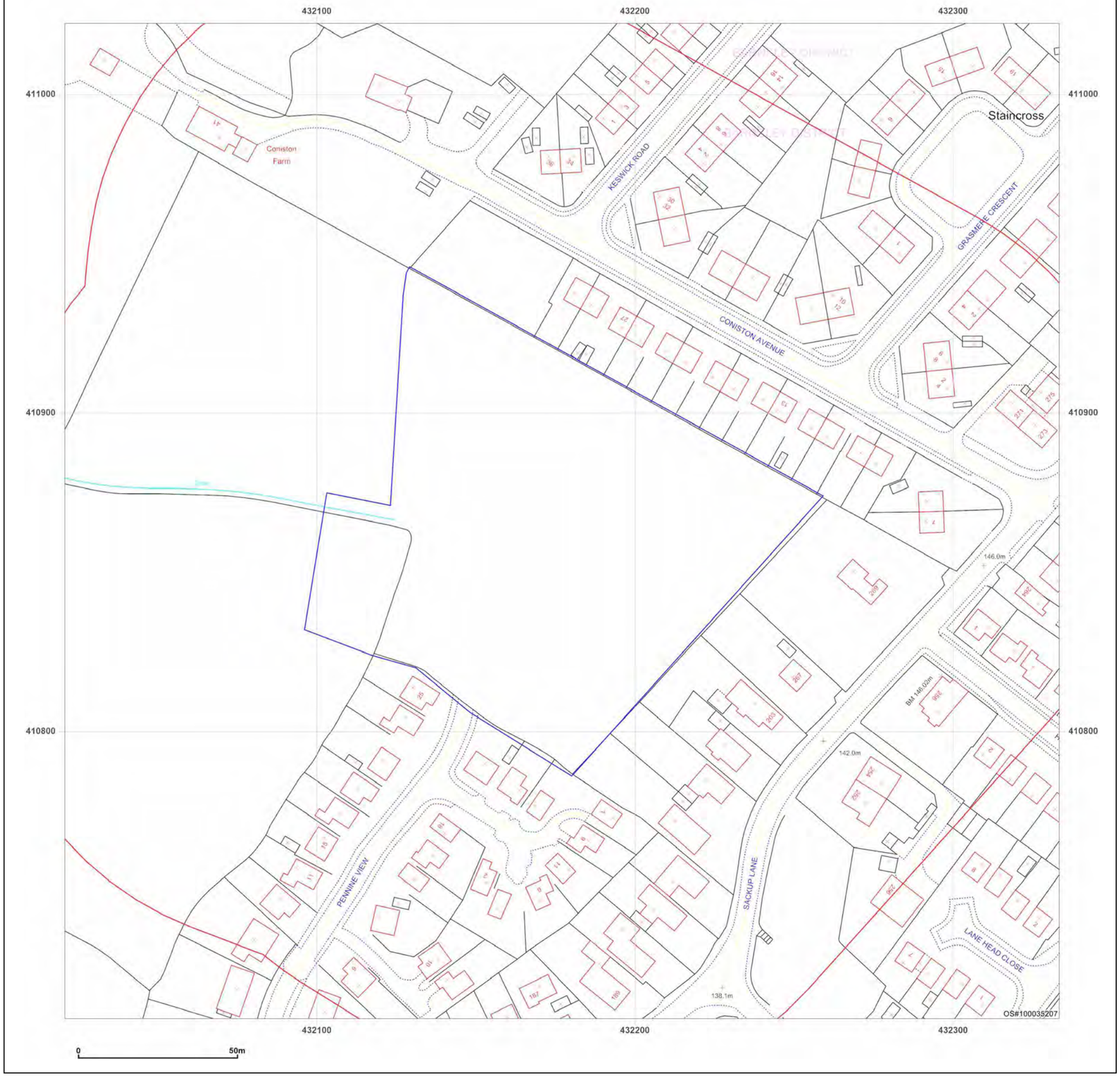

Groundsure INSIGHTS

Site Details:

PENNINE VIEW, STAINCROSS,
BARNSLEY, S75 5AT

Client Ref: BARRATT_7786
Report Ref: GS-7911604
Grid Ref: 432177, 410866

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

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